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Do Government funded health insurance schemes reduce out of pocket expenditure? Evidence from Kerala State.

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Abstract

India's state health systems differ greatly in terms of spending, availability of healthcare personnel and overall health outcomes. States differ in how much the government spends on health care per person (Per capita health spending). Per capita health spending (PCH) is typically higher in southern states in India, suggesting comparatively stronger public sector health investments. Kerala continuously ranks among the Indian states with the highest per capita public health spending. Conversely, larger northern states in India with lower per capita health spending include Madhya Pradesh, Uttar Pradesh and Bihar. But, among all Indian states, Kerala had the highest OOPE[2] expenditure. Based on data published in the National Health Accounts 2016-17, household out-of-pocket expenditure in Kerala constituted approximately 58.7%. By analysing the data of the Indian economy, it was inferred that about 12% of the rural as well as 8% of the urban households fell into the below poverty line category due to the health care expenses (Peter Berman and Rajeev Ahuja, 2004).[3] (Pattayat, Parida, & Awasthi, 2022).[4] Therefore, ensuring strong financial

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[2] Note: OOPE means all direct payments by individuals for healthcare services, such as consultation fees, medicines, diagnostics and hospitalization, excluding pre-paid mechanisms like insurance or government subsidies.

[3] Berman, P., & Ahuja, R. (2008). Government health spending in India: Getting the priorities right. National Commission on Macroeconomics and Health, Ministry of Health and Family Welfare, Government of India. (World Bank document.)

[4] Pattayat, S. S., Parida, J. K., & Awasthi, I. C. (2022). Reducing rural poverty through non-farm job creation in India. The Indian Journal of Labour Economics, 65, 137–160. https://doi.org/10.1007/s41027-022-00359-9

protection becomes a crucial policy imperative to move toward universal health coverage (UHC) and reduce catastrophic health expenditures (CHE).

This study thus evaluated the effectiveness of publicly funded health insurance schemes in Kerala, particularly their role in improving access to health care and reducing out of pocket expenditure (OOPE) and the incidence of catastrophic health expenditure (CHE) using data from NSSO of 71st and 75th Round of Health Survey. In line with the approach of Garg et al. (2020),[5] (Ranjan et al., 2020)[6] to evaluate PMJAY in Chhattisgarh, this study explores the extent to which the enrolment in the earlier government funded health insurance scheme- prior to the introduction of AB-PMJAY contributed to improved access to hospital utilisation and reduced OOPE in Kerala.

Key words: *Universal health coverage (UHC),Health Insurance, Catastrophic health expenditure (CHE), RSBY, AB-PMJAY.*

I. Introduction & Back ground:

The differences in health spending and physical infrastructure facilities between states highlight a basic difficulty for effective implementation of any national health protection program: that is; finding a balance between ensuring equitable progress in important health outcomes. Therefore, allowing sufficient flexibility to adjust to local needs while simultaneously aiming for comparable health outcomes across India's various states is the primary challenge for the national health protection scheme.

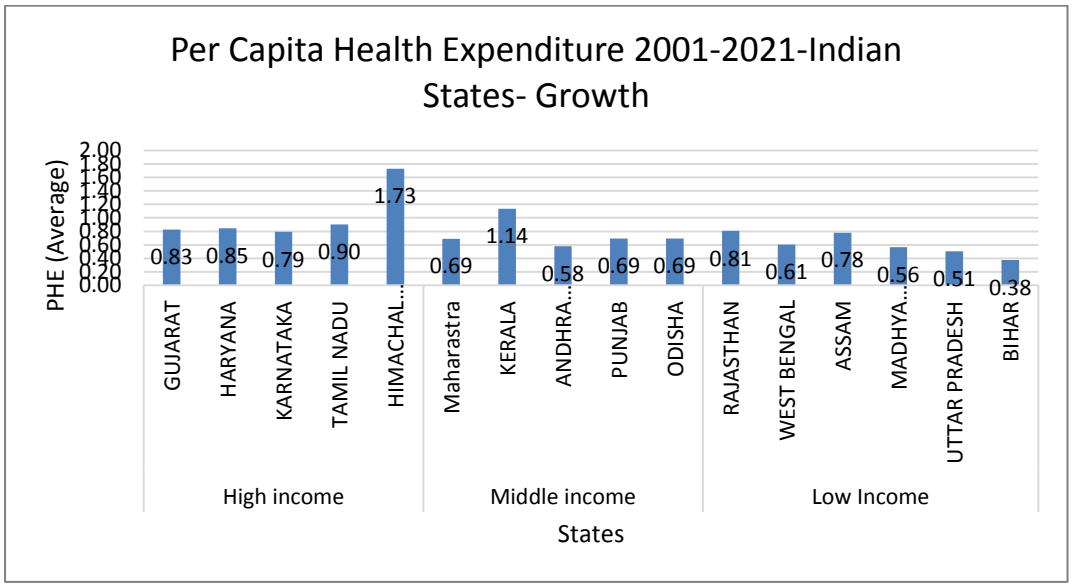
[5] Garg, S., Bebarta, K. K., & Tripathi, N. (2020). Performance of India's national publicly funded health insurance scheme, Pradhan Mantri Jan Arogya Yojana (PMJAY), in improving access and financial protection for hospital care: Findings from household surveys in Chhattisgarh state. BMC Public Health, 20(1), 949. https://doi.org/10.1186/s12889-020-09107-4

Garg, S., Tripathi, N., Ranjan, A., & Bebarta, K. K. (2022). How much do government and households spend on an episode of hospitalisation in India? A comparison for public and private hospitals in Chhattisgarh state. Health Economics Review, 12, Article 27. https://doi.org/10.1186/s13561-022-00368-1

[6] Ranjan, A., Dixit, P., Mukhopadhyay, I., & Reddy, K. S. (2020). Performance of India's national publicly funded health insurance scheme, Pradhan Mantri Jan Arogaya Yojana (PMJAY), in improving access and financial protection for hospital care: Findings from household surveys in Chhattisgarh state. BMC Health Services Research, 20, 949. https://doi.org/10.1186/s12913-020-05694-0

Southern states display higher levels of per capita health expenditure, reflecting stronger public investment in the health sector. State of Kerala has consistently retained one of the highest levels of per capita public health spending both before and after COVID-19. It also relates to its strong decentralized health system, substantial social sector allocations and long standing policy commitment to public health. Larger northern states like Madhya Pradesh, Uttar Pradesh and Bihar have lower per capita health expenditure, probably because of their large populations and relatively lower levels of income. This suggests that resource constraints could be a reason for the observed differences in health outcomes.

Figure 1 :- Indian States Per Capita Health Expenditure. (Decadal Average)



*Source: EPWRF Times series. **. Author's estimation*[7].

The average growth of per capita public health expenditure (PHE) in Indian states over the course of two decades, divided into high, middle and low- income groups, is depicted in Figure 1. In PHE, Karnataka lags (0.75) Gujarat (0.82) and Tamil Nadu (0.90) among high-income states. There are notable differences among middle-income states, with Kerala (1.14) and Himachal Pradesh (1.73) showing the fastest growth in per capita health spending. Better-performing states like Himachal Pradesh and Kerala show a strong commitment to

[7] Note: Health Expenditure includes Revenue Expenditure, Capital Expenditure and Loans and Advances. It included only Medical & Public health and Family Welfare expenditure. **States are ranked higher, middle- and low-income states based on GSDP per capita for the year 2021-22.

healthcare, while low-income states emphasize the need for increased public health spending to ensure equitable access to healthcare services.

While states differ widely in per capita health expenditure, intergovernmental transfers-particularly through Centrally Sponsored Schemes (CSS) remain an important mechanism supporting state level health financing irrespective of these spending levels.

A major part of the conditional transfers from the central government to the states is in the form of CSS, which include health insurance programs like Rashtriya Swasthya Bima Yojana(RSBY),AB-PMJAY etc. Although these programs are intended to address national priorities, their efficacy frequently hinges on each state's administrative and financial capabilities.

Smith, Dong, and Chhabra (2019),[8] NHA policy brief examined state-level disparities in the utilization of the PMJAY scheme in relation to indicators of health need such as poverty rates and disease burden. The brief revealed a paradoxical pattern: states with greater need, measured by higher poverty headcount and greater disease burden (e.g., Bihar and Uttar Pradesh), tended to show lower utilization of AB-PMJAY, while relatively better-off states like Kerala, Maharashtra and Karnataka recorded higher claims and better uptake of the scheme. The above study relied on early-stage data of AB-PMJAY. Building on this evidence, the present study seeks to explore whether the health insurance scheme -prior to the introduction of AB-PMJAY- has contributed to advancing UHC and reducing CHE[9] in Kerala by using secondary data from NSS health surveys. Since no household survey data were available for the period following the implementation of the AB-PMJAY scheme, the study relies on the two earlier rounds of the NSSO health surveys conducted during the period when RSBY scheme was in operation.

II. Objective

To measure the effectiveness of the Government funded health insurance schemes (Prior to AB-PMJAY) in reducing out of pocket expenditure in Kerala.

[8] Smith, O., Dong, D., & Chhabra, S. (2019). PM-JAY across Indian states: Need and utilization (Policy Brief No. 2). National Health Authority, Government of India. Retrieved from https://AB-PMJAY. gov.in/sites/default/files/2019-10/Policy%20Brief%202_Need%20and%20Utilization _Web.pdf

[9] Note: CHE means out of pocket health spending which is in excess of a threshold of a household's income or consumption that pushes it towards financial distress.

III. Methodology

The literature on the evaluation of PFHI schemes, indicates that the estimation should ideally be based on data from multiple time points, one of which should be pre scheme implementation. Data for this study come from two rounds of repeated cross sections: the 70th and 75th rounds of India's National Sample Survey (NSS) data. The 70th round has provided information on OOPE and hospital care in 2014, and the 75th round has presented similar data for 2017 and it is before the AB-PMJAY scheme was introduced. Thus, the NSS data captures the functioning of the earlier RSBY scheme. Financial protection measured here using the variable Catastrophic Health Expenditure (CHE), as developed by Wagstaff and van Doorslaer[10].

Out of Pocket Expenditure (OOPE) = Medical expenses + expenses on transportation+ other non- medical expenses incurred -deducting any cash reimbursements received by the patient.

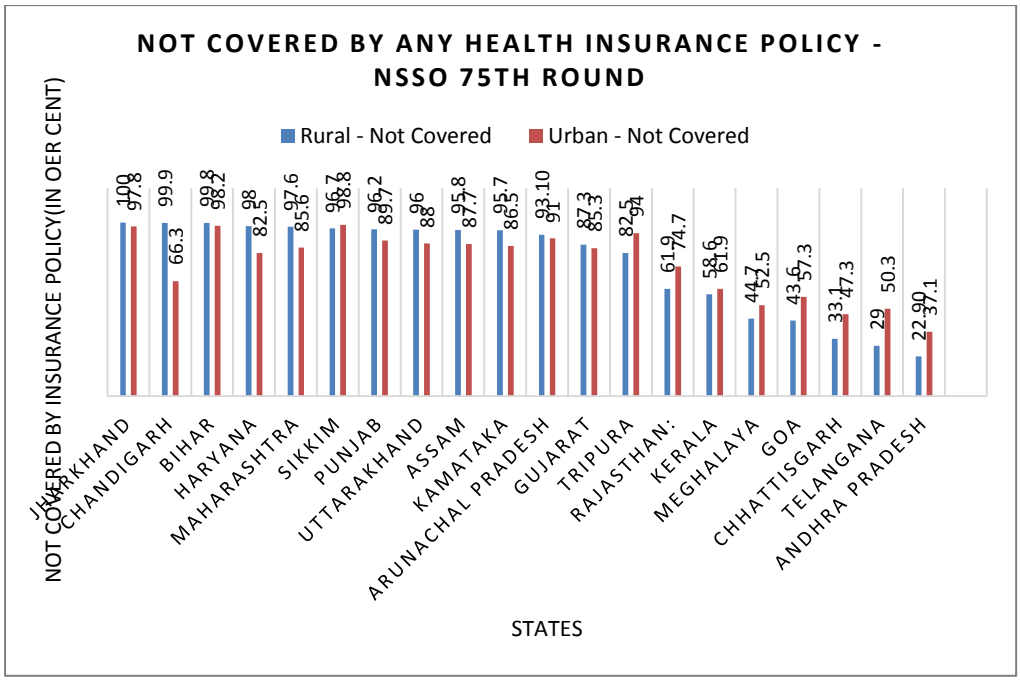
IV. Results

To attain UHC in nations with middle class or lower income populations, the World Health Organisations (WHO) proposed a Social Health Insurance program. The following general categories of health insurance plans are offered in India to help with medical expenses: (i) sponsored by the government (such as PMJAY, RSBY, Arogya Sri, etc.) (ii) employed by the government or PSU (such as CGHS, government reimbursement, etc.) (iii) Employer sponsored health protection (like ESIS) that is not provided by the government or PSU (iv) Household insurance plans set up with insurance providers, and (v) Other plans.Despite recent progress, the NSSO 75th Round report on Key Indicators of Social Consumption in India: Health shows that a substantial share of the population is still not covered under any health insurance scheme[11]. (Figure 2).

[10] Wagstaff, A., & Van Doorslaer, E. (2003). Catastrophe and impoverishment in paying for health care: With applications to Vietnam 1993–1998. Health Economics, 12(11), 921–933. https://doi.org/10.1002/hec.776

[11] Ministry of Statistics & Programme Implementation. (2019). Key indicators of social consumption in India: Health (NSS 75th Round, July 2017–June 2018). Government of India.

Figure 2 :- Not covered by any health insurance policy



Source: NSSO data of 75th round (2017-18). The author compiled.

India needs to focus on lowering OOPE and increasing service coverage to strengthen its healthcare system and make it more affordable and available to all its citizens.

According to the survey, many households are still dependent on paying for medical needs out of pocket, which makes them more vulnerable financially. Disparities in access to healthcare are exacerbated by the higher prevalence of uninsured people in rural areas and low-income groups. Additionally, the data show that although state specific programs and government funded health insurance schemes[12] like Rashtriya Swasthya Bima Yojana (RSBY - Centrally Sponsored Scheme-Health insurance before 2018) were implemented by the centre to lower OOPE, their effects differed by region and were less successful in low-income states.

Following table gives a summary of PFHI scheme in Kerala.

[12] Government-funded health insurance refers to health insurance schemes where the government covers the premium either fully or partially for individuals or households. These plans typically focus on helping the poor, vulnerable and marginalised groups.

Table 1 :- PFHI schemes and annual cover in Kerala State

Year	PFHI Scheme	Annual cover per family	Eligible group
2014	RSBY	INR 30,000 (USD 425)	BPL Families
2018	PMJAY-KASP[13] KBF	Rs.5 Lakh Per Family	SECC

Note: Secondary Data.

The information on responses for Kerala found from the NSSO data presented in Table 2:

Table 2 :- Responses and cooperation rates in household surveys-Kerala

Response	NSS 71st round (2014) Informants (%) N = (11299)	NSS 75th round (2017-18) Informants (%) N = (19801)
Co-operative and capable	10,382 (93.24)	19,047 (96.10)
Co-operative but not capable	779 (5.92)	647 (3.14)
Busy	46 (0.65)	57 (0.58)
Reluctant	22 (0.19)	50 (0.17)
Others	-	-
Total	11,229	19,801

Source : Authors' estimation using NSS unit level data of 70th round (2014) and 75th round (2017-18). Note: Percentage values in parentheses are sampling weighted.

Hospital care access improvement was examined by considering changes in hospital care use. Kerala's PFHI enrolment rate has shown a steady increase over the years.

Table 3 shows scheme wise descriptive finding on enrolment and hospital utilization.

Table 3 :- Sample and Percentage distribution of persons covered by various health insurance schemes in Kerala 2014-2018

PFHI scheme	71st (2014)	75th (2018)
PFHI	3,913 (36.82)	6,161 (33.99)
Not PFHI	316 (2.72)	1,194(5.95)
Not Covered by any insurance	7,000(60.46)	12,446(60.06)
Total	100.0	100.0

[13] Note : KASP (Karunya Arogya Suraksha Padhathi (KASP) scheme of Kerala.

Source: Authors' estimation using NSS unit level data of 70th round (2014) and 75th round (2017-18). Note: Percentage values in parentheses are sampling weighted.

In each round of the survey, over 50% of the hospitalisations were in the public sector. They accounted for 55% of the hospitalisations in 2018. The rate of hospitalisations of the enrolled PFHI in the public sector decreased. Between 2014 and 2017, the proportion of PFHI enrolled individuals using private hospitals decreased, whereas private sector hospitalizations among the non-enrolled population rose.(Table 4).

Table 4 :- Percentage distribution of hospitalisation (365 days) with health insurance by hospital type in Kerala 2014-2018.

PFHI scheme	71st (2014)		75th (2018)	
	Public	**Private**	**Public**	**Private**
PFHI	62.46	33.76	54.49	30.49
Not PFHI	0.61	5.32	2.50	10.83
Not Covered	36.93	60.91	43.01	58.68
Total	100.0	100.0	100.0	100.0

Source: Authors' estimation using NSS unit level data of 70th round (2014) and 75th round (2017-18).

Kerala's hospitalization rate has shown an upward trend over the years, for both the PFHI enrolled and the non-PFHI enrolled individuals (Table 5).

Table 5 :- Mean OOPE for Hospitalisation (365 days) Episodes (Rs) with 95% CI.

PFHI scheme	**Type of hospital**	**71st (2014) RSBY**	**[95% C.I]**	**75th (2018) RSBY,CHIS**	**[95% C.I]**	**PFHI scheme**	**Type of hospital**
PFHI	Public	2493	2029	2956	3210	2761	3659
	Private	14467	12705	16229	15596	13318	17873
Not PFHI	Public	4142	1108	7177	9057	2913	15202
	Private	16577	11177	21978	13969	11211	16727
Not Covered	Public	4244	3247	5240	3772	3242	4302
	Private	28143	24479	31807	23875	21822	25928
Total	Public	3216	2723	3709	3552	3195	3908
	Private	22891	20545	25238	20535	19074	21995

Source: Authors' estimation using NSS unit level data of 70th round (2014) and 75th round (2017-18).

Note: CI denotes Confidence Interval. OOPE amounts for 2014 and 2018 have been adjusted to 2014 prices using the 2011 Consumer Price Index.

The mean OOPE for private hospitals was several times that of public hospitals, which was true for both the PFHI enrolled and the non PFHI enrolled individuals (Table 5).

Table 6 :- Median OOPE for Hospitalisation (365 days) Episodes (Rs)

PFHI scheme	Type of hospital	71st (2014) RSBY	75th (2018)
PFHI	Public	1020	1515
	Private	7620	7621
Not PFHI	Public	5140	1771
	Private	8500	6604
Not Covered	Public	1490	1437
	Private	9250	11731
Total	Public	1200	1484
	Private	8500	9649

Source: Authors' estimation using NSS unit level data of 70th round (2014) and 75th round (2017-18).

Note: OOPE amounts for 2014 and 2018 have been adjusted to 2014 prices using the 2011 Consumer Price Index.

The median OOPE in the private sector was estimated to be many times higher compared to that observed in the public sector (Table 6). Descriptive statistics indicate that median OOPE in the PFHI enrolled unit residing in private hospitals was 17% lower than OOPE for the non-enrolled unit in any scheme.

Table 7 :- Proportion of incurred CHE ≥25 for Hospitalisation (365 days) Episode (%)

PFHI scheme	**Type of hospital**	**71st (2014)**	**75th (2018)**
PFHI	Public	57.97	48.14
	Private	28.02	25.79
Not PFHI	Public	0.00	2.45
	Private	3.51	5.35
Not Covered	Public	42.03	49.4
	Private	68.47	68.86
Total	Public	5.92	8.74
	Private	94.08	91.26

Source: Authors' estimation using NSS unit level data of 70th round (2014) and 75th round (2017-18).
Note: CHE denotes Catastrophic Health Expenditure.

The incidence of CHE25 was substantially higher for private sector hospitalizations than for those in the public sector. (Table7).

V. Discussions:

The pattern of hospitalisation in the public and private sectors in Kerala reflects significant changes between 2014 and 2018, both in account of insurance coverage and to patterns of care seeking behaviour. Table 4 shows that among PFHI enrolled individuals, while the majority continued to rely on public hospitals, the share declined from 62.46 per cent in 2014 to 54.49 per cent in 2018, and that of private facilities also saw a marginal decline. In contrast, the proportion seeking care in private hospitals among non PFHI individuals increased substantially from 5.32 per cent to 10.83 per cent, indicating an increasing dependence on the private sector among those not enrolled in any government funded health insurance schemes. For the large uninsured group, nearly 60 per cent in both rounds, the preference for private hospitals remained consistently high with 60.91 per cent choosing private facilities in 2014 and 58.68 per cent in 2018. These utilisation patterns are closely aligned with the distribution of health insurance coverage, where PFHI schemes covered roughly one third of the population, non PFHI coverage expanded slightly and the uninsured consistently formed the largest segment. The sample distribution of people covered under different health insurance schemes in Kerala shows a pattern of relative stability from 2014 to 2018, with only marginal changes in the distribution across coverage categories.

In Kerala, there is a clear difference in how people use public and private hospitals based on their insurance coverage. Households facing catastrophic health expenditures during hospital stays were much more common among those with private health insurance who went to public hospitals compared to those who went to private hospitals. It stands at 57.97% in 2014 and went down to 48.14% in 2018, compared with 28.02% in 2014 and 25.79% in 2018 in private hospitals. This indicates that even though PFHI provides partial financial protection, hospitalisation in public facilities results in a substantial share of households with catastrophic spending.

For the non PFHI insured, it remained low in public hospitals in 2014 and 2018 but increased modestly in private facilities from 3.51% to 5.35%, reflecting higher cost burdens associated with private care even for the non PFHIs. For the uninsured, the financial risk was considerably higher especially in private hospitals, where more than two thirds of households suffered CHE in 2014 and 2018 while public hospitalisation led to a lower but still significant risk of 42.03% in 2014 and 49.4% in 2018.

Overall, the numbers show that, in 2014 and 2018, private hospitals accounted for 91.26% of CHE cases. It has to be pointed out that private sector hospitalization continues to remain the prime driver of catastrophic health spending in Kerala. These results underscore the persistence of households financial vulnerability, especially of the uninsured and underpin the fact that PFHI coverage merely reduces but does not eliminate the risk of catastrophic expenditure, especially when care is sought in the private sector.

VI. Conclusion:

The data indicates that the private sector still dominates inpatient care across all coverage groups, particularly among the uninsured and non PFHI insured in Kerala. The state's high private sector utilization is sustained by persistent structural and preference driven factors, as evidenced by the fact that insurance coverage has not substantially changed hospitalization patterns toward public hospitals.

However, PFHI enrolment saw a steep increase in the post KASP PMJAY period. As no household survey data have been published yet since the 75th round, it is not empirically feasible so far to determine how the pattern of hospitalization has changed during the post-KASP period. A more detailed analysis of whether the enhanced cover under KASP has made any measurable difference in the utilization of public and private hospitals in Kerala can be done when newer survey data become available.

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