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TAMIL NADU HEALTH ACCOUNTS 2013-14

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TAMIL NADU STATE HEALTH ACCOUNTS
2013-14

Public Health Foundation of India, Delhi in collaboration with various partner institutions have produced State Health Accounts (SHA) estimates for six states, namely Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab and Tamil Nadu. Tamil Nadu SHA report is an outcome of collective efforts of researchers at multiple stages including conceptualization, data collection, classifications, data analysis and report writing from three institutions namely IIT Madras, PHFI, Delhi and SReAs, with active support and participation from Tamil Nadu Health System Project and Department of Health and Family Welfare, Government of TN.

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FOREWORD

Tamil Nadu has been the leading light in human development in general and health in particular, in India. The State had already achieved the key Millennium Development Goals (MDGs). Tamil Nadu's impressive demographic transition and rapid urbanisation have meant that the State has to care for a higher proportion of ageing population compared to other States in the country. Therefore, the challenges facing the health system in the State are also learning opportunities for other States as well.

A significant part of the challenges arising from higher prevalence of non-communicable diseases is the overall cost burden due to health care, on the State economy and its households. As per 2013-14 figures, Tamil Nadu spends around 3.8 per cent of GSDP on health care, out of which public expenditure constitute 1.1 per cent of GSDP, which is comparatively higher than many States in India. This signifies a policy thrust towards expansion in risk-pooling and pre-payment mechanisms in the State of Tamil Nadu, especially in the last one decade.

It is in this context, the Public Health Foundation of India (PHFI), and consortium partners including Indian Institute of Technology, Madras and Sarvaha Health Research Association (SHReAs, Chennai) with support from USAID India, have produced a timely and policy-relevant report State Health Accounts for Tamil Nadu, 2013-14. The Tamil Nadu Health Accounts brings together a whole body of evidence on health care financing in the State that provides key-insights on the nature and quantum of financial flows, key entities that spend and provide care, the nature of care that is provided and cost of care.

This report, which utilizes the globally recognized System of Health Accounts (SHA, 2011) framework, and follows the nationally agreed guidelines, is expected to serve as a first ever foundation on health care financing evidence in Tamil Nadu. I am confident that for future financial projections, financial planning in the States, the body of evidence presented in this report will certainly facilitate officials and other key stakeholders in setting policy priorities for more inclusive and sustainable health care financing in the state.

(DR.J. RADHAKRISHNAN)

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CONTENTS

EXECUTIVE SUMMARY	1
CHAPTER I: SOCIO-ECONOMIC AND HEALTH SITUATION IN TAMIL NADU	5
1.1 Background	5
1.2 Health and Demographic Outcomes of Tamil Nadu	5
1.3 Health System in Tamil Nadu	7
1.4 Financial Risk Protection in Tamil Nadu	7
1.5 Macroeconomic Scenario of Tamil Nadu	9
1.6 Summary	9
CHAPTER II: KEYS CONCEPTS, ENTITIES AND DATA SOURCES	11
2.1 Key Concepts and definitions	11
2.2 Health Financing Flows in Tamil Nadu	11
2.3 Entities and data sources	13
CHAPTER III: HEALTH ACCOUNTS ESTIMATES FOR TAMIL NADU	18
3.1 How much money is spent on Health in Tamil Nadu?	18
3.2 How are resources mobilized for health?	20
3.3 Who pays for health care in Tamil Nadu?	21
3.4 Which entities manage health spending in Tamil Nadu?	23
3.5 What health care services are provided in Tamil Nadu?	25
3.6 What kinds of services are provided by different entities in Tamil Nadu?	27
3.7 What are the inputs used to produce health care services in Tamil Nadu?	29
3.8 Who are the health care providers in Tamil Nadu?	30
3.9 What is the cost of public and private providers?	31
3.10 Concluding Observations	33
CHAPTER IV: PUBLIC EXPENDITURE ON HEALTH IN TAMIL NADU	34
4.1 How much current public expenditure is made by different entities?	34
4.2 What kind of health care is provided by the government in Tamil Nadu?	35
4.3 What kind of care is provided by the Central Government?	36
4.4 What kind of care is provided by the State Government?	37
4.5 Who are the health care providers of the State Government's health expenditure in Tamil Nadu?	38
4.6 What are the inputs used by the state government for producing health care services in Tamil Nadu?	39
4.7 What is the role of the Local Bodies?	39
4.8 Concluding Observation	43
CHAPTER V: PRIVATE HEALTH EXPENDITURE IN TAMIL NADU	44
5.1 Out-of-Pocket Expenditure in Tamil Nadu	44
5.2 Health Expenditure by Enterprises	50
5.3 Health Expenditure by NIPSHs/NGOs	54
5.4 Concluding Observations	59
CHAPTER VI: POLICY IMPLICATIONS AND INSTITUTIONALIZATION OF HEALTH ACCOUNTS IN TAMIL NADU	60
6.1 Policy Implications	60
6.2 Institutionalizing Health Accounts in Tamil Nadu	62
6.3 Limitation of the Study	64
6.4 Directions for Future Research	66
REFERENCES	68
APPENDIX-A: METHODOLOGY	70
APPENDIX-B: HEALTH EXPENDITURE ESTIMATES OF DIFFERENT ENTITIES	84
APPENDIX-C: SHA MATRICES	99

LIST OF TABLES

Table 1.1:	Indicators of Financial Protection in Tamil Nadu and All India: 1993-94, 2004-05 and 2011-12	8
Table 3.1:	Key Indicators of Tamil Nadu Health Expenditure	18
Table 3.2:	Intertemporal Comparison of Three NHA Rounds	19
Table 3.3:	Health Expenditure by Financing Schemes in Tamil Nadu: 2013-2014	22
Table 3.4:	Health Expenditure in Tamil Nadu by Agents	24
Table 3.5:	Health Expenditure in Tamil Nadu by Function [Private Plus Government]	26
Table 4.1:	Public Health Expenditure at Different Levels in Tamil Nadu	35
Table 5.1:	Out-of-pocket Expenditure in Tamil Nadu (in Cr.)	44
Table 5.2:	Health care Functions wise Out-of-pocket Expenditure (in Cr.)	46
Table 5.3:	Health care Provider wise Out-of-pocket Expenditure (in Cr.)	47
Table 5.4:	Factors of Health care Provision wise Out-of-pocket Expenditure (in Cr.)	48
Table 5.5:	Expenditure of the Enterprises in Tamil Nadu by Health care Functions (in INR Cr.)	51
Table 5.6:	Expenditure of the Enterprises in Tamil Nadu by Health care Provider (in INR Cr.)	52
Table 5.7:	Expenditure of the Enterprises in Tamil Nadu by Factors of Provision (in INR Cr.)	53
Table 5.8:	Health Care Function's of NGOs in Tamil Nadu (in INR Cr.)	55
Table 5.9:	Health Care Providers of NGOs' Health Expenditure in Tamil Nadu (in INR Cr.)	57
Table 5.10:	Factors of Provision of Health Expenditure by NGOs in Tamil Nadu (in INR Cr.)	58

LIST OF FIGURES

Figure 2.1:	Health Financing Flows in Tamil Nadu	12
Figure 3.1:	Distribution of Public and Private Expenditure in Tamil Nadu	20
Figure 3.2:	Pooling of Resources: Distribution of Total Health Expenditure by Prepayment and Direct Payment	21
Figure 3.3:	Distribution of Health Expenditure by Financing Schemes in Tamil Nadu: 2013-14	23
Figure 3.4:	Health Financing Agents in Tamil Nadu	24
Figure 3.5:	Current Expenditure on Health by Functions: 2013-14	27
Figure 3.6:	Health Care Functions by Different Entities in Tamil Nadu	28
Figure 3.7:	Health Care Entity-wise distribution of Functions in Tamil Nadu	28
Figure 3.8:	Distribution of Health Expenditure in Tamil Nadu by Factors of Provision	30
Figure 3.9:	Health Expenditure in Tamil Nadu by Provider	31
Figure 3.10:	Cost of Health Care in Public and Private Health Facilities	32
Figure 4.1:	Functional Classification of the Public Expenditure in Tamil Nadu (2013-14)	36
Figure 4.2:	Functional Classification of Public Expenditure by Level of Government in Tamil Nadu	37
Figure 4.3:	Functional Classification of the State Government's Expenditure	38
Figure 4.4:	Providers of State Government's Expenditure on Health in Tamil Nadu	38
Figure 4.5:	Factors of Provision of Health Expenditure of the State Government in Tamil Nadu	39
Figure 4.6:	Sources of Revenue for ULBs in Tamil Nadu (2013-14)	41
Figure 4.7:	Health Expenditure as a Share of Total Expenditure	41
Figure 4.8:	Different Health Functions of ULBs in Tamil Nadu, 2013-14	42
Figure 4.9:	Different Health Care Providers of ULBs in Tamil Nadu (2013-14)	43
Figure 5.1:	Distribution of OOP expenditure across Services in Tamil Nadu	45
Figure 5.2:	Share of Health care Functions in Out-of-pocket expenditure	47
Figure 5.3:	Share of Health care Provider in Out-of-pocket expenditure	48
Figure 5.4:	Share of factors of Health care Provision in Out-of-pocket expenditure	49
Figure 5.5:	Disease Group wise OOP Expenditure in Tamil Nadu (in%)	50
Figure 5.6:	Distribution of Enterprises' Expenditure in Tamil Nadu by Health care Functions (in%)	52
Figure 5.7:	Distribution of Enterprises' Expenditure in Tamil Nadu by Health care Providers (in%)	53
Figure 5.8:	Health Care Functions of Tamil Nadu in 2013-14	56
Figure 5.9:	Health Care Provider of NGOs' Health Expenditure in Tamil Nadu	57
Figure 5.10:	Factors of Provision of Health Expenditure by NGOs in Tamil Nadu	58

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
AWW	Anganwadi Workers
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
CGHS	Central Government Health Scheme
CHC	Community Health Center
ECG	Electrocardiography
EEG	Electroencephalography
HIV	Human Immunodeficiency Virus
HSC	Health Sub-Center
JIPMER	Jawaharlal Institute of Postgraduate Medical Education & Research
LOS	Length of Stay
MPCE	Monthly Per Capita Expenditure
NACO	National AIDS Control Organization
NCD	Non-communicable Diseases
NE	North East
NSSO	National Sample Survey Organization
OBC	Other Backward Classes
OOP	Out-of-Pocket
PAP	Proportion of Ailing Population
PHC	Primary Health Center
SC	Scheduled Caste
ST	Scheduled Tribe
STD	Sexually Transmitted Disease
TB	Tuberculosis
UT	Union Territory

What is 'Health Accounts'?

The health accounts for Tamil Nadu is produced using the globally recognized framework of System of Health Accounts (SHA), 2011 along with methods agreed upon at the national level. Health accounts help us to understand the magnitude and pattern of health spending in the state, and the nature of flow of funds within the health care system. It also facilitates identification of key sources of funding, which include government, households, private firms, non-government organizations. Further, the state health accounts provide us with an understanding of how much money is spent on various health care commodities such as drugs, diagnostics, hospitals charges, consultation fees, etc. Health accounts can also be used to examine the efficiency and the equity dimensions of health care spending. Critical health financing questions, such as the extent of prepayment and risk pooling mechanisms in the state is explicitly captured by health accounts.

How much money is spent on health in Tamil Nadu?

The estimated current expenditure on health care in Tamil Nadu during 2013-14 was INR 31,084 crores, which is 3.64 per cent of the Gross State Domestic Product (GSDP). In per capita terms, INR 4,125 was spent on account of current health expenditure. Current public expenditure at INR 7885.7, which is 0.92% of the GSDP, constituted a quarter of the total expenditure, while the remaining three-fourths was by way of private expenditure. The current health expenditure, in per capita terms, in Tamil Nadu is higher as compared to the national average of INR 3382, and reflects the growing health seeking behaviour and higher level of development in the state. If both current and capital spending are taken into account, the Total Health Expenditure is estimated at INR 32,644 crores, which is 3.82 per cent of GSDP and INR 4,332 in per capita terms during 2013-14. The combined public expenditure—current and capital—is estimated to be INR 9,446 crores, which is 1.11 percent of GSDP.

How are the resources mobilized for health?

One of the critical questions in health care financing is how resources are mobilized to finance health care? How much contribution is made by way of general taxes? What is the contribution of social insurance, voluntary health insurance or other forms of insurance mechanisms? To what extent do citizens have to depend on their own means for health care spending? These questions help us understand the extent of prepayment and risk pooling that occurs for health care expenditure in the state. Prepayment and risk pooling mechanisms are seen as features of fair financing through which households are protected from the catastrophic burden of health care payments. Globally, tax-based financing systems and mandatory social insurance systems are regarded as efficient mechanisms for risk pooling and prepayment financing.

Of the different forms of risk pooling, it is seen that roughly 23 per cent of resources for health expenditure are mobilized through taxes, whereas barely 2 per cent by means of social insurance. Voluntary private insurance accounts for only 1 per cent of the overall health resources. Hence, the extent of risk pooling and prepayment is inadequate in the state, with only 32 per cent of resources being pooled, exposing the households to significant financial risk due to health care expenditure.

Further, enterprises (public and private) and NGOs taken together contribute to 7 per cent of the current health spending in the state. As the government contribution accounts for less than a fourth of the resources mobilized (24 per cent), household out of pocket (OOPs) payments at the time of service delivery contributing 69 per cent emerge as the most significant form of resource mobilization for health care expenditure in Tamil Nadu.

Who pays for health care in Tamil Nadu?

Current health expenditure of the state indicates that the schemes of the State Government, comprising of the Department of Health and other Departments form a major part of the public expenditure at 15.7 per cent of the current health expenditure. Spending by the Central Government is routed through Centrally sponsored schemes such as the National Health Mission as well as the Central Sector schemes which include tertiary care institutions like Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), the Railways and other Centrally procured vaccines and commodities related to family welfare. All these entities together constitute about 4.9 per cent of the total current health spending in the state. The Employees' State Insurance Scheme (ESIS) accounts for 2.1 per cent of the total current health expenditure whereas, contribution of local body schemes is limited in the state (0.57 per cent). CMCHIS – a State Government tax financed insurance scheme has a substantial share in total health spending of the state (2.1 per cent). However, it is the household Out-of-Pocket expenditure that is the major source of private health expenditure of the state (67.7 per cent). Further, enterprises (2.7 per cent) and non-profit institutions (2.8 per cent) are other private entities that spend on health care in Tamil Nadu.

What health care services are provided?

In terms of provision of health care services, it is important to identify the sources of funding from various entities and their utilization. This approach is critical because it provides direction and magnitude of health expenditure devoted to preventive, promotive, curative, and health care goods. Further, within the context of curative care, it would be worthwhile to know whether hospitalization predominates outpatient care or is it vice versa. A large share of households' OOP in Tamil Nadu is spent on drugs and around 29 per cent of all health spending is directed towards purchase of pharmaceutical goods. It is interesting to note that inpatient curative care accounts for 29 per cent of health spending, as against outpatient care which accounted for 18 per cent of

the overall health spending in 2013-14 . It is to be noted that if one were to consider pharmaceutical expenditure (nearly 79 per cent of pharmaceutical expenses are for outpatient care), the share of outpatient care expenditure would be considerably higher (about 41 per cent).

As far as government health expenditure is concerned, two thirds (65 per cent) of its spending goes into curative health services, while 20 per cent of government funding is set aside for preventive care. Since most curative care institutions offer both inpatient and outpatient services, distribution keys have been worked out based on utilization patterns to allocate the expenditure. Based on these distribution keys, it is seen that inpatient curative care accounts for more than one third of government health spending, without patient care accounting for 31 per cent. Among preventive services, healthy condition monitoring, which includes ante natal care and screening for non communicable diseases (9 per cent), immunization (5 per cent), IEC (3 per cent) and epidemiological surveillance and risk and diseases control (2 per cent) have a significant share in the overall government health expenditure. Governance and administration account for seven per cent of the current health expenditure while medical goods account for only two per cent. It is important to note that while studying the functional classifications of health expenditure, as per SHA 2011 drugs and consumables supplied through the medical services corporation and distributed through the public health facilities are apportioned towards curative care (inpatient and outpatient) and are not shown separately as pharmaceuticals.

Who provides health care services?

The magnitude and flow of funds from various sources to the ultimate providers of medical services and goods is important for several reasons. From a policy perspective, it may be useful to examine whether private health care providers are predominant in the curative aspect of health care and if so, does the government need to channel a larger share of its expenses on preventive and promotive care? Or does the health system tends to rely more heavily on hospitals as against outpatient clinics or on allopathic providers in comparison to the traditional system of medical providers? General hospitals followed by pharmacies are the most significant providers of health care in the state with a share of 34 per cent and 29 per cent respectively in the total health expenditure. The spending on outpatient care services (mainly PHCs) is about 13 per cent and ancillary services accounts for 7 per cent of the total expenditure. At roughly 7 per cent, the share of health care spending by providers of preventive care is not so significant in the state.

What are the inputs used to produce healthcare services in Tamil Nadu?

Health care provision involves a mix of factors of provision – labor, capital, materials, and external services to provide health care goods and services. At 30 per cent of overall health expenditure, health care goods (primarily medicines) accounted for the single largest input in the provision of health

service in Tamil Nadu. Health care services, on the other hand, constituted 29 per cent of health expenditure. It may also be noted that salaries and wages constituted around 20 per cent of the total spending. Of the total public spending, about 33 per cent is spent on wages and salaries, while the rest of the expenditure is divided under several heads, such as, health care services (21 per cent), health care goods (7 per cent) and non-health care goods (7 per cent).

The key findings from Health Accounts of Tamil Nadu point towards the policy challenges that the state is currently facing. It may be noted that the overall health care costs in Tamil Nadu are higher as compared to the national average. Higher propensity to access health care, a larger share of the elderly population and a corresponding dominance of non-communicable diseases have resulted in higher cost of care. It is to be noted that government expenditure is also on the higher side as compared to the national average, thus depicting the historical tendency of the state to give importance to the social sector including health. One of the critical challenges for the state government would be to curb the cost of care while expanding various prepayment mechanisms. Greater emphasis on preventive services and provision of essential commodities and services including medicines and diagnostics through primary care facilities could be pathways through which effective management of chronic care needs to be arranged in the future.

CHAPTER I: SOCIO-ECONOMIC AND HEALTH SITUATION IN TAMIL NADU

1.1 Background

In September 2015, world leaders at a United Nations Summit adopted 17 Sustainable Development Goals (SDGs) to fight inequalities and end all forms of poverty. India is also preparing for transition from the Millennium Development Goals (MDGs) to the SDGs. The role of healthcare financing and the performance of the health system are very important for the successful achievement of the health related goals. In this connection, credible evidence is needed to advocate for effective scale-up of public investment in India's health system and to assess the likely implications of a new set of financing interventions.

The present document provides estimates of health spending in Tamil Nadu for the period 2013-14. Expenditure is reported in accordance with the World Health Organization (WHO) endorsed System of Health Accounts (OECD SHA 2011). Health accounts help us understand the magnitude and pattern of health spending in the state and the nature of funds flow within the health system. It also facilitates identification of key sources of funding, which includes government, households, private firms, non-government organizations. Further, the state health accounts provide us with an understanding of how much money is spent on different health care functions including drugs, diagnostics, hospitals charges, consultation fees, etc. Here, we would like to discuss some of the aspects which shape health care utilization and expenditure in Tamil Nadu as a background for the subsequent chapters.

1.2 Health and Demographic Outcomes of Tamil Nadu

According to the 2011 census, Tamil Nadu had a total population of 7.2 crores, accounting for 5.9 per cent share of the India's total population. Males constitute 50.1 per cent of the total population of the state with a sex ratio of 996 females per 1000 males. The literacy rate for Tamil Nadu increased to 80.3 per cent in 2011 from 73.5 per cent in the previous census (2001). Around 86.81 per cent of men and 73.9 per cent of women in Tamil Nadu are literate.

Improvements in the prevention and control of major childhood infectious diseases and nutritional status have helped the state to achieve a higher life expectancy (LEB) as compared to the all India average. The LEB in Tamil Nadu increased from 66.0 years (2001-05) to 68.9 years (2006-10). The state has also witnessed improvement in the other vital indicators with Infant Mortality Rate (IMR) of Tamil Nadu declining from 44 in 2002 to 21 in 2012 and the Maternal Mortality Ratio (MMR) coming down to 90 in 2010-12 from 111 in 2004-06.

The improved vital indicators and better maternal and child health outcomes not only reflect positively on the health system in the state but have also pushed the state towards demographic transition. The state has a higher 'working-age population' compared to the all India average. About 70 per cent of the total population of the state is in the working population age-group (15-64 years), whereas the all India figure is 63 per cent. Further, while on the one hand, the proportion of the elderly (65+) age group in the total population is in Tamil Nadu (about 6.6 per cent), on the other hand, the proportion of the population of 0-14 years of age is much lower, reflecting on the demographic transition in the state. Higher literacy rate and better overall educational status are known to increase health care demand and utilization. Similarly, higher proportion of elderly population results in higher health care needs due to increased morbidity. This is borne out by the figures on morbidity rates from the 71st Round of the National Sample Survey (NSSO 2014) which are presented below.

1.2.1 Morbidity Reporting

Overall morbidity in Tamil Nadu as measured by the Proportion of Ailing Persons (PAP) is 165 per 1,000 persons; which is higher in the urban areas (184) as compared to the rural (146). The gender-break up shows that a higher proportion of females than males reported suffering from any ailment both in rural and urban areas.

The reporting of PAP in Tamil Nadu is higher than the all India average (98) and other major states, in both rural and urban areas. Among the major states, Kerala reports a significantly higher PAP of 308, while states such as Andhra Pradesh (170), West Bengal (167) and Punjab (166) have comparable proportion of ailing persons.

It is important to note that higher self reported morbidity does not necessarily mean that the health condition of the people has worsened. Morbidity reporting is shaped, among other things, by people's awareness levels, their understanding about own health and health of their family members, beliefs, perceptions and overall health system penetration.

During the last two decades, since the 52nd Round of the National Sample Survey (NSSO 1995-96), reporting of ailments has significantly increased at the All India level and also in most of the states, clearly reflecting the factors discussed above. In previous NSSO surveys in 1995-96 and 2004, PAP in Tamil Nadu (53 and 95 per 1000 respectively) compared closely with the All India averages (55 and 91 per 1000 respectively). Between 2004 and 2014, the PAP in Tamil Nadu increased at a rate higher than all India from 95 in 2004 to 165 per 1,000 persons in 2014.

Tamil Nadu has a much higher reporting of chronic ailment conditions as compared to the all India figures. The comparative PAP of Tamil Nadu for chronic ailments in urban (119) and rural (86) areas are nearly double the corresponding all India urban (67) and rural (40) PAP for chronic ailments. Compared to their male counterparts, females have reported more chronic ailments. Morbidity due to chronic ailments as well as the share of chronic

ailments in the total morbidity, increases with age, especially after the age of 45 years, with more than one third of the elderly population reporting that they are suffering from chronic ailments.

Higher reporting of chronic ailments reflects the demographic transition that the state is rapidly going through and has implications on the health seeking behavior and health care requirements of the population. Chronic ailments require recurrent contact with health providers for regular checkups and have continuous need for prescription drugs, which are aspects of health services that would need greater attention.

1.3 Health System in Tamil Nadu

Health services in Tamil Nadu are delivered by both the public health system along with a wide range of private sector health providers. Public providers of health care in the state include general hospitals at the secondary and tertiary level, Community Health Centres (CHCs), Primary Health Centres (PHCs), Health Sub-Centres (HSCs), other clinics, dispensaries and Mobile Medical Units (MMU). Health services in the public sector are financed largely through public revenues as there are hardly any user charges in the state. In addition, Central and State Government employers like the Defense services, the Railways, the police and the ports provide health services through their own systems. Health services are made available to Central Government employees through the Central Government Health Scheme (CGHS) and to organized sector workers covered under the Employee's State Insurance Scheme (ESIS).

Private sector in Tamil Nadu which accounts for treatment of nearly 35% of the outpatient and inpatient episodes (NSSO 2014) is diverse and varies from solo medical practitioners (belonging to allopathy or Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH)) and small nursing homes, to large secondary and tertiary care hospitals (The World Bank 2001). The private sector comprises of not only for-profit providers, but also health institutions run by non-profit NGOs, charitable or religious trusts and endowments. Several private hospitals are being brought under ambit of public programs through an empanelment process under various state sponsored health insurance programs and social insurance schemes like the ESIS and CGHS. Health services such as diagnostics, pharmaceuticals and medical education are also increasingly being driven by the private sector. Payments for these services are made essentially through out-of-pocket expenses by households.

The role of alternative systems of medicine such as AYUSH is not very significant in providing health care services in the state (NSSO 2014).

1.4 Financial Risk Protection in Tamil Nadu

It is well documented in the literature that there is a strong positive relationship between the financial condition of the households and utilization of needed health care services during ailments. According to the World Health

Organization (O'Donnell et., al. 2007, WHO 2010¹), health systems with heavy reliance on direct, out-of-pocket payments for health financing provide very low financial protection to poor households, who are often denied access to health care as they are faced with impoverishment and catastrophic expenditure due to health care costs.

Table 1.1: Indicators of Financial Protection in Tamil Nadu and All India: 1993-94, 2004-05 and 2011-12

Indicators	Year	Tamil Nadu			All India		
		Rural	Urban	Total	Rural	Urban	Total
Health Expenditure as share of household consumption expenditure	1993-94	4.1	3.6	3.9	4.6	4.9	4.7
	2004-05	4.1	4.2	4.1	5	4.6	4.9
	2011-12	8.3	6.2	7	7.7	5.7	6.8
Percent of households facing catastrophic expenditure (10 per cent of HCE)	1993-94	7.4	5.6	6.7	10.9	7.5	10
	2004-05	12.1	11.6	11.9	15.1	13.3	14.6
	2011-12	21.3	19.2	20.3	18.9	15.9	17.9
Percent of people impoverished due to OOPs	1993-94	4.4	2.8	4.2	4	2.6	3.6
	2004-05	2	2.7	2.3	3.8	2.7	3.5
	2011-12	4	2	3.1	5.3	2.5	4.5

Source: Author's calculation based on unit records of 50th, 61st and 68th rounds of Consumer Expenditure Survey, NSSO.

The catastrophic implications of out-of-pocket expenses have also been clearly documented across various studies (Garg and Karan, 2009²; and Selvaraj and Karan 2009³; Ghosh 2011⁴; Mahal et. al., 2002⁵). In terms of many of the crucial indicators related to financial protection, the situation in Tamil Nadu is worse than the All India average. During 1993-94 and 2004-05, the estimated percentage of people facing catastrophic health expenditure (both at 10 per cent and 25 per cent level) was lower than the all India estimates. However, for the year 2011-12, percentage of people facing catastrophic health expenditure has crossed the all India estimates (Table 1.1). The share of health expenditure in the total household consumption expenditure (both food and non-food) shows the same trend. Taken along with the aging profile of the population and the increasing morbidity due to chronic disease, the state will have to arrest the trend and provide financial protection to vulnerable households.

1 http://www.who.int/health_financing/strategy/risk_protection/en/

2 Garg, Charu C. and Anup K. Karan (2009), "Reducing out-of-pocket expenditures to reduce poverty: a disaggregated analysis at rural-urban and state level in India", Health Policy and Planning, December 17, 24(2), pp. 116-28.

3 Selvaraj, Sakthivel and Anup K Karan (2009), "Deepening Health Insecurity in India: Evidence National Sample Surveys since 1980s", Economic and Political Weekly, October, 3., Vol. XLIV, No.40

4 Ghosh, Soumitra (2011), Catastrophic Payments and Impoverishment due to Out-of-Pocket Health Spending, Economic and Political Weekly, Nov. 19, Vol. XLVI, No. 47.

5 Mahal, A., Singh, J., Afridi, F., Lamba, V., Selvaraju, V. and Gumber, A. (2002), Who Benefits from Public Sector Health Spending in India?, New Delhi: National Council for Applied Economic Research.

In this connection, it is observed that the public health system plays an important role in protecting households from catastrophic expenditure in the state. Since those utilizing public facilities incur much lower expenses on health care. While the average expenditure incurred on outpatient and inpatient episodes in the private sector in the state is comparable to the all India average, the average expenditure on outpatient and inpatient episodes in public sector is significantly less. This is largely due to fact that a large proportion of episodes treated in the public sector get medicines and diagnostic services free or partly free. In view of the lower financial burden on those seeking care from public facilities, there is a clear case for the state to increase public investment to strengthen and increase utilization of the public health system in order to protect vulnerable households from catastrophic expenditure on health care

1.5 Macroeconomic Scenario of Tamil Nadu

Health expenditure of a state largely depends on its financial situation, which in turn is shaped by the level of income of the residents as well as the ability of the state to mobilize resources. With a GSDP of INR 9,767 billion in 2014–15, Tamil Nadu is the second largest economy in India (after Maharashtra). During 2014-15 the economy of Tamil Nadu grew at 14.34 per cent. With high grow rate potential, the state also has the potential to allocate greater resources towards health sector.

According to the 2011 census, Tamil Nadu is also the most urbanized state, accounting for 9.6 per cent of India's urban population, while comprising only 6 per cent of India's total population. Greater urbanization means greater access and utilization of health care facilities.

If we look at the employment scenario of the state, it could be found that more than 11 per cent of the total work forces are employed in the formal sector compared to the all India average of 9 per cent (NSSO 68th round Employment and Unemployment survey 2011-12). The higher is the proportion of the formal sector work force in total workforce, higher would be the coverage of social security schemes, like the ESIS. The higher proportion of formal sector employment would also imply greater possibility of employer provided organized health care schemes like ESIS, group insurance etc.

1.6 Summary

Tamil Nadu has come up as one of the fastest growing states in India in terms of health care utilization. The state is experiencing a demographic transition along with increasing health seeking behaviour of its population. Rapid urbanization and growing secondary and service sectors have helped the state to finance its health sector from its own tax revenue, which has a longer positive impact on the fiscal health and sustainability of the economy. Similarly, due to increase in the level of income, the purchasing power of the population of the state has increased over time. This increase in the purchasing power, combined with the robust growth of the private health

sector, has pushed the ailing population towards private sector institutions for treatment. In addition to this, a low fertility rate in the state for decades has resulted in stable growth of the population but has also contributed to an increase in the burden of chronic ailments due to an ageing population. Increasing utilization of private health care facilities along with growing burden of morbidity due to chronic ailments have pushed up household expenses on health care. As a result, financial burden on the households has increased over time.

Even though the state has progressed significantly in health outcomes, the increasing burden of chronic and non-communicable diseases has put a challenge on the present health system. Therefore, understanding the health financing system better through a comprehensive study on the health accounts, would help to frame proper policies to improve health of the citizens while reducing the financial burden on households. This report is an attempt to provide a detailed picture of the health accounts of Tamil Nadu to the policy makers.

In Chapter 2 we describe the financing framework used in SHA, some critical concepts and definitions, various entities and their sources. Chapter 3 presents the major findings of SHA and talks about the contribution of various entities and their functions. Chapter 4 exclusively deals with several aspects of public spending, the various entities involved, their inputs and contribution to different services. Chapter 5 talks about various aspects of private spending, including role of households, firms and NGOs. Presented in chapter 6 are the policy implications, steps involved in the institutionalization process, and areas of future research. We have described the methods and materials in detail in Appendix A, while Appendix B provides the various Health Accounts matrices.

CHAPTER II: KEYS CONCEPTS, ENTITIES AND DATA SOURCES

A System of Health Accounts (SHA, 2011) provides a basic framework from which several financial indicators can be obtained for meaningful intervention in health policies and programs (Detailed framework and application of SHA, 2011 is provided in the Annexure). This is an exercise that provides a framework and tools to understand the current financial flows in the health system, for both public and private health care services.

2.1 Key Concepts and definitions:

Current expenditure on health

Current expenditure on health care considers final consumption expenditure of resident units on health care goods and services during the accounting period. Current expenditure does not include the expenditure on capital (i.e. the total value of the assets that providers of health services have acquired during the accounting period).

Timing of recording (Time Boundary)

The timing of recording of final consumption expenditures within SHA 2011 has two elements - (i) Calendar year versus fiscal year and (ii) Accrual versus cash accounting. Fiscal year is the time of recording for India within which the healthcare activities take place i.e. 1st April to March 31st of the next year. Here we have covered the fiscal year 2013-14, and The cash accounting to capture actual expenditures on health for Tamil Nadu.

Consideration of health care activities

According to the SHA 2011 framework, expenditure on various kinds of health care activities (functional classification) are considered including health promotion and prevention; diagnosis, treatment, cure and rehabilitation of illness; caring for persons affected by chronic illness, providing community health programmes, governance and administration of the health system etc. Health-related activities that are provided as 'aid', are not considered as healthcare functions, e.g. provision of long-term social care, enhancing integration of disabled persons, control of food hygiene, drinking water, environmental protection, For detailed description of the functional boundary and border line cases refer to Appendix A.

2.2 Health Financing Flows in Tamil Nadu

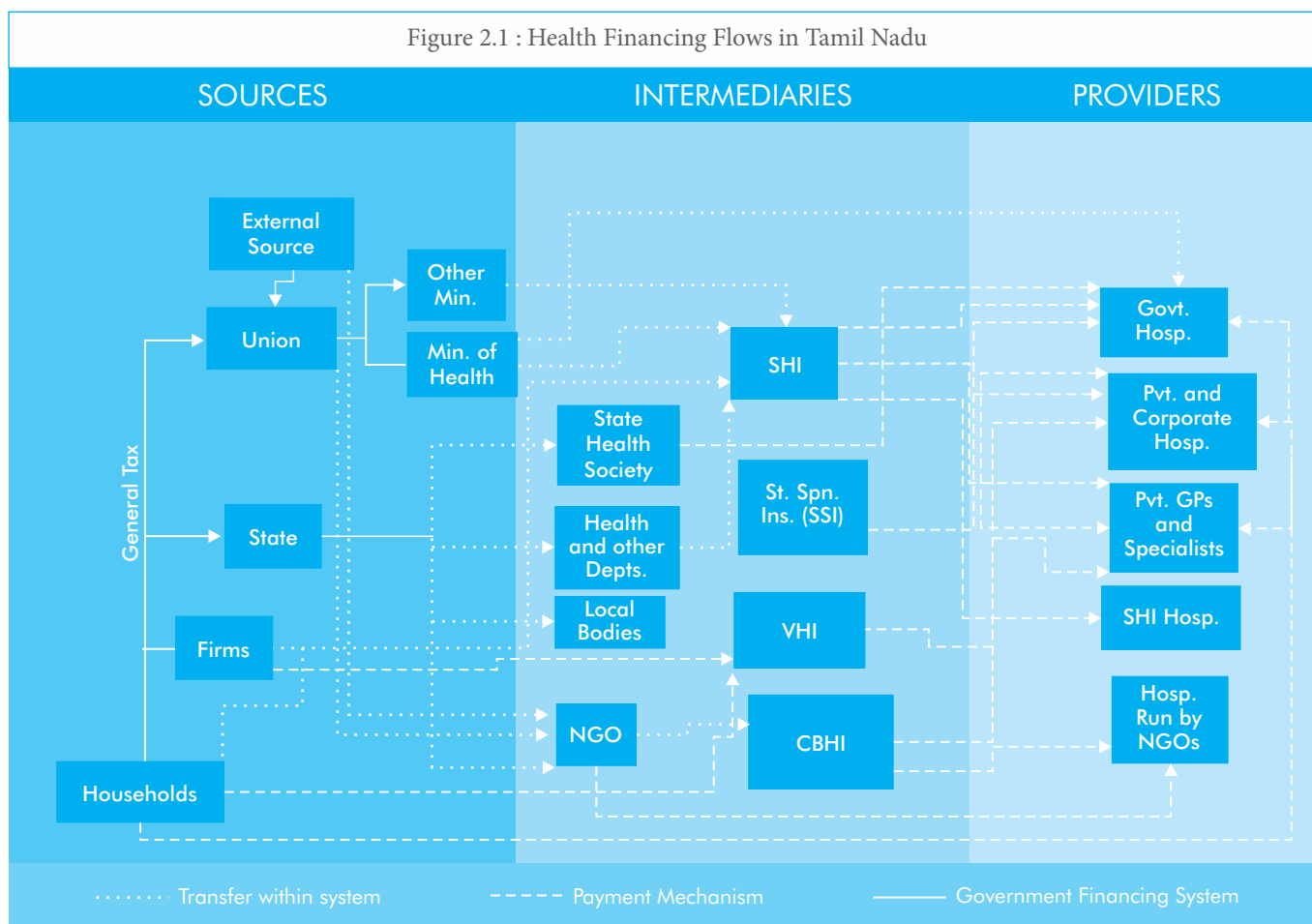
Before we present the key evidence from the state health accounts for Tamil Nadu, 2013-14, we have depicted the financial flows in the state by mapping several sources from where resources for the health system originate. These financial resources are then routed through financial intermediaries, wherever

applicable, which are pooled together and managed to purchase health care from several health care providers. Resources in the health system at the best can be understood by looking at the flow of funds between various sources, financial intermediaries and health care providers.

There are primarily four sources for funds flow in Tamil Nadu. First, the financial resources disbursed by the government, which includes the state and the center which is made up by the revenue generated from different types of taxes and the external aid received by both the governments. The other key sources are the Out-of-Pocket (OOP) expenditure that takes place at the household level, the money spent by private firms for its employees, and lastly, the non-profit sector (NPISH) or non-government organizations (NGOs) serving households. The different entities involved in the financial flow in Tamil Nadu are outlined below.

The fund flow mechanism among different entities of sources, agents/intermediaries and providers has been presented by arrows in figure 2.1.

Intermediaries



2.3 Entities and data sources:

2.3.1 Centrally Sponsored Schemes (CSS)

The central government contributes mostly in the form of Centrally Sponsored Schemes related to health. The most important component of CSS is the National Health Mission (NHM), where the Centre contributes money through the State Health Society. In 2013-14, funds were provided under two components of NHM, one under the National Rural Health Mission (NRHM) in rural areas and the National Urban Health Mission (NUHM) in urban areas. With the vision to provide quality care and “treatment with dignity” to people living with HIV, the Ministry of Health and Family Welfare, Government of India has established the National AIDS Control Organization (NACO). Expenditure made by NACO to procure drugs, consumables, and other services for Tamil Nadu has been accounted for under the Centrally Sponsored Scheme. Several health care commodities including vaccines, medicines for various central disease control programs and family planning devices are directly procured by the Centre and supplied to states.

Data Sources:

- The Financial Management Report (FMR) for the financial year 2013-14 has been used for the analysis of National Health Mission data. The FMR contains the activities which are approved for being undertaken by the state, the budget allocated and the actual expenditure incurred. For our analysis the actual expenditure, year to quarter cumulative has been utilized.
- The State Programme Implementation Plan (PIP) for Tamil Nadu describes in detail the strategies that will be deployed and the programmes that will be implemented to utilize the resources provided by NHM. They also explain the functional purpose of the programmes as well as the health outcomes that they plan to achieve. The PIPs have been used for arriving at various functional, factor and provider classifications of NHM expenditure.
- Audit statement of the Tamil Nadu AIDS Control Society(TANSACS) in Tamil Nadu

Apart from financial transfer, central government procures centrally procured commodities, vaccines and medicines and provides those in kind to states. This in kind transfers would not reflect in state level financial data sources and need to be accounted for separately. We have collected information on the quantities received by the Tamil Nadu Government during 2013-14 from various sources and arrived at the expenditure using the prices provided by the Ministry of Health and Family Welfare, Government of India(2014).

2.3.2 Central sector Schemes

Central sector schemes are those where the financial contribution from the Centre flows directly to the institutions. Jawaharlal Institute of Postgraduate

Medical Education and Research (JIPMER⁶), Puducherry, established in 1823 is one of the most prominent Central institutions which also caters to the people of Tamil Nadu. We have used the annual report of JIPMER (2013-14) to collect information for various expenditures and allocated these expenditures based on the proportion of patients utilizing the services who hail from Tamil Nadu. Further, health expenditure on railway employees by the Ministry of Railways, Government of India is another central sector scheme operating in the state. As a prominent social security measure in different zones, the Railways run hospitals and dispensaries for employees and their families. As far as the intermediaries of health expenditure are concerned, zonal railway departments are the providers of health care and are the only ones who spend funds to run hospitals. The Central Government also spends on the health of its employees through the Central Government Health Scheme (CGHS) which is included in our analysis. However, the Central Government also spends money for hospitals and dispensaries under the Ministry of Defense could not be included in our analysis, due to non availability of information.

Data sources:

- Annual report of JIPMER
- Detailed demands for grants (DDGs) 2015-16 for expenditure of the Central Government on Railways for the year 2013-14
- Website of health directorate of Indian Railway accessed on 15 Jan 2016 <http://www.indianrailways.gov.in/railwayboard/uploads/directorate/health/health1.jsp>
- Detailed demand for grants, CGHS

2.3.3 State Department of Health and Other Departments

At the state level, the majority of expenditure is incurred by the state department of health, though other departments also spend on health. Under the health department, expenditure takes place under the two broad heads of account: i) medical and public health and ii) family welfare. The expenditure by other departments on health includes health related programmes like tribal health as well as employee benefits like medical reimbursement, health insurance by certain departments and measures for occupational health of employees.

Data Sources:

- Detailed demand for grants: Department of Health and Family Welfare
- Performance budget: Department of Health and Family Welfare
- Health expenditure of other departments from DDG of all departments
- Medical Reimbursement from DDG of all departments

6 JIPMER is an institute of national importance, and a tertiary care referral hospital. It is an autonomous institution under the Ministry of Health and Family Welfare, Government of India. JIPMER originated as École de Médecine de Pondichéry established by the French Government in the year 1823. JIPMER has 2059 beds (1577 general, 108 ICU/POW and 165 pay ward beds). During 2013-14, JIPMER treated 5,25,030 patients (new cases) in the outpatient department, where 74 per cent patients were from Tamil Nadu; for inpatient care, JIPMER provided services to 72,908 patients, where more than 80 per cent patients were from Tamil Nadu.

2.3.4 Urban local bodies

Apart from the state departments, corporations and municipalities in urban areas (urban local bodies) contribute to the health expenditure in the state and play a pivotal role in improving health of the people. Money spent by local bodies on health-related issues comes from their own tax collections as well as from grants received from the Central and State governments as well as from external sources such as the World Bank.

Data sources:

- ULBs data are based on the budget data of 12 municipal corporations and 123 municipalities covering the state

2.3.5 Employee State Insurance (ESI)

Employee State Insurance Scheme is a traditional social health insurance model established in 1952 and implemented by the Employee State Insurance Corporation (ESIC) to provide health care and social protection to organized sector workers and their dependents (covered under the scheme) through mandatory contribution. The sources of funds for the ESIC come from three different contributors, namely (i) the employees (ii) the employers and (iii) the state government. The contribution rate of employees is 1.75 percent of the wages, while that of the employer is 4.75 per cent of the wages paid/payable to employees during every wage period. Apart from these two contributors, the State and the Central government also contribute a significant amount of money to the ESI Corporation to run its own dispensaries and hospitals and provide health care to its ailing employees. Under this scheme, ESIC is the sole agent (intermediary) for health spending whereas, ESI hospitals and dispensaries along with private and public empaneled hospitals are the providers of health care.

Data Sources:

- Annual report of Employee State Insurance Corporation (ESIC) for the year 2013-14 accessed from <http://www.esic.nic.in/publications.php> accessed on 18.01.2016
- DDG, Department of Labour, Govt of Tamil Nadu

2.3.6 Tax Financed Health Insurance Schemes

Since the last decade, India has experimented with a new form of financing mechanisms, where resources are mobilized through general tax revenue and insurance agencies have been used to purchase health care. These schemes mainly cater to the poor or vulnerable sections of the society who are largely working in the unorganized sector. The Government of Tamil Nadu (GoTN) launched the state-funded health insurance scheme, Chief Minister Comprehensive Health Insurance Scheme (CMCHIS), in 2012, with the aim to improve access of the underprivileged population to quality medical services for life saving treatment for a select list of ailments, which involve both surgeries and medical procedure.

The Tamil Nadu Health Systems Project (TNHSP) is an arm of the Tamil Nadu government and is responsible for the overall implementation of the CMCHIS scheme. TNHSP selected United India Insurance Company, an insurance agency, through a competitive bidding process to perform administrative responsibilities such as enrolment of beneficiaries, empanelment of network hospitals and service delivery through Third-Party-Administrations (TPAs). Based on the number of enrolments under the scheme, TNHSP pays premium to the insurance agency on a quarterly basis. For smooth operationalization of the scheme, there are several layers of intermediaries. The insurance agency has further appointed three TPAs to manage the day-to-day operations of the scheme, including its monitoring.

Under this scheme, premium was fixed at INR 498 per family (+ INR 50 for enrolment and service tax) for four years (2012-2016), extendable by mutual consent for one more year. An empanelled set of hospitals, both public and private, provide tertiary hospitalization care based on package rates.

Data Sources: Claims data obtained from TNHSP

2.3.7 Households

Households spend on health, largely in the form of direct Out-of-Pocket (OOP) expenditure and to a limited extent, by purchasing private voluntary insurance. Out-of-Pocket expenditure is incurred by households for treatment of both inpatient and outpatient episodes from all types of health providers. OOP expenditure is inclusive of payment made for professional services for curative care, medicines, diagnostic services as well as preventive services related to maternal and child health. OOP is necessarily seen as a regressive form of financing and depicts lack of financial protection, because of inherent absence of risk pooling and prepayment.

Data Sources:

- National Sample Survey (Morbidity and Health Care Survey: NSS 71st round, Schedule 25.0 collected during January-June 2014;
- Consumer Expenditure Survey (2011-12);
- Pharmatrac data of 2014;
- Population Census (2001 & 2011) and
- Insurance Regulatory and Development Authority (IRDA) information on Health Insurance 2013-14 has been used.

2.3.8 Enterprise

Enterprises spend on health care through four routes, namely mandatory deduction by way of ESIS contribution, employees' health benefits, Corporate Social Responsibility, and expenditure incurred on health facilities directly owned by the enterprises. However, ESIS contribution is limited only to employees working in the formal sector, which excludes a significant

population engaged in the informal sector. A majority of enterprises reported spending on ESIS. However, we have captured the health spending through ESIS separately so it has not been included here. Apart from this, enterprises also contributed a significant amount on private voluntary or group insurance. Nearly half of the enterprises reported spending some amount on health under Corporate Social Responsibility. A few enterprises own health facilities which are largely used by their own employees and their families.

Data Sources: Data has been collected from a sample of 1800 private and 150 public enterprises (PSUs) for 2013-14 from 19 states. The survey in Tamil Nadu collected information on various units under 172 enterprises that were visited.

2.3.9 Non-Profit Institutions Serving Households (NPISHs)

Non-profit sector in Tamil Nadu performs multiple roles in the provision of health services in the state. Also, there are several missionaries and charity hospitals with a long history of providing health care services. Further, the NPISHs receive funds from government sources, generate resources by raising donations and user charges and receive foreign funds as well as grants from other similar entities. Though the main activity of NPISHs in Tamil Nadu has historically been provision of primary and secondary levels of curative services, they also play a prominent role in generating awareness for preventive health and providing outreach services in remote areas and among the vulnerable population.

Data Sources: A survey of NGOs was conducted in order to estimate their health expenditure covering 19 major states of India by Public Health Foundation of India (PHFI). About 1800 NGOs were sampled for the survey at the national level and the corresponding number for Tamil Nadu is 139 (covering 181 individual NGO units).

CHAPTER III: HEALTH ACCOUNTS ESTIMATES FOR TAMIL NADU

This chapter provides estimates for the magnitude and pattern of health financing and expenditure in Tamil Nadu; several key indicators of health expenditure are outlined here. These estimates describe the level of expenditure and flows from the financing entities through the intermediaries (or agents) to the health care providers for providing health care functions. The evidence presented in this chapter will help us address the questions such as: How much money is spent on health in the state of Tamil Nadu? Who pays and what is their contribution? What is the extent of prepayment and risk pooling out of the resources mobilized for health in Tamil Nadu? Who are the providers of health care? What are the health care functions provided by them as well as the inputs which go into producing these health care goods and services.

3.1 How much money is spent on Health in Tamil Nadu?

The current expenditure on Health is estimated at INR 31,085 crores which works out to around 3.64 per cent of the Gross State Domestic Product (GSDP). It is seen that private expenditure enjoys a major share in the total current expenditure accounting for 2.72 per cent of the GSDP, with the public sector having a much lower share of 0.92% (Table 3.1). The per capita (current) health expenditure of Tamil Nadu is INR 4,125, which is higher compared to the national average of INR 3360, indicating higher overall level of development leading to increased awareness levels and health seeking behavior of the state population (Estimates of NHA prepared by National Health Systems Resource Center 2016). The total health expenditure (inclusive of capital expenditure) in Tamil Nadu during 2013-14 is estimated at INR 32,644.09 crores, with per capita health expenditure being INR 4,332 accounting for about 3.82 per cent of the GSDP.

Table 3.1: Key Indicators of Tamil Nadu Health Expenditure

Indicators	INR (Crores)	As % Share of GSDP	Per capita (INR)
Current Public Expenditure (I)	7886.4	0.9	1047
Private Expenditure (II)	23198.2	2.7	3078
Current expenditure on health (A)	31084.6	3.6	4125
Public Capital Expenditure (IV)	1560.1	0.2	207
Total Public Expenditure (V=I+IV)	9446.5	1.1	1254
Total Health Expenditure (Including current and capital) (B=A+IV)	32644.8	3.8	4332

Source: SHA Tamil Nadu database 2013-14.

Note: Current expenditure excludes spending on capital

In comparison to previous NHA estimates conducted in 2004-05, the total current expenditure on health has risen 3.8 times at current prices. After being adjusted for inflation, this translates into a 2.5 times rise at constant 1999-2000 prices. It is noteworthy that a significant share of the rise is actually on account of increased expenditure by the government, which rose 1.3 times at constant prices between 2004-05 and 2013-14 (Table 3.2). While the total health expenditure of the state both at current and constant prices has increased consistently over time, the public expenditure also showed the same trend at current prices, but decreased slightly between 2001-02 and 2004-05 at constant prices.

In 2013-14, state's current expenditure on health is estimated to be 3.63 per cent of the GSDP, which is a marginal decline from 2004-05 estimates (4 per cent of GSDP). During this period, the share of public expenditure has increased to 0.92 per cent of GSDP in 2013-14 from 0.71 per cent prevailing in 2004-05. The decline in the share of total health expenditure to the GSDP is on account of a decline in private expenditure which has come down from 3.29 per cent in 2004-05 to 2.72 per cent in 2013-14.

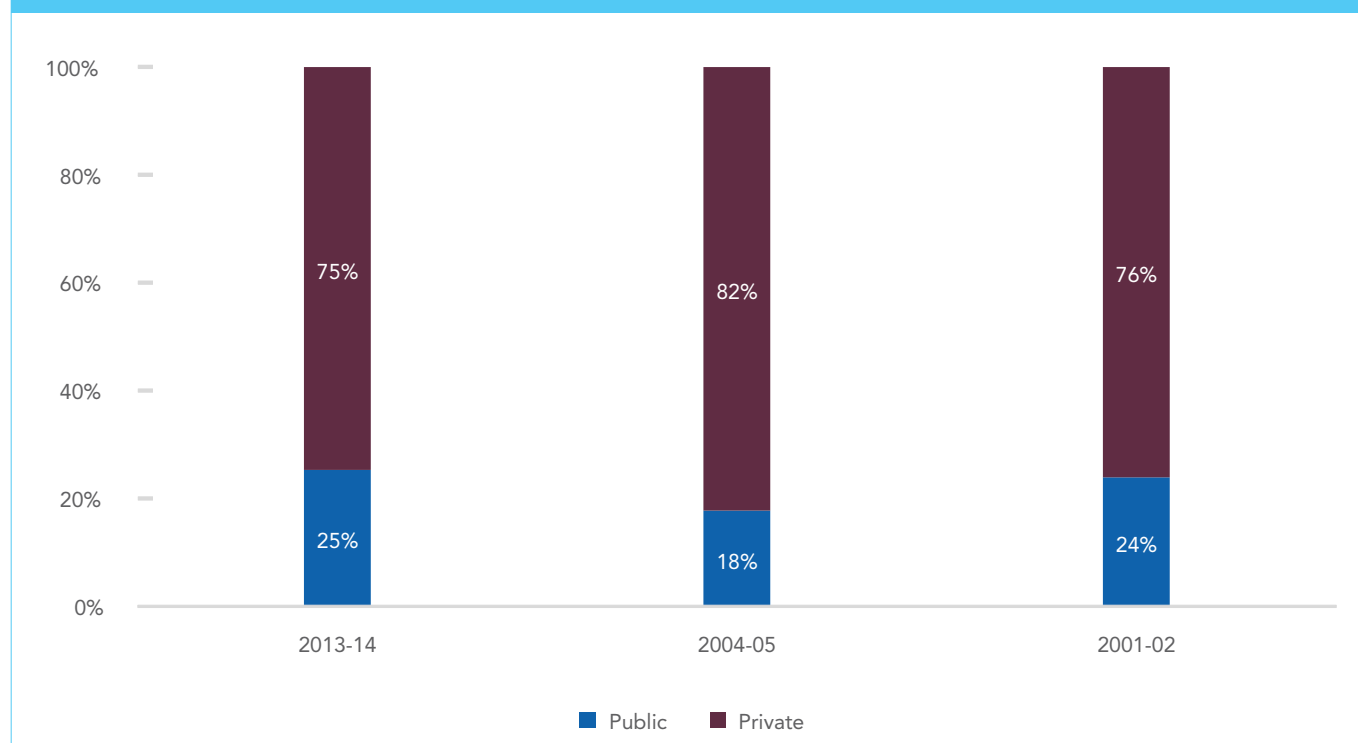
Table 3.2: Intertemporal Comparison of Three NHA Rounds

NHA Rounds	Public	Private	Total
Current Price (INR Crores)			
2001-02	1271.9	4045.4	5317.3
2004-05	1433.4	6656.2	8089.6
2013-14	7886.4	23198.2	31084.6
Constant 1999-2000 Price (INR Crores)			
2001-02	1199.9	3816.4	5016.4
2004-05	1194.5	5546.8	6741.4
2013-14	4262.6	12539.6	16802.1
Per Capita in Constant 1999-2000 Price (INR)			
2001-02	191	608	798
2004-05	186	861	1047
2013-14	566	1664	2230
Health Expenditure as a Share of GSDP (In %)			
2001-02	0.9	2.7	3.6
2004-05	0.7	3.3	4
2013-14	0.9	2.7	3.6

Source: NHA report 2001-02 and 2004-05, Ministry of Health and Family Welfare and SHA Tamil Nadu database 2013-14. Note: 2001-02, 2004-05 and 2013-14 methods of estimation are not strictly comparable.

As compared to 2001-02, the share of public expenditure in total health spending in Tamil Nadu has increased during 2013-14 (Figure 3.1). As current expenditure on health increased, but public expenditure in real terms decreased between 2001-02 and 2004-05, its share came down from 25 per cent to 18 per cent. In 2013-14, both public and total current expenditure increased in the state compared to 2004-05. However, public sector experienced a sharper increase compared to the private sector, restoring its share to 24% of the health expenditure, thereby increasing the financial protection provided by the government.

Figure 3.1: Distribution of Public and Private Expenditure in Tamil Nadu



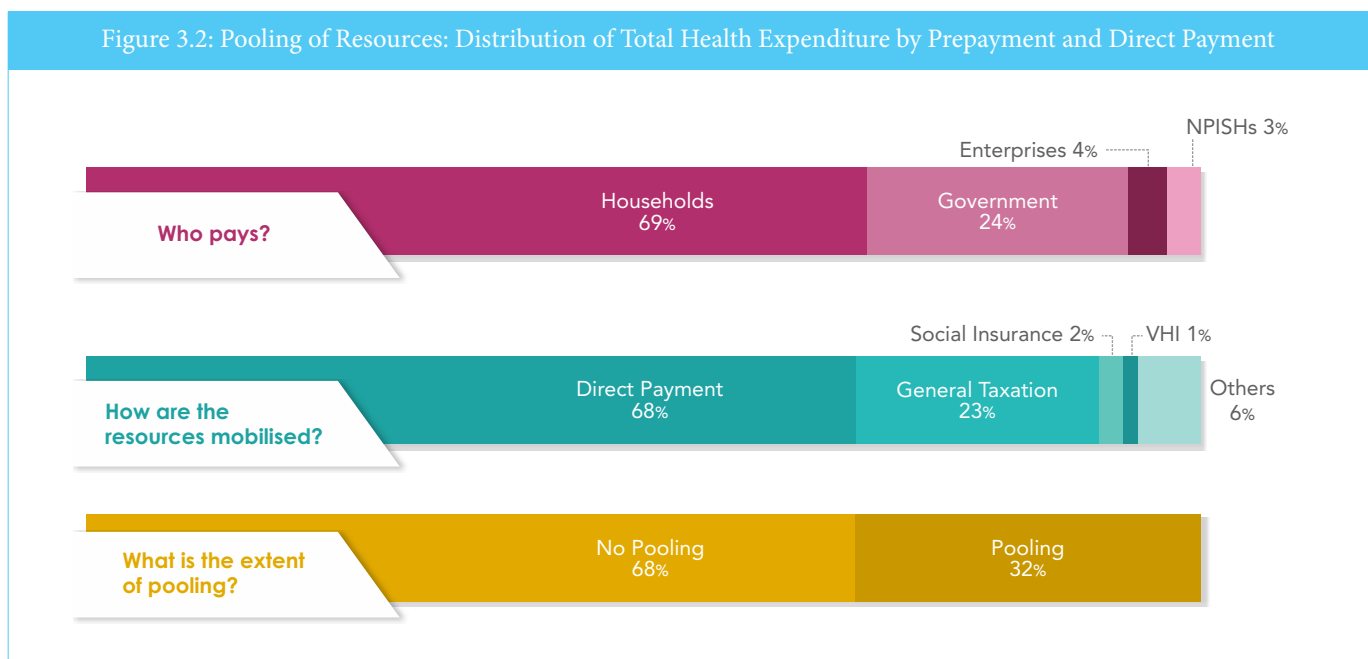
Source: NHA report 2001-02 and 2004-05, Ministry of Health and Family Welfare and SHA Tamil Nadu database 2013-14.

3.2 How are resources mobilized for health?

One of the key indicators of financial protection is the share of prepayment in the overall health care expenditure. Prepayment and risk pooling mechanisms are seen as features of fair financing through which households are protected from the catastrophic burden of health care payments. Globally, tax-based financing systems and mandatory social insurance systems are regarded as efficient mechanisms for risk pooling and prepayment financing. Prepayments can be of various kinds and organized in several ways, and help households tide over catastrophic events related to illness. For instance, government expenditure on health, which is mobilized through taxes and other revenues, is one important form of prepayment. Social security schemes where mandatory contributions are made by households, firms and government, is another major form of prepayment based financing. Additionally, private voluntary insurance is also a form of prepayment where households and firms contribute through payment of premium.

Of the total expenditure on health, only 32 per cent spent through various forms of risk pooling mechanisms (Figure 3.2). Further classifying the different mechanisms of prepayment in the state shows that, general taxation contributes about 23 per cent of the total expenditure followed by social insurance (2 per cent). Voluntary health insurance as a form of prepayment has a very low share in the total health spending of the state (1 per cent). Further, enterprises (public and private) and NGOs taken together contribute 7 per cent of the current health spending in the state. As the government contribution accounts for less than a fourth of the resources mobilized (24 per cent), households OOPs payments at the time of service delivery contributing 69 per cent emerge as the most significant form of resource mobilization for health care expenditure in Tamil Nadu. Such a situation of relatively low level of risk pooling and prepayment places the households at the risk of impoverishment and catastrophic expenditure due to health care.

Figure 3.2 : Pooling of Resources: Distribution of Total Health Expenditure by Prepayment and Direct Payment



Source: SHA Tamil Nadu database 2013-14.

3.3 Who pays for health care in Tamil Nadu?

A health financing scheme in the SHA (2011) framework is defined as the main type of financing arrangement through which health services are paid for and obtained by the people. A financing scheme may raise its revenues from several sources, and it can be operated by more than one type of institutional unit (financing agent). For example, social health insurance may raise its revenues not only by way of contribution payments by employees and employers, but also by means of transfers from the general government budget. Furthermore, the government and private insurance companies together may operate a government-funded voluntary health insurance scheme (CMCHIS).

It may be noted that several entities incur expenditure on health in the state. Among them, households contribute about 68 per cent of the total expenditure on health, while state government is the other significant entity with a contribution of more than 16 per cent. Central government, through Centrally sponsored schemes like the National Health Mission as well as Central sector schemes such as JIPMER, contributes around 4.87 per cent of the total spending. In terms of per capita spending, this translates into INR 648 per person on part of the state government and INR 201 per person by the Central government (Table 3.3).

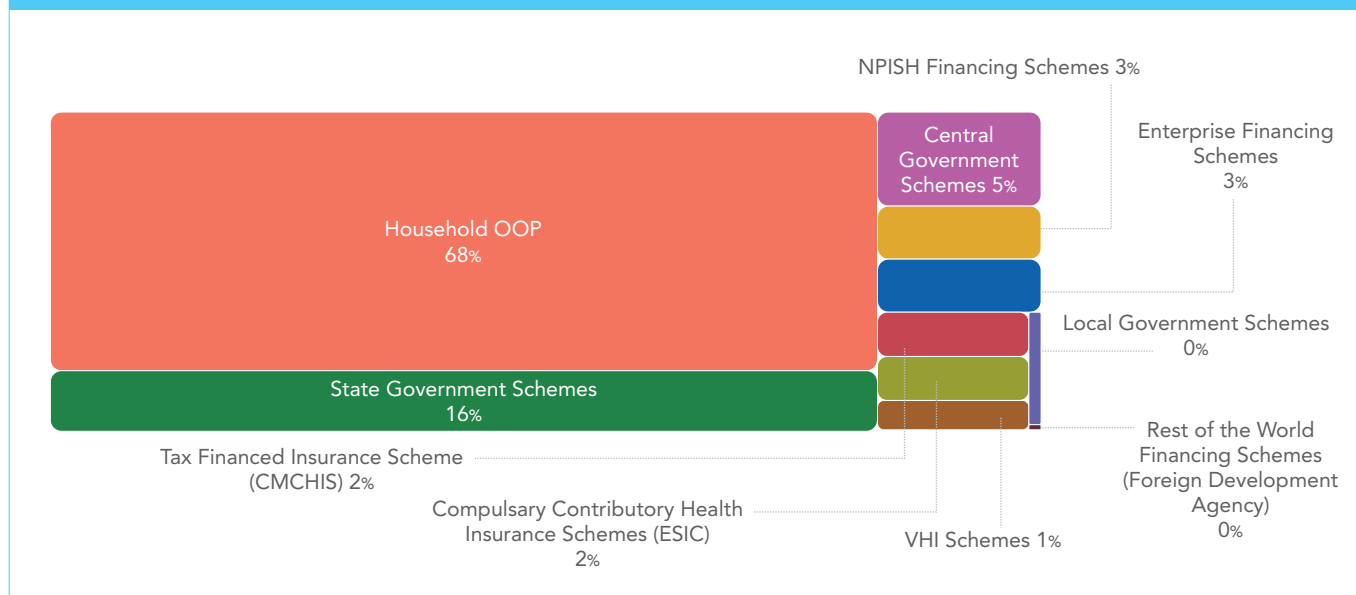
The Employees' State Insurance Scheme (ESIS) accounts for 2.1 per cent of the current health expenditure and CMCHIS, a State Government tax financed insurance scheme has a similar share in total health spending of the state. The share of Voluntary Health Insurance (VHI) in the health expenditure is very low at 1.4% indicating the very low penetration of this scheme. Further, enterprises (2.7 per cent) and non-profit institutions (2.8 per cent) are other private entities that spend on health care in Tamil Nadu.

Table 3.3: Health Expenditure by Financing Schemes in Tamil Nadu: 2013-14

Schemes	Current Health Expenditure (INR Crores)	Share (In %)	Per Capita (INR)
Central Government Schemes	1514.5	4.9	201
State Government Schemes	4885.5	15.7	648
Local Government Schemes	178.6	0.6	24
Tax Financed Insurance Scheme (CMCHIS)	664.2	2.1	88
Compulsary Contributory Health Insurance Schemes (ESIC)	643.7	2.1	85
Household OOP	21029.5	67.7	2791
VHI Schemes	441.7	1.4	59
Enterprise Financing Schemes	847.1	2.7	112
Rest of the World Financing Schemes (Foreign Development Agency)	4.9	0	0.7
NPISH Financing Schemes	875.1	2.8	116
Total	31084.6	100	4125

Source: SHA Tamil Nadu database 2013-14

Figure 3.3: Distribution of Health Expenditure by Financing Schemes in Tamil Nadu: 2013-14



Source: SHA Tamil Nadu database 2013-14

3.4 Which entities manage health spending in Tamil Nadu?

Health Financing Agents (HFA) are institutional units that administer health-financing schemes, they are involved in revenue collection and/or the purchase of services from providers. Examples include local governments, social insurance agencies, private insurance companies, non-profit organizations, and so on. A financing scheme may raise its revenues from several sources, and can be operated by more than one type of institutional unit (financing agents). For example, social health insurance may raise its revenues not only from the contribution made by employees and employers, but also get funds via general government budget. Furthermore, a government unit and private insurance companies may jointly operate a government-funded voluntary health insurance scheme such as CMCHIS.

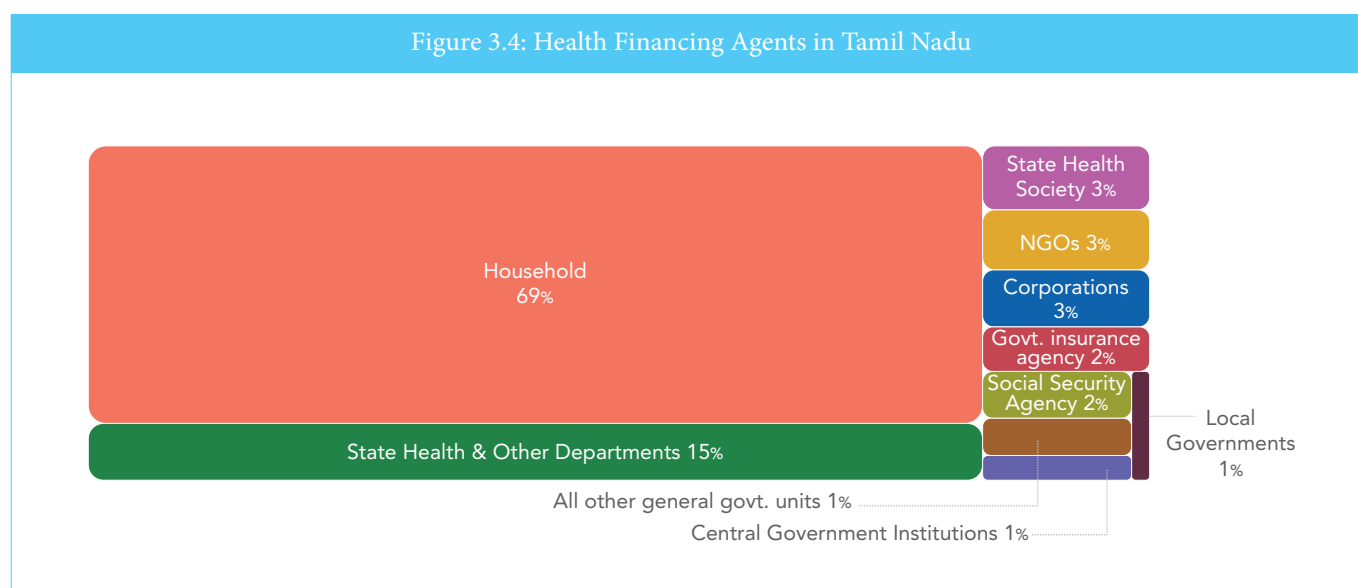
It may be observed that out of the total health expenditure during the year 2013-14, 69 per cent was spent by households (Table 3.4). Agencies of the government which include Health and other departments in the State government, State Health Society, government insurance agency and local government together, administered 24 per cent of the total health spending in the state.

Table 3.4: Health Expenditure in Tamil Nadu by Agents

Health Financing Agents	Expenditure (INR crores)	Share (In %)
Central Government Institutions	366.3	1.2
State Health & Other Departments	4694.7	15.1
Local Governments	178.6	0.6
State Health Society	914.8	2.9
Social Security Agency	588.6	1.9
All other general govt. units	484.3	1.6
Govt. insurance agency	664.2	2.1
Corporations	847.1	2.7
NGOs	875.1	2.8
Households	21471.2	69.1
Total	31084.6	100

Source: SHA Tamil Nadu database 2013-14

Figure 3.4: Health Financing Agents in Tamil Nadu



Source: SHA Tamil Nadu database 2013-14.

The State Department of Health and other Government Departments are the major agents in the administration of schemes with a corresponding share of 15.10 per cent and 1.56 per cent in total health expenditure respectively. CMCHIS, the government insurance agency in Tamil Nadu, manages around 2.14 per cent of the total spending. Firms in Tamil Nadu spend around 2.73 per cent, whereas local bodies spend approximately 0.57 per cent. NPISHs (NGOs) also have a role to play as agent, serving an agency function for about 2.82 per cent of the total health spending.

3.5 What health care services are provided in Tamil Nadu?

The functional classification of health care outlines the purpose of health care consumption and delineates the boundaries of health care as per SHA 2011 guidelines. It deals in activities with the primary purpose of improving, maintaining and preventing the deterioration of health status of persons, and mitigating the consequences of ill-health through the application of qualified health knowledge [medical, paramedical and nursing knowledge], which includes modern medicine and technology as well as traditional, complementary and alternative medicine].

It may be observed, health care can be consumed at an individual level or collectively. As health status is an attribute of individuals, consumption of health services is mainly undertaken by specific individuals and thus, is related to private consumption and individual needs. By contrast, collective services are aimed at the whole population (or sections of the population) and aim to improve overall health standards or the effectiveness and efficiency of the health system which simultaneously benefits all users. These services are diverse and not directly related to individual users, but linked to interventions on the whole health system or its sub-components, such as monitoring and evaluation of specific disease-control programs, in addition to governance and administrative services.

Inpatient curative care has the highest share in total spending, which accounts for 29.4 per cent of the total expenditure. Among the other functions, expenditure on pharmaceutical goods accounted for the second highest share (29 per cent) in the state (Table 3.5⁷). Outpatient curative care, with a share of 18 per cent, is the other important element of health spending. Further, ancillary services have a share of 7 per cent in the total health expenditure. Patient transportation as a function of health expenditure contributes about 5.3 per cent of the total health spending in the state. Importantly, healthy condition monitoring programmes (which include provision of antenatal care) capture more than 4 per cent of the total health expenditure of Tamil Nadu.

7 Inpatient Curative care also includes Inpatient Rehabilitative Care. Outpatient curative care represents outpatient curative care, day curative care, home-based curative care and outpatient rehabilitative care. Ancillary services include both laboratory and imaging services. Therapeutic appliances and other medical goods, IEC, Immunization programme, early disease detection programme, epidemiological surveillance and risk and disease control programme, preparing for disaster and emergency response programmes, and other health care services not elsewhere classified (n.e.c.) have been reported as other functions.

Table 3.5: Health Expenditure in Tamil Nadu by Function [Private plus Govt.]

Health Care Function	Expenditure (INR Crores)	Share (In %)
Inpatient Curative Care	9142.6	29.4
Outpatient Curative Care	5710.5	18.4
Ancillary Services	2201.7	7.1
Patient Transportation	1644.5	5.3
Pharmaceuticals and other medical non-durable goods	8999.4	29
Healthy Condition Monitoring Programmes	1247.4	4
Governance & Health System Administration & Financing	555.8	1.8
Others	1582.8	5.1
Total	31084.6	100

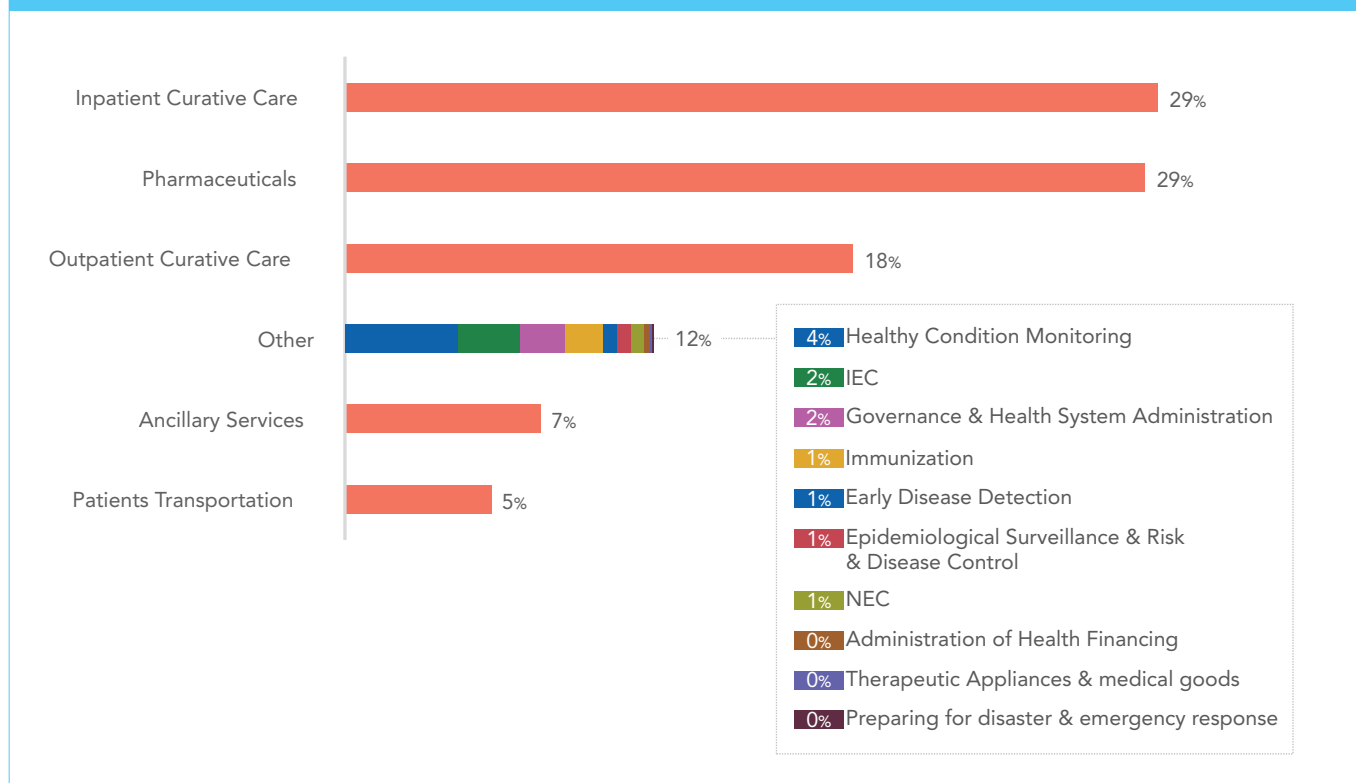
Source: SHA Tamil Nadu database 2013-14

Different types of preventive care constitute more than 8 per cent⁸ of all health expenditure (Figure 3.5). Expenditure on governance and health system and financing administration is about 2 per cent. All other functions together contribute around 1 per cent of the total health expenditure in Tamil Nadu.

It has to be noted here that a major part of expenditure on pharmaceuticals and other medical non-durable goods care is on account of outpatient care. If we allocate this percentage of pharmaceutical expenditure (23 per cent) to outpatient curative care, total resources spent on outpatient care becomes highest (41%).

⁸ Preventive care includes immunization programmes, early diseases detection programmes, healthy condition monitoring programmes, epidemiological surveillance and risk and diseases control programmes, and preparing for disaster and emergency response programmes.

Figure 3.5: Current Expenditure on Health by Functions: 2013-14

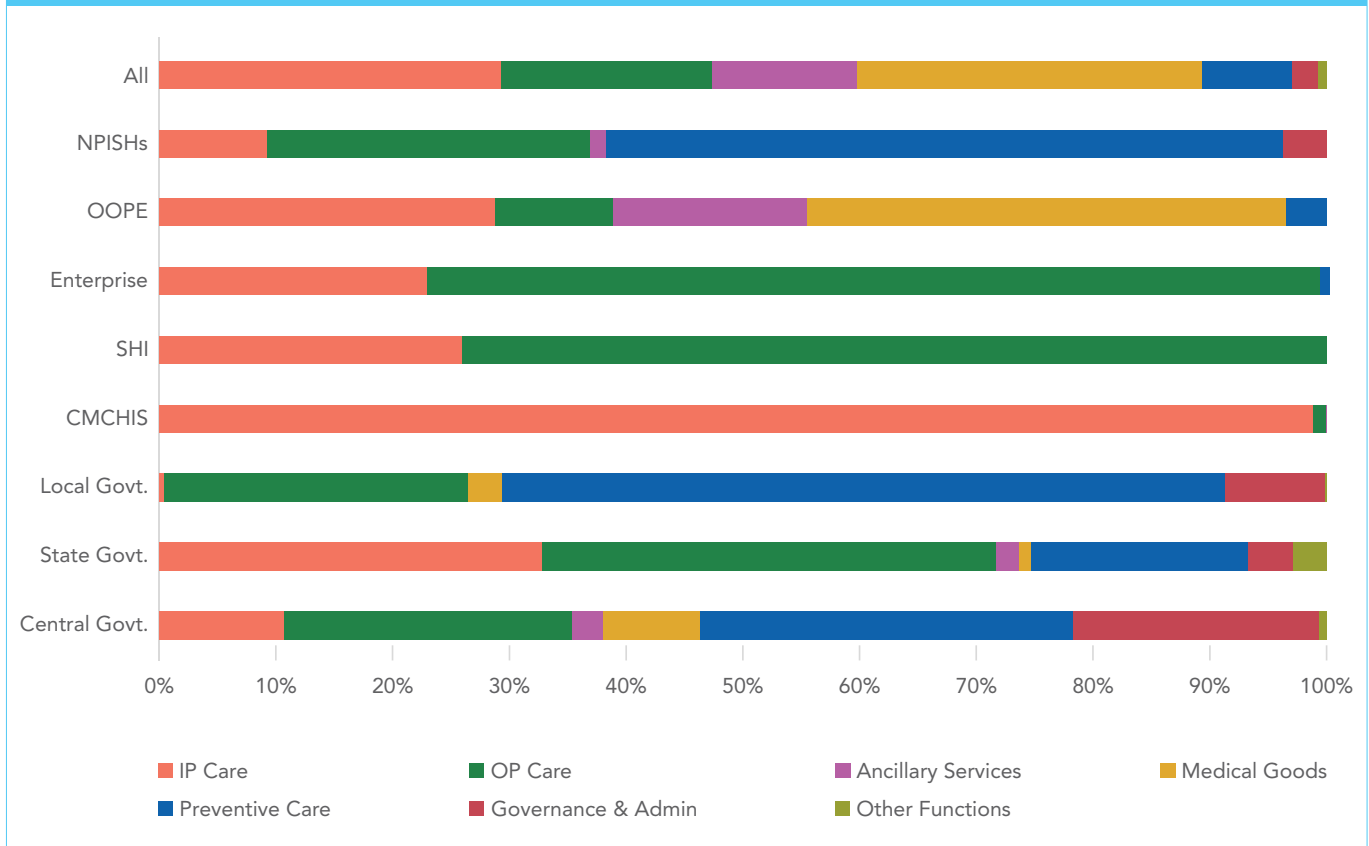


Source: SHA Tamil Nadu database 2013-14.

3.6 What kinds of services are provided by different entities in Tamil Nadu?

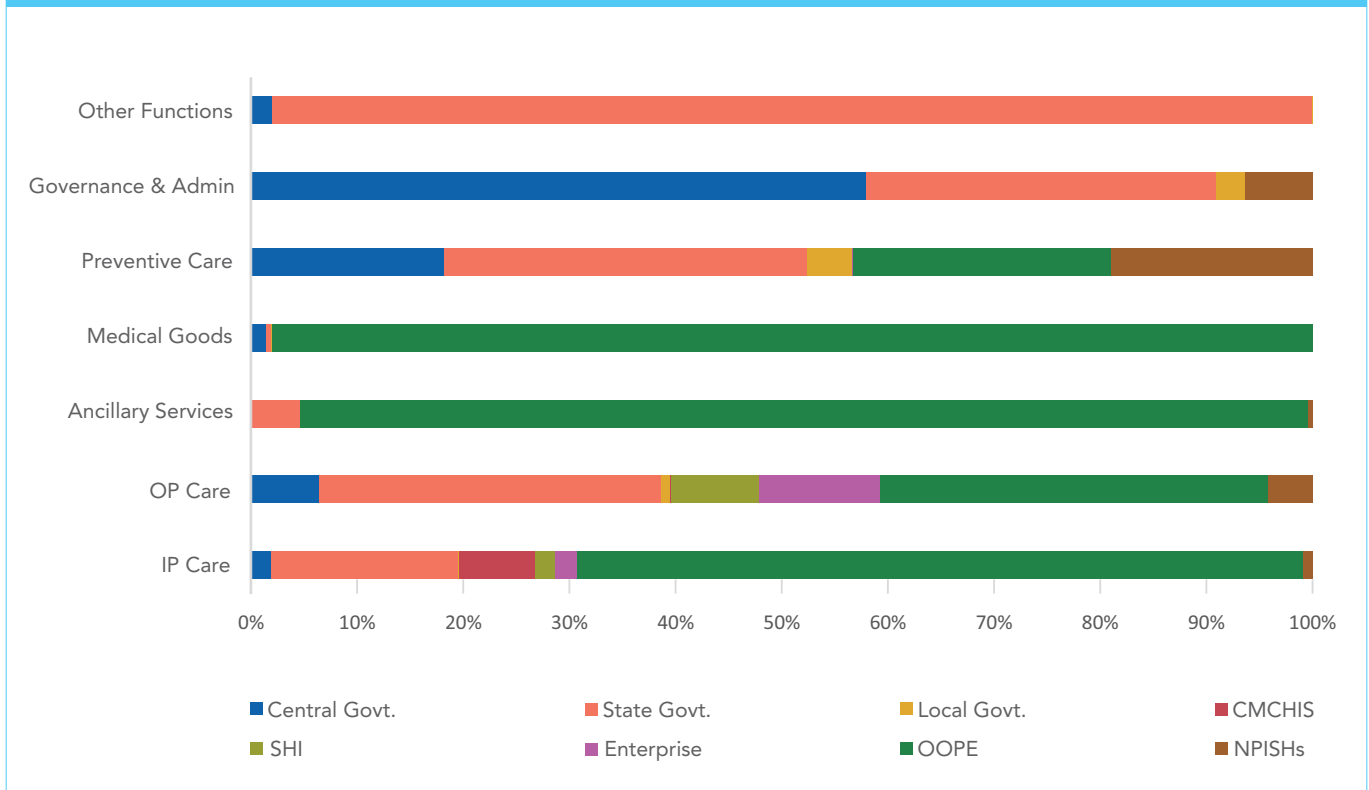
It is observed that the maximum share of the total expenditure of the State Government goes to provide outpatient care in Tamil Nadu (Figure 3.6). Preventive services form the highest proportion of expenditure incurred by the Central Government and local bodies followed by outpatient care. While the tax financed health insurance scheme (CMCHIS) of Tamil Nadu is mainly focused on inpatient care services, a small of the expenditure by the social health insurance schemes has been incurred to provide outpatient care services, diagnostics and other ancillary services. A substantial proportion of the total Out-of-Pocket spending by the households is used to purchase medical goods (mainly medicines) followed by the purchase of inpatient care services in the state. It needs to be noted that despite several financing mechanisms in the state, households still end up incurring the largest proportion of expenditure on inpatient as well as outpatient care. As per Table 1.4, the utilization of private facilities is quite high in the state, which may be further fueled by insurance schemes. This indicates limitations of SHIs in curbing OOP expenditure related to Inpatient care.

Figure 3.6: Health Care Functions by Different Entities in Tamil Nadu



Source: SHA Tamil Nadu database 2013-14.

Figure 3.7: Health Care Entity-wise distribution of Functions in Tamil Nadu



Source: SHA Tamil Nadu database 2013-14.

In these circumstances, it would be interesting to estimate the share of each entity in the provision of different health care services in Tamil Nadu. As can be observed from Figure 3.7, both medical goods and inpatient care are provided through Out-of-Pocket expenditure (OOPE) by households. Though outpatient care is also mostly incurred as out-of-pocket payment, a significant share is also incurred by the State Government. Though preventive care services are largely financed through state government, households also spend a some proportion in the upkeep of total preventive care services in the state, mainly for immunisation and ante-natal and post-natal care. Moreover, NGOs, Central Government and local bodies also play a role in financing provision of preventive care services in Tamil Nadu.

It needs to be noted that despite several financing mechanisms in the state, households still end up incurring the largest proportion of expenditure on inpatient as well as outpatient care. This may be due to the high utilization of private facilities (Table 1.4) in the state and the relatively low level of risk pooling (Fig 3.2). This indicates that the Social Health Insurance schemes have had a limited impact in reduction of OOPs expenditure in the state.

3.7 What are the inputs used to produce health care services in Tamil Nadu?

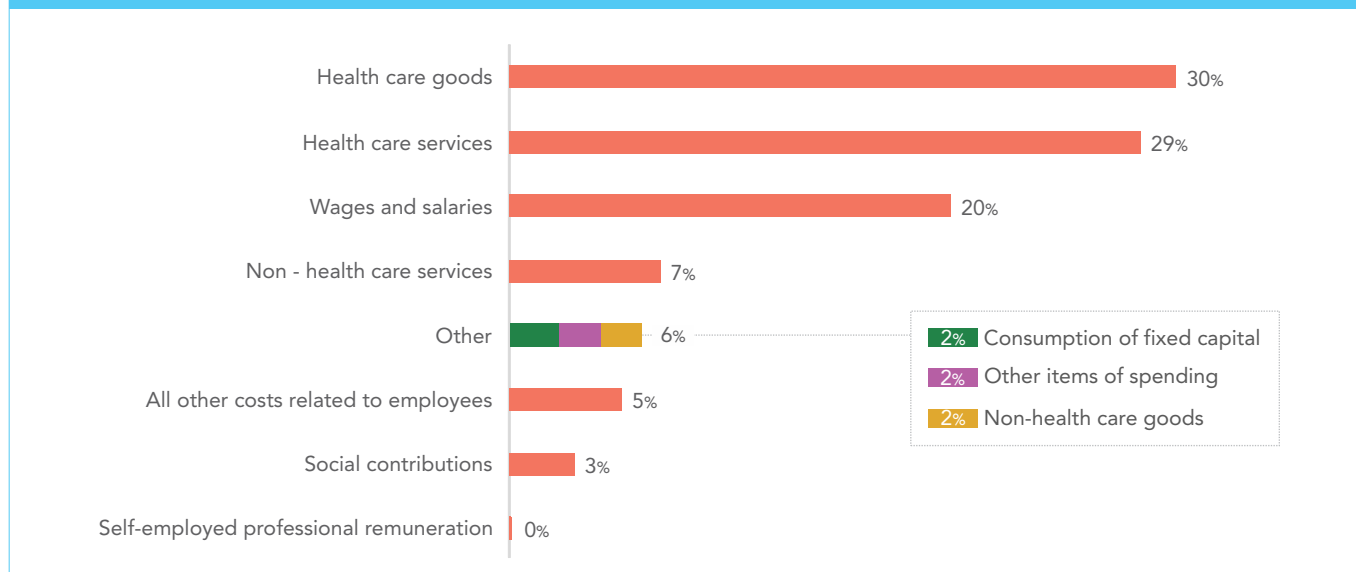
Factors of provision in the health sector refer to the value of inputs that are used in the production of health care. It also includes non-health specific inputs needed to generate health services. Some of the common factors of provision as laid out by SHA 2011 guidelines, include:

- Labour involved in health care, security, maintenance, and other services.
- Capital consumed, which includes buildings, and medical and office equipment.
- Medical materials such as sutures and syringes, as well as non-medical inputs such as electricity, water, and cleaning supplies.
- Externally purchased services, which may include laboratory services, legal services, and any outsourced support services, such as food preparation for patients, cleaning, security and garden services, and other administrative services.
- Non-health specific inputs needed to generate health services.

For the calculation of factors of provision in Tamil Nadu⁹, Health care goods are the single largest inputs in health service provisioning in Tamil Nadu, accounting for 30 per cent of total expenditure (Figure 3.8). Health care services constitute 29 per cent of the expenditure, while salaries and wages constitute around 20 per cent of the total spending. Fixed capitals accounts for 2 per cent of the total spending in Tamil Nadu during 2013-14. Non health care services and non-health care goods have a share of 7% and 2% of the total expenditure respectively.

⁹ We have included all except expenditure by CMCHIS (tax financed health insurance scheme) and Jawaharlal Institute of Postgraduate Medical Education (JIPMER) since the expenditure detail for these entities are not available.

Figure 3.8: Distribution of Health Expenditure in Tamil Nadu by Factors of Provision



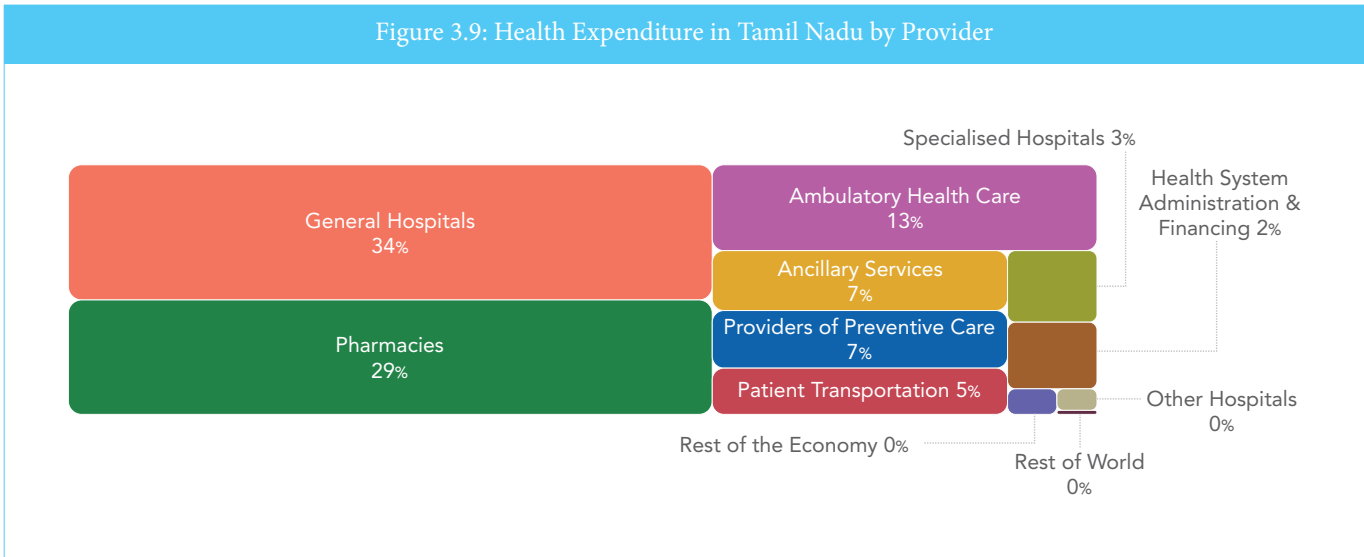
Note: The calculation of Factors of Provision excludes the expenditure of CMCHIS and JIPMER
 Source: SHA Tamil Nadu database 2013-14

3.8 Who are the health care providers in Tamil Nadu?

Health care providers are the final recipients of the health care funds and encompass various organizations that deliver health care goods and services as their primary activity. According to SHA 2011 guidelines, health care providers can be divided into two kinds, primary providers and secondary providers. Primary providers are those whose principal activity is to deliver health care goods and services. Common examples of primary providers are general and specialist physicians, emergency and ambulance services, hospitals, health centers, laboratories, nursing care facilities, and pharmacies. Secondary providers include providers of health care system, administration and financing (HP.7 and , households as providers of home health care (HP.8.1).

General hospitals constitute the providers receiving the largest share of health expenditure (34 per cent) in the state followed by pharmacies, with a share of 29 per cent (Figure 3.9). Providers of ambulatory health care spend about 13 per cent, while those providing ancillary services account for 7 per cent of the total expenditure. Specialized hospitals as provider of health care services are estimated to have incurred about 3 per cent of the total health spending. Other important providers in Tamil Nadu are those providing transportation for patients (5 per cent), providers of preventive care (7 per cent), and health system administration and financing (2 per cent).

Figure 3.9: Health Expenditure in Tamil Nadu by Provider



Source: SHA Tamil Nadu database 2013-14

3.9 What is the cost of public and private providers?

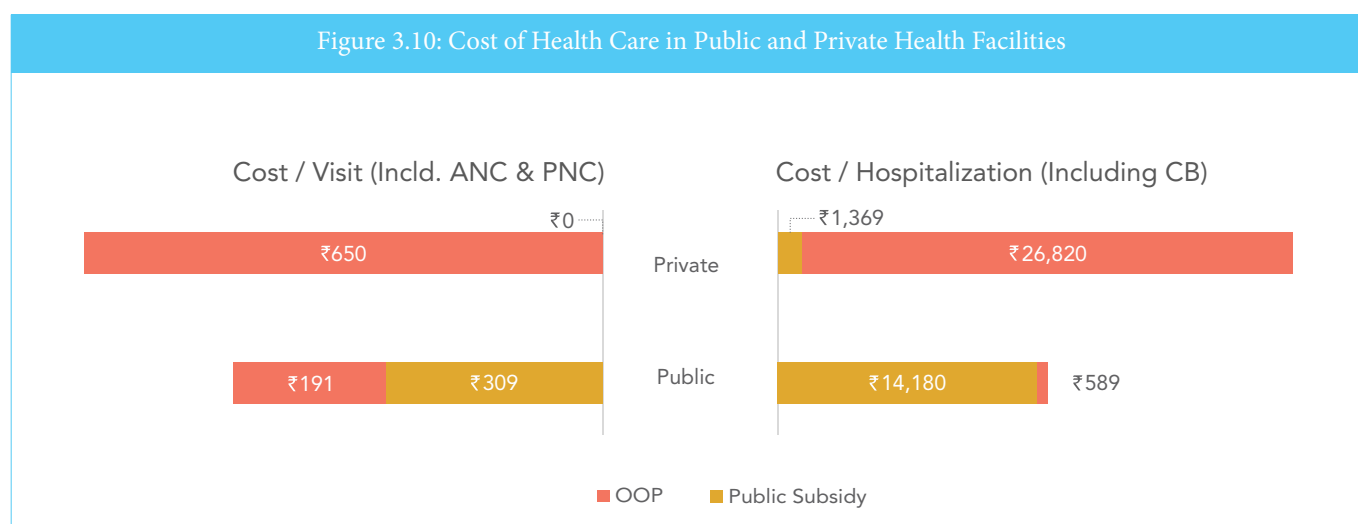
An important indicator that follows from the SHA exercise is the cost of care incurred by public and private providers. Results from the 71st Round of the NSSO Survey have shown that the household Out-of-Pocket (OOP) expenditure is much lower for treatment in public hospitals compared to the private ones. This is so, because OOP to a household in a public hospital does not represent the full cost of service. Out-of-pocket payment in public health care delivery system is much lower because of inbuilt subsidies such as salaries of doctors and paramedical staff, cost of land, building, and equipment, and free medicines provided by the health care facilities.

It is important to take into account the hidden costs in the public and private health care delivery systems in order to compare the cost-effectiveness of providing financial protection through purchase of care from the private sector as against direct provisioning through the public sector. However, there are some limitations to this exercise. Firstly, many private sector hospitals also receive public subsidies in terms of land costs, equipment, tax concessions, subsidized medical education among others, which are not captured in the SHA data.

We know that of the total health expenditure, roughly a fifth (21 per cent) is public health expenditure (2010), and the rest is household Out-of-Pocket Expenditure. However, this government expenditure on health care covers 39 per cent of all rural and 27 per cent of all urban outpatient care, about 40 per cent of all rural inpatient and 29 per cent of all urban inpatient care, about 67 per cent of all institutional delivery in rural areas and 49 per cent in urban areas and almost 100 per cent of all preventive and promotive care services (which includes a wide basket of public services such as immunization, vector control and disease surveillance). Additionally, it also covers a substantial portion of medical and nursing education as well as other essential functions like the medico-legal services.

Using the SHA exercise to arrive at the expenditure on curative inpatient and outpatient care, we have tried to capture the cost of providing one hospitalization episode and one outpatient visit in public and private facilities. While calculating the cost of public facilities, we have added government subsidy for inpatient and outpatient care along with the household Out-of-Pocket Expenditure for these services while using public facilities. In case of private sector most part of the cost is borne by households. It is only through State Sponsored Insurance Scheme that government pays a part of the cost of hospitalisation (which is the subsidy to the patients eligible for the insurance coverage) in private sector, through reimbursement to private providers on case basis. Here, we have calculated the cost of care through insurance along with OOPs. A part of reimbursement is also received by public sector, which has been accounted for while estimating the subsidy to public sector. Apart from this, the government also provides other input subsidies such as reduced land prices, reduced rates for electricity, exemption on import duties on medical devices to the private sector hospitals which have not been accounted for in case of both public and private sector.

Figure 3.10: Cost of Health Care in Public and Private Health Facilities



Source: Estimated from SHA matrix, NSS 71st round data and CMCHIS Database. Note: CB-Child Birth, ANC-antenatal care, PNC-postnatal care.

Comparing the costs of treating one hospitalization episode in Tamil Nadu (Figure 3.10), we could find that the cost in private sector (INR 28,189) is about two times higher than the public sector (INR 14,770). Moreover, it is also observed from the analysis that the government provides INR 14,180 as subsidy per hospitalization case in Tamil Nadu, when patients seek care in public sector (96 per cent of the total cost). It is estimated that during 2013-14, the private sector received INR 1,369 (about 5 per cent of the total cost) per hospitalization as subsidy from the government. Similarly, it has been observed that the cost difference between the public and the private sector in Tamil Nadu is very high for outpatient care. Cost for a single outpatient visit in private institutions amounts to 1.5 times higher than in a public sector facility.

Given the current policy discourse on promoting private sector provisioning (through outsourcing), our evidence through SHA clearly shows that provisioning through public sector is more cost-effective. In the long run, as public sector infrastructure become expands, the overall cost of provision will come down even more significantly over time with more fixed assets in place.

3.10 Concluding Observations

We have tried to address some of the crucial health financing questions in this chapter. Apart from capturing the magnitude of health expenditure by various entities in the system, we have assessed the extent of financial protection, and identified major functions and providers of the health expenditure in the state. Among the different health schemes operating in the state, around 69 per cent is accounted for by the households, where the mode of payment is direct. Thus, it is observed that expansion of prepayment and risk pooling mechanism is quite limited in the state. Apart from the households, other important entities incurring health expenditure are the State Department of Health, other State Departments, and the Central Government. The share of other government entities such as local bodies and government-supported insurance scheme is limited. Similarly, other non government entities such as NGOs and firms have a low share in the overall expenditure. It is to be noted that government expenditure has increased considerably over the last decade, thus helping the total spending on health to stabilize as a percentage of GSDP, despite significant growth in income.

Expenditure classified by different health functions (as per SHA guidelines) show majority of the expenditure was on pharmaceutical goods, constituting 29 per cent of overall health expenditure, followed by expenditure on curative care that includes both outpatient and inpatient care with their respective shares of 18 per cent and 29 per cent. Share of other functions such as rehabilitative care, long-term care, and governance and administration of health finance have negligible contribution in the overall health expenditure in the state. Classification based on providers revealed that general hospital is the most important provider of health care in the state followed by pharmacies. Other providers with a significant share of health expenditure include those providing ambulatory health care, ancillary services and patient transportation. Analysis of cost of care for outpatient care and inpatient care indicates the higher cost involved in provision of private health care in Tamil Nadu as compared to the public services.

CHAPTER IV: PUBLIC EXPENDITURE ON HEALTH IN TAMIL NADU

Public expenditure on health in Tamil Nadu includes expenditure incurred by the State Government, the Central Government and the local bodies. The SHA (2011) framework is used to analyze the details of expenditure pattern of all the entities that incur public expenditure in Tamil Nadu. An attempt has also been made to study the health expenditure pattern of each level of government separately.

4.1 How much current public expenditure is made by different entities?

Public expenditure in Tamil Nadu accounts for roughly a fourth of the overall health expenditure, with a per capita expenditure of INR 998 (Table 4.1). The State Department of Health accounts for 58.4 per cent of the total public expenditure with a per capita health expenditure of INR 584). A further significant contribution is made by the tax financed health insurance scheme of the state, the Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS), which contributes about 9 per cent of the total public health expenditure. Various state government departments implement health related schemes as well as spend on the health of their employees, totally accounting for 6.4 per cent of the public health expenditure in the state.

At the Central level, Centrally sponsored schemes, which is mainly composed of the National Health Mission (NHM,) make a significant contribution, with a per capita health expenditure of INR 160, accounting for 16% of overall public health expenditure. The other major component of Central government funding is the Central -sector schemes, largely JIPMER and Railways, which account for 4.1 per cent of the total public expenditure on health. Local Bodies in urban areas, apart from the Central and the State Governments, account for around 2.4 per cent of the total public expenditure in the state.

Table 4.1: Public Health Expenditure at Different Levels in Tamil Nadu

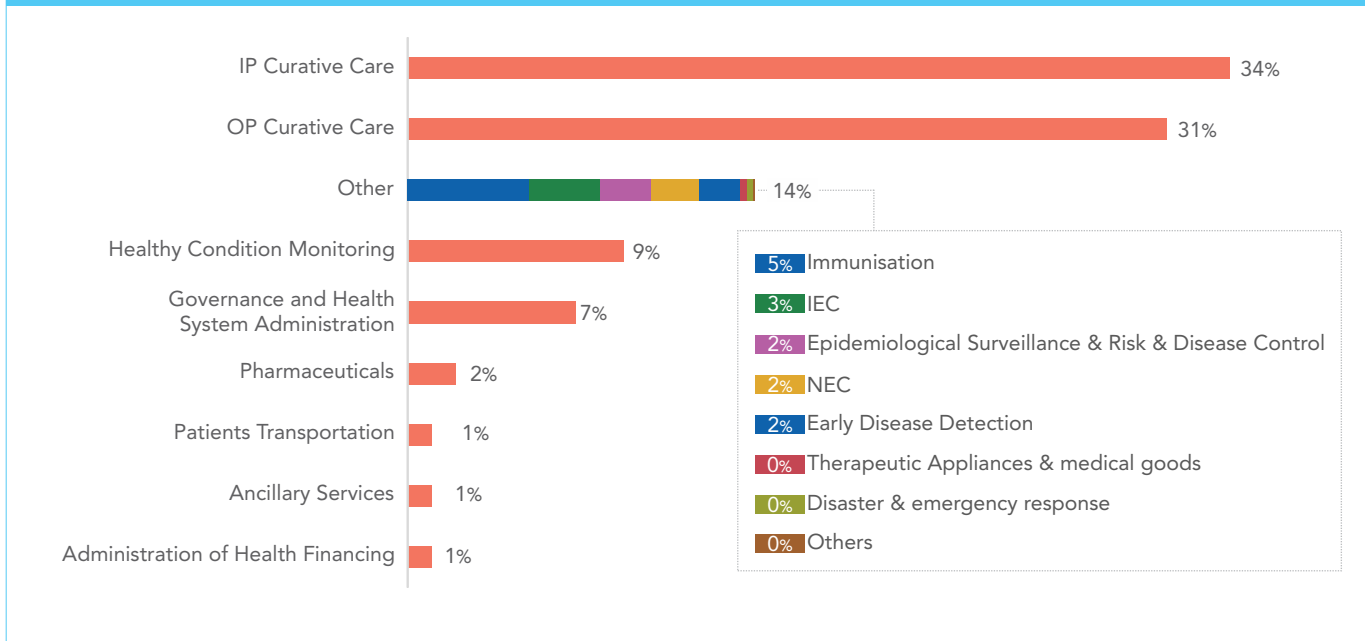
Government	Expenditure (INR Crores)	Per capita Expenditure (INR)	Share in Total Government health Expenditure (In percent)
Central Government			
Centre Sector Scheme	311.2	41.3	4.1
Central Sponsored Scheme	1203.3	159.6	16
State Government			
State Department of Health	4401.2	583.7	58.5
Other Department	484.3	64.2	6.4
Tax Financed Insurance Scheme	664.2	88.1	8.8
Social Health Insurance Schemes (ESIS)	281.8	37.4	3.8
Local bodies			
Urban Local Bodies (ULBs)	178.6	23.7	2.4
All	7524.5	997.9	100

Source: SHA Tamil Nadu database 2013-14

4.2 What kind of health care is provided by the government in Tamil Nadu?

We noted earlier that total public spending is around 1 percent of GSDP. Within this limited investment, the government provides a wide range of curative health care services, emergency and trauma care, besides implementing the entire range of preventive programs and performing various administrative functions as well as mandatory medico-legal responsibilities. It is seen that 65% of the overall resources from the government are spent on curative health service., (Fig 4.1). Of this, inpatient curative care account for 34 per cent in total health expenditure followed by outpatient care with 31 per cent. It is interesting to observe that preventive services contribute about 20 per cent of the total expenditure in Tamil Nadu. Healthy condition monitoring with a share of 9 per cent in total expenditure of the government has the highest share among the different preventive services followed by immunization (5 per cent), IEC program (3 per cent) and epidemiological surveillance and early disease detection (each at 2 per cent). Governance and health system administration accounts for 7 per cent, whereas pharmaceuticals have only a 2 per cent share of the public health expenditure in the state. This is because pharmaceuticals and drugs distributed through the public facilities are treated as part of curative care services.

Figure 4.1: Functional Classification of the Public Expenditure in Tamil Nadu (2013-14)

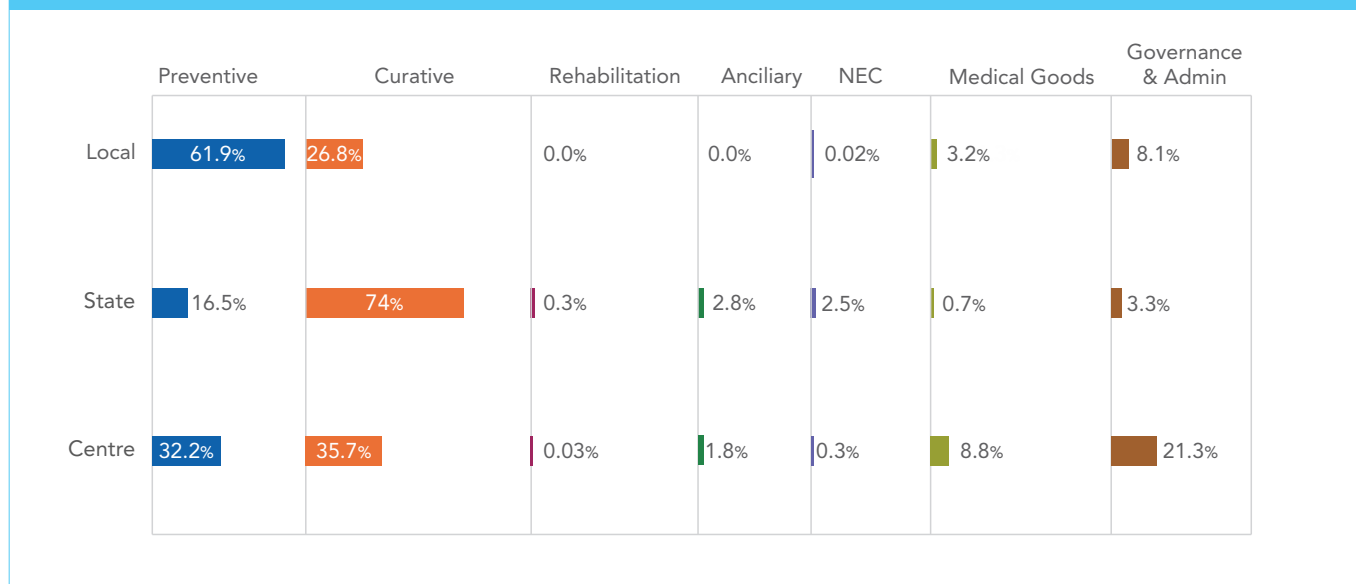


Source: SHA Tamil Nadu Database 2013-14.

4.3 What kind of care is provided by the Central Government?

Overall, the share of Union Government in total public expenditure is 20 per cent with a per capita health expenditure of INR 201. Health functions supported by the Central Government are focused on curative services with around 36 per cent of total expenditure devoted to in-patient and outpatient care (Figure 4.2). Preventive services, another important component, accounted for 32 per cent of the overall expenditure. Within the category of preventive services, one third of the expenditure is on healthy condition monitoring programmes, due to the continued priority on maternal and child health services. Governance and administration accounted for around 21 per cent of the total health expenditure. However, a major part of the expenditure actually is made to provide family welfare incentives in the state. Medical goods, on the other hand, accounted for 9 per cent of the funds.

Figure 4.2: Functional Classification of Public Expenditure by Level of Government in Tamil Nadu

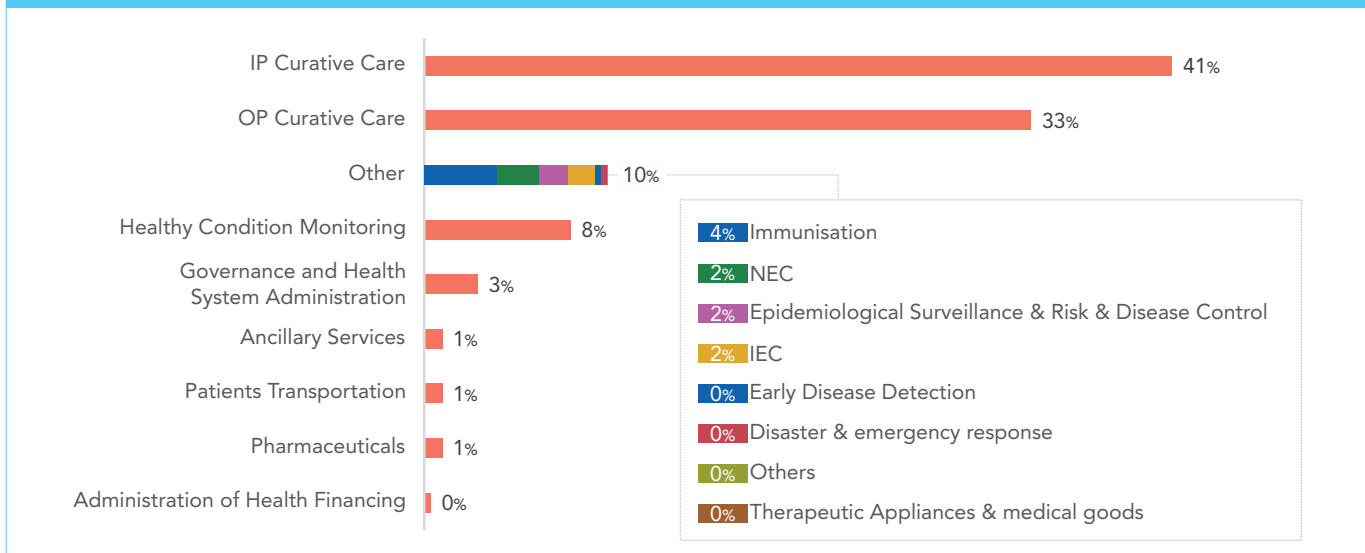


Source: SHA Tamil Nadu Database 2013-14.

4.4 What kind of care is provided by the State Government?

The State government in Tamil Nadu spends on health through various financing schemes, managed by multiple entities. The most important entity managing health expenditure in the state is the Department of Health, followed by the tax financed health insurance scheme namely, CMCHIS. Other entities which manage health spending include Departments and the State's contribution in social security programme such as ESIS. The state's share in the overall public expenditure is around 78 per cent. Out of different contributions within the state, with the share of 58 per cent, the Department of Health accounts for a majority of expenditure. Functional classification of health expenditure by the state government shows prominence of curative care, as a large share of the resources are incurred in meeting the curative treatment needs of the population (Figure 4.3). It may be noted that, most of the expenditure at the state-level is on inpatient services, which accounts for 41 per cent of the total expenditure. Further, Outpatient care is another important function of the state with a relative share of 33 per cent. Preventive services account for 17 per cent, with healthy condition monitoring getting the maximum focus, where 8 per cent of total money is spent. The governance and administration accounts for 3 per cent of the total expenditure of the state government on health. The share of medical goods (pharmaceuticals) is only 1 per cent of the overall expenditure.

Figure 4.3: Functional Classification of the State Government's Expenditure

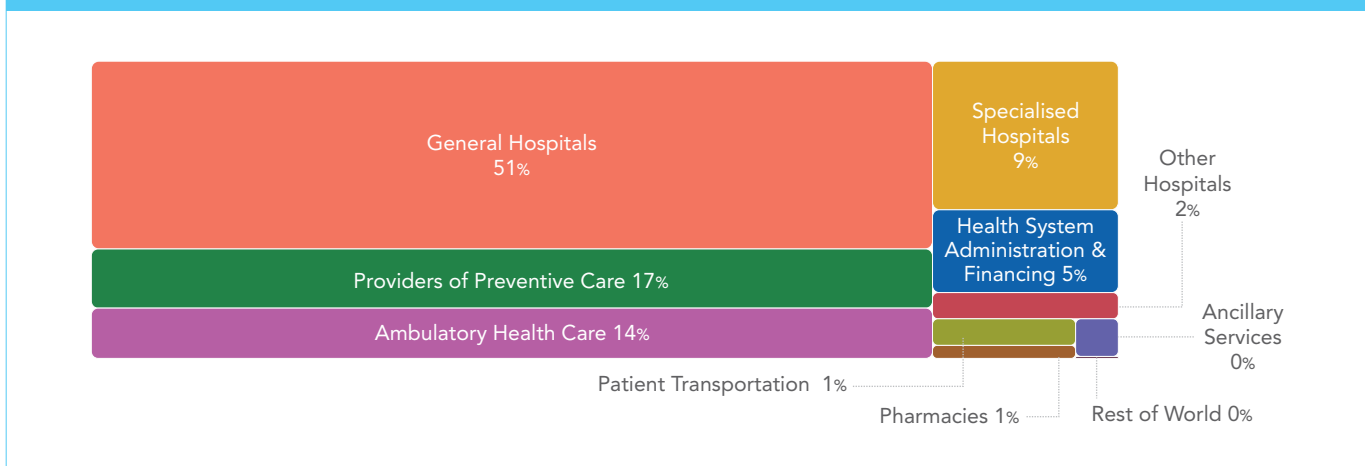


Source: SHA Tamil Nadu database 2013-14.

4.5 Who are the health care providers of the State Government's health expenditure in Tamil Nadu?

The health care providers getting funds from the State Government have been analyzed and presented in Figure 4.4. It has been observed that the general hospital constitutes the largest share as a provider, receiving 51 per cent share of the total expenditure of the State Government on health. Providers of the preventive care services are estimated to have a share of about 17 per cent of the total health expenditure of the State Government. Ambulatory health care services providers account for 14 per cent of the State Government's health expenditure, followed by specialized hospitals (9 per cent). Other important providers of the health care services in Tamil Nadu are those providing health system administration and financing (5 per cent), and patient transportation (1 per cent). Last but not the least, about 1 per cent of the total State government expenditure on health is received by pharmacies.

Figure 4.4: Providers of State Government's Expenditure on Health in Tamil Nadu

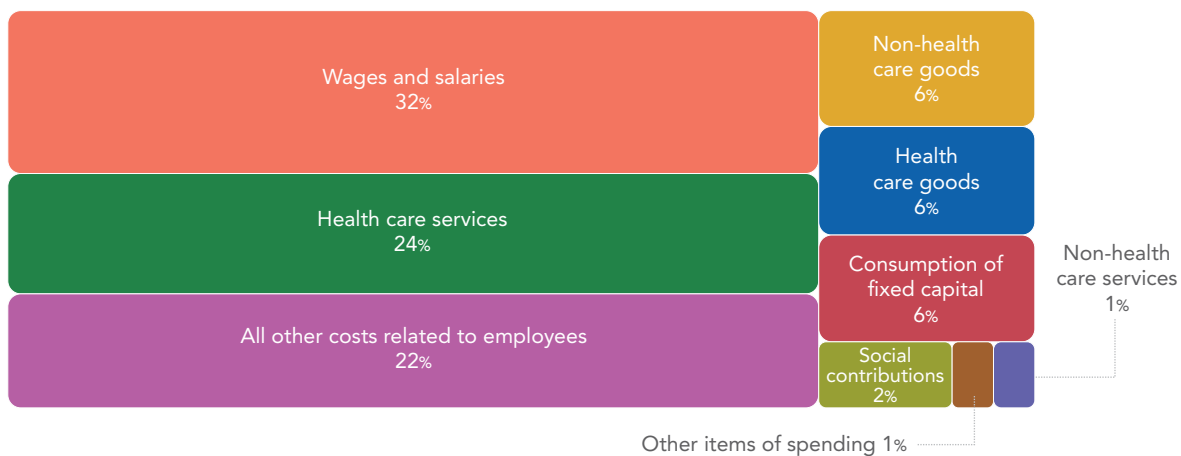


Source: SHA Tamil Nadu database 2013-14.

4.6 What are the inputs used by the state government for producing health care services in Tamil Nadu?

Here we provide estimates of factors of provision for state department of health, state's contribution in NHM and other state departments' expenditure on health together. It is observed, of the total State spending on health, about 32 per cent is spent on salaries and wages (Figure 4.5). While health care services account for 24 per cent, all other costs related to employees (22 per cent) also form a significant factor in health expenditure by the State Government. Non-health care goods (6 per cent), health care goods (mainly pharmaceuticals) (6 per cent) and social contributions (2 per cent) are factors having a much lower proportion of the State health expenditure. Fixed capital contributes to about 6 per cent of the total spending. It is evident from the analysis that more than half of the total health expenditure of the state government goes into employee related inputs. Medicines constitute a very small proportion of the total government spending, since expenditure on all drugs distributed through the health system are accounted for, as "Health care services" (see Figure 4.5).

Figure 4.5: Factors of Provision of Health Expenditure of the State Government in Tamil Nadu



Source: SHA Tamil Nadu database 2013-14.

4.7 What is the role of the Local Bodies?

Besides providing different services, the Urban Local Bodies (ULBs) play an important role in provision of health care for their citizens. In Tamil Nadu, there are three types of ULBs, the Municipal Corporations, Municipalities, and the Town Panchayats. The Municipal Corporations mostly cater to the large urban centers whereas the Municipalities cater to small urban areas and Town Panchayats are present in transitional areas or areas that is gradually becoming urban. In this study we have only captured Municipal Corporations and Municipalities for analysis. Town Panchayats are not included due to their very weak financial base. As per the study done by Chary, S.V and Prasad, D.R (2014) for fourteenth finance commission, Town Panchayats in the state are

mostly dependent on the grants with very limited resource generating capacity. Own revenue of Town Panchayat account for mere 13 per cent of total revenue generated by urban local bodies. Even in case of transfer of resources from centre and state, the share of Town Panchayats is very small as municipal corporations and municipalities gets around 80 percent of total financial devolution. With low financial base and given the fact that ULBs below corporation level spend very less on health in the state (fig 4.7) it is assumed that health expenditure of Town Panchayat will be negligible(Chary, S.V and Prasad, D.R 2014¹⁰),

As per the Census data of 2011, there are 13 Municipal Corporations and 123 Municipalities in the state. The ULBs in Tamil Nadu function under the Tamil Nadu District Municipalities Act 1920, which is a unified Act for Municipalities and Corporations barring Chennai, which is registered under Madras Municipal Corporation Act, 1919. Both these acts have been amended after the 74th amendment to give adequate powers to local bodies. Some of the important health functions undertaken by the local bodies include:

1. Vector control.
2. Prevention and control of diseases.
3. Ensuring public health standards in case of food adulteration, hygiene, etc.
4. Curative Care for both inpatient and outpatient episodes.
5. Family welfare services

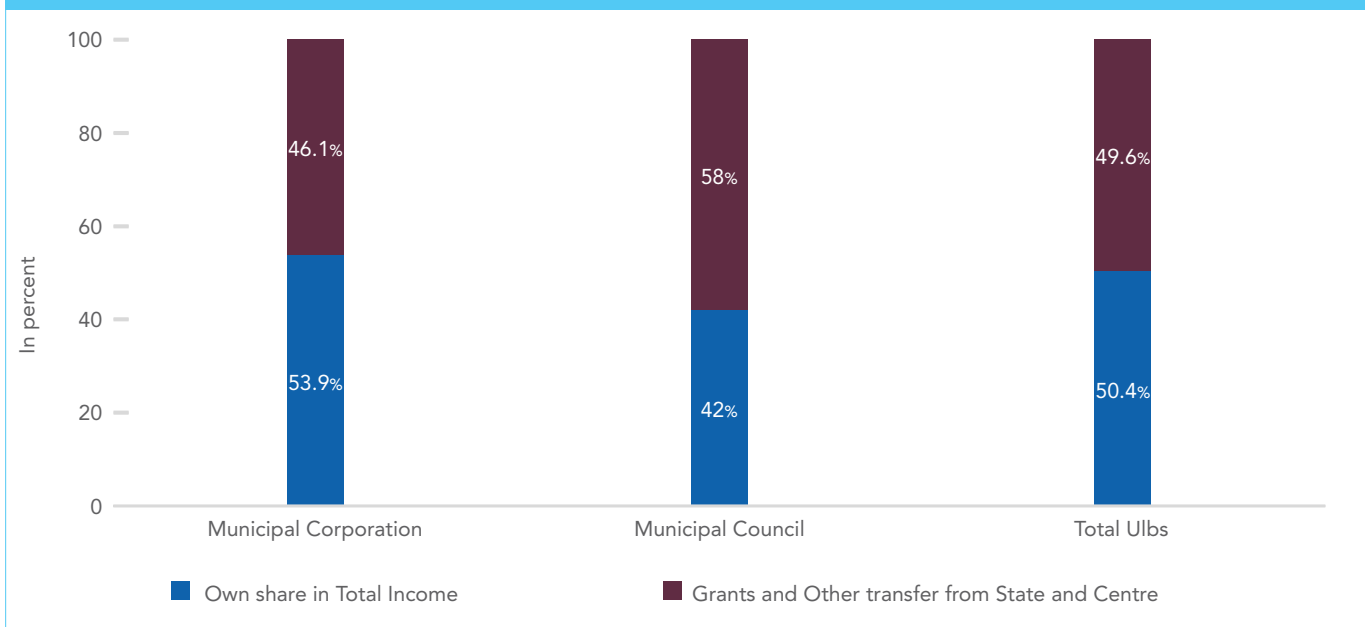
Some of the common forms of health facilities of the ULB, where these services are provided include urban health posts, dispensaries, maternity centers, maternity homes and hospitals.

4.7.1 Revenue and Expenditure of ULBs in Tamil Nadu

The functioning of the ULBs in the state depends upon fund transfers from the Central and the State government along with their own revenue sources. Funds transferred from state and central government include general purpose funds as well as maintenance and development fund as per the recommendation of the Finance Commission and Grant-in-aid for implementing specific schemes Their own sources of revenue include revenue received through different types of taxes such as property tax, professional tax, entertainment tax, etc., as well as the non-tax component which includes different user fees, income from rent, etc.

10 Chary, S.V and Prasad, D.R (2014), Municipal Finance and Service Delivery in India. Urban Governance Area, Academic Staff College of India (ASCI), Hyderabad

Figure 4.6: Sources of Revenue for ULBs in Tamil Nadu (2013-14)

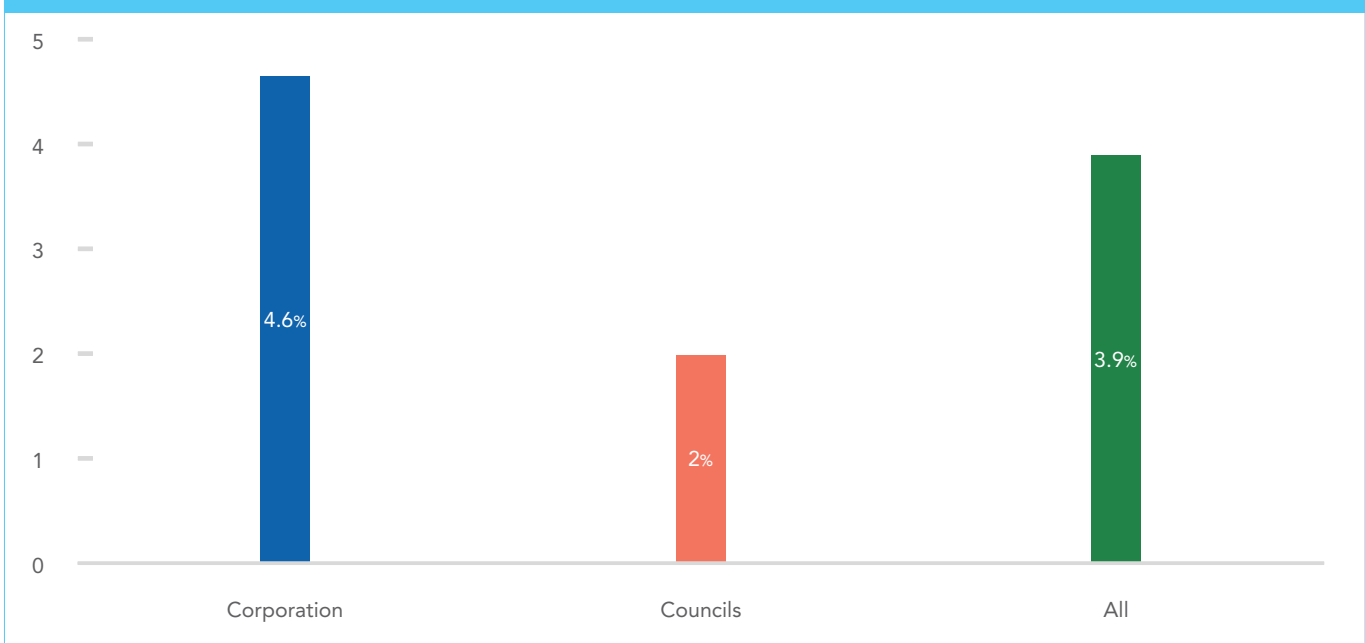


Source: Budget Documents of ULBs

It is seen that around 50 per cent of the total revenue for ULBs in Tamil Nadu comes from their own sources while they depend on the state and the central governments for the remaining 50 per cent (Figure 4.13). In case of Municipal Corporations, the share of own sources of revenue is slightly higher at 54 per cent, while in the case of the municipalities it is only 42 per cent.

Health expenditure as a share of total revenue expenditure of the ULBs in Tamil Nadu stands at around 4 per cent (Figure 4.14). Across different types of ULBs, it is the corporations that spend a much higher proportion of their total revenue expenditure on health (nearly 5 per cent) as compared to the municipal councils, which spend around 2 per cent.

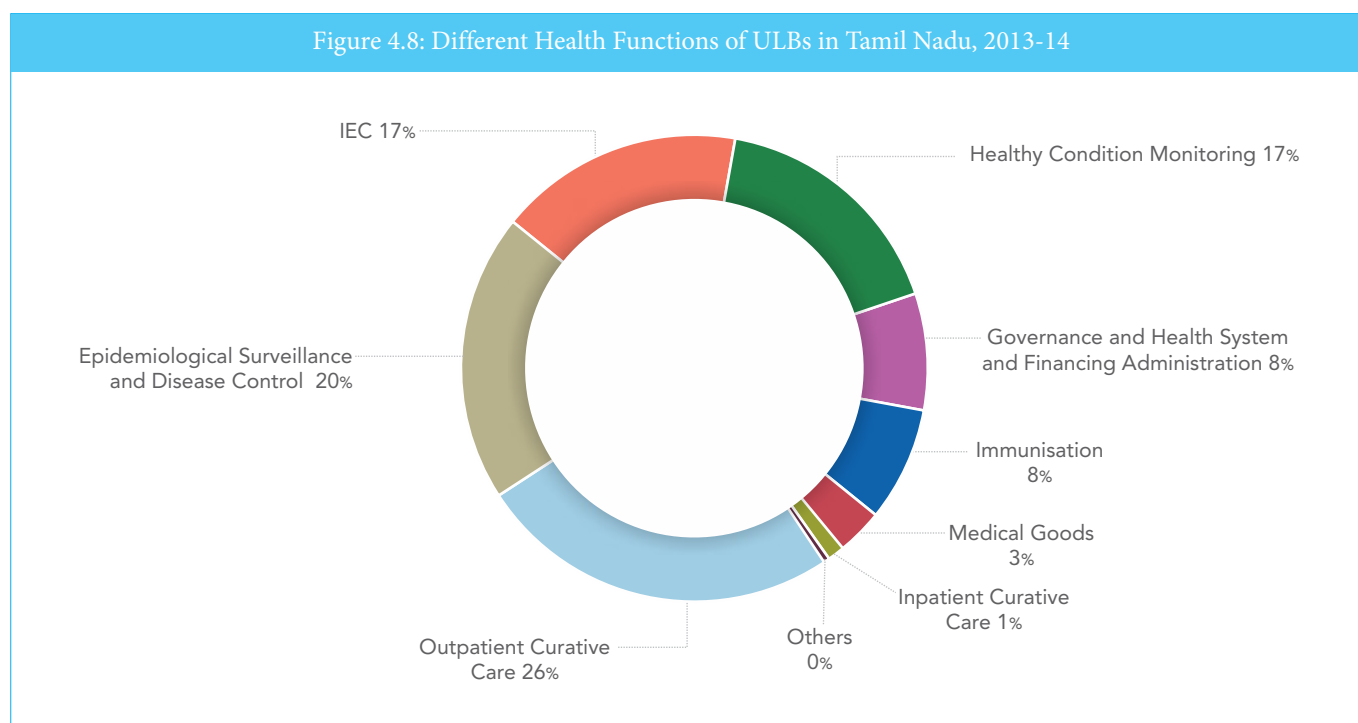
Figure 4.7: Health Expenditure as a Share of Total Expenditure (in %)



Source: Budget Documents of ULBs

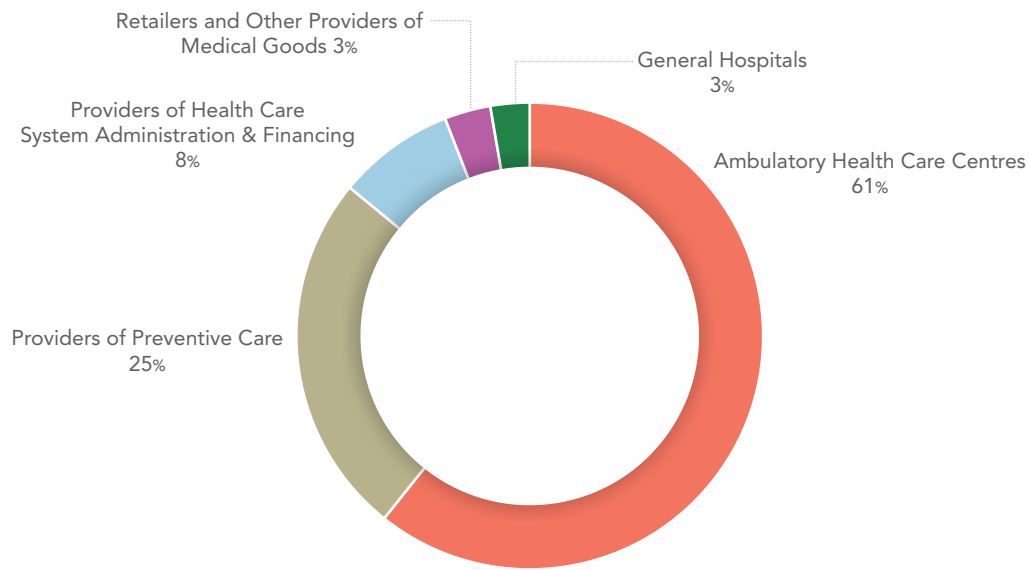
Preventive health care is the main health function for ULBs in Tamil Nadu, with 62 per cent of resources devoted to different kinds of preventive services which include disease control (20 per cent), IEC activities (17 per cent), and immunization (8 per cent). The other important health function is curative care, where around 27 per cent of resources are invested (Figure 4.15). Within curative care, it has been observed that, outpatient care has the maximum share (26 per cent of the overall budget) and a very small proportion (1 per cent) is spent on inpatient curative care, which is largely handled by government hospitals. Around 8 per cent of budget is earmarked for governance and administration and 3 per cent on different kinds of medical goods.

Figure 4.8: Different Health Functions of ULBs in Tamil Nadu, 2013-14



Source: Estimated from budget documents of ULBs.

Figure 4.9: Different Health Care Providers of ULBs in Tamil Nadu (2013-14)



Source: Estimated from budget documents of ULBs.

In keeping with the functional classifications, the providers of ambulatory health care (dispensaries and urban health posts) have the maximum share among different providers of health care services for the ULBs in Tamil Nadu (Figure 4.16). The share of ambulatory health care is about 61 per cent followed by providers of preventive services (25 per cent).

Beside these two major providers, there are other providers like health care system administration & financing (8 per cent), retailers and other providers of medical goods (3 per cent), and general hospitals (3 per cent) which also receive funds from the health budget of ULBs.

4.8 Concluding Observation

The State Government spends about 80 percent of the public health expenditure of the state. Public sector mainly spends money to provide curative care services with a focus on services pertaining to outpatient care. Preventive health services account for 11 per cent of the overall government health expenditure in the state, with local bodies focusing mainly on the provision of preventive services. In Tamil Nadu, the general hospital is the principal provider of health care services of the state government. It has to be noted that employee related expenditures including wages and salaries form the major factor of production of the state government's expenditure. In terms of financial protection, it is evident, that there is a very low level of risk pooling, which is revealed by small share of expenditure on tax based health insurance in the total public expenditure on health.

CHAPTER V: PRIVATE HEALTH EXPENDITURE IN TAMIL NADU

Private health expenditure of INR 23,198 crores in Tamil Nadu accounts for nearly 75 per cent of the total health expenditure in the state. Private expenditure in the state is predominantly driven by household Out-of-Pocket (OOP) expenditure with a share of around 94 per cent in the overall private expenditure. Other private entities in the state are firms and NGOs whose overall share in the private expenditure is around 6 per cent. This chapter provides classification of the private expenditures based on various health functions and providers, and also describes the nature of health expenditure incurred by firms and NGOs.

5.1 Out-of-Pocket expenditure in Tamil Nadu

In this section, we have analyzed the pattern of Out-of-Pocket (OOP) expenditure of the household. This is the single most important component of private expenditure, which contributes to around 69 per cent of the total health expenditure of the state. It is estimated that the total OOP expenditure of the state is INR 21,471.15 crores (Table 5.1).

Table 5.1: Out-of-pocket Expenditure in Tamil Nadu (in Crores.)

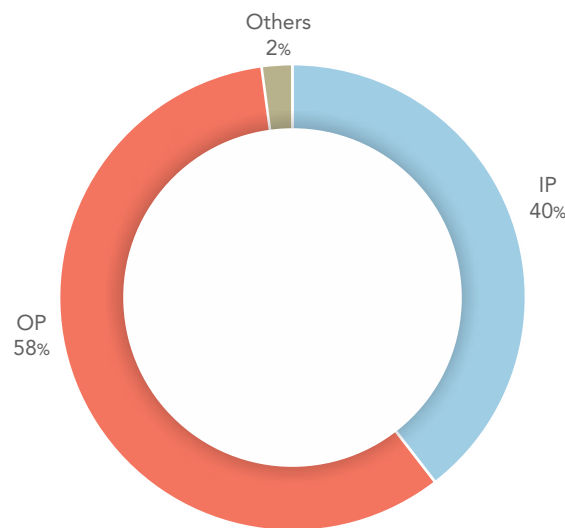
Indicator	Amount	Share of total OOPE Exp. (%)
In-patient	7361.7	34.3
Out-patient	11852.1	55.2
Child-birth	1152.1	5.4
ANC	513.1	2.4
PNC	84.1	0.4
Medical Devices	0.5	0
Family Planning	18.5	0.1
VHI	441.7	2.1
Immunisation	47.4	0.2
Total OOP expenditure	21471.2	100

Source: Authors' estimation based on NSS 71st & 68th round and Pharmatrac data.

The expenditure on outpatient care has the maximum share (55.2 per cent) in the overall OOP expenditure in the state, followed by inpatient care (34.3 per cent). Child birth accounts for more than 5 per cent of the total OOP expenditure, with the OOP expenditure for Ante-Natal (ANC) and Post-Natal (PNC) care constituting about 3 per cent of the total OOP expenditure (2.39 per cent and .39 per cent respectively). Voluntary health insurance arranged by households accounted for about INR 442 crores (about 2.06 per cent of the overall OOP expenditure). The contribution of other components was minimal towards the total OOP expenditure (medical devices – 0.002 per cent, family planning – 0.09 per cent and vaccination – 0.22 per cent).

The National Sample Survey (NSS) treats cases of child birth entailing hospitalization as inpatient care service. For our analysis, we have therefore clubbed the expenditure incurred by households during child birth with the expenditure for inpatient care. We have added expenditure for each item (like professional charges, and costs of medicines, diagnostic tests, transportation etc.) of spending, for both inpatient and childbirth cases, to get the total expenditure on inpatient care. Similarly, we have clubbed the expenditure of ANC, PNC, and vaccination with the expenditure of outpatient visits to get the total expenditure for outpatient visits in the state. We have categorized expenditure incurred for medical devices, family planning, and VHI under the “Others” category and computed a consolidated OOP expenditure for these three categories (Table-5.2).

Figure 5.1: Distribution of OOP expenditure across Services in Tamil Nadu



Source: Authors' estimation based on NSS 71st & 68th round and Pharmatrac data.

The total OOP expenditure for outpatient visits is estimated at about INR 12,496.67 crores (about 58 per cent of the total OOP), while corresponding estimates for inpatient care are around INR 8,513.85 crores, which forms 40 per cent of the total OOP expenditure of the state. The “Others” category accounts for 2 per cent of the total OOP expenditure on health in the state.

From the perspective of functional classification under SHA 2011, direct purchase of medicines for both outpatient and inpatient care would form pharmaceutical care rather than outpatient and inpatient care (SHA pp 98)¹¹. As we follow this classification, entire expenditure on medicines households' OOP would form part of pharmaceutical care and not outpatient and inpatient care. If we take out the medicine component from OOP expenditure for inpatient and outpatient curative care comes to INR 6,248.04 crores and INR 2071.63 crores, respectively. Thus largest OOP health expenditure is reported to be on account of pharmaceutical and other medical non-durable goods amounting to INR 8,841.22 crores (about 41 per cent of the total OOP expenditure). About 10 per cent of the total OOP expenditure has been made for ancillary services in Tamil Nadu (Figure 5.2). It should be noted that, the expenditure on the pharmaceutical and other medical non-durable goods is actually purchase of medicine from pharmacies, which may be for both inpatient and outpatient care. However, due to limitation on availability of data, it was not possible for us to estimate the exact expenditure on pharmacies bifurcated on the basis of 'direct purchase' by the consumer and expenditure by the patient during inpatient and outpatient treatment.

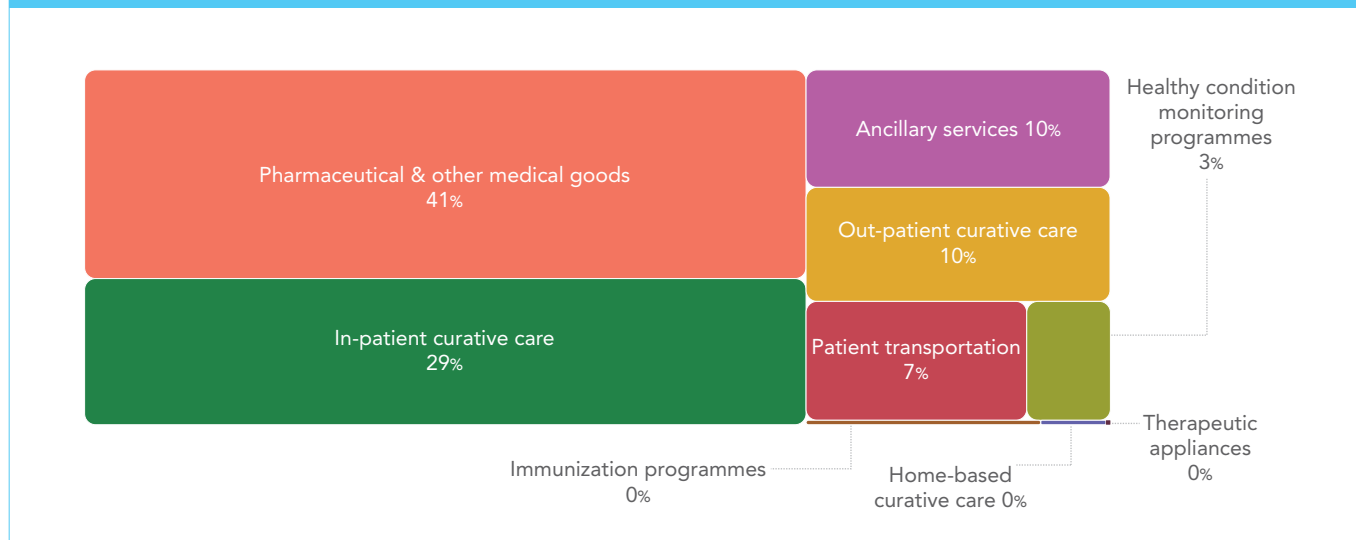
Table 5.2: Health care Function-wise Out-of-pocket Expenditure (in Crores.)

Functional Classification	Amount
In-patient curative care	6248
Out-patient curative care	2071.6
Home-based curative care	13.6
Ancillary services	2109.6
Patient transportation	1542
Pharmaceutical & other medical non-durable goods	8841.2
Therapeutic appliances & other medical goods	0.5
Immunization programmes	47.4
Healthy condition monitoring programmes	597.2
Total	21471.2

Source: Authors' estimation based on NSS 71st & 68th round and Pharmatrac data.

11 As per SHA functional classification medical goods acquired by the beneficiary either as a result of prescription following a health system contact or as a result of self-prescription would form pharmaceutical care or other non-durable goods. Whereas, medical goods consumed or delivered during a health care contact that are prescribed by a health professional would be part of either IP care or OP care as it is the case.

Figure 5.2: Share of Health care Functions in Out-of-pocket expenditure



Source: Authors' estimation based on NSS 71st & 68th round and Pharmatrac data.

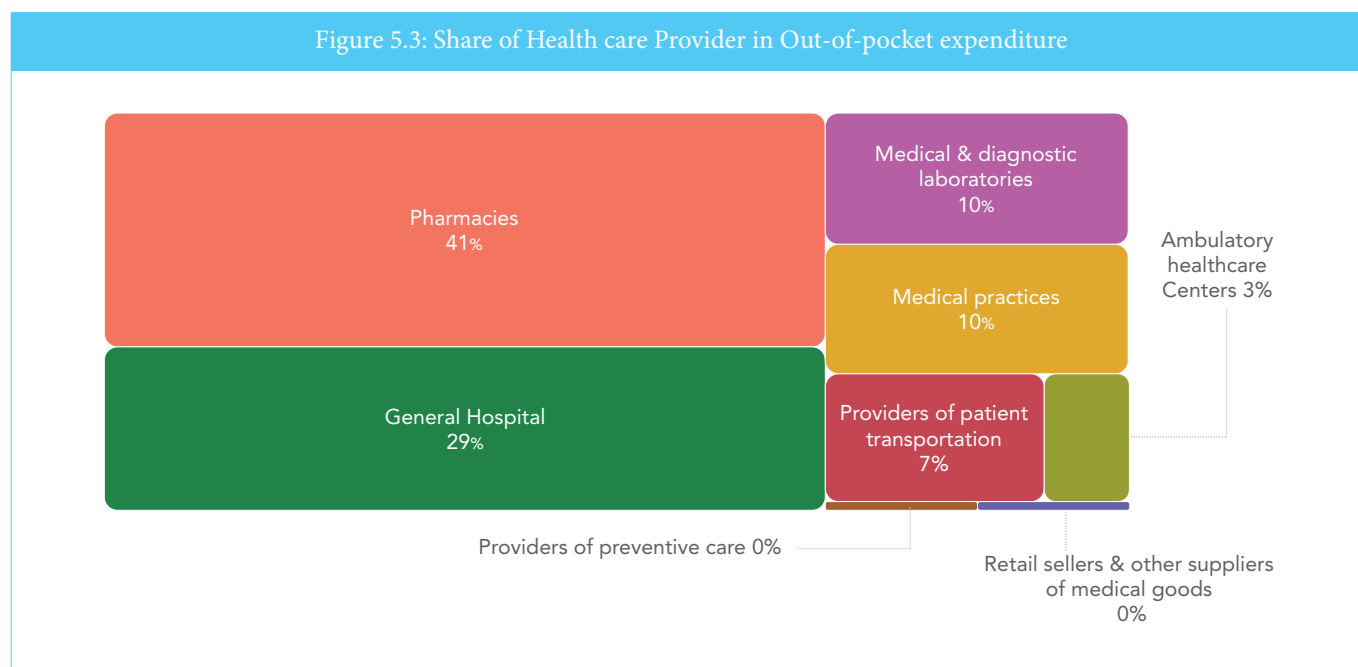
The OOP expenditure on account of transportation for patients is reported to be high in the state, with a share of more than 7 per cent in the total OOP expenditure. However, the OOP expenditure for immunization is quite low at about 0.22 per cent. Further, about 3 per cent of the total OOP expenditure has been estimated for healthy condition monitoring programs including ante-natal care (HC.6.4).

Table 5.3: Health care Provider-wise Out-of-pocket Expenditure (in Crores.)

Provider Classification	Amount
General Hospital	6248
Medical practices	2085.3
Ambulatory healthcare Centers	615.7
Providers of patient transportation and emergency rescue	1542
Medical & diagnostic laboratories	2109.6
Pharmacies	8822.8
Retail sellers & other suppliers of pharmaceuticals & medical goods	0.5
Providers of preventive care	47.4
Total	21471.2

Source: Authors' estimation based on NSS 71st & 68th round and Pharmatrac data.

From the perspective of health care providers, it has been observed that pharmacies as providers accounted for INR 8,822.75 crores in Tamil Nadu (41 per cent of the total OOP expenditure). The second highest OOP expenditure was accounted for by general hospitals with a share of 29.10 per cent (INR 6,248.04 Crores). Figure 5.3 provides the percentage share of different health care providers in the total OOP expenditure.



Source: Authors' estimation based on NSS 71st & 68th round and Pharmatrac data.

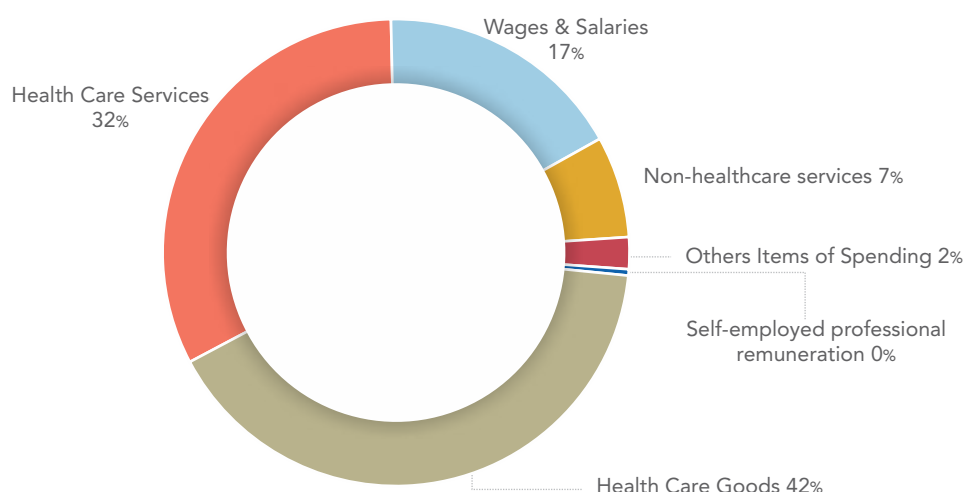
The role of providers of preventive care is substantially low in the state (0.22 per cent), while medical and diagnostic laboratories have a significantly higher share of OOP expenditure (about 9.83 per cent). Medical practice followed by providers of transportation for patients and emergency rescue accounted for a higher share of the OOP expenditure (about 9.71 per cent and 7.18 per cent respectively) in Tamil Nadu.

Table 5.4: Factors of Health care Provision wise Out-of-pocket Expenditure (in Cr.)

Factors of Healthcare Provision	Amount
Wages & Salaries	3706.9
Self-employed professional remuneration	13
Health Care Services	6896.9
Health Care Goods	8870.6
Non-healthcare services	1542
Others Item of Spending	441.7
Total	21471.2

Source: Authors' estimation based on NSS 71st & 68th round and Pharmatrac data.

Figure 5.4: Share of factors of Health care Provision in Out-of-Pocket expenditure



Source: Authors' estimation based on NSS 71st & 68th round and Pharmatrac data.

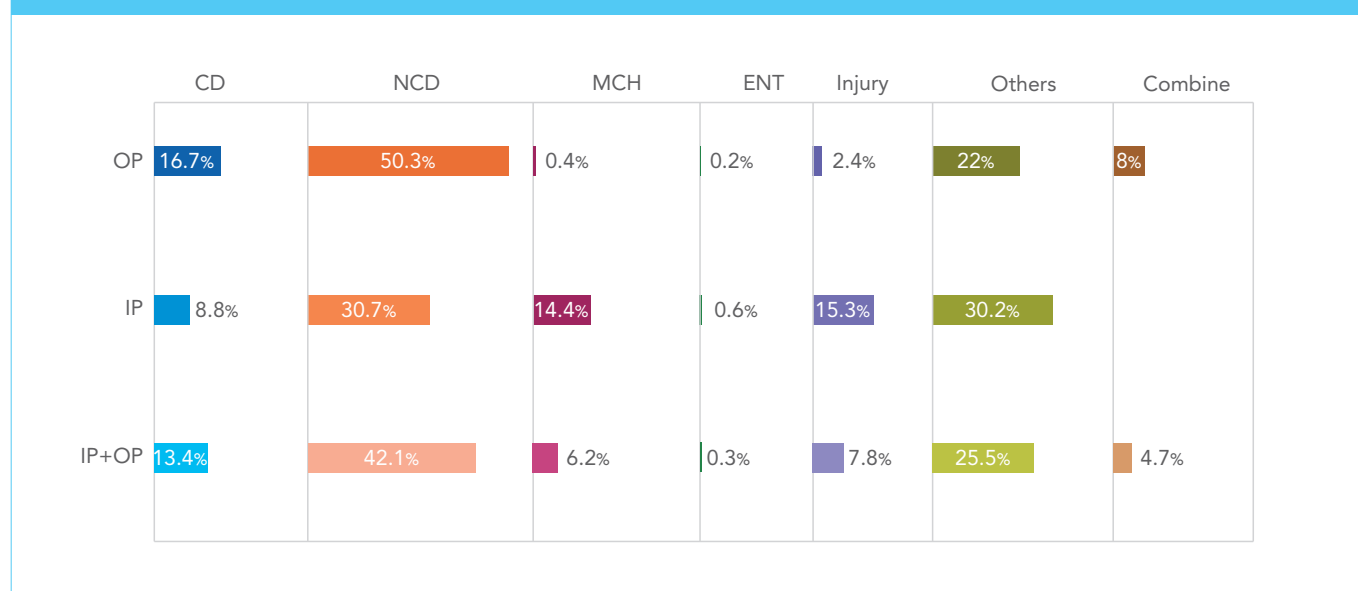
In order to understand the factors of health care provision in relation to the OOP expenditure in Tamil Nadu, we have classified the different components of OOP expenditure under Factors of Health Care Provision (FP) and corresponding estimates have been presented in Table 5.5 and Figure 5.4. Health care goods which is primarily medicines, constituted about 41.31 per cent of the OOP expenditure (INR 8,870.60 crores). The second highest OOP expenditure among the Factors of Health Care Provision is estimated for "health care services" which totaled to INR 6,896.94 crores (about 32 per cent), followed by wages and salaries (INR 3,706.92 crores, which forms about 17 per cent of the total OOP expenditure). The shares of non-health care services and other items of spending in OOP expenditure were 7.18 per cent and 2.06 per cent respectively.

An attempt is made here to classify OOP expenditure by several disease conditions. We have classified the ailments into seven broad categories, viz., Communicable Diseases (CD), Non-Communicable Diseases (NCD)¹², Maternal and Child Health (MCH), Ear-Nose-Throat (ENT) related diseases, injuries, other conditions and combined¹³.

12 We have followed the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke (NPCDCS) report to categorize the ailments as NCDs (<http://health.bih.nic.in/Docs/Guidelines/Guidelines-NPCDCS.pdf>).

13 For multiple episode of illness (for outpatient only), it is difficult to estimate the disease group-wise OOP expenditure. It is basically a combination of all the six disease-groups. So, we have kept it as a 'combine' category.

Figure 5.5 : Disease Group wise OOP Expenditure in Tamil Nadu (in %)



Source: Authors' estimation based on NSS 71st round data.

More than 42 per cent of the total OOP expenditure of the state has been spent for treatment of Non-Communicable Diseases (NCDs). The corresponding share for Communicable Diseases (CDs) was 13.40 per cent. The estimated OOP expenditure for injuries is about 7.78 per cent. The combined and other diseases together account for about 30 per cent of the total OOP expenditure.

About 41 per cent of the OOP expenditure during hospitalization was spent on NCDs. For CDs, the estimated OOP expenditure share is 8.82 per cent. Interestingly, MCH related OOP expenditure was about 14 per cent in Tamil Nadu as childbirth has been included in the inpatient care. The share of the 'Others' group for inpatient care is quite high at 30 per cent.

Outpatient care related OOP expenditure also shows the highest share for treatment of NCDs (50.32 per cent). The share of CDs in total OOP expenditure during outpatient visits is about 17 per cent. Surprisingly, the 'combined' group (those having multiple episodes of different ailments) share is 8 per cent for Tamil Nadu, whereas, the share of the 'others' category is also high in the state (about 22 per cent).

5.2 Health Expenditure by Enterprises

Enterprises or firms as private entities, apart from households and NGOs, plays an important role in health financing in the state. Enterprises spend on health care mainly under three routes: employees' health benefits, Corporate Social Responsibility, and expenditure incurred on health facilities owned. Enterprises provide health benefits to their employees by contributing a certain portion of an employee's salary towards ESIS corporation fund (refer to chapter-2 for detailed explanation) or by making provisions for group insurance of its employees. As per the rules set forth by the Ministry of Corporate Affairs, Government of India, Corporate Social Responsibility (CSR)

has become a mandatory expenditure by enterprises under Section 135 of the Companies Act, 2013 along with Companies (Corporate Social Responsibility Policy) Rules. As a result, it is expected that a significant number of corporations would be spending a substantial portion of their total earmarked CSR amount for promotion of health care. They often spend it either by running their own NGOs or by funding other NGOs. Since we have captured both ESIS and NGO expenditure separately, here in this section, we have not taken these two streams of expenditure under enterprise expenditure to avoid double counting. However, some enterprises provide health care directly to their employees which is sometimes also made accessible to the general public, by running their own hospitals. This expenditure has been taken into consideration for analysis in this section.

Details of the health expenditure of the enterprises are not available from any secondary data sources. In order to estimate enterprises' expenditure on health, we conducted a primary survey in 19 major states of India. The survey in Tamil Nadu collected information on various units under the 172 enterprises that were visited. It is seen that a significant amount was spent on private voluntary or group insurance. A significant share of expenditure went towards curative care, mainly in the form of OP reimbursements. A majority of enterprises reported spending on ESIS.

In Tamil Nadu, enterprises account for INR 847 crores expenditure on health (about 2.7 per cent of the total health expenditure). As can be observed, enterprises spend about 67 per cent (Table-5.5) of their total health expenditure for outpatient care followed by inpatient care services (23 percent).

Health Care Functions	Expenditure	Share (in %)
Inpatient curative care	194.3	22.9
Day curative care	80.3	9.5
Outpatient curative care	568	67.1
Home-based curative care	1	0.1
IEC Programme	0.5	0.1
Immunization programmes	1	0.1
Healthy condition monitoring programmes	1	0.1
Epidemiological surveillance and risk and disease control programmes	1	0.1
Total	847.1	100

Source: Authors' estimation based on primary data collected from Enterprises.

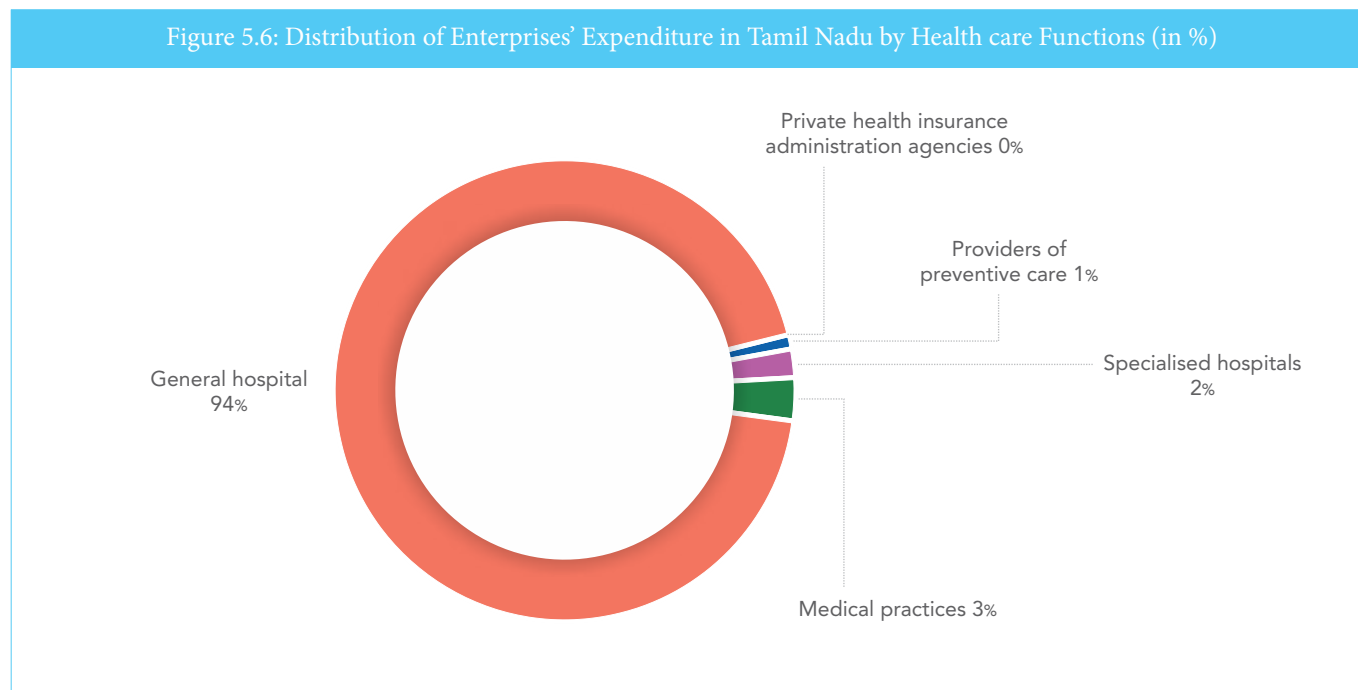
As can be noted, about 90 per cent of the total health expenditure by enterprises has been spent for inpatient and outpatient care services. Other health care functions like, healthy condition monitoring programs (0.12 per cent), epidemiological surveillance and risk and disease control programs (0.12 per cent), immunization programs (0.12 per cent) and IEC programs (0.06 per cent) have a very small contribution to the total health expenditure of the enterprises in Tamil Nadu. However, it can also be observed that day curative care¹⁴ has a significant share in total health expenditure (10 per cent) of the enterprises in Tamil Nadu (Table-5.5).

Table 5.6: Expenditure of the Enterprises in Tamil Nadu by Health care Provider (in INR Cr.)

Health Care Provider	Expenditure	Share (in %)
General hospitals	798.5	94.3
Specialized hospitals	16	1.9
Medical practices	26.3	3.1
Providers of preventive care	3.6	0.4
Private health insurance administration agencies	2.7	0.3
Total	847.1	100

Source: Authors' estimation based on primary data collected from Enterprises.

Figure 5.6: Distribution of Enterprises' Expenditure in Tamil Nadu by Health care Functions (in %)



Source: Authors' estimation based on primary data collected from Enterprises.

14 We have assumed that ten per cent expenditure of the total expenditure of the enterprises on health, goes to provide day care services for the beneficiaries

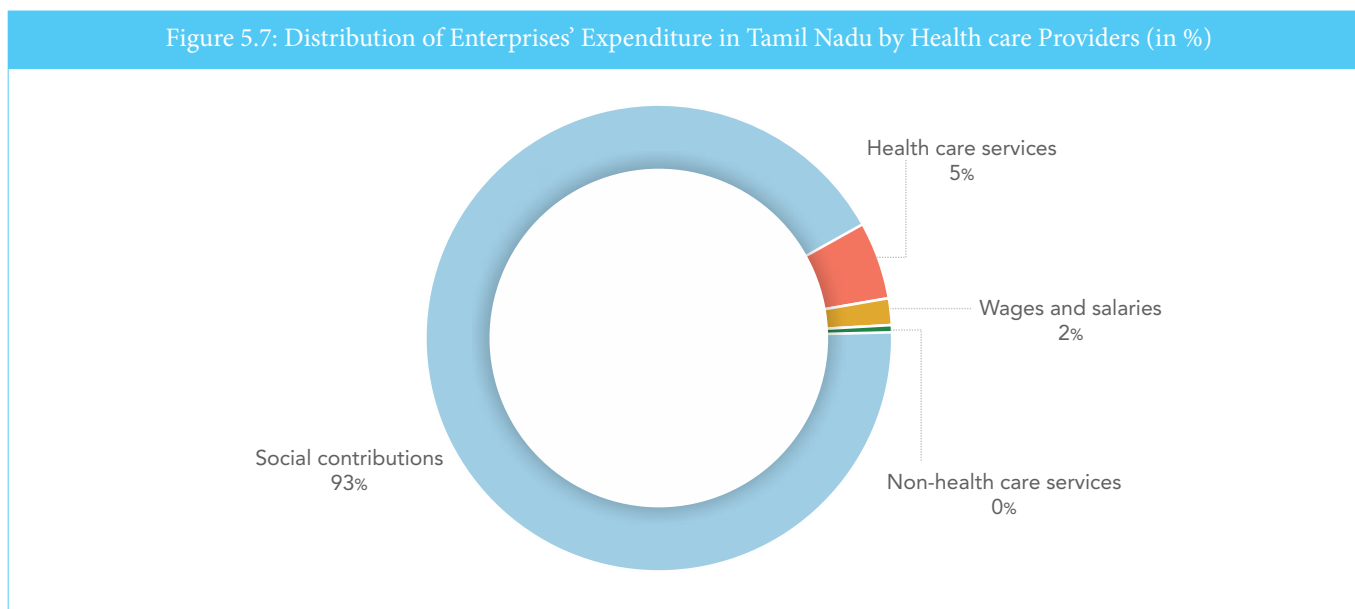
The expenditure incurred on availing health care from different providers has been presented in Table-5.6. It is evident from the table that most of the expenditure (around 94 per cent) has been incurred on the provisioning of health care through general hospitals. Only 6 per cent of the total health expenditure has been spent to receive services from other health care providers. It has to be noted that providers of preventive care have a very small (0.42 per cent) share in the total spending (Figure-5.6). Providers of specialized care received 2 per cent of the total enterprises' spending on health in Tamil Nadu.

Table 5.7: Expenditure of the Enterprises in Tamil Nadu by Factors of Provision (in INR Cr.)

Factors of Provision	Expenditure	Share (in %)
Wages and salaries	14.4	1.7
Social contributions	786.8	92.9
Health care services	45.4	5.4
Non-health care services	0.5	0.1
Total	847.1	100

Source: Authors' estimation based on primary data collected from Enterprises.

Figure 5.7: Distribution of Enterprises' Expenditure in Tamil Nadu by Health care Providers (in %)



Source: Authors' estimation based on primary data collected from Enterprises.

In Table-5.7, we have presented the factors of provision of the total health expenditure of the enterprises in Tamil Nadu. It has been observed that social contribution as a factor of provision accounts for about 93 per cent of the total enterprises' health expenditure in the state, followed by the health care services (5 per cent). About 2 per cent of the total expenditure of the enterprises were made for wages and salaries, while spending on non-health care services was negligible (about 0.06 per cent) in the state (Figure-5.7).

5.3 Health Expenditure by NIPSHs/NGOs

The key role of non-governmental/not-for-profit/voluntary sector in the health system of Tamil Nadu involves (a) being a provider of health care services through own facilities (b) performing the role of a financing agent to manage several health care schemes and (c) to run health financing schemes of their own. There were about ten health-oriented projects in the recent past, funded by the Ministry of Health and Family Welfare, Government of India, where NGOs, based on their level of capacity (for instance, Mother-NGO Scheme), have been actively taking part financing agents (fund management) and as health service providers.. All the NGO schemes are now implemented through the National Health Mission flexi-pool of the concerned state. Besides, some NGOs such as the Indian counterpart of international NGOs, faith-based organizations, etc. might have their own health financing schemes. As a result of such heterogeneity and plurality in the non-governmental sector, the extent of functioning of financing in the health care system is also varied across providers. Within this wide spectrum, there are some rural community based organizations that offer health services at the primary level, and at the other end are public trust hospitals. So, an in-depth account that includes statistical and qualitative information is required to observe the different roles of various NGOs in the state.

However, inline with the international efforts to improve economic statistics, the National Accounts Division (Ministry of Statistics & Programme Implementation, Government of India) had prepared a satellite account to estimate the role of NPIs in the economy during 2007-08. This was perhaps the first innovative and comprehensive study specially designed for the NGO-sector through the census approach. Comparatively, more recent in-depth statistical information on NPIs may be found by analyzing the survey of Unincorporated Non-agricultural Enterprises, 2010-11 (67th Round NSS Data, Ministry of Statistics & Programme Implementation, Government of India). But, this survey covered only 234 sample-NGOs in the health sector out of an estimated population of around 17,000 (on an average just about 7 samples per state). Hence, it is hardly effective for arriving at a reliable estimate of national or provincial levels of health expenditure by NGOs. So, a general survey of NGOs was conducted in order to estimate their health expenditure covering 19 major states of India by Public Health Foundation of India (PHFI). About 1,800 samples have been drawn for the survey at the national level, with the corresponding number for Tamil Nadu being 139 (covering 181 individual units of NGOs).

In Tamil Nadu, NGOs play a significant role in providing health care services, and contribute about 4 per cent of the total health expenditure of the state. It is estimated that during 2013-14, the health expenditure of Non-Governmental Organizations (NGOs) in Tamil Nadu is INR 1,427.35 crores. Facilities run by the NGOs also charge user fees for their services, an

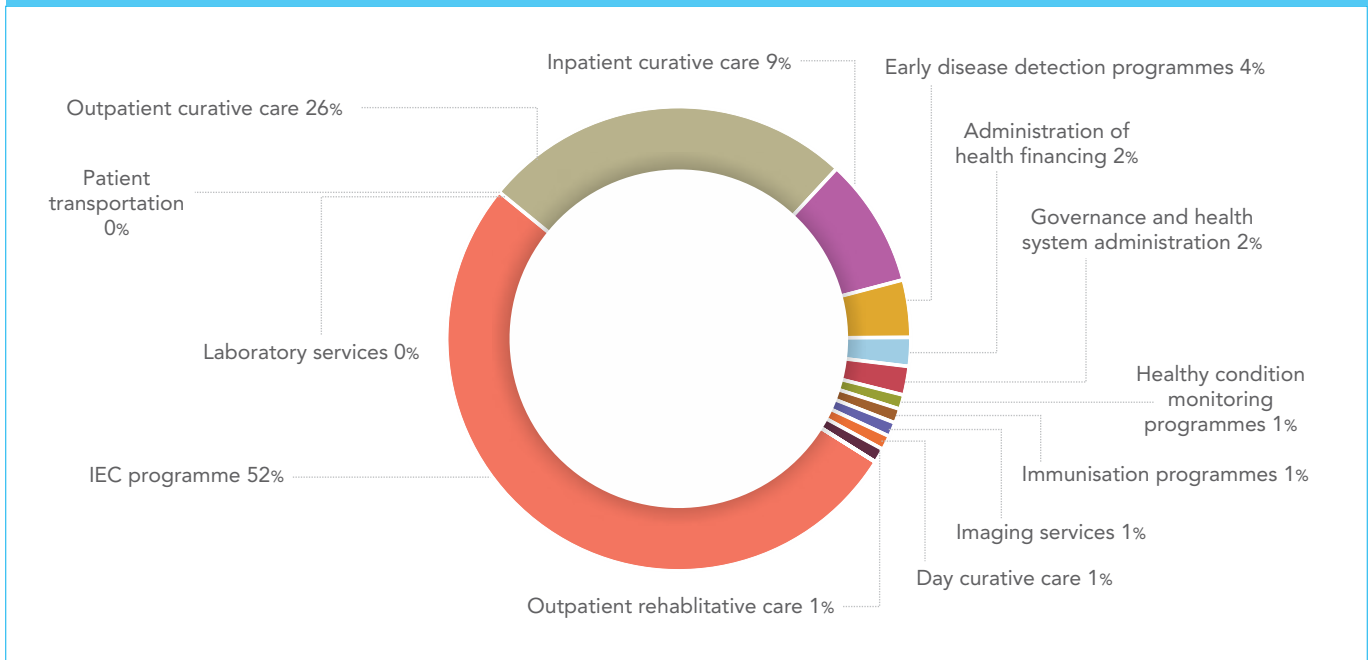
adjustment has been made to avoid double counting (as this is covered under household Out-of-Pocket expenditure) for those cases. After making this adjustment, the expenditure has come down to INR 875.06 crores. This constitutes about 2.8 per cent of the total health expenditure and around 0.09 per cent of the Gross State Domestic Product (GSDP) of Tamil Nadu during 2013-14 at current market prices. It has been observed from the analysis that two major NGOs – viz. Shankar Netralaya and Christian Medical College, Vellore in the state have the highest share in the health expenditure of the NGOs.

Table 5.8: Health Care Function's of NGOs in Tamil Nadu (in INR Cr.)

Health Care Function	Expenditure	Share (in %)
Inpatient curative care	80.9	9.3
Day curative care	8.4	1
Outpatient curative care	223.2	25.5
Outpatient rehabilitative care	9.7	1.1
Laboratory services	2.2	0.3
Imaging services	10.7	1.2
Patient transportation	2.2	0.3
IEC Programme	456.6	52.2
Immunisation programmes	4.5	0.5
Early disease detection programmes	35.8	4.1
Healthy condition monitoring programmes	6.1	0.7
Governance and Health system administration	17.4	2
Administration of health financing	17.4	2
Total	875.1	100

Source: Authors' estimation based on primary data collected from NGOs

Figure 5.8: Health Care Functions of Tamil Nadu in 2013-14



Source: Authors' estimation based on primary data collected from NGOs.

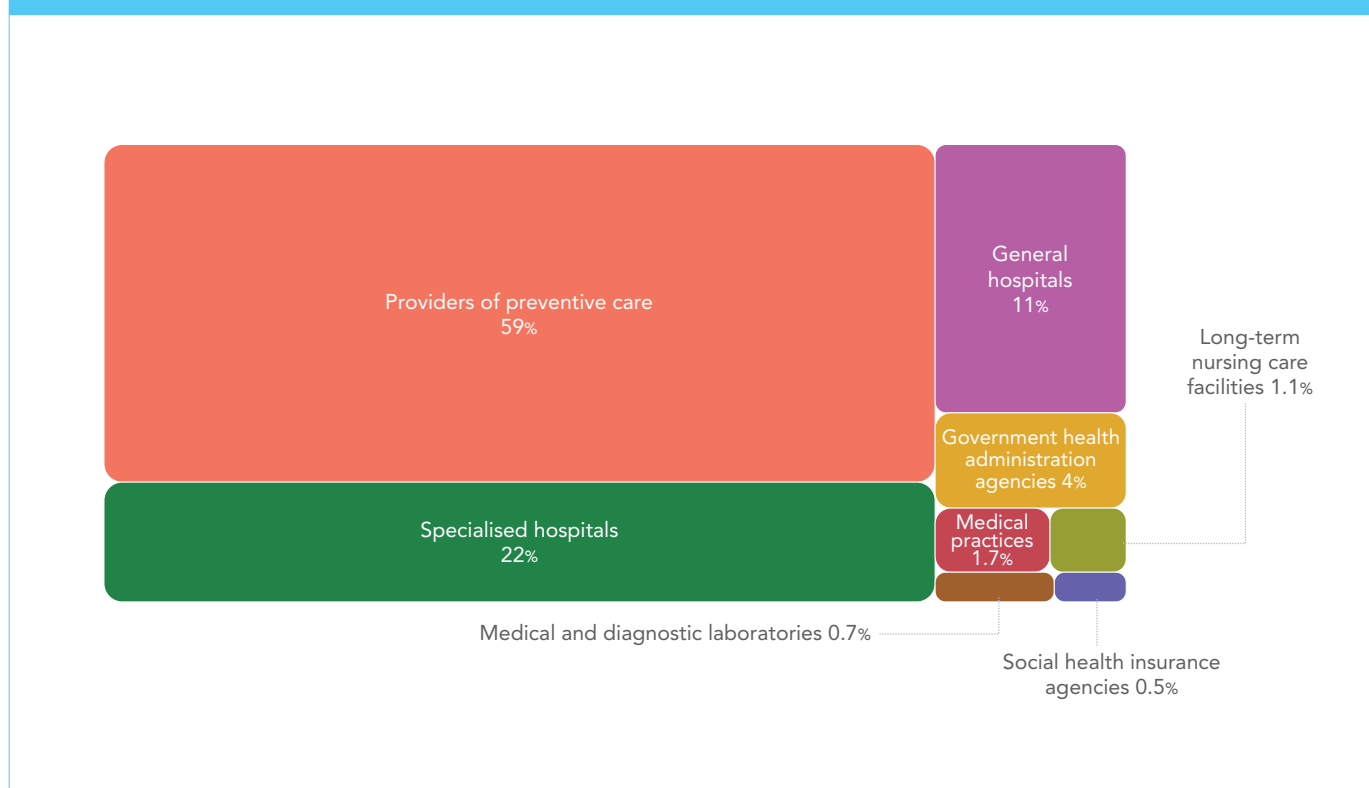
The details of health care functions by NGOs is presented in Table 5.8 and an overview of the same is portrayed in Figure 5.8. It is observed that IEC programs constitute the highest share of health expenditure of the NGOs (about 52 per cent) followed by outpatient curative care (26 per cent). Spending on inpatient curative care is around 9 per cent and community-level health camps for early disease detection covers about 4 per cent of the total health expenditure of NGOs. Around 4 per cent of the total health expenditure of the NGOs of the state has been incurred for the administration of the health system and health financing system, where, each component has an equal share. Around 2 per cent of the total expenditure is realized for the ancillary health care services like imaging/laboratory test services and transportation for patients. Health care functions such as day curative care, child immunization programs and women health condition monitoring programs are observed under the category of "Others" and have a very small role to play in the different health care functions financed by NGOs in Tamil Nadu.

Table 5.9: Health Care Providers of NGOs' Health Expenditure in Tamil Nadu (in INR Crores)

Health Care Provider	Expenditure	Share (in %)
General hospitals	96.6	11
Specialised hospitals	189	21.6
Long-term nursing care facilities	9.7	1.1
Medical practices	14.5	1.7
Medical and diagnostic laboratories	6.6	0.8
Providers of preventive care	519.9	59.4
Government health administration agencies	34.8	4
Social health insurance agencies	4.1	0.5
Total	875.1	100

Source: Authors' estimation based on primary data collected from NGOs.

Figure 5.9: Health Care Provider of NGOs' Health Expenditure in Tamil Nadu



Source: Authors' estimation based on primary data collected from NGOs.

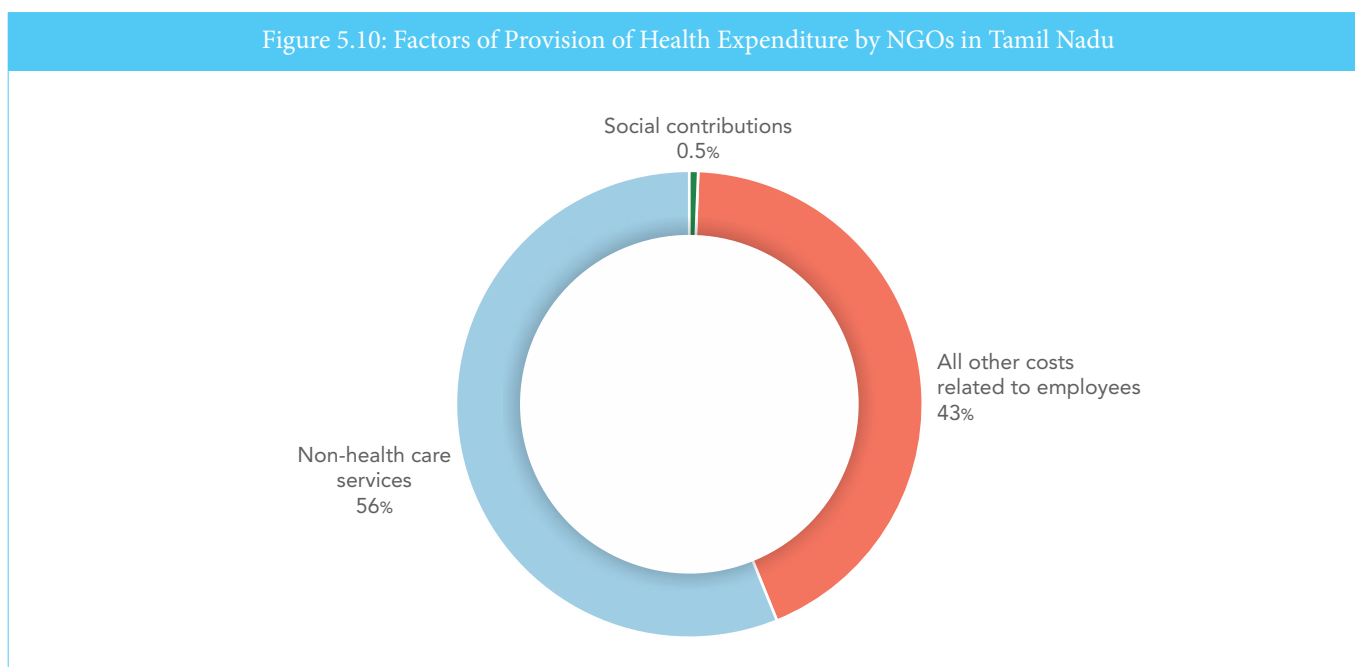
Among the providers of health care services, the category – “providers of preventive care” has the highest share in the total health expenditure of the NGOs in Tamil Nadu (around 59 per cent), followed by specialized hospitals (about 22 per cent). Further, the share of general hospital as a provider of health care services is about 11 per cent (Table 5.9), whereas, NGOs as providers of government health administration agencies constitute merely 4 per cent of the total health expenditure of NGOs in Tamil Nadu (Figure 5.9). Facilitators of long-term nursing facilities (1 per cent) and medical practices (1.7 per cent) have a small share of the NGO health expenditure in Tamil Nadu. It is also observed that NGOs in Tamil Nadu spend a small percentage of their overall health expenditure on medical and diagnostic laboratories (0.8 per cent) and social health insurance agencies (0.5 per cent).

Table 5.10: Factors of Provision of Health Expenditure by NGOs in Tamil Nadu (in INR Crores.)

Factors of Provision	Expenditure	Share (in %)
Social contributions (insurance)	4.1	0.5
All other costs related to employees	379.6	43.4
Non-health care services	491.4	56.2
Grand Total	875.1	100

Source: Authors' estimation based on primary data collected from NGOs.

Figure 5.10: Factors of Provision of Health Expenditure by NGOs in Tamil Nadu



Source: Authors' estimation based on primary data collected from NGOs.

Following the SHA 2011 framework, we have cross-classified factors of provision of NGOs into three categories: social contribution, costs related to employees, and non-health care services. It could be observed from Table 5.10 that half of the total resources are utilized for non-health care services. About 43 per cent of the total expenditure pertains to the costs related to the employees of NGOs (Figure 5.10). Contribution of social insurance programs is significantly low in the state (0.5 per cent).

5.4 Concluding Observations

It has been observed that the OOP expenditure is the maximum for OP care in the state. Estimated from the perspective of health care functions, it may be noted that the 'Pharmaceutical and other medical non-durable goods' has the highest share in OOP expenditure. When OOP expenditure is classified by broad ailment groups, we observe that the highest OOP expenditure has been made to treat NCD related ailments for both IP and OP care in the state.

Firms and NGOs together spent about 9 per cent of the total private expenditure of the state. Enterprises mostly provide outpatient and inpatient services for their employees, whereas, NGOs mostly contribute to provide inpatient services followed by outpatient services in curative care. Of course, the NGOs in Tamil Nadu have spent a substantial amount of money on preventive services and promotive services (including IEC services)

CHAPTER VI: POLICY IMPLICATIONS AND INSTITUTIONALIZATION OF HEALTH ACCOUNTS IN TAMIL NADU

6.1 Policy Implications

The magnitude, structure and mode of financing mechanism in the health system are critical determinants of access to health care, health status, and financial risk protection. If a health system were to achieve good health status and provide adequate financial risk protection, policies and programs must be geared to make structural change in the financing mechanism, reorient health system to meet these goals. The evidence outlined through health accounts in the state of Tamil Nadu suggests the following policy actions.

6.1.1 Scale up public spending substantially

It has been observed that, in spite of the high growth rate of gross state domestic product (GSDP) expenditure on health remains very low in Tamil Nadu. The emerging health challenges reflected by epidemiological burden, demographic transition, health seeking behavior and rising costs of care, would require significant additional spending by the government. In the last one decade, the share of public spending accelerated from 18 per cent during 2004-05 to 24 per cent during 2013-14. Public spending on health care certainly needs to be increased substantially. But the question that has really not been satisfactorily answered is: How much more should the state be spending? Should it be 2% of SGDP? or higher? Several suggestions in the past have been made that it should be at least 2% of SGDP. Our evidence from Chapter 3 (Table 3.2) shows clearly that even with a modest increase from 0.71 percent of SGDP in 2004-05 to 0.91 percent of SGDP in 2013-15, the public per capita (current) expenditure in real terms (at 1999-2000 prices) increased from Rs.185 (2004-05) to Rs.565 (in 2013-15, an increase of Rs.380 (in real terms). The impact of this on the overall reduction in OOPs, reach of public healthcare services (both in terms of OP and IP, considering the vast increase in private providers), and increased share (about 55%) of the bottom most two quintiles and socially backwards sections of the population in the overall utilization of public facilities, is quite noteworthy. A tentative broad response to this question of how much should government be spending on healthcare should be based on two related issues: what is the basket of services being considered and the cost of provisioning through public facilities, keeping in mind what is achievable given the scope and capacity for mobilizing resources. Evidence from this study clearly shows that overall unit cost of provisioning through public facilities is significantly lower than comparable services provided through private facilities (Chapter 3, Figure 3.10), augmenting the argument for increased public spending (and provisioning through public facilities) over a period of time. What we are suggesting is that even with a modest improvement in efficiency in provisioning (as shown in Chapter 3) through public facilities, a modest increase in public spending on a yearly basis could bring about a vast improvement in access to effective health care across the state.

The above argument is put forward to in order to illustrate the use of SHA in policy making process, in not only estimating the sources and uses of resources for health care, but also in proposing new mechanisms in financing and provisioning, as it provides complementary evidence on cost of provisioning through public facilities in particular, to compare OOPs for comparable services provided by private facilities. Clearly, there is a need to establish and enhance capacity in Institutionalizing State Health Accounts in Tamil Nadu.

6.1.2 Reallocate resources to meet emerging health challenges

Stepping up public spending substantially and significant reorientation of its policies and programs must take precedence. This would require reallocating a significant amount of resources towards preventive and primary care. It may be noted that nearly all of the preventive health care spending and a significant share of the curative care in the state is taken care by the government while the households' expenditure is largely spent on curative care. Nearly 60-70 per cent of all additional funds that would be invested in future must be spent on preventive and primary care. Reprioritizing investment in favour of preventive and primary care is expected to reduce the dependence on curative care, especially in the context of a rising non-communicable burden, such as, diabetics, cardiovascular diseases, mental disorders, etc. Such spending pattern is likely to achieve value for money and reduce the reliance on curative care, both by the government and by the households.

6.1.3 Increase the coverage of health insurance schemes

One of the primary aims of the government-funded health insurance (CMCHIS) is to improve financial risk protection measures. CMCHIS only focuses on the tertiary care hospitalization and 1064 high-end procedures. It is also observed that a substantial proportion of the population of the state are suffering from chronic non-communicable diseases. While care for NCDs could well begin from Primary care and sub-centre levels, it is necessary to explore ways in which we can integrate secondary level curative care for NCDs as part of the CMCHIS.

6.1.4 Reduce overreliance of households on private pharmacies

The overwhelming evidence from the current exercise of health account for Tamil Nadu clearly indicate the ever increasing role of private pharmacies, due to rising share of households' OOPs. A larger share of households' OOP is spent on buying medicines from the open market. Although the state of Tamil Nadu is relatively better placed in terms of public spending on medicines and has a relatively robust procurement and distribution system of medicines, this relative performance with respect to other states must not result in complacency. According to data from IMS India, nearly INR 4000 crores are spent on medicines, bought by households from private pharmacies. It may be observed that close to one-fifth of such spending on medicines was accounted by cardiac market (including anti hypertensives) and nearly one-tenth is accounted by anti-diabetics market. Therefore, there is a need to step up spending on medicines substantially by the government and make their

procurement & distribution mechanisms even more robust and accessible to the public. We need innovative delivery mechanisms for common man to access such outlets.

Moreover, it has been observed from the list of medicines procured by TNMSC that the state procures and supplies very limited quantity of non-communicable disease related medicines, especially at the primary care level. This compels the patients to use private health care facilities for their treatment or to purchase medicines directly from the pharmacy without any follow up. Therefore, procurement of medicines for non-communicable diseases would not only reduce out-of-pocket (OOP) expenditure by the households and its catastrophic consequences, but would have additional spin offs in terms of higher utilization of public facilities and better compliance of treatment regimen for non communicable diseases.

6.2 Institutionalizing Health Accounts in Tamil Nadu

Timely availability and use of health financing evidence is critical in policy-making, planning and execution of schemes. Since health is a state subject in India, with over two-thirds of all public spending drawn from state governments and public health care is largely delivered at the state level, the imperative of a robust health financing data assumes importance. The global SHA, 2011 framework and the national NHA guidelines (2016) would serve to strengthen the initiative of institutionalization at the state level in India. The overall goals of any institutionalization effort at the state level must be anchored to: a) build and engage local capacity; b) ensure sustainability of efforts so that periodic production of health accounts is undertaken; and c) strengthen overall eco-system, including institutional infrastructure. We now turn to address each one of them below:

6.2.1 Strengthen the Eco-System

Creating and sustaining an enabling environment in the production and use of health accounts is the most challenging task. Strengthening the environment can be accomplished by taking recourse to permanent solutions, such as, instituting legislations, creating political demand, etc. Local networks involving government departments/units (such as, State Health System Resource Centers), academic and research institutions (such as, IIT Madras) are most suited to take up the responsibility of production of health accounts at the state level. However, the state health department, under the leadership of Health Secretaries/MD NHM, would need to own up the numbers produced. Therefore, the state department must take up the lead role of coordinating between institutions/network. And it must ensure that the state health accounts production is carried out on a regular and routine manner. Ideally, the production must be completed before the end of each calendar year, so that the key findings could be fed into budget preparation exercise of the state governments for the immediate fiscal year.

6.2.2 Mobilize Resources (physical, financial and human)

One of the prerequisite for sustaining the initiative of institutionalization at the state level is ensuring a minimal level of resources are set aside every year for

the purpose of production of health accounts. This could be integrated into the program implementation plan (PIP) of the state, so that resources are allocated for not only producing health accounts, utilize it for strengthening capacity-building exercise and coordination mechanisms. This would involve holding technical workshops, capacity-building programs, annual dissemination events, quarterly update meetings, etc. Encouraging academic institutions at the state level to facilitate in technical production and ensuring coordination between them and officials from its department/units is equally important. Such efforts require financial resources, but a minimum commitment from the academic/research institutions could be worked out. The health department must request the academic institutions to conduct technical studies that feeds into state and national level health accounts.

6.2.3 Improve data quality and estimation methods

Data collection and estimation methods are critical in not only producing health accounts, but to produce them at utmost quality, in order to ensure consistency and robustness. Quality improvement is a gradual and regular process, which requires to be sustained in the medium and long run. With an exposure to international/national standards in reporting, such as, SHA, 2011 framework, the national guidelines, and an emerging wealth of technical studies, the need for improving data collection and estimation methods is even more prominent. For instance, there is need to improve sample design for surveys, extrapolation-interpolation methods and multipliers (such as, firms, NGOs, urban local bodies, etc.). Data from budget documents, Financial Management Reports (FMR of NHM), government funded health insurance programs, etc. must be utilized to meaningfully examine functional/provider classifications, disease-specific estimations. Such an exercise may also facilitate backward improvement, such as advancing the reporting framework of budget template, FMR and insurance claims data. Similarly, cross-learning from national and state level estimates must be encouraged to advance the quality of data. It is equally imperative to improve the capacity and use of information technology that are aligned to HAPT (Health Accounts Production Tool), in order to minimize time lag and reporting errors and to maximize resource use. Globally, disease-specific estimations of health accounts are receiving significant attention in recent years. In a state that is undergoing epidemiological transition with substantial implications for cost of care, attempts must be made to produce disease-specific health accounts. This will allow policy-makers, planners and implementers to reallocate resources to emerging epidemiological conditions and direct their intervention in a cost-effective manner. Besides, the disease-specific health accounts could help facilitate backward estimation of disease-burden in the state. Furthermore, financial and budget projections are increasingly being used in policy and planning. Medium term future planning require budget projections that are heavily dependent on robust and consistent back series. Therefore, constructing backward time-series for the past 20-25 years becomes critical to undertake any potential financial projection for the state.

6.2.4 Initiate and sustain capacity building efforts

Often we find that there is general lack of capacity to manage data which is critical in the production of health accounts, more so at the state level. While

building capacity is extremely vital but retaining the skills is much more complex in the government department set-up as trained personnel are often transferred to other departments. Although less severe, even autonomous institutions/agencies face attrition as skilled staff leave for greener pastures, resulting in capacity building efforts to start all over again. Therefore, efforts must be put in place, on a continuous basis, to provide adequate training in data management, analysis of data, utilization of statistical packages, and development of statistical expertise involving forecasting and decision modeling for policy support.

6.2.5 Facilitate regular dissemination of health financing evidence

The estimation of health accounts at the state level assumes importance and considered useful only when the data is comprehensively disseminated among multiple stakeholders, while at the same time ensuring that policy-makers make full use of the data generated from this exercise. This could facilitate policy-makers and planners to use such an exercise to review the states' health care financing mechanism, by way of advocating for substantial scale-up of public funding, reallocating the scarce resources from competing demands. Civil society groups and policy-makers in the health sector could utilize evidence generated from health accounts for substantial scale-up of public resources from state and union government treasuries. Civil society groups could also utilize the health accounts evidence to demand accountability and transparency in resources committed and used by the government and development partners.

6.3 Limitation of the Study

Present study has some limitations. These are –

1. Information on facility specific expenditure on inpatient, outpatient and day care services were not available for the state; so we have used the level of care (primary, secondary, tertiary, maternal and child health) wise utilization of inpatient and outpatient care facilities available from performance budget document (2013-14¹⁵) of Tamil Nadu (see Appendix-B.1.2 for more information). As there was no information available on day-care, we have assumed a ten per cent share of day care at secondary and tertiary level.
2. It was not possible to generate any distribution key for expenditure that come under different functions/providers. We have therefore distributed equally the expenditure among those heads.
3. To distribute the total expenditure of JIPMER between medical college and hospital, we have used the ratio of total expenditure of all medical colleges and hospitals of Tamil Nadu. Again to distribute the estimated hospital (JIPMER) expenditure into IP and OP care, we have used the utilization share of IP and OP (used by people of Tamil Nadu, as shown in 71st Round of NSSO for TN).

15 http://cms.tn.gov.in/sites/default/files/documents/health_e_pb_2014_15.pdf

4. As State specific health expenditure of the Ministry of Railway was not available, we have applied a separate methodology to estimate the health expenditure of the Ministry of Railway (Appendix-B.1.8).
5. Due to shortage of time and resources, we could not capture the medical reimbursement of all Departments of Tamil Nadu. We have applied a separate methodology to estimate the total medical reimbursement of the state (Appendix-B.1.7).
6. An attempt has been made to collect expenditure of central procurements (like NACO, immunization etc.) for the state; however we have got only the quantities for these commodities. The prices of these commodities were collected from other sources. If we could get the actual expenditure of these items then the estimates would be more accurate.
7. Episode wise expenditure during outpatient visits were not available from NSS (as it was available for inpatient care). NSS reports the expenditure for outpatient visits at the person level; so we have used a separate methodology to estimate the episode wise expenditure for outpatient visits.
8. The definition of antenatal and postnatal care in NSS is very broad. Better information would help us to improve the accuracy of our estimate.
9. The recall period for the outpatient care was 15 days in NSS. To annualize the expenditure we have used 24.33 as the multiplier. However, this is may not be the actual scenario. Even for chronic (more specifically for NCDs) ailments professional charges might not be applied every time. In most of the cases, the same prescription might repeat for multiple times. However, lack of information on this issue compel us to use the method.
10. As state specific expenditure on voluntary health insurance (VHI) was not available, we have used the NSS expenditure on VHI to distribute the total VHI expenditure available from Insurance Regulatory and Development Authority (IRDA) report 2014-15.
11. An attempt was made to capture the health expenditure on defence, however we could not collect the expenditure.
12. Proper financing mechanism of ESIC was not available. So we have taken some broad assumption to estimate the ESIC expenditure and to distribute the expenditure across different heads.
13. Present study fails to capture the expenditure on health through Local Area Development schemes (LADS) like, MPLADS or MLALADS. However, most of the expenditure through these routes could be capital.

6.4 Directions for Future Research

Estimation of the State Health Accounts (SHA) would help the policy maker for proper planning and to improve the allocation of resources of the state. It would also help in increasing systems accountability. Proper implementation of the policies based on the evidences generated through the health accounts would protect people from adverse effects of health expenditure. In other words, it would arrest the catastrophic health expenditure of the households, it would also address the inequities in the society and finally it would show the definitive strides towards universal health coverage. Apart from these direct policy related issues, the estimation of the State Health Expenditure would also help us to address some more policy related issues that could be undertaken in the future. More specifically the areas of future research could be –

- The results of state health accounts could be good starting point for the disease-specific health accounts. Specifically, we have the estimates for total expenditure of the state in hospitals, clinics, pharmacies etc. we could apportion these expenditure in different disease categories and age groups to estimate the disease and age specific health account for the state.
- It would be interesting to study the expenditure of the public sector in more detail. In our study we have seen that public sector provides only one fourth of the total health expenditure of the state. However, with that level of expenditure the public sector provides a wide range of services. Therefore an analysis on unit cost, cost saving and a public expenditure review could give us a clearer picture of the public sector.
- From the equity and political perspective district specific accounting of health expenditure would be very important. Therefore, we could conduct the district level analysis and then clubbing the expenditures to get the state level estimates.
- Further exploration of the different public expenditure components would be helpful to check the efficiency and inefficiency of the different public entities of the state. It would helpful for the policy makers to prioritise the resources for better health outcome.
- For the private health expenditure estimation for NHA and SHA, we are largely depended on National Sample Survey (NSS) data on Morbidity and Health Survey. However, NSS conduct a health survey in a decade interval. Therefore, further research on the estimation (extrapolation) of private expenditure from the previous NSS rounds (42nd round, 52nd round, 60th round and 71st round) would help us to estimate the SHA in a regular basis. More specifically, based on the available information we could generate some determinants of OOP expenditure of the state and then analyze the existing data to generate intertemporal series and future projection of OOP expenditure.

- In-depth studies would require to address the issue of recall bias, rare health conditions and other NSS data related problems in estimation of OOP expenditure.
- It would be interesting to study, the current medicine spending of the government and how much more expenditures are needed to reduce the OOP expenditure burden on the households. Probably the gap estimation, cost-saving and triangulation and refinement of different estimates (like Information from IMS, NSS etc.) of expenditure on medicine would be helpful.
- In estimation of SHA, we have made many assumption to apportion the expenditure into several factors. As there was no proper information on the costing of those factors, we have devised some alternative/indirect methods to distribute the expenditure in two or more items. Proper costing study for these areas would be helpful to apportion these expenditure more scientifically.
- For the health expenditure of the enterprises we have conducted a survey at the state level. However, we could not collect data from the firms each year due to time and resource constraint. Therefore, if we could devise some methodology to estimate the health expenditure of the enterprises from different secondary level information (like NSS enterprise survey), this primary data for extrapolation of the expenditure would be more useful..
- Similarly, we have also conducted NGO survey to estimate the health expenditure of the NGOs. As there is lack of secondary information available on this issue some extrapolation method to estimate the health expenditure of the NGOs would be helpful to conduct the SHA on a regular basis.
- Further exploration on the financing mechanism of ESIC would be helpful to understand and capture the role of state, center, employee and employer in this compulsory contributory health insurance scheme.
- To estimate the out-of-pocket (OOP) expenditure we have used NSS data. Using this data we have calculated the (mean) per capita OOP expenditure. However, an estimate of (median) per capita OOP expenditure would provide better insight.

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APPENDIX-A: METHODOLOGY

Health accounts provide a systematic description of the financial flows related to the consumption of health care goods and services. Their intent is to describe a health system from an expenditure perspective. National Health Account (NHA) in recent times has been emphasized for two main reasons: internationally, where the emphasis is on a selection of internationally comparable expenditure data, and nationally, with more detailed analyses of health care spending and a greater emphasis on comparisons over time. A similar argument holds for, regional health accounts and State Health Accounts within a country. NHA is designed to facilitate the successful implementation of health system goals by its stewards in an efficient way so the people both at individual level and collectively can get the maximum benefit out of the expenditure.

A.1 SHA Framework

According to the health system framework described by the World Health Organization, health care system constitutes of the following four components by which its performance is ultimately measured (WHO, 2000).

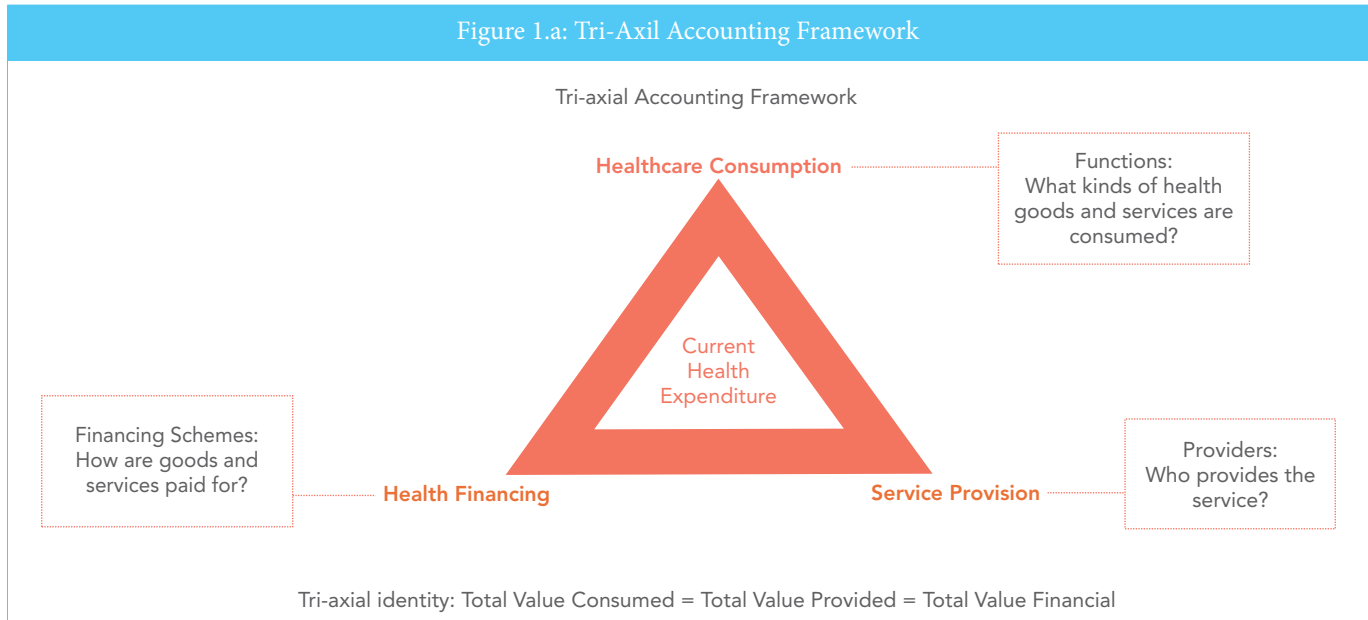
- a. governance: oversight of the system including policy-making and appropriate regulation and monitoring
- b. resource generation: investment in personnel as well as in key inputs and technologies (human, physical and knowledge)
- c. financing: raising revenue for health, pooling resources, and purchasing services
- d. service delivery: delivery of the services for health interventions to the individuals or to the community

These four components are linked to the three axes of health accounts:

- Consumption,
- Provision
- Financing

Health care goods and services are consumed with a specific health purpose (functions). What has been consumed has been produced and provided. Finally, what has been consumed and provided has been financed. This implies that the third axis, financing, as well as the second axis on provision are measured according to the first axis, consumption. Each of these axes has its own specific classifications.

Figure 1.a: Tri-Axial Accounting Framework



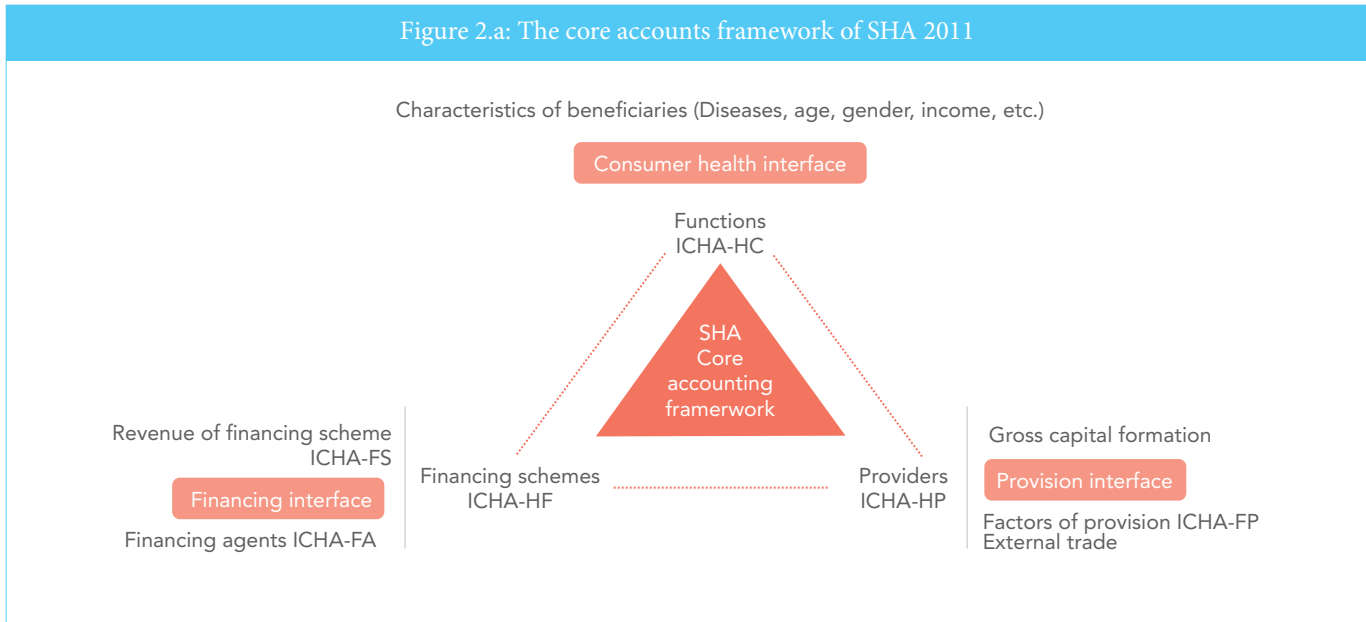
A.2 SHA 1.0 and SHA 2011

To meet the demand of policy makers and analysts on how much is spent on health care and whether it is measured in a comparable way, A System of Health Accounts (SHA) proposes a framework for the systematic description of the financial flows related to health care. The aim of SHA framework is to describe the health care system from an expenditure perspective for both international and national purposes. An international guideline on health expenditure account developed by OECD, named A System of Health Accounts, published in the year 2000, called "SHA 1.0". Further, the modified version of the manual, A System of Health Accounts 2011 co-edited by the OECD, the European Union, and the World Health Organization, reflects different perspectives and priorities within the expanding domain of health accounts.

SHA 2011 reinforces the tri-axial relationship which is the guiding principle of SHA 1.0. It provides a more complete coverage within the functional classification in areas such as prevention and long-term care; a more concise picture of the universe of health care providers, with closer links to standard industry classifications; and a precise approach for tracking financing in the health care sector using the new classification of financing schemes. To focus on specific areas of national health policy interests SHA 2011 also develops three analytical interfaces based on the tri-axial approach of health care expenditure – the health care consumer, provision and financing interfaces.

Health care financing interface helps in systematic assessment of how finances are mobilized, managed and used, including the financing arrangements (Financing schemes), the institutional units (Financing agents), and the revenue-raising mechanisms (Revenues of financing schemes). The production interface deals with the cost structures of health care provision (Factors of provision) and provides a separate treatment for capital formation to avoid some of the past ambiguity regarding the links between current health spending and capital expenditure in health care systems. The consumer health interface helps in exploring the breakdown of health care expenditure according to beneficiary characteristics, such as disease, age, gender, region and socioeconomic status.

Figure 2.a: The core accounts framework of SHA 2011



A.3 Issues on SHA Boundaries

A.3.1 Current expenditure on health

Current expenditure on health care considers final consumption expenditure of resident units on health care goods and services during the accounting period. Current expenditure does not include the expenditure on capital (i.e. the total value of the assets that providers of health services have acquired during the accounting period).

A.3.2 Timing of recording (Time Boundary)

The timing of recording of final consumption expenditures within SHA 2011 has two elements - Calendar year versus fiscal year and Accrual versus cash accounting. Fiscal year is the time of recording for India within which the health care activities take place i.e. 1st April to March 31st of the next year. The second element of this time boundary for India is cash accounting, that is actual expenditures.

A.3.3 Consideration of health care activities

According to the SHA 2011 framework, expenditure on health care (functional classification) considers the expenditures on the following health care activity groups:

- Health promotion and prevention
- Diagnosis, treatment, cure and rehabilitation of illness
- Caring for persons affected by chronic illness
- Caring for persons with health-related impairment and disability
- Palliative care
- Providing community health programs
- Governance and administration of the health system

Health-related activities provided as 'aid', do not belong to the health care functions, e.g. provision of long-term social care, enhancing integration of disabled persons, control of food hygiene, drinking water, environmental protection, and multi-sector promotion of health lifestyles which are not in strict relation to preventive health programs are excluded from the boundary for health care expenditures.

A.3.4 Borderlines for health care activities

These are some grey areas –

- i. When social services involve a significant but not dominant health care component in activities like, long-term care for dependent elderly people, home or institutional care such as protective custody in mental health institutions, homes and protected working places for disabled persons, and rehabilitation programs for drug addicts, etc. These services consist of a significant but not dominant medical component, comprising less than half of the total cost.
- ii. For other medical interventions like Spa therapy and/or Yoga sessions for mainly medical and curative purposes should be included under the health care activities whereas sessions for recreation or rehabilitation or for the purpose of general fitness ought to be excluded.
- iii. Among other government functions, a range of public safety measures (road and vehicle safety, construction and housing standards, veterinarian services and product safety monitoring) administered by public health authorities; installation of drinking water and sanitation system where the primary intention is to distribute water; mid-day meal program/food subsidies/supplementary nutrition program provided by the social welfare department, targeted at children, adolescents, pregnant, and lactating mothers, who are brought to special facilities (Anganwadi) for that purpose; nutritional education and counseling to prevent malnutrition will not be included within SHA boundaries for health care activities.

A.4 Classifications According to SHA 2011 in the context of State Health Account Tamil Nadu

A.4.1 Classification of Financing Schemes (HF)

Health care financing schemes are the structural components of the health care financing systems. They are the main types of financing arrangements through which the people obtain health services. To provide a comprehensive picture of the health financing of a state, the role of the health financing scheme is important. Health financing scheme provides a detailed structure of the health financing system through which the health care services are paid and accessed by individuals. Examples include, NGOs health financing scheme, direct Out-of-Pocket payments, etc. following SHA 2011 we have make a list of Health Financing (HF) schemes -

Table 1.a: Classifications for health care financing schemes:	
HF. 1	Govt. Schemes and Compulsory Contributory Health Care Financing Schemes
HF. 1.1	Government Schemes
HF. 1.1.1	Central Government Schemes
HF. 1.1.1.1	Central Sector Scheme
HF. 1.1.1.2	Central Sponsored Scheme
HF. 1.1.2	State/Regional/Local Govt. Schemes
HF.1.1.2.1	State Government
HF.1.1.2.2	Regional Government
HF. 1.1.2.3	Other Departments
HF. 1.1.2.4	Urban Local Bodies
HF. 1.1.2.5	Rural Local Bodies
HF. 1.1.3	Tax funded government based voluntary scheme
HF. 1.2	Compulsory Contributory Health Insurance Schemes
HF.1.2.1	Social Health Insurance Schemes
HF.2	Voluntary Health Care Payment Schemes
HF. 2.2	NPISH Financing Schemes
HF. 2.2.1	NPISH Financing Schemes (Excluding HF 2.2.2)
HF. 2.2.2	Resident Foreign Govt. Development Agencies Schemes
HF. 2.3	Enterprise Financing Schemes
HF. 2.3.1	Enterprises (except health care providers) financing schemes
HF. 2.3.2	Health Care Providers Financing Schemes
HF.3	Households Out-Of-Pocket Payments
HF. 3.1	Out-of-pocket excluding cost-sharing (Direct Payment)
HF. 3.2	Cost Sharing with third-party payers
HF.3.2.1	Cost sharing with government schemes and compulsory contributory health insurance schemes
HF. 3.2.2	Cost sharing with voluntary insurance schemes

It is to be noted here that we have also added some sub-classifications for Health Financing schemes (HF) as per the financial flow of Tamil Nadu. As an example, at the third digit level, we have created a sub-category for the tax-funded government-based insurance scheme (HF.1.1.3). This scheme includes government health insurance schemes (CMCHIS).

A.4.2 Classification of revenues of health care financing schemes (FS)

Revenues of health care financing schemes describe revenue sources for each financing scheme, for example, government budgets, households' contributions to social security or direct payments for health services are used as source to fund the schemes. Following SHA 2011 manual we have used the following classification of revenues of health care financing schemes for the State Health Account Tamil Nadu.

Table 2.a: Classification of Revenues of Financing Schemes (FS)	
FS.1	Transfers from government domestic revenue
FS.1.1	Internal transfers and grants
FS.1.2	Transfers by government on behalf of specific groups
FS.3	Social insurance contributions
FS.3.1	Social insurance contributions from employees (ESIS)
FS.3.2	Social insurance contributions from employers (ESIS)
FS.6	Other domestic revenues n.e.c.
FS.6.1	Other revenues from households n.e.c.
FS.6.2	Other revenues from corporations n.e.c.
FS.6.3	Other revenues from NPISH n.e.c.
FS.7	Direct foreign transfers
FS.7.1	Direct foreign financial transfers
FS.7.2	Direct foreign aid in kind
FS.7.3	Other direct foreign transfers (n.e.c.)

The classification FS.1 includes revenues allocated to government schemes (FS.1.1), which may be an internal transfer within the same level of government or a transfer between central or state and local governments, as well as grants from central or state to local governments. In India, at the state level internal transfers of funds are generally in the form of central government transfer to the states through the Central Government Schemes (HF.1.1.1), like National Health Mission and other Centrally Sponsored Schemes (may be 100% CSS or less than that); internal transfer within the state government for the purpose of its own health programs under the department of Medical and Public Health, and Family Welfare (HF. 1.1.3); Other Department expenditure on health from state government (HF. 1.1.4); transfer of funds within the local government in the form of own fund (urban local bodies and rural local bodies) (HF. 1.1.5).

Under FS.1 there is Transfers by government on behalf of specific groups (FS.1.2), where government pays on behalf of certain population groups to guarantee insurance coverage for these groups (like population below poverty line or specific low-income groups). In India, central and state governments generally pay through the tax-funded government voluntary schemes (HF.1.1.1.3) (like RashtriyaSwasthyaBimaYojna (RSBY) and in case of Tamil Nadu, the Chief Minister's Comprehensive Health Insurance Scheme).

The classification FS.6, includes other revenues from household n.e.c. (FS.6.1) which considers the sources of households' Out-of-Pocket payments, as well as any voluntary transfers from households to health financing schemes (HF.3.1). Revenues from corporations and non-profit sector would be classified as FS.6.2 and FS.6.3 respectively.

A.4.3 Classification of health care functions (HC)

The functional classification of HC at the first digit level is divided into eight categories. Each first digit category is again segregated into second digit, and each one of the second digit is further classified into third digit level as per the SHA 2011 manual. For the state health account for Tamil Nadu, we have limited our analysis at the two digit level because the information available on health expenditure in India does not support classification at the third digit level. Here, the classification list used for state health account, Tamil Nadu is given below.

The categories relating to cure, rehabilitation and long-term care (HC.1-HC.3) are broken down at the second digit level of classification by a mode-of-provision (MoP) approach where the MoP categories are inpatient, day care, outpatient and home-based care. This categorization is based on the following criteria (SHA 2011, page 78)-

- Inpatient care and day care involve formal admission to a health care facility, whereas outpatient and home-based care do not
- Inpatient care involves an overnight stay after admission, whereas day care requires the patient to be discharged on the same day
- Outpatient and home-based care can be differentiated based on the location from where the services are provided; home-based care is provided at the patient's place of residence, whereas outpatient services are delivered from the health care providers' premises.

There is a second-level breakdown of HC.4 and HC.5 into laboratory services, imaging services, and patient transportation and emergency rescue when these services are consumed directly but not as the integral part of the service package of inpatient care and day care.

The classification HC.6 includes health promotion strategy that involves a process to enable people to improve their health through control over some of its immediate determinants. In SHA 2011, preventive care (HC.6) is limited to primary and secondary prevention. Once a diagnosis has been made, a therapeutic or tertiary preventive path is established. The rationale for excluding tertiary prevention is that it overlaps with the curative and rehabilitative purposes, which are aimed at reducing disease-related complications.

The classification HC.7 focuses on the health system rather than direct health care, and is considered to be collective, not allocated to specific individuals but to benefit all health system users. These services direct and support the functioning of the health system.

Table 3.a: Classification for functions of health care (HC)	
Code	Name
HC.1	Curative care
HC.1.1	Inpatient curative care
HC.1.2	Day curative care
HC.1.3	Outpatient curative care
HC.1.4	Home-based curative care
HC.2	Rehabilitative care
HC.2.1	Inpatient rehabilitative care
HC.2.2	Day rehabilitative care
HC.2.3	Outpatient rehabilitative care
HC.2.4	Home-based rehabilitative care
HC.3	Long-term care (health)
HC.3.1	Inpatient long-term care (health)
HC.3.2	Day long-term care (health)
HC.3.3	Outpatient long-term care (health)
HC.3.4	Home-based long-term care (health)
HC.4	Ancillary services (non-specified by function)
HC.4.1	Laboratory services
HC.4.2	Imaging services
HC.4.3	Patient transportation
HC.5	Medical goods (non-specified by function)
HC.5.1	Pharmaceuticals and Other medical non-durable goods
HC.5.2	Therapeutic appliances and Other medical goods
HC.6	Preventive care
HC.6.1	Information, education and counseling (IEC) programmes

Code	Name
HC.6.2	Immunisation programmes
HC.6.3	Early disease detection programmes
HC.6.4	Healthy condition monitoring programmes
HC.6.5	Epidemiological surveillance and risk and disease control programmes
HC.6.6	Preparing for disaster and emergency response programmes
HC.7	Governance, and health system and financing administration
HC.7.1	Governance and Health system administration
HC.7.2	Administration of health financing
HC.9	Other health care services not elsewhere classified (n.e.c.)
Reporting Items	
HC.RI.2	Traditional Complementary and Alternative Medicine
HC.RI.9	Total Pharmaceutical expenditure

Here it is to be noted that the functional classification in the health accounting framework according to SHA 2011 focuses on the estimation of current spending and involves the contact of the population with the health system for the purpose of satisfying health needs. Therefore, the SHA framework does not include investment but considers it separately as – “Capital formation in health systems”. In current spending, expenditure on capital formation is acquired as a means of production, and is an investment. In SHA framework, the expenditure associated with capital formation has been moved to a specific capital account. Capital formation includes human resource formation, and research and development services, which do not fit the final consumption purpose and are thus excluded from this classification (SHA 2011, page 73).

A.4.4 Classification for Health care provision (HP)

Like the functional classification, SHA 2011 manual provides classifications for the providers at the first digit, second digit, and third digit level. At the first digit level providers are classified into nine categories. For the state health account, Tamil Nadu we have limited our analysis at the two digit level because in India the available information on health expenditure does not support the classification at the third digit level. Here, the classification below lists what is used for state health account Tamil Nadu.

Table 4.a: Classification for Health care provision (HP)

Code	Name
HP.1	Hospitals
HP.1.1	General hospitals
HP.1.2	Mental Hospital
HP.1.3	Specialized hospitals (Other than mental health hospitals)
HP.2	Residential long-term care facilities
HP.2.1	Long-term nursing care facilities
HP.2.2	Mental health and substance abuse facilities
HP.2.9	Other residential long-term care facilities
HP.3	Providers of ambulatory health care
HP.3.1	Medical practices
HP.3.2	Dental practice
HP.3.3	Other health care practitioners (sub centres and similar facilities) Public
HP.3.4	Ambulatory health care centres
HP.4	Providers of ancillary services
HP.4.1	Providers of patient transportation and emergency rescue
HP.4.2	Medical and diagnostic laboratories
HP.4.9	Other providers of ancillary services
HP.5	Retailers and Other providers of medical goods
HP.5.1	Pharmacies
HP.5.2	Retail sellers and Other suppliers of durable medical goods and medical appliances
HP.5.9	All Other miscellaneous sellers and Other suppliers of pharmaceuticals and medical goods

Code	Name
HP.6	Providers of preventive care
HP.7	Providers of health care system administration and financing
HP.7.1	Government health administration agencies
HP.7.2	Social health insurance agencies
HP.7.3	Private health insurance administration agencies
HP.7.9	Other administration agencies
HP.8	Rest of economy
HP.8.1	Households as providers of home health care
HP.8.2	All Other industries as secondary providers of health care
HP.8.3	Community health workers (or village health worker, community health aide, etc.)
HP.8.9	Other industries n.e.c.
HP.9	Rest of the Economy

A.4.5 Classification for Factors of Production (FP)

In SHA, 2011 edition, the Factors of Provision (FP) are defined as the 'valued inputs' used in the process of health care provisioning. It includes a mix of factors of production involved in the provision of health care goods and services viz., labour, capital, materials etc. Health-specific resources as well as non-health specific inputs are equally needed to generate health care services. Following the SHA 2011 manual we have cross-classified the factors of provision –

Table 5.a: Classification for Factors of provision (FP)	
Code	Description
FP.1	Compensation of employees
FP.1.1	Wages & Salaries
FP.1.2	Social Contribution
FP.1.3	All other costs related to employees
FP.2	Self-employed professional remuneration
FP.3	Materials & services used
FP.3.1	Health care services
FP.3.2	Health care goods
FP.3.2.1	Pharmaceuticals
FP.3.2.2	Other health care goods
FP.3.3	Non-health care services
FP.3.4	Non-health care goods
FP.4	Consumption of fixed capital
FP.5	Others item of spending on inputs
FP.5.1	Taxes
FP.5.2	Other items of spending

A.4.6 Classification for Financing Agents (FA)

Financing agents (FA) are institutional units that administer health financing schemes in practice. They implement the revenue collection and/or the purchasing of services. An agent could finance the services produced in its institutions or purchase services from other providers. Examples include local governments, social insurance agencies, private insurance companies, non-profit organizations, and so on. Following the SHA 2011 manual we have classified the financing agents for Tamil Nadu –

FA Code	Description
FA.1	General Government
FA.1.1	Central Government
FA.1.1.1	Ministry of Health
FA.1.1.2	Other Ministries
FA.1.1.3	National Health Service Agency
FA.1.1.4	National Health Insurance Agency
FA.1.2	State/Regional/Local Government
FA.1.3	Social Security Agency
FA.1.3.1	Social Health Insurance Agency
FA.1.3.2	Other Social Security Agency
FA.1.9	All Other General Government Units
FA.2	Insurance Corporations
FA.2.1	Commercial Insurance Companies
FA.2.2	Mutual and Other non-profit Insurance Agency
FA.3	Corporations (Other than Insurance)
FA.3.1	Health Management and Provider corporations
FA.3.2	Corporations (other than providers of health services)
FA.4	NPISHs
FA.5	Households
FA.6	Rest of the World
FA.6.1	International Organizations
FA.6.2	Foreign Governments
FA.6.3	Other foreign entities

However, considering health financing agent specific to Tamil Nadu, we have sub-classified the codes into three or four digit level.

A.5 Issues on Double Counting

For providing health care services fund flow mechanism works in the following way. Resources are transferred from public and private sources to the providers through the financial intermediaries. Public sources of fund include center, state and local governments. From the center, funds reach the provider either through the treasury route or by means of the state health society. State's expenditure on health is reflected in the State health budget. Local Governments (ULB) also have their own budget document. Besides that private expenditure, household OOP expenditure on health care and insurance is captured through the NSS health care survey rounds.

To understand the three axes of health accounts – consumption, provision, and financing, we capture information on health expenditure from the dimensions of Financing Source (FS), Health Financing schemes (HF), Financing Agent (FA), by different types of consumption of Health Care (HC) and categories of Health care Providers (HP). Here it is to be noted that some of the information are available in different data sources. So, for the purpose of estimation and in order to get the expenditure, if we just add up all the values from different data sources then there is a high possibility of counting the same expenditure items more than once. If we observe the fund flow mechanism, then we can identify that for a state, Union Government (i.e. Center), State Government, Local Bodies, Firms are the source of fund and act as Financing Sources. From the center, funds flow to the State Health Society, State Departments, and Local Bodies. From the State, funds go to the State Departments and Local Bodies. So, if we want to capture the expenditure from the 'source' perspective then we need to estimate that through the budget of respective intermediaries. When intermediaries like State Health Society, State Departments, Local Bodies act as agents, in this case, to capture the expenditure from the agent side, we need to add up all the funds provided by various sources to the respective intermediary. For example, the expenditure on health by the Local Governments is reflected in the treasury budget in the form of block grants from state to the local bodies, Local Government budget in the form of revenue collected from Center, State and own sources, and Central budget in the form of grants from center to the local bodies. To estimate the expenditure of the local government when we add all these expenses, we have to deduct the funds devolved from state health departments to avoid the problem of double counting. For SHA, Tamil Nadu, the problem of double counting is dealt in the following way. For financing source (FS), if we consider the State government then we are including only the funds the state government disburses through the treasury route for the purpose of its own health programs under the department of Medical and Public Health, and Family Welfare. To get this estimate we are excluding the items which come from the central government and other sources given in the treasury budget. Similarly, when the Local government acts as a source we are considering only the revenue generated by the local government itself, which is taken from the Local Government budget by excluding the funds that come as revenue from the center and state. For the case of financing agents (FA), the institutional units manage the fund. Thus, when the Local government can act as an agent, we consider the total funds used by the local government to provide the health care service which includes the fund flow from the central government, state government, and within the local government itself. The same holds for the other FAs, the State Department of Health, State Health Society, and All other General government units. Again, for the Health Financing schemes (HF), schemes are operated through their corresponding FAs and FSs. For the HF, NHM, the corresponding FAs are State Government and State Health Society; whereas the FS is internal transfer and grants from the central government and state governments.

APPENDIX-B: HEALTH EXPENDITURE ESTIMATES OF DIFFERENT ENTITIES

In this section we are going to discuss the detail description of the method of estimating the health expenditure from different entities of Tamil Nadu.

B.1 Various Government entities

B.1.1 Department of Health and Family Welfare

As mentioned before, to estimate the expenditure by the Department of Health and Family Welfare we have used the detailed demand for grants (DDG) document available from State Health and Welfare Department's web site. Expenditure under the Department is provided under two major heads in the document-

- i. Medical and Public Health (2210)
- ii. Family Welfare (2211)

The major head - 2210 has seven Sub-major heads –

1. Urban Health Services- Allopathy (01)
2. Urban Health Services Other Systems of Medicine (02)
3. Rural Health Services- Allopathy (03)
4. Rural Health Services - Other Systems of Medicine (04)
5. Medical Education , Training and Research (05)
6. Public Health (06)
7. General (80)

There is only one sub-major head under the major head Family Welfare (2211). However, for both the major heads, there are several Minor heads. Data has been collected at the lowest level (detail head level) from the DDGs for the year 2013-14 actual account. Each line item then classified under health care functions (HC), health care provider (HP), factors of provision (FP), health care financing scheme (HF), Revenue of health care financing scheme (FS) and financing agents (FA). However, few line items which are outside the SHA boundary so we have kept them in the exclusion list. As the details of the expenditure on NRHM is available from the Financial Management Report (FMR¹⁶); we have extracted the contribution of the State on NRHM from the Treasury data to avoid double counting. It was difficult to identify the function, provider etc. for deduct and recoveries amount from the DDGs. So, we have estimated the expenditure on deduct and recoveries separately. Following SHA 2011, we have classified the expenditure on education and training (E & T) and capital expenditure (HK) separately from the data.

16 The information on total spending of the State and the Union Government on NRHM is available from FMR.

B.1.2 Distribution Keys for Hospitals under state health department

The accounting process involves the identification of transactions with functional classification and the resources involved in the process of satisfying health needs. Health care is generally consumed as an integrated service package. In fact, a contact with the health system normally includes a personalized mix of services, for example, of preventive, curative or rehabilitative care. Those services may or may not be delivered on an organized program basis. Thus, it may not be possible to separate each of the components of the package distinctly into preventive, cure or rehabilitation consumption, or functional classification at two digit level when they are not part of a program with specific expenditure records.

To overcome this limitation we applied distribution keys to separate out the resources for specific health care interventions. Referring to the performance budget document, we have collected information on utilization of inpatient and outpatient care facilities in Tamil Nadu at different levels (primary, secondary, tertiary, and maternal and child health). The utilization share of each type of care at each level has been used as a distribution key to apportion the total expenditure on the basis of inpatient and outpatient care. There was no separate information for day-care utilization. So, we have assumed a ten per cent share of the day care at secondary and tertiary level. However, we have not considered any expenditure for day care for primary, and maternal and child health care. The distribution key generated for each level has been provided below –

Level of Care	With Day Care			Without Day Care	
	IP	Day	OP	IP	OP
Primary	0.1	-	0.9	0.1	0.9
Secondary	0.2	0.1	0.7	0.3	0.7
Tertiary	0.5	0.1	0.4	0.5	0.5
Maternal & Child Health	0.2	-	0.8	0.2	0.8

Here it is to be noted that, the functional classification in the health accounting framework according to the SHA 2011 focuses on the estimation of current spending and involves the contact of the population with the health system for the purpose of satisfying health needs. Therefore, the SHA framework does not include investment but considers it separately as –“Capital formation in health systems”. In current spending, expenditure on capital formation is acquired as a means of production, and is an investment. In SHA framework the expenditure associated with capital formation has been moved to a specific capital account. Capital formation includes human resource formation, and research and development services, which do not fit the final consumption purpose during one fiscal year, and are thus excluded from this classification (SHA 2011, page 73).

In some cases, to distribute the expenditure across different functions and provider we have consulted with the concerned state officials. Still, in many cases we have no such information or proxy distribution key to distribute the expenditure under different functions/ providers, so for those cases we have equally distributed the total expenditure among the different heads.

To provide the assistance to poor pregnant women, Tamil Nadu government had implemented the Dr. Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS) which aims to ensure the access to nutritional food and compensating the wage loss during pregnancy. As per the scheme, cash assistance of INR. 12,000 is distributed in three instalment to the beneficiaries of the scheme. Based on the consultation with the concerned state officials, the total expenditure under Dr. Muthulakshmi Reddy Maternity Benefit Scheme has been classified under three functions – inpatient curative care, immunization programmes and healthy condition monitoring programmes. Specifically, thirty-four per cent of the total expenditure has been classified for the first function and the rest of the amount has been equally distributed between last two functions. According to the state officials' suggestion, the provider of the scheme has been classified as the providers of preventive care.

As there was no specific information available on the expenditure heads of deduct and recoveries from the DDGs, it was difficult to deduct the amounts from any particular health care functions and providers. We have calculated source of fund specific (centre or state) total deduct and recovery amount and then distributed the total deduct amount across all functions and provider as per their share in total State/Centre's expenditure through treasury.

B.1.3 National Health Mission

National Health Mission (NHM) has two component for rural and urban sector - National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM).

Almost similar methodology has been used in both NRHM and NUHM data sets to classify the expenditure heads and to estimate the expenditure under different functions and provider.

Data Source:

- The Financial Management Report (FMR) for the financial year 2013-14 has been used for the analysis. The FMR contains the activities which have to be undertaken by the state, and also includes details pertaining to the budget allocated and the actual expenditure. For our analysis the actual expenditure, year to quarter cumulative has been utilized.
- The State Programme Implementation Plans (PIP) for Tamil Nadu .The state PIP detailed out the strategies that will be deployed to utilize the resources provided by NHM. They also explain the budgetary requirements and aimed health outcomes (NHM Tamil Nadu website).

Objective:

- To organize the budget items in the FMR according to the universally followed classifications as suggested by SHA 2011 manual. Where the budget items of the activities from the FMR are broken down based on SHA 2011 functional and provider category. Definitions by SHA 2011: Steps involved in Cross-walk of FMR Budget items according to SHA 2011:
- The functional, provider, and factors of provision classification is identified for the budget items provided in the FMR, based on the activity provided in the PIP and by using the classification tables for the health care function (pp. 83), health care provider (pp.130) and individual definitions till the 2nd digit in SHA 2011 manual.
- The capital expenditure (HK) and expenditure on Education and Training (E&T) are estimated separately as per the SHA 2011 guideline (SHA 2011, pp.72).
- PIP was used to understand the activity given as line item in FMR to cross classify each of the items into different functional and provider categories.

- After cross-classification has been done for the functional, provider, and factors of provision classifications till the second digit with the FMR activity. The 'actual expenditure' of each budget item was placed in a row format under the respective functional category and then under the Provider category.
- As an example, if in cross-classification to a particular activity HC.6.1 Information, education and counseling programs is assigned and HP.6 Providers of preventive care. Then the entire actual expenditure will be placed under HC.6.1 (functional category) and HP.6 (provider category).
- To justify the cross-classification both for the functional as well as the provider, SHA 2011 manual was used. And for each item, reference was given using the definition as given in SHA manual along with the page number in the manual.
- 'Appropriation' was done in cases with more than one Functional or Provider category. Appropriation techniques were adopted to divide the actual expenditure into appropriate function/provider categories (please refer to methodology section for more details on appropriation).
- Suppose, under curative care category (HC.1) if actual expenditure has to be broken down into Inpatient curative care (HC 1.1) and Outpatient curative care (HC 1.3), then, apportioning technique was used to arrive at the required ratio. We have applied the apportioning key generated from NSS data, to get the actual expenditure for those sub categories (here IP and OP).
- There were few categories where no suitable proxies were available to generate a distribution key for those items. In such a situation, we have used equal weight to distribute the total expenditure across different items.

As mentioned earlier, FMR provides the total expenditure on NRHM made by State and Union Government. To estimate the Centre's share in NRHM we have deducted the State's contribution on NRHM reflected in the Treasury data from total NRHM (available from FMR) amount. Then the share of State and Union government has been calculated and the share figures are used to estimate the expenditure of State and Union government under different NRHM heads.

B.1.4 Local Bodies

Passing of 74th constitutional amendment in the country have enabled the urban local bodies to play an important role local areas development including health. These local bodies depend on their own source as well as grants received from both centre and state governments to finance for provision of health. These local bodies act as a financing source, agent and provider of health care in a typical national health account framework. In Tamil Nadu, there are three types of ULBs, the Municipal Corporations, Municipal Councils and Town Panchayat. The corporations caters to big urban areas, the municipal councils are present in small urban areas and town panchayats in transitional areas or areas that is gradually transforming from rural to urban. In this study we have only captured Municipal Corporations and Councils. Town Panchayats were not included as they have small geographical coverage as well as very weak financial base.

B.1.4.1 Health Expenditure under Urban Local Bodies

There are altogether 13 Municipal Corporations in the state and 123 municipalities as per the census data of 2011. The ULBs in Tamil Nadu, barring Chennai which is registered under Madras Municipal Corporation Act, 1919, function under the Tamil Nadu District Municipalities Act 1920, which is a unified Act for Municipalities and Corporations. Both these acts have been amended after the 74th amendment to give adequate powers to local bodies. Under these acts ULBs are entitled to do various health functions. In this study, health expenditure of these ULBs were collected primarily under two heads which are given as follows:

1. Establishment Expenses
2. Program Expenses

While identifying the items under health expenditure special care was given to exclude items such as sanitation, nutrition, solid waste management etc. which does not fall under current expenditure of health (SHA,2011) even though they are important activities undertaken by ULBs in Tamil Nadu and they do have a bearing on health.

To estimate the total health expenditure we calculated health expenditure of both municipal corporations and municipal councils. All the municipal corporation of the state namely Chennai, Tirunelveli, Tirupur, Coimbatore, Tanjavur/Tanjore, Thoothkudi, Salem, Dindigul, Vellore, Madurai, Erode and Tiruchupalli were considered in the analysis and in case of municipalities councils 15 percent of total municipalities were selected randomly as sample from the total. Per capita health expenditure from sample municipalities were calculated and it was multiplied with the total municipal population of the state using the census, 2011 data on towns. Once we got the estimate for municipal councils it was added with health expenditure of Municipal Corporation to get the total health expenditure of the ULBs in the state.

Total Health Expenditure = Health Expenditure of Municipal Corporations + Health Expenditure of Municipalities

B.1.4.2 Cross classification of Health Expenditure of Local bodies

Health expenditure under local bodies were divided into different functions and providers based on the SHA, 2011 classification. Each item was classified up to two digit level. In certain items we have used apportionment principle to divide health expenditure into different functions. Since, at the local body level there was not much information we have used state-level apportioning principle to divide the health expenditure under different heads. In case of a few items where state averages were not available we used advice from expert from the field to apportion health expenditure items.

B.1.5 Data Source and issues of Double Counting

To capture the health expenditure of the ULBs we have covered all the ULBs in the state, both Municipal Council and Corporation. ULBs data are based on the budget data of 12 municipal corporations and 123 municipalities covering the state.

Local bodies to a great extent depend on the grants coming from state and central government. As a result they are also prone to double counting especially in case of health account where we take into account the financial flow from all the levels of government. In this study, to avoid double counting we have checked (and deducted) the sources of grants for the urban local bodies.

B.1.6 Other departments

To estimate the health expenditure which comes under the boundary of health care as defined by SHA 2011, we have considered the expenditure from other departments of the State Government. For this purpose, we manually searched all the detail heads of each department and culled out the health expenditure made by those departments (however, the boundary has been kept in mind in the selection of the expenditure).

B.1.7 Medical Reimbursement

Reimbursement provided to the officials in different Departments forms a significant amount of expenditure on health by State Governments. Hence taking them into account is essential while estimating State Health Account (SHA). However, it's very challenging to find out the expenditure incurred on reimbursement from each departments' budget documents considering the fact that there are many Departments. Hence, we have used the following methodology to estimate total magnitude of medical reimbursement for the state:

Estimation Methodology:

Step-1: Identified the top 12 Departments that have covered more than eighty per cent of total revenue expenditure of all the Departments excluding the Department of Health and Family Welfare.

- To get the Revenue expenditure data, we have visited RBI handbooks of statistics on state finance.
- Ranked Departments based on total revenue expenditure and identified top twelve Departments covering eighty per cent of total expenditure.
- Collected Detailed Demand for Grants (DDGs) of these chosen Departments.

Step-2:

- Identified medical reimbursement expenditure from DDGs of those Departments and aggregated to get the total medical reimbursement of those Departments ($TR1 = \sum (MR_i); i=1 \dots 12$)

Step-3:

Calculated the average percentage of medical reimbursement expenditure of those 12 major Departments

- Estimated the share of medical reimbursement (MR) to total revenue expenditure (TRE) of those Departments

$$R_i = \frac{MR_i}{TRE_i} \times 100 \quad (i = 1 \dots \dots \dots 12)$$

- Calculated the average share of MR of all 12 major Departments

$$R = \frac{\sum_{i=1}^{12} R_i}{12}$$

Step-4:

To get reimbursements expenditure for all the Departments (57 Departments of Tamil Nadu) -

- We have Multiplied the 'R' with the total revenue expenditure of rest of the Departments in the State Government

$$TR2 = R \times TRE$$

Total Reimbursement: $TR = R + TR2$

Following the above stated steps, the 12 Departments selected for Tamil Nadu are -

Name of Department	Demand No.
Higher Education	20
School Education	43
Youth Well & Sports	49
Tourism Art & Culture	29
Social Welfare and Nutritious Meal Programme	45
Food and Consumer Protection	13
Agriculture	5
Police	22
Energy	14
Housing and Urban Development	26
Rural Development and Panchayat raj	42
Transport Department	48

B.1.8 Railway

Two different secondary sources of data namely, the Demands for Grants (DDGs) volume-2 for expenditure of the Central Government on Railways for the year 2015 and the website of health directorate of Indian Railways has been used to calculate health expenditure by the Railways. The DDG budget provides information on health expenditure by different heads under three different Demand numbers (i.e. 11, 12 and 13). Minor heads like Medical services (200), Medical, Health and Welfare (530) and RastriyaSwasthyaBimaYojana (660) have been culled out to arrive at the total health expenditure. However, this data source does not provide state-wise information since the budget is prepared at the Railway zone-level. To arrive at state-wise health expenditure, we used the information of bed strength of Railway hospitals located in different states under different zones, which is available on the Health Directorate of the Indian Railway website. For example, Southern Railway hospitals are located in different locations of Kerala and Tamil Nadu. We segregated those hospitals by their locations and accordingly added their bed strength. The state's share of bed strength in their respective zone has been multiplied by respective zone's total health expenditure to arrive at state health expenditure. Due to unavailability of state-wise railway employees data we have assumed that state-wise railway hospital bed strength represents the intensity of total number of staff employed and their health care needs. Mathematically, Zone and State Health Expenditure could be termed as ZHE and SHE respectively. Zone and state hospital's bed strength is represented by the term ZHB and SHB respectively. Then, state health expenditure is calculated as

$$SHE = \delta * ZHE$$

$$\text{Where, } \delta = SHB/ZHB$$

B.1.9 Employee State Insurance (ESI)

For ESI we have used the secondary level data available in the annual report of Employee State Insurance Corporation (ESIC) for the year 2013-14 accessed from its website¹⁸. It provides state-wise expenditure information under the head of state expenditure, expenditure on model and ESIC Hospitals and Super-Specialty hospitals. Here it has been assumed that expenditure on model and ESIC hospitals and super specialty hospital are mostly funded through the pooled resources from employee and employers' contribution. Therefore, for ESIC contribution, we have taken together the last two expenditure heads and distributed that amount into the categories of employee and employer contribution using the predefined ration of 1.75 (employees' contribution) and 4.75 (employers' contribution) per cent of employees salary (according to ESIC information available from webpage) respectively.

B.1.10 NACO and other Central Procurement

We have collected information on expenditure made by National AIDS Control Organization (NACO) in Tamil Nadu during 2013-14. For other centrally procured commodities, vaccines, and medicines (mostly related to family welfare), we have collected information on the quantities received by Tamil Nadu during 2013-14. Then, we have used the prices provided by the Ministry of Health and Family Welfare, Government of India (2014), Multi-year strategic plan 2013-17, Universal Immunization Program, Reaching every child. There was no information available on commodities like Dengue kit, Chikungunya kit, copper T, so we have used the minimum price of these commodities available from different sources.

B.1.11 Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER)

We have also included JIPMER in our study. To get the expenditure of JIPMER, we have collected the total expenditure of JIPMER from the 2013-14 annual report of JIPMER. Then based on the utilization of the services (inpatient and outpatient) we have apportioned the expenditure of JIPMER for Tamil Nadu and different health care services separately.

B.1.12 Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS)

For the present study we have used CMCHIS data shared by United India Insurance Company (UIIC), the implementing agency through Tamil Nadu Health System Project (TNHSP) for the year 2013-14. The total expenditure under CMCHIS has been classified under four functions – outpatient care, inpatient care, day care and diagnostic tests. It has noted that for chemo therapy and dialysis cases observations were very small for day care treatment. To estimate the day-care expenditure for these two categories hospitalization for a day has also been considered as the day-care.

B.2 Private Entities

B.2.1 Out-of-pocket expenditure

B.2.1.1 Data Sources

Out-of-Pocket expenditure (OOPE) has been estimated from different data sources, viz.

- National Sample Survey (Morbidity and Health Care Survey): NSS 71st round, Schedule 25.0 collected during January-June 2014

- Consumer Expenditure Survey (2011-12)
- Pharmatrac data of 2014
- Population Census (2001 & 2011)
- Insurance Regulatory and Development Authority (IRDA) information on Health Insurance¹⁹ 2013-14

Information on inpatient care, outpatient care (both medical care taken and not taken), childbirth, Antenatal Care (ANC), Postnatal Care (PNC) and Voluntary Health Insurance (VHI) have been collected from the NSS 71st round data. Expenditure on medical devices and family planning are estimated using the theNSS 68th round (CES) data. Private expenditure on vaccination is another important component of OOPE in India. We have captured OOPE on vaccination using Pharmatrac data.

B.2.1.2 Methodology

We have followed per capita method to estimate the OOPE from NSS and Census data –

1. Population projection: The last information on Census is available for 2011. However, we have attempted to estimate the State Health Accounts for 2013-14 and the NSS data has been collected during January – June 2014. So, we have projected the population for theyear 2014 using the census population from 2001 and 2011 data. The annual growth rate of population has been estimated using the formula –

$$\alpha = \left[\left(\frac{P_{2011}}{P_{2001}} \right)^{\frac{1}{10}} - 1 \right] \times 100$$

Where,

α = annual growth rate of population;

P_{2011} = Population in 2011;

P_{2001} = population in 2001;

Using the annual growth rate of population (α), we have projected the population for 2014 by using the formula –

$$P_{2014} = P_{2011} \left(1 + \frac{\alpha}{100} \right)^{(2014-2011)}$$

Where P_{2014} = population in 2014;

2. Per-capita OOPE Estimation: Using the NSS unit level data we have estimated the total OOP expenditure for each component (package, consultancy fee, bed charge, medicine etc.) of inpatient care, outpatient care, and childbirth. NSS also provides information on reimbursement from different sources (like medical insurance company or employer) for these three services. We have deducted the reimbursed amount from each component of the medical care facilities for IP, OP and childbirth²⁰ to get the net OOP expenditure for each component at the individual level. The net OOP expenditure of all individuals (utilizing the services) for each component has been added to estimate the total OOP expenditure for each component (like total OOP expenditure for package in IP, total OOP expenditure for medicine in OP etc.) in the state. NSS provides information on each episode of illness and the facilities (formal or informal) utilized for treatment. However, NSS does not provide separate information for expenditure on formal and informal care. If a person utilized both type of care for treatment (for multiple visits), we have applied separate methodology (see Annexure-A for details) to estimate the OOP expenditure for each episode separately for these multiple visits. NSS only provides the total expenditure (no separate information is available for different components) for ANC and PNC

19 Insurance Regulatory and Development Authority – India Annual Report 2013-14. Ref. (https://www.irda.gov.in/ADMINCMS/cms/frmGeneral_NoYearList.aspx?DF=AR&mid=11.1)

20 NSS classifies Package (only for IP and childbirth), doctor's fee, medicines, diagnostic test, bed charges (only for IP and childbirth), other medical expenses and medicine-AYUSH (only for OP) as medical expenditure and Transport of patients and other non-medical expenditure as non-medical expenditure. Following SHA 2011, we have excluded other non-medical expenditure (out of boundary) from our estimate.

care during the 365 days reference period. We have used this information to estimate the total OOP expenditure for ANC and PNC care separately. The total expenditure for each component has been divided with the total NSS (projected) population to generate the per-capita OOP expenditure for each service component of IP, OP, childbirth, and the per capita OOP expenditure for ANC and PNC. As the information of outpatient care has been provided for 15 days reference period, we have annualized the total OOP expenditure by multiplying it by 24.33 (365/15).

3. Total OOPE estimation: Now we have multiplied the per capita OOPE with the projected 2014 population to get the total OOPE for those services components, and ANC and PNC.

B.2.1.3 Expenditure on Vaccination

Pharmatrac data has been used to estimate the OOPE on vaccination in Indian states. In Pharmatrac, information on OOPE on vaccination is available for Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Odisha, Punjab, Rajasthan, Tamil Nadu, and West Bengal. The OOPE for Uttar Pradesh and Uttarakhand are given together. Similarly, for NorthEastern states no separate expenditure is available. For the remaining states the information is given collectively (as rest of India). We have used the population share for these states & UTs to estimate the state/UT wise expenditure on vaccination.

B.2.1.4 Voluntary Health Insurance (VHI)

From NSS 2014 data we have estimated the utilization of VHI share for each state/UT and the average premium paid for the states/UTs. We have multiplied the estimated population of 2014 with the utilization share of the VHI to get the total VHI utilization during 2014 of a particular state. Then, we have multiplied the average premium paid for health insurance with the total utilization to get the total VHI amount for the state. However, the estimated total VHI amount was very low compared to the VHI amount provided by the Insurance Regulatory and Development Authority (IRDA) at the all India level. So, we have weighted the total VHI amount available from IRDA by the corresponding state's share in total VHI (as estimated from NSS data for 2014) to get state-wise actual OOP expenditure on VHI.

B.2.1.5 Medical devices & Family Planning Expenditure

We have estimated the per capita annual OOP expenditure on medical devices and family planning from NSS Consumer Expenditure Survey (2011-12). We inflated the expenditure amount from 2011-12 to 2014²¹. And then, multiplied the OOPE amount with the total projected population of 2014 to get the total OOPE amount on medical devices and family planning.

B.2.1.6 Cross-Walk

To generate the health account matrices we have run the cross-walk analysis for each expenditure head using SHA 2011 manual. The cross-walk has been done for classification of health care functions (HC), health care provider (HP), classification of health care financing scheme (HF), classification of revenues of health care financing schemes (FS) and factors of health care provision (FP). We have presented the classification of the different expenditure in the Annexure-1.

We have estimated the per episode expenditure for each type of disease during treatment in formal (separately for public and private) and informal sector separately from those ailing persons who have reported only one episode of illness in the reference period. Based on the number of visits to different providers (may be same provider also) and ailment condition, we have estimated the share of the OOP expenditure for each episode of ailing using the OOP expenditure of the single episode. This share has been used as a weight to estimate the expenditure of each episode of illness for the individuals who have reported multiple episodes; i.e., we have multiplied this share with the net OOP expenditure (deducting the reimbursement amount) of that person.

21 Here we have taken the Consumer Price Index of industrial worker (CPI-IW) for the medical care only.

Annexure 1.b: Classification of various expenditure items under OOP

Source	Exp. Head	HC	HP	HF	FS	FP
IP	Package	HC.1.1	HP.1.1	HF.3.1	FS.6.1	FP.3.1
IP	Doctor's fee	HC.1.1	HP.1.1	HF.3.1	FS.6.1	FP.1.1
IP	Medicine	HC.5.1	HP.5.1	HF.3.1	FS.6.1	FP.3.2
IP	Diagnostic Tests	HC.4	HP.4.2	HF.3.1	FS.6.1	FP.3.1
IP	Bed Charges	HC.1.1	HP.1.1	HF.3.1	FS.6.1	FP.3.1
IP	Other Medical Exp.	HC.1.1	HP.1.1	HF.3.1	FS.6.1	FP.3.1
IP	Transport of Patients	HC.4.3	HP.4.1	HF.3.1	FS.6.1	FP.3.3
Child Birth	Package	HC.1.1	HP.1.1	HF.3.1	FS.6.1	FP.3.1
Child Birth	Doctor's fee	HC.1.1	HP.1.1	HF.3.1	FS.6.1	FP.1.1
Child Birth	Medicine	HC.5.1	HP.5.1	HF.3.1	FS.6.1	FP.3.2
Child Birth	Diagnostic Tests	HC.4	HP.4.2	HF.3.1	FS.6.1	FP.3.1
Child Birth	Bed Charges	HC.1.1	HP.1.1	HF.3.1	FS.6.1	FP.3.1
Child Birth	Other Medical Exp.	HC.1.1	HP.1.1	HF.3.1	FS.6.1	FP.3.1
Child Birth	Transport of Patients	HC.4.3	HP.4.1	HF.3.1	FS.6.1	FP.3.3
OP	Doctor's fee	HC.1.3	HP.3.1	HF.3.1	FS.6.1	FP.1.1
OP	Medicine AYUSH	HC.5.1	HP.5.1	HF.3.1	FS.6.1	FP.3.2
OP	Medicine	HC.5.1	HP.5.1	HF.3.1	FS.6.1	FP.3.2
OP	Diagnostic Tests	HC.4	HP.4.2	HF.3.1	FS.6.1	FP.3.1
OP	Other Medical Exp.	HC.1.3	HP.3.1	HF.3.1	FS.6.1	FP.3.1
OP	Transport of Patients	HC.4.3	HP.4.1	HF.3.1	FS.6.1	FP.3.3
OP (Medical Adv. Not taken)	Doctor's fee	HC.1.4	HP.3.1	HF.3.1	FS.6.1	FP.2
OP (Medical Adv. Not taken)	Medicine AYUSH	HC.5.1	HP.5.1	HF.3.1	FS.6.1	FP.3.2
OP (Medical Adv. Not taken)	Medicine	HC.5.1	HP.5.1	HF.3.1	FS.6.1	FP.3.2
OP (Medical Adv. Not taken)	Diagnostic Tests	HC.4	HP.4.2	HF.3.1	FS.6.1	FP.3.1
OP (Medical Adv. Not taken)	Other Medical Exp.	HC.1.4	HP.3.1	HF.3.1	FS.6.1	FP.3.1
OP (Medical Adv. Not taken)	Transport of Patients	HC.4.3	HP.4.1	HF.3.1	FS.6.1	FP.3.3
NSS	Prenatal Care	HC.6.4	HP.3.4	HF.3.1	FS.6.1	FP.3.1
NSS	Postnatal Care	HC.6.4	HP.3.4	HF.3.1	FS.6.1	FP.3.1

Source	Exp. Head	HC	HP	HF	FS	FP
CES	Lence & Equipment	HC.5.2	HP.5.2	HF.3.1	FS.6.1	FP.3.2
CES	Other Medical equipment	HC.5.2	HP.5.2	HF.3.1	FS.6.1	FP.3.2
CES	Family Planning	HC.5.1	HP.3.4	HF.3.1	FS.6.1	FP.3.1
NSS	VHI	HC.1.1	HP.1.1	HF.3.2	FS.5.1	FP.5.2
Pharmatrac	Vaccination	HC.6.2	HP.6	HF.3.1	FS.6.1	FP.3.2

B.2.2 Enterprises

Health expenditure in India is financed through various sources. Enterprises' contribution is one of the components of total health expenditure. Data of Tamil Nadu is based on survey of enterprises conducted at all India level by PHFI. This study is being conducted to estimate the contribution of enterprises towards the overall health expenditure. These estimates would be used for the wider objective of preparation of national health accounts as well as health accounts for major states of India. Typically, enterprises spend on health care through three routes, namely employees' health benefits, Corporate Social Responsibility and expenditure incurred on health facilities owned by the enterprises. This particular study attempts to capture the expenditure made in these three ways. It attempts to capture the ways in which the expenditure is made within these three categories.

B.2.2.1 Sampling and Survey

Data has been collected from a sample of 1800 private enterprises and 150 Public Sector Units (PSUs) for 2013-14. Sample units have been distributed across the 19 states based on the distribution of units across these states.

Two separate frames have been used for public sector units and private enterprises. A list of PSUs was obtained from the Department of Public Sector Enterprises (DPE), Government of India in case of central PSUs and state audited reports from the Comptroller and Auditor General, Government of India in case of state PSUs. Prowess data set from CMIE has been used as a frame for private enterprises.

Having determined the state-wise sample size for private enterprises, sample has been further distributed proportionally among primary, secondary, and tertiary sectors within each state including Tamil Nadu.

After retaining enterprises only from the 19 states out of the CMIE enterprises' list, we arrived at a curtailed list of nearly 24,000 enterprises. This covers more than 80 percent of all the companies listed in CMIE. Corporate offices of private enterprises are highly concentrated in a few states such as Maharashtra, Delhi NCR, West Bengal, Tamil Nadu, etc. This led the sample size for some of the smaller states to be very low. Adjustments have been made in the sample distribution to keep a minimum of 30 sample enterprises in each of these states. The remaining sample out of the total 1800 has been further distributed proportionally among the remaining states.

PSU sample units were selected based on the distribution of public sector units across the 19 states of our interest. Some adjustments were made to ensure representation of all these states in the PSU sample.

B.2.2.2 Estimation and Blow up Strategy

Using the data collected in our survey, expenditure on health benefits per employee has been estimated. Keeping in mind the requirements of System of Health Accounts, these estimated figures have been further broken up into different ways through which this expenditure was made. In case of expenditure on Corporate Social Responsibility and enterprises' own facilities, per unit expenditure has been estimated.

The fifth economic census has been used as a first step of blow up of sample estimates for private enterprises. Public sector units, non-profit institutions and unincorporated units have been left out from the universe of units listed in the fifth economic census. This exercise has been separately carried out for primary, secondary, and tertiary sectors. Employment size from the census and sample estimates of expenditure per employee have been used to arrive at the total expenditure on employees' health benefits for these three sectors. Employment figures from Department of Public Sector Enterprises (DPE), Government of India and state audited reports from Comptroller and Auditor General, Government of India have been used in case of public sector units.

Sample estimate of per unit health expenditure and number of units obtained from same sources as in case of expenditure on health benefits, have been used to blow up the expenditure on Corporate Social Responsibility and enterprises' own facilities.

Since the fifth economic census is quite outdated, figures of employment and number of units have been adjusted using provisional report of the sixth economic census.

B.2.3 Non-Governmental Organizations

The estimated health expenditure by NGOs in Tamil Nadu is based on a national level survey conducted by PHFI. The health expenditure of non-governmental sector is intended to estimate across all major States and Union Territories through a sample survey of registered NPISH (NGOs serving households). Some important issues related to concept, coverage, sample design and estimation are as follows:

1. In line with the national accounting framework of India, a non-governmental unit is defined as the legal entity which is (i) an organization and (ii) not allowed to distribute any profit, by law or custom, to those who own or control it, and (iii) institutionally separate from the government, (iv) self-governing and (v) non-compulsory (CSO, Government of India). The NGOs may operate in different sectors like education, health, recreation, religious, culture, and so on in mutually non-exclusive ways, and they may be classified by the purpose they are envisaging like governments, corporates, and households. However, the scope of this study is to cover those serving the households but may function differentially in health sector.
2. By considering the operational sector and envisaging the serving purpose, samples are drawn from three mutually exclusive groups: first group is primary-health NGOs, a set of NGOs exclusively/ primarily involved in health sector activities, and they are the prime interest in this study. Second group is subsidiary-health NGOs, those who operate in health sector activities on auxiliary basis. Rest are in the third group, non-health NGOs, which may occasionally be spent on health as their activity or provide health benefits to their own employees, and hence get less importance in this study. We are considering only a selected part of non-health NGOs that are fairly bigger in employment size.
3. The survey questionnaire is especially designed to capture health expenditure of NGOs in terms of different roles they played in the health sector – as provider of health care services, agent for mobilizing funds in health system, and primary source of revenue for health care financing schemes. There are six broad blocks in the

survey schedule comprising identification particulars, basic information with detailed health activities, geographical coverage with employment size, receipts as non-grant and grant with details of health grants, expenditures on all possible heads of health activities, and some basic details on each health care facility, if applicable. The health expenditure of NGOs is estimated by covering all available current account expenditures on health activities except for the medical education and research. To avoid double counting, inter-NGOs fund flows have also been excluded. All the identified variables of health activities are finally classified for constructing the matrices of health accounts in SHA (2011) Framework.

4. For survey design, the study is not restricted to any particular official lists of NGOs because none of them have been updated recently and/or relevant information for stratification are not readily available in the public domain. However, the Planning Commission list of signed up organizations in NGO Partnership System and Directory information of CSO-NAD NPI Census 2007-08 are consulted, and an approach of snowballing network is employed to trace the relevant NGOs. The study follows a multi-stage stratified random sampling technique so that samples from different types of NGOs are assuredly represented in the sample. Given the fact about non-availability of auxiliary information for stratifications except for CSO-NAD NPI Census, the same is used to allocate samples in different levels of the strata. Since the list of NGOs is fairly old in the CSO information and hence some NGOs may have stopped functioning and/or new NGOs may have appeared over the period, a state-level listing of traced NGOs with relevant stratification variables is being prepared by use of telephonic communication and snowballing networks, and the same is used to draw samples at different levels of the strata. Nevertheless, we also relied on relevant estimates from the CSO information for stratification with the assumption that though the absolute values of different stratification variables may well have changed over time, but their rates and ratios in a particular state may not have changed to a large extent.
5. The CSO Census of NPIs contains all required information like directory of NGOs across states/ primary and secondary areas of operation/ serving institutions/ size of employment, etc. As per the survey design, samples are drawn at all-India level for each group and distributed across nineteen major states as per the concentration of NGOs: Andhra Pradesh including Telangana, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal and Delhi. The estimates of Tamil Nadu are drawn from this national level survey.
6. Sample size is separately determined for each group as per the importance of study. Since primary-health NGOs are expected to play the key role from provider of health care services to primary source of health care revenues, a more intensive sample plan is designed; the study covers all large primary-health NGOs and samples are drawn at 3% margin of error in 95% confidence interval from the rest of the primary-health NGOs comprising micro/small/medium size, and then distributed proportionally at different stages of stratification (across states, and then, size-based strata). A moderate level of samples are drawn (5% margin of error in 95% confidence interval) for the subsidiary-health NGOs and distributed accordingly. Since the large and medium NGOs are merely considered non-health NGOs, samples are drawn at 10% margin of error in 95% confidence interval for them. Around 1800 samples are drawn for the survey at national level and the corresponding number for Tamil Nadu is 139 (covers 777 individual units of NGOs in Tamil Nadu).
7. While the samples in each stratum are drawn randomly without replacement, we have ensured at least thirty samples in each selected state and a minimum quota of two samples in each size-based stratum for standard statistical analysis. Further, a particular stratum may be absent in the samples because none of the NGOs are operating within such stratum (no population). Finally, if any non-response arises, replacement is allowed for with an NGO of similar characteristics.

8. The 'blow-up strategy' from sample statistics (sample mean and ratio) is intended to use the latest (sixth) Economic Census information to arrive at national and state level estimates. But, given the fact that unit level information of the Sixth Economic Census are not available in public domain as of date, the CSO-NAD NPIs Census information are provisionally used. The weighting patterns for aggregation as well as ratio estimate at state/national level are designed separately for respective groups of NGOs.

B.2.3.1 Determination of the weighting pattern of NGOs

Evidently, a multi-stage stratified random sampling is designed for surveying the NGOs. In this complex sample design, though the proportional distribution is planned, aimed at statewide analysis and stratum-specific minimum quota, the sample distribution seems to have differed from relative distribution of the population with respect to a variable in terms of both scale and proportion. In our stratified sampling process, suppose, population size is N , and allocated total sample size is n among S identified strata, the objective of weighting sample data is to confine its representativeness in relation to the study population. Applying weight(s) to sample seeks the goal of making sample largely like the population. In stratified sampling therefore an integrated weight may be defined as product of scale and proportional factors: $W_s = \frac{N}{n} \times \frac{N_s/N}{n_s/n} = \frac{N_s}{n_s}$, where the symbols carry the usual meaning. As seen, as our sampling realizes hierarchical scheme (multi-stage stratification), weights are in principle computed in the same way at each stage, and the final sampling fraction would be the product of probabilities in successive stages: $f_{sh} = \frac{n}{N} \times \frac{n_s/n}{N_s/N} \times \frac{n_{sh}/n_s}{N_{sh}/N_s} = \frac{n_{sh}}{N_{sh}}$ here h is a sub-stratum under the stratum s . Inverse of this sampling fraction is usually termed as base/design weight ($W_{sh} = \frac{N_{sh}}{n_{sh}}$). Subsequently, the base weight may be adjusted by two other factors: non-response error and sampling variance reduction at the post-survey period; our sample design is self-correcting to these factors. The state-wide estimated weights to be applied with each unit-level data finally appeared in the following table. In this formulation, the population total at state-level may be estimated in the following way:

Suppose the total of a population variable Y_i for a state s is denoted by Y_r . It is then estimated by the sample as $Y_T = \sum Y_i = \sum (\epsilon_{sh}) W_{sh} Y_{shi}$

APPENDIX-C: SHA MATRICES

SHA Matrices

The main tables given above have been translated into the form of matrices as given in the methodology of State Health Accounts through accounting flows. These matrices includes

1. Matrix of Financial Flows by Financing Schemes (HF) and Financing Agents (FA).
2. Matrix of Financial Flows by Financing Schemes (HF) and Health Care Functions (HC).
3. Matrix of Financial Flows by Financing Schemes (HF) and Health Care Providers (HP).
4. Matrix of Financial Flows by Financing Agents (FA) and Revenues of Health Care Financing Schemes (FS).
5. Matrix of Financial Flows by Financing Schemes (HF) and Revenues of Health Care Financing Schemes (FS).

Table 1.a Matrix of Financial Flows by Financing Schemes (HF) and Financing Agents (FA), Tamil Nadu – 2013-14 (in Crores)

	FA Code	FA.1.1	FA.1.2.1	FA.1.2.2	FA.1.2.3	FA.1.3	FA.1.9	FA.2.3	FA.3.2	FA.4	FA.5	FA All
HF Code	Description	Central Government	State Government	Local Government	State Health Society	Social Security Agency	All other general govt. units	Govt. insurance agency	Corporations (Other than providers of health services)	Non-profit institutions serving households (NPISHs)	Households	ALL Financing Agents
HF. 1.1.1.1	Central Sector Scheme	311.2	0	0	0	0	0	0	0	0	0	311.2
HF. 1.1.1.2	Centre Sponsored Scheme (NHM)	0.0	632.1	0	553.1	0	0	0	0	0	0	1185.2
HF. 1.1.2.1	State Government	0.0	4060.5	0	324.6	0	0	0	0	0	0	4385.1
HF.1.1.2.3	Other Department	0.0	0	0	0	0	484.3	0	0	0	0	484.3
HF. 1.1.2.4	Urban Local Bodies	0.0	0	178.6	0	0	0	0	0	0	0	178.6
HF 1.1.3	Government -based insurance schemes	0.0	0	0	0	0	0	664.2	0	0	0	664.2
HF.1.2.1	Social Health Insurance Schemes	55.1	0	0	0	588.6	0	0	0	0	0	643.7
HF. 2.2	NPISH Financing Schemes	0.0	0	0	0	0	0	0	0	875.1	0	875.1
HF. 2.3.1	Enterprises (except health care providers) financing schemes	0.0	0	0	0	0	0	0	847.1	0	0	847.1
HF. 3.1	Out-of-pocket excluding cost-sharing	0.0	0	0	0	0	0	0	0	0	21029.5	21029.5
HF. 3.2.2	Cost sharing with voluntary insurance schemes	0.0	0	0	0	0	0	0	0	0	441.7	441.7
HF. 4.2.2.2	Foreign Development Agencies Schemes	0.0	0	0	4.9	0	0	0	0	0	0	4.9
HF All	ALL the above	366.3	4692.6	178.6	882.6	588.6	484.3	664.2	847.1	875.1	21471.1	31050.4

Table 1.b Matrix of Financial Flows by Financing Schemes (HF) and Health Care Functions (HC), Tamil Nadu-2013-14 (in Crores)

HF Code	HC Code	Description	HC.1.1	HC.1.2	HC.1.3	HC.1.4	HC.2.1	HC.2.2	HC.2.3	HC.2.4	HC.3.1	HC.3.2	HC.3.3	HC.3.4	HC.4	HC.4.1	HC.4.2	HC.4.3	HC.5.1	HC.5.2	HC.6.1	HC.6.2	HC.6.3	HC.6.4	HC.6.5	HC.6.6	HC.7.1	HC.7.2	HC.9	HC All
HF. 1.1.1.1		Central Sector Scheme	127.1	0.1	40.9	0	0	0	0	0	0	0	0	0	0	0	0	0	20	1.5	0.4	0	0	0	0.4	0.4	120.4	0	0	311.2
HF. 1.1.1.2		Centre Sponsored Scheme	45.6	16.9	619.7	0.3	0.4	0	0.4	0	0	0	0	0	0	0.5	0	24.7	94	17.2	19.3	26.1	24.4	81.7	17.4	0	174.4	19.3	2.8	1185.2
HF. 1.1.2.1		State Department of Health	1088.3	155.1	1691.5	0.2	6.9	0	7.1	0	0	0	0	0	0	21.6	0	75	31.9	0.4	93.3	28	18.8	241.1	94.2	17.8	161.2	651.2	1.6	4385.1
HF. 1.1.2.3		Other departments	99.2	23.6	221.1	0	0	0	0	0	0	0	0	0	0	0	0	0	6.2	0	0	0	0	0	0	0	134.2	0	0	484.3
HF. 1.1.2.4		Urban Local Bodies	1.7	0	46.1	0	0	0	0	0	0	0	0	0	0	0	0	0	5.6	0.1	30.4	14.1	0	30.4	35.7	0	14.5	0	0	178.6
HF 1.1.3		Government -based Insurance schemes	664	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	664.2
HF.1.2.1		Social Health Insurance Schemes	171.7	5.5	466.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	643.7
HF.2.2		NPISH Financing Schemes	80.9	8.4	223.2	0	0	0	9.7	0	0	0	0	0	0	2.2	10.7	2.2	0	0	456.6	4.5	35.8	6.1	0	0	17.4	17.4	0	875.1
HF.2.3		Enterprise Financing Schemes	194.3	80.3	568	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	1	0	1	0	0	0	0	0	847.1
HF.3.1		Out-of-pocket excluding cost-sharing	5806.4	0	2071.6	13.6	0	0	0	0	0	0	0	0	2109.6	0	0	1542	8841.2	0.5	0	47.4	0	597.2	0	0	0	0	0	21029.5
HF.3.2.2		Cost sharing with voluntary insurance schemes	441.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	441.7
HF.4.2.2.2		Foreign Development Agencies Schemes	0.5	0.2	2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0.1	0.3	0.3	0.3	0.1	0	0.4	0	0	4.9
HF All		ALL the above	8721.2	290	5950.8	15.1	7.4	0	17.2	0	0	0	0	0	2109.6	24.3	10.7	1644.1	8999.4	19.7	600.6	121.5	79.3	957.7	148.7	18.2	622.5	687.9	4.4	31050.4

Table I.c Matrix of Financial Flows by Financing Schemes (HF) and Health Care Providers (HP), Tamil Nadu-2013-14 (in Crores)

Codes	HP Code	Description	HP.1.1	HP.1.2	HP.1.3	HP.2.1	HP.3.1	HP.3.2	HP.3.4	HP.3.5	HP.4.1	HP.4.2	HP.4.9	HP.5.1	HP.5.2	HP.5.9	HP.6	HP.7.1	HP.7.2	HP.7.9	HP.8	HP.9	HP ALL	
HF. 1.1.1.1	Central Sector Scheme	General Hospitals	13.7	0	0	0.0	0.0	0	0	0.0	0.0	0	0.0	20.0	1.5	0	1.2	120.4	0.0	0	154.4	0.0	311.2	
HF. 1.1.1.2	Centre Sponsored Scheme	Mental Health Hospitals	206.1	1.8	10.1	0.0	0.0	0	639.1	0.3	24.7	0.5	0.0	44.3	0.1	0	83.9	172.2	0.0	0	0.0	0.0	2.1	1185.2
HF. 1.1.2.1	State Department of Health	Specialised Hospitals	2826.4	24.2	113.2	1.7	14.2	0.5	728.1	0.2	75	24.9	1.8	31.9	0.0	0.4	374.9	116.2	0.0	49.9	0.0	0.0	1.6	4385.1
HF. 1.1.2.3	Other departments		343.8	0	0	0.0	0.0	0	0.2	0.0	0.0	0	0.0	6.2	0.0	0	0	134.1	0.0	0	0.0	0.0	0.0	484.3
HF. 1.1.2.4	Urban Local Bodies		4.8	0	0	0.0	0.0	0	108.4	0.0	0.0	0	0.0	5.6	0.1	0	45.1	14.4	0.0	0.1	0.0	0.0	0.0	178.6
HF.1.1.3	Government-based Insurance Schemes		234	0	430.1	0.0	0.0	0	0	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0.0	0	0.0	0.0	0.0	664.2
HF.1.2.1	Social Health Insurance Schemes		643.7	0	0	0.0	0.0	0	0	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0.0	0	0.0	0.0	0.0	643.7
HF. 2.2	NPIH Financing Schemes		96.6	0	189	9.7	14.4	0	0	0.0	0.0	6.5	0.0	0.0	0.0	0	519.9	34.8	4.1	0	0.0	0.0	0.0	875.1
HF. 2.3.1	Enterprises (except health care providers) financing schemes		798.5	0	16	0.0	26.3	0	0	0.0	0.0	0	0.0	0.0	0.0	0	0	3.6	0.0	2.7	0.0	0.0	0.0	847.1
HF. 3.1	Out-of-pocket excluding cost-sharing		5806.4	0	0	0.0	2085.3	0	615.7	0.0	1542.0	2109.6	0.0	8822.8	0.5	0	0	47.4	0.0	0	0.0	0.0	0.0	21029.5
HF. 3.2.2	Cost sharing with voluntary insurance schemes		441.7	0	0	0.0	0.0	0	0	0.0	0.0	0	0.0	0.0	0.0	0	0	0	0.0	0	0.0	0.0	0.0	441.7
HF. 4.2.2.2	Foreign Development Agencies Schemes		1.8	0	0.1	0.0	0.0	0	1.5	0.0	0.3	0	0.0	0.5	0.0	0	0.4	0.4	0.0	0	0.0	0.0	0.0	4.9
HF All	ALL the above		11417.3	26	758.5	11.4	2140.2	0.5	2093	0.5	1641.9	2141.6	1.9	8931.3	2.2	0.4	1025.4	643.4	4.1	52.7	154.4	3.8	31050.4	

Table 1.d Matrix of Financial Flows by Financing Agents (FA) and Revenues of Health Care Financing Schemes (FS),
Tamil Nadu-2013-14 (in Crores)

	Codes	FS.1.1	FS.1.2	FS.3.1	FS.3.2	FS.3.4	FS.5.1	FS.6.1	FS.6.2	FS.6.3	FS.7.1	Total
	Descriptions	Internal Transfers and Grants	Transfers by Government on behalf of specific groups	Social Insurance Contributions from Employees	Social Insurance Contributions from Employers	Other Social Insurance Contributions	Voluntary prepayment from individuals/households	Other revenues from households n.e.c	Other revenues from corporation n.e.c	Other revenues from NPISH n.e.c	Direct Foreign Financial Transfers	All FS
FA.1.1	Central Government	437.1	0	0	0	0	0	0	0	0	0	437.1
FA.1.2.1	State Government	4566.7	0	0	0	0	0	0	0	0	0	4566.7
FA.1.2.2	State Health Society	877.7	0	0	0	0	0	0	0	0	4.9	882.6
FA.1.2.3	Local bodies	178.6	0	0	0	0	0	0	0	0	0	178.6
FA.1.3	Social Security Agency	0	0	97.4	264.5	281.8	0	0	0	0	0	643.7
FA.1.9	All other general govt. units	484.3	0	0	0	0	0	0	0	0	0	484.3
FA.2.3	Govt. insurance agency	0	664.2	0	0	0	0	0	0	0	0	664.2
FA.3.2	Corporations (Other than providers of health services)	0	0	0	0	0	0	0	847.1	0	0	847.1
FA.4	Non-profit institutions serving households (NPISHs)	0	0	0	0	0	0	0	0	875.1	0	875.1
FA.5	Households	0	0	0	0	0	441.7	21029.5	0	0	0	21471.1
FA All	ALL Financing Agents	6544.3	664.2	97.4	264.5	281.8	441.7	21029.5	847.1	875.1	4.9	31050.4

Table 1.e Matrix of Financial Flows by Financing Schemes (HF) and Revenues of Health Care Financing Schemes (FS), Tamil Nadu-2013-14 (in Crores.)

	Codes	FS.1.1	FS.1.2	FS.3.1	FS.3.2	FS.3.4	FS.5.1	FS.6.1	FS.6.2	FS.6.3	FS.7.1	Total
Codes	Description	Internal Transfers and Grants	Transfers by Government on behalf of specific groups	Social Insurance Contributions from Employees	Social Insurance Contributions from Employers	Other Social Insurance Contributions	Voluntary prepayment from individuals/households	Other revenues from households n.e.c	Other revenues from corporation n.e.c	Other revenues from NPISH n.e.c	Direct Foreign Financial Transfers	All FS
HF.1.1.1.1	Central Sector Scheme	311.2	0	0	0	0	0	0	0	0	0	311.2
HF.1.1.1.2	Centre Sponsored Scheme	1185.2	0	0	0	0	0	0	0	0	0	1185.2
HF.1.1.2.1	State Department of Health	4385.1	0	0	0	0	0	0	0	0	0	4385.1
HF.1.1.2.3	Other departments	484.3	0	0	0	0	0	0	0	0	0	484.3
HF.1.1.2.4	Urban Local Bodies	178.6	0	0	0	0	0	0	0	0	0	178.6
HF.1.1.3	Government-based Insurance Scheme	0	664.2	0	0	0	0	0	0	0	0	664.2
HF.1.2.1	Social Health Insurance Schemes	0	0	97.4	264.5	281.8	0	0	0	0	0	643.7
HF. 2.2.1	NPISH Financing Schemes (Excluding HF 2.2.2)	0	0	0	0	0	0	0	0	875.1	0	875.1
HF. 2.3.1	Enterprises (except health care providers) financing schemes	0	0	0	0	0	0	0	847.1	0	0	847.1
HF. 3.1	Out-of-pocket excluding cost-sharing	0	0	0	0	0	0	21029.5	0	0	0	21029.5
HF. 3.2.2	Cost sharing with voluntary insurance schemes	0	0	0	0	0	441.7	0	0	0	0	441.7
HF. 4.2.2.2	Foreign Development Agencies Schemes	0	0	0	0	0	0	0	0	0	4.9	4.9
HF All	ALL the above	6544.3	664.2	97.4	264.5	281.8	441.7	21029.5	847.1	875.1	4.9	31050.4



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