

Equity in Intra-State Distribution of Public Spending on Health: The Case of Bihar and Tamil Nadu

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Equity in Intra-State Distribution of Public Spending on Health: The Case of Bihar and Tamil Nadu

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Abstract

Equitable distribution of public spending has been argued to be an effective tool for enhancing access to health care and moving towards Universal Health Coverage. In India, much of the existing evidence on equity in public spending has been confined to state-level aggregates, and intra-state distribution of public spending has received limited attention. This paper focuses on the distribution of public spending on health within two Indian States (Bihar and Tamil Nadu) to provide insights on differential access to health care within each state. The analysis suggests that public spending on health is pro-rich in Bihar, and plays a relatively weak redistributive role. In contrast, the distribution of public spending on health in Tamil Nadu is strikingly pro-poor, particularly at lower levels of care. In both horizontal and vertical dimensions (across districts and levels of health care), inequity in public spending is significantly higher in Bihar than in Tamil Nadu.

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Tamil Nadu and Bihar occupy two contrasting positions in terms of public spending on health in India. Various scholars have highlighted the multi-fold differences in per capita public spending on health and their composition in the two states and related these to the differences in health achievements. Much of these analyses however, has been based on government budgets and provide reflections on the nature of aggregate state-level public expenditure on health. An important limitation of this approach has been that budgets do not facilitate break-up of expenditure at the sub-state level and this limits our understanding on issues of equity and differential access to health care within each state. Specifically, understanding the distribution of health expenditure across districts and the vertical distribution of expenditure across different tiers of the health pyramid has been limited due to lack of disaggregated information.

In recent years, the availability of information on withdrawals by Drawing and Disbursing Officers (DDOs) from government treasuries has opened up the possibility of analysing public spending at the sub-state level. DDOs are authorized by an administrative department to withdraw funds from the State treasury under different budget heads. These officers are attached to various healthcare 'providers' or 'functional' entities and are authorized to withdraw funds for that entity. Withdrawals by a DDO of any facility reflect expenditure on that facility, and the sum of all withdrawals by DDOs of a particular type of facility indicates expenditure on that type of health facility. In addition, location of the treasury from which funds have been withdrawn by a DDO can be used to identify the district in which expenditure was incurred. In general, withdrawals by DDOs provide disaggregated information on health expenditure under each budget head in different locations, which can be potentially used for detailed analysis of public spending not only in each district, but also on different types of health facilities within each state.³

In this paper, we undertake a disaggregated analysis of public spending in Bihar and Tamil Nadu by combining information on withdrawals by DDOs with expenditure reported in state budgets. A comparison of the nature of public expenditure on health in the two states at a disaggregated level provides insights into the structural differences in the nature of public spending in those states. Specifically, three dimensions are analysed: (a) the horizontal distribution of public spending across districts (b) the vertical distribution of public spending

³ For a detailed discussion on the advantages of DDO data refer Choudhury and Dubey (2019)

across different tiers of health facilities and (c) the level of fixed and flexible expenditure in the two states. It also undertakes a cross mapping of public spending on health across each of these three dimensions.

Data and Methodology

Information on DDO-wise withdrawals for expenditure under the budget head of Health and Family Welfare was procured from the Finance Department of the two State Governments: Bihar and Tamil Nadu. Information provided by the departments included record of each withdrawal by DDO from different treasuries of the states for expenditure towards 'Health and Family Welfare' on the revenue account in the year 2016-17. The total number of withdrawal records in the datasets of Tamil Nadu and Bihar were about 74000 and 9500 respectively.

The location of the treasury from which funds have been withdrawn by a DDO have been used to identify the district in which expenditure was incurred. The 'designation' of a DDO has been used to identify the providers for which a DDO has withdrawn funds. In some cases, the DDO was found to be associated with a functional entity, and not a provider entity (e.g. Malaria control officer, Tuberculosis control officer, etc.).⁴ In such cases, withdrawals by DDOs did not provide any additional information for mapping spending to health care facilities, and one had to rely on budget classifications alone.

It may be noted that the vertical structure of health care providers in the two states are not similar. In Bihar, sub-district level facilities include sub-divisional hospitals, CHCs, additional PHCs (APHCs) and block PHCs (BPHCs), while in Tamil Nadu, it also includes other variations of secondary level hospitals like taluk hospitals and non-taluk hospitals. In both the states, DDOs withdrawing funds for different types of health facilities were identified. The number of facilities identified in each category of health facilities based on DDO information was compared with the actual number of health facilities in each category reported by the health department in the respective states. The comparison suggested that in both the states,

⁴ As per SHA 2011, 'healthcare providers' relate to organizations that are involved in the delivery of health care goods and services. 'Health functions' relate to the type of health service consumed from different healthcare providers.

DDOs could be closely identified with secondary and tertiary level health facilities, while for lower-level facilities (CHCs and below) the two did not correspond closely in many districts. Discussions with state officials suggested that in many cases funds were withdrawn by DDOs at the block-level and passed on to lower level health facilities, which made it difficult to bifurcate and identify expenditure below the level of CHCs. We therefore, clubbed all expenditure at the level of CHCs and below into one category in both the states. In Bihar, this included CHCs, BPHCs, and APHCs, while in Tamil Nadu this included CHC, PHCs and upgraded PHCs.

Funds for the National Health Mission (NHM) are withdrawn at the state headquarters by a DDO and released to state-level implementing agencies for expenditure. This expenditure is lumped at the state headquarters and cannot be disaggregated by districts or types of health facilities based on information in budgets or DDO withdrawals. We therefore, exclude NHM expenditure from the analysis in both the states. In Tamil Nadu, funds for the Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS) is also lumped at the state-level and cannot be bifurcated based on information from budgets or DDO withdrawals. In Tamil Nadu therefore, we exclude withdrawals towards CMCHIS also from the analysis. In addition, some expenditures like drug control, drug testing laboratory, training, food safety, regional pharmacies, public health laboratories and administrative expenditures cannot be attributed to any specific district and their benefits spill across districts. We excluded these expenditures from all analysis at the district-level. The details of expenditure included in various parts of the analysis in the two states are shown in Table 1. It is notable that the share of public expenditure on items that have a spill over effect across the state is higher in Tamil Nadu than in Bihar.

Distribution of Public Spending in Tamil Nadu and Bihar

In 2016-17, per capita public spending on health in Tamil Nadu was more than two and a half times that of Bihar (Table 2). This possibly shows up in better access to public facilities in Tamil Nadu than Bihar. As per the National Family Health Survey (NFHS) conducted in 2015-16, in Tamil Nadu, nearly two thirds of the households generally used public facilities (when they fell sick) in comparison to less than a quarter in Bihar. In rural areas, the difference was even more stark (74 per cent vs. 22 per cent). A similar pattern was also

highlighted by the 71st round of NSSO survey conducted in 2014. As per the survey, even in rural areas of Tamil Nadu, the proportion of people accessing public facilities for outpatient treatment was about 42 per cent *vis-a-vis* 14 per cent in Bihar.

Table 1: Summary of public expenditure at different levels used in the analysis for Tamil Nadu and Bihar, 2016-17

	Tamil Nadu		Bihar	
	Total (Rs. Lakh)	Share (%)	Total (Rs. Lakh)	Share (%)
Sum of DDO withdrawals	857893	100	468940	100
Sum of withdrawals (excluding NHM in both states and CMCHIS in Tamil Nadu)	62145.5	72.4	316570	68
Sum of withdrawals that can be attributed to districts (<i>Used for district-level analysis</i>) [@]	524784	61.2	299770	64
Total Budget under Health and Family Welfare*	795352		462247	

* Sourced from Finance Accounts, which are the audited accounts of public spending compiled by the Comptroller and Auditor General (CAG) of India

[@] Expenditures on drug control, drug testing laboratory, training, food safety, regional pharmacies, public health laboratories and administrative expenditures cannot be attributed to any specific district as the benefits of these spill over the district boundaries. These expenditures have therefore, been excluded from district-level analysis.

The vertical distribution of public spending across different types of health facilities was more skewed towards secondary and tertiary health care facilities in Tamil Nadu than in Bihar (Table 2). Of the total expenditure that could be identified with different types of health facilities in the public system, nearly 70 per cent was incurred towards higher level facilities in Tamil Nadu (facilities above CHCs) as against 50 per cent in Bihar (Table 2). If one added the public health and family welfare expenditures entirely to primary level facilities, the share of lower-level facilities (CHCs and below) in Bihar would still be substantially higher than Tamil Nadu (Table 2). The high share of expenditure on lower-level facilities in Bihar was primarily driven by low expenditures in secondary and tertiary facilities (Table 2). Notably, in per capita terms, Tamil Nadu spent more than Bihar even in lower-level facilities. The relatively skewed expenditure on higher level facilities in Tamil Nadu is possibly reflected in the fact that bulk of the public health care services in Tamil Nadu is rendered through secondary and tertiary level facilities. The 71st round of NSSO survey conducted in 2014 showed that even in rural areas of Tamil Nadu, about 73 per cent of all outpatient visits in public facilities were in 'public hospitals', (facilities higher than CHCs). The corresponding figure for Bihar was about 55 per cent. Similarly, as per NFHS 2015-16, in Tamil Nadu, about

62 per cent of people residing in rural areas generally accessed government hospitals (facilities higher than CHCs) when sick, in comparison to 29 per cent in Bihar.

The expenditure on secondary-level facilities is lower than tertiary-level facilities in both the states. Notably, in Tamil Nadu, some expenditure on government hospitals could not be bifurcated into secondary or tertiary level hospitals. Even if one accounts for this, expenditure on secondary-level facilities is lower than tertiary-level facilities even in Tamil Nadu. It must however be borne in mind that our classification of tertiary-level facilities also includes expenditure on medical education.

Table 2: Vertical disaggregation of Public spending on health in Tamil Nadu and Bihar, 2016-17 (Revenue Account)

Types of Facilities/Heads	Tamil Nadu		Bihar	
	Per capita exp. (Rs.) based on Budget	Per capita exp. (Rs.) based on Budget & DDO	Per capita exp. (Rs.) based on Budget	Per capita exp. (Rs.) based on Budget & DDO
ESI	45	46	1	1
Ayush College and Hospitals	9	9	22	22
Government Hospitals	21	21		
Tertiary-level care (incl. education)	292	293	78	82
Medical, Nursing Other Colleges	133	155	74	75
Major Hospitals (other than Medical, Nursing and other colleges)	159	138	4	8
Secondary-level care	128	129	37	37
Secondary Hospitals	26	18		
District Hospital + Sub-divisional Hospital			37	2
District Hospital	38	39	0	25
Sub-Divisional Hospitals			0	10
Taluk Hospitals	52	59		
Non- Taluk Hospitals	12	14		
CHC and lower level facilities	174	198	91	128
Others				
Ayush	1	1	6	6
Public Health	52	29	13	12
Family Welfare	2	1	38	1
Training	1	1	2	2
Admin	26	25	10	9

General (drug control, food safety, etc.)	24	23	6	4
Unclassified	85	85		
Total per capita (Excluding NHM and CMCHIS*)	861	861	304	304
Total per capita including NHM and CMCHIS*)	1189	1189	450	450

Note: CMCHIS (Chief Minister's Comprehensive Health Insurance Scheme) relates only to Tamil Nadu.

Source: State Budget Document 2016-17 for the two states and record of withdrawals by DDOs from different treasuries of the state government provided by the Finance Department

An examination of the levels of per capita public spending across districts suggests that in both the states, a significant share of spending is concentrated in the state capital districts: Chennai and Patna (Table 3 and Table 4). In Tamil Nadu, of the total expenditure that could be attributed to districts, more than a third was incurred in Chennai alone (Table 3). Similarly, in Bihar, more than a quarter of the total expenditure that could be attributed to districts was incurred in Patna (Table 4). The high share of the capital districts largely stems from the fact that much of the tertiary-care facilities was located there. In both Bihar and Tamil Nadu, more than half the expenditure on tertiary-level facilities in the state were incurred in Chennai and Patna (51 and 55 per cent respectively).

Importantly, in Bihar, in most districts, there was no public spending on tertiary-level facilities (including medical education). Only 9 out of the 37 districts had some expenditure on tertiary-level facilities, of which the two districts Patna and Darbhanga together accounted for more than two thirds of the total (Table 4). Notably, districts which had medical colleges recorded much of the tertiary-level expenditure as there was little expenditure outside medical colleges at the tertiary level (except Patna). On the other hand, in Tamil Nadu, relatively more districts had medical colleges and significant tertiary-level expenditure (Table 3). The difference in access to facilities at the tertiary-level in the two states is reflected in the fact that the coefficient of variation in per capita tertiary level spending in Bihar was nearly thrice of that in Tamil Nadu (if one excludes the districts of Chennai and Patna) (Table 3 and Table 4).

The inter-district variation in per capita public spending increased as one moved from primary to tertiary facilities indicating more variation in access to higher level facilities. In both the states, the coefficient of variation in per capita public spending was least at the level of primary, and highest at the level of tertiary (if one excluded Chennai and Patna) (Table 3

and Table 4). Overall, at all levels, the variation in public spending was higher in Bihar than Tamil Nadu (Table 3 and 4).

Table 3: District-wise per capita public expenditure at different levels of care and total in Tamil Nadu 2016-17 (Revenue Account) (Rs.)

Districts	CHCs and Lower level Facilities	Secondary-level facilities@	Tertiary-level facilities#	Others	Total	Share of districts in Total Exp (per cent)
Ariyalur	230	152	0	4	386	0.6
Chennai	263	224	2502	958	3946	34.9
Coimbatore	123	67	286	117	594	3.9
Cuddalore	194	147	5	41	387	1.9
Dharmapuri	230	51	320	21	623	1.8
Dindigul	203	180	4	66	452	1.9
Erode	202	165	0	33	400	1.7
Kancheepuram	133	83	192	74	481	3.7
Karur	203	106	128	21	457	0.9
Krishnagiri	191	136	0	46	373	1.3
Madurai	150	73	20	30	272	1.6
Nagapattinam	205	188	7	29	429	1.3
Nagercoil	199	94	274	72	639	2.3
Namakkal	255	163	0	40	458	1.5
Perambalur	238	210	3	37	487	0.5
Pudukkottai	267	214	0	37	519	1.6
Ramnathapuram	298	211	5	41	555	1.4
Salem	183	87	266	49	584	3.9
Sivagangai	264	158	302	38	763	1.9
Thanjavur	225	124	357	44	749	3.4
Theni	227	176	389	22	814	1.9
Thiruvarur	252	146	319	19	737	1.8
Tiruchirapalli	188	104	243	40	575	3.0
Tirunelveli	205	113	314	103	734	4.3
Tirupur	133	154	0	32	320	1.5
Tiruvallur	123	69	0	34	227	1.6
Tiruvannamalai	234	73	127	20	455	2.1
Tuticorin	234	141	298	48	721	2.4
Udhagai	301	314	9	48	672	0.9
Vellore	158	109	126	40	433	3.2
Viluppuram	229	88	141	16	473	3.1
Virudhunagar	196	219	4	96	516	1.9
State Overall	198	129	293	106	727*	
Coeff. Of Var	0.2	0.4	1.1		0.3	

* This is lower than the state total shown in Table 1 (Rs. 861 per capita) as this is net of expenditures on items that cannot be attributed to any particular district.@ includes Taluk Hospitals, Non-taluk Hospitals, District Hospitals and Other Secondary Hospitals, #Medical, nursing and other colleges, Major hospitals and specialized hospitals.

Table 4: District-wise per capita public expenditure at different levels of care and total in Bihar 2016-17 (Revenue Account) (Rs.)

Districts	CHCs and Lower level Facilities	Secondary-level facilities@	Tertiary-level facilities#	Others	Total	Share of districts in Total Exp (per cent)
Arrariah	81	23	0	3	108	1.0
Arwal	160	58	0	3	220	0.5
Aurangabad	166	25	0	21	212	1.8
Banka	150	34	0	9	193	1.3
Begusarai	126	47	0	34	207	2.1
Bhagalpur	149	38	304	28	518	5.2
Bhojpur	159	62	13	22	256	2.3
Buxar	128	56	0	30	214	1.2
Darbhanga	104	9	379	28	520	6.8
East Champaran	78	12	0	12	102	1.7
Gaya	142	48	169	18	378	5.5
Gopalganj	105	36	0	20	161	1.4
Jamui	142	28	0	8	179	1.0
Jehanabad	234	79	0	25	338	1.3
Kaimur	156	59	0	7	221	1.2
Katihar	118	50	0	20	188	1.9
Khagaria	152	52	0	16	219	1.2
Kishanganj	85	35	0	4	124	0.7
Lakhisarai	173	46	0	8	227	0.8
Madhepura	88	25	1	9	122	0.8
Madhubani	115	23	0	15	153	2.3
Munger	192	124	0	50	366	1.7
Muzaffarpur	118	22	164	37	342	5.5
Nalanda	199	61	19	78	357	3.4
Nawada	138	50	0	22	210	1.6
Patna	147	36	747	398	1328	25.9
Purnia	102	60	0	17	180	2.0
Rohtas	115	38	0	27	179	1.8
Saharsa	108	49	0	24	181	1.1
Samastipur	144	42	0	15	201	2.9
Saran	111	15	0	11	136	1.8
Sheikhpura	261	78	0	25	365	0.8
Sheohar	99	34	0	13	146	0.3
Sitamarhi	103	17	0	13	133	1.5
Siwan	117	17	0	14	148	1.6
Supaul	100	33	0	2	134	1.0
Vaishali	148	34	0	19	201	2.3
West Champaran	114	36	42	14	205	2.7
State Overall	128	37	82	41	288*	
Coeff. Of Var	0.3	0.5	3		0.5	

* This is lower than the state total shown in Table 1 (Rs. 304 per capita) as this is net of expenditures that cannot be attributed to any particular district.@ includes district hospitals and sub-divisional hospitals# includes medical, nursing and other colleges, major hospitals and specialized hospitals

Figure 1: District-wise per capita public spending at different levels of facilities in Tamil Nadu 2016-17

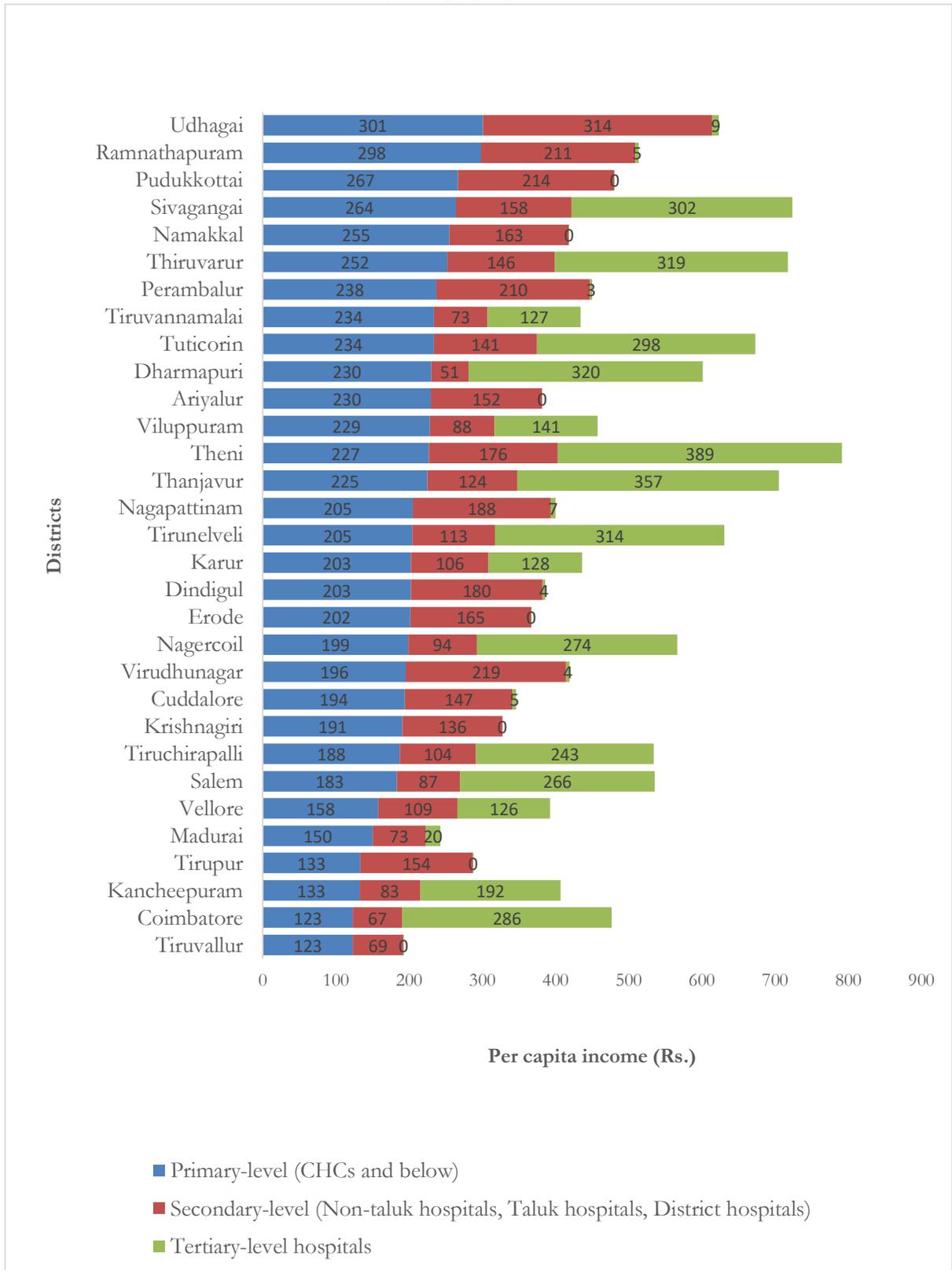
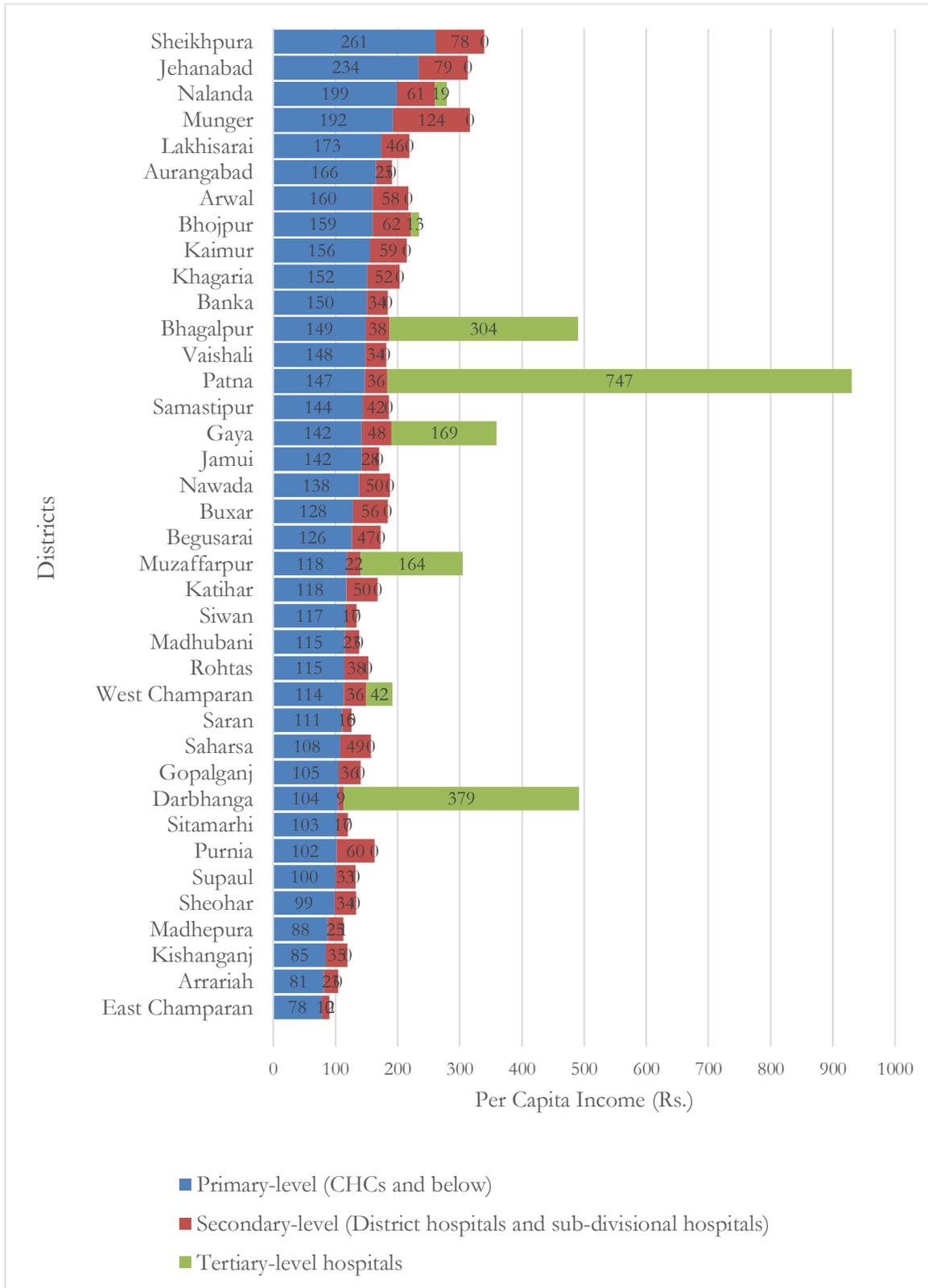


Figure2: District-wise per capita public spending at different levels of facilities in Bihar 2016-17



Interestingly, public spending is significantly more pro-poor in Tamil Nadu than Bihar. Per capita public spending across districts has a significant positive association with per capita district incomes in Bihar, while there is no such positive association in Tamil Nadu (Table 5).⁵ This implies that unlike Tamil Nadu, public spending is relatively higher in richer districts of Bihar, and the state has not been able to reach out to the poorer districts of the state as much as the richer districts. Importantly, at lower-levels of care (CHCs and below), the correlation coefficient between per capita public spending across districts of Tamil Nadu and their incomes is even stronger (about -0.6), which indicates that public spending at lower levels of care in Tamil Nadu is significantly pro-poor. In contrast, per capita public spending in primary-level facilities is positively associated with district incomes in Bihar, indicating a pro-rich district bias (Table 5). At the secondary-care level, public spending across districts of Bihar is even more pro-rich: correlation coefficient about 0.5 (Table 5). Again, this is unlike Tamil Nadu, where it has a relatively small, but has a pro-poor bias (correlation coefficient -0.3). At the level of tertiary care also, the tilt of public spending towards relatively rich districts in Bihar is more than that in Tamil Nadu (Table 5).

Table 5: Correlation Coefficients between district-wise per capita public spending at different levels of facilities and per capita income of districts in Bihar and Tamil Nadu 2016-

17

	Total Per Capita Exp	Per Capita Exp (Primary-level)	Per Capita Exp (Secondary-level)	Per Capita Exp (Tertiary-level)
Bihar				
Per Capita DDP	0.53*	0.29	0.48*	0.28
Tamil Nadu				
Per Capita DDP	-0.17	-0.6*	-0.31	0.04

* All correlation coefficients are calculated excluding Chennai and Patna, DDP: District Domestic Product

Break-up of public spending by detailed heads suggest that overall, a higher share of public expenditure is tied in Bihar than in Tamil Nadu (Table 6). In Bihar, outsourcing of services is relatively high, and this is reflected in the fact that the share of expenditure under the head 'professional services' is more than that in Tamil Nadu (Table 6). If one considers expenditure in the form of payments to employees, office operating expenses and professional services as committed expenditures, then about 88 per cent of all expenditures

⁵ Unless mentioned otherwise, all correlation coefficients in this section is calculated excluding the capital districts of Chennai and Patna.

in Bihar are tied expenditures (Table 6). The corresponding share in Tamil Nadu is about 74 per cent (Table 6). An examination of the same in primary and secondary-level facilities *vis-à-vis* tertiary level facilities indicate that tied expenditures are relatively low at tertiary-level facilities (Table 7).

Table 6: Object-head wise details of expenditure in Tamil Nadu and Bihar 2016-17

	Tamil Nadu		Bihar	
	Share (%)	Per Capita (Rs.)	Share (%)	Per Capita (Rs.)
Payments to employees (salaries, wages and medical reimbursement)	68.9	590	74.5	226.7
Other office operating expenses	2.7	23	2.1	6.5
Materials and supplies	6.3	54	6.8	20.6
Professional services	2.6	23	11.4	34.7
Scholarship and Stipend	2.7	23	2.1	6.4
Machinery, equipment and other minor works	1.1	10	1.4	4.2
Advertisement and Publicity	0.0	0	0.0	0.0
Grant in aid Non-salary	12.0	103	0.8	2.3
Unknown	3.7	32	0.9	2.7
Total (Rs. Lakhs)*	617601		316570	

* This includes all expenditures in the state, other than NHM

Table 7: Object-head wise details of expenditure in different levels of facilities in Tamil Nadu and Bihar 2016-17

	Tamil Nadu		Bihar	
	Pri & Sec	Tertiary	Pri & Sec	Tertiary
Payments to employees (salaries, wages and medical reimbursement)	91.2	74.5	77.6	61.3
Other office operating expenses	2.6	4.2	0.9	5.9
Materials and supplies	3.7	10.6	7.1	11.3
Professional services	1.2	0.4	13.8	9.8
Scholarship and Stipend	0.0	6.9	0.1	7.3
Machinery, equipment and other minor works	0.1	3.1	0.5	4.1
Advertisement and Publicity	0.0	0.0	0.0	0.0
Grant in aid Non-salary	1.2	0.1	0.0	0.2
Unknown	0.0	0.2	0.0	0.0

Pri & Sec: Primary and Secondary level facilities, Tertiary indicates tertiary-level facilities

Conclusions

Public spending has been argued to be an effective tool for enhancing access to health care and moving towards Universal Health Coverage (UHC). Much of the existing evidence has been confined to differences in levels of public spending, and equity dimensions within Indian States has received relatively less attention. This paper examines intra-state distribution of public spending on health across districts and levels of health services in Bihar and Tamil Nadu to provide insights on the redistributive role of public spending in the two states.

Analysis suggests that in Bihar, public spending is high in relatively rich districts, which implies that public spending is pro-rich. This is unlike Tamil Nadu, where public spending, particularly at lower levels of care, is significantly high in relatively poor districts and is therefore, pro-poor. This has implications for horizontal equity and access to health care in the two states. On distribution across levels of health services in Bihar, public spending on secondary-level facilities is strikingly pro-rich and tertiary-level health facilities are almost non-existent except a few districts, which have medical colleges. In contrast, in Tamil Nadu, secondary and tertiary-level spending is much more uniformly spread across districts. At all levels of care, not only are the levels of public spending significantly lower in Bihar than Tamil Nadu, but also its variation across districts is higher in Bihar than in Tamil Nadu. Notably, in both the states, more than half the public spending on tertiary-level facilities is incurred in the capital districts of Chennai and Patna.

The findings have important policy implications. In Bihar, despite the low public spending on secondary and tertiary-level care (which translates to poor access to inpatient care), NSSO survey indicates that bulk of the people in rural areas of the state use public facilities (not private) for inpatient care. This could mean either a supply-side constraint in the form of unavailability of private facilities, or a lack of demand arising from the inability to afford the cost of treatment in private facilities for inpatient treatment. Information on the extent of empanelment of private hospitals by insurance companies suggests that availability of private hospitals in Bihar is not only among the lowest in the country, but also confined to a few districts. These have implications for implementation of schemes like the Ayushman Bharat – Pradhan Mantri Jan Aarogya Yojana (AB-PMJAY).

References

- Anselmi L., Mylene Lagarde and Kara Hanson (2015), "Equity in the Allocation of Public Sector Financial Resources in low- and middle-income countries: A Systematic Literature Review", *Health Policy and Planning* 30, 528-545.
- Berman P., Manjiri Bhawalkar, and Rajesh Jha (2017), "Government Financing of Health Care in India since 2005: What was achieved? What was not and why?", A report of the Resource Tracking and Management Project, Harvard T.H. Chan School of Public Health, Boston U.S.A.
- Bowser D, Bryan Patenaude, Manjiri Bhawalkar, Denizhan Duran and Peter Berman (2019), "Benefit Incidence Analysis in Public Health Facilities in India: Utilisation and Benefits at the National and State Levels", *International Journal for Equity in Health*, 18:13
- Choudhury M. and Jay Dev Dubey (2019), "Estimating Public Spending on Health: Using information on Withdrawals", *Economic and Political Weekly*, Vol LIV, No 5, February 2, 2019.

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- Damle, D., and Anand, T., (2020). [Problems with the e-Courts data](#), W.P. No. 314 (July).
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- Karun, H., Vinod, H., Chakraborty, L.S., (2020). [Did public investment crowd out private investment in India?](#) W.P. No. 312 (July).

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