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Consistency and Reliability of Catastrophic Health Spending in India, 2004-18

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Context

Catastrophic health spending (CHS) is a key indicator for measuring universal health coverage and financial protection. It is one of the monitoring indicators of health related Sustainable Development Goals (SDGs) at the global, national and local levels. Despite its utility and popularity across countries, the estimates of CHS suffer from methodological limitations. Available estimates of CHS are puzzling to researchers, policy makers, and developmental partners due to the use of two different approaches, namely capacity-to-pay (CTP) and budget share (BS) approach. Inferences drawn from these approaches are inconsistent and have received global attention (Bonu et al. 2009; Cylus et al. 2018). In India, the non-availability of data on food expenditure in the health survey (HS) of the National Sample Survey Organisation (NSSO) has added limitations in deriving reliable estimates of catastrophic health spending. The National Health Policy 2017 had stipulated reducing the CHS by 25% by 2025 (MoHFW, 2017). *Ayushman Bharat*, a national health protection scheme launched by the Govt. of India in 2018 and aimed at providing financial assistance to over 500 million people in the country, is the largest ever publicly funded financial protection scheme worldwide. In this context, providing reliable estimates using appropriate data sources and methodology would be of immense use to the public health programme.

Literature suggests that health spending is catastrophic for the poor, less educated, rural households, households with elderly, households with members suffering from chronic ailments and households without any insurance coverage. Reliable estimates of CHS should capture the equity concern in health care and be consistent. In India, the estimates of CHS varied from 4% to 15% in 2004 and from 15% to 25% in 2011-14 (Ghosh, 2011; Raban et al. 2013; Pandey et al. 2018). Studies suggest standardization of survey instruments and uniform methodology for the reliable estimation of catastrophic health spending (Raban et al. 2013). This research brief presents the trends of catastrophic health spending in India for over 15 years, using CTP and BS approach. It examines the consistency and reliability of these estimates for inpatient and outpatient care.

Data and Methods

Data from three rounds of health surveys and two rounds of consumption surveys conducted by the National Sample Survey (NSS) during 2004-18 was used for the present estimation. The three rounds of health surveys included schedule 25.0 in 60th

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round of 2004, 71st round of 2014 and 75th round of 2018 while the consumption surveys (schedule 1.0) included those of 2004 and 2011-12. All these surveys were population based large scale surveys and provided reliable estimates on morbidity, health spending, poverty and inequality besides other factors for all states and union territories of India. The present estimates of CHS were derived from health surveys at three points of time, namely, 2004, 2014 and 2018. It may be mentioned here that the health surveys covered detailed questions on inpatient care by episode of hospitalisation in 365 days' reference period while outpatient care was provided at 15 days' reference period. The health surveys had limited information on consumption expenditure and did not have data on food expenditure. The capacity to pay approach defines a household as catastrophic if the out-of-pocket expenditure (OOPE) exceeds 40% of the household ability to pay. Similarly, in the budget share approach a household is said to incur CHS if OOPE on health care exceeds 10% of household consumption expenditure. In deriving the CHS using CTP approach, it is assumed that the share of food expenditure to per capita consumption expenditure is fairly stable in the short run. The share of food expenditure from consumption surveys was used for deriving subsistence expenditure in health surveys. Estimates of CHS were provided for inpatient care (hospitalisation in a reference of 365 days) and outpatient care (standardised for 30 days) for India and referred as Incidence of CHS.

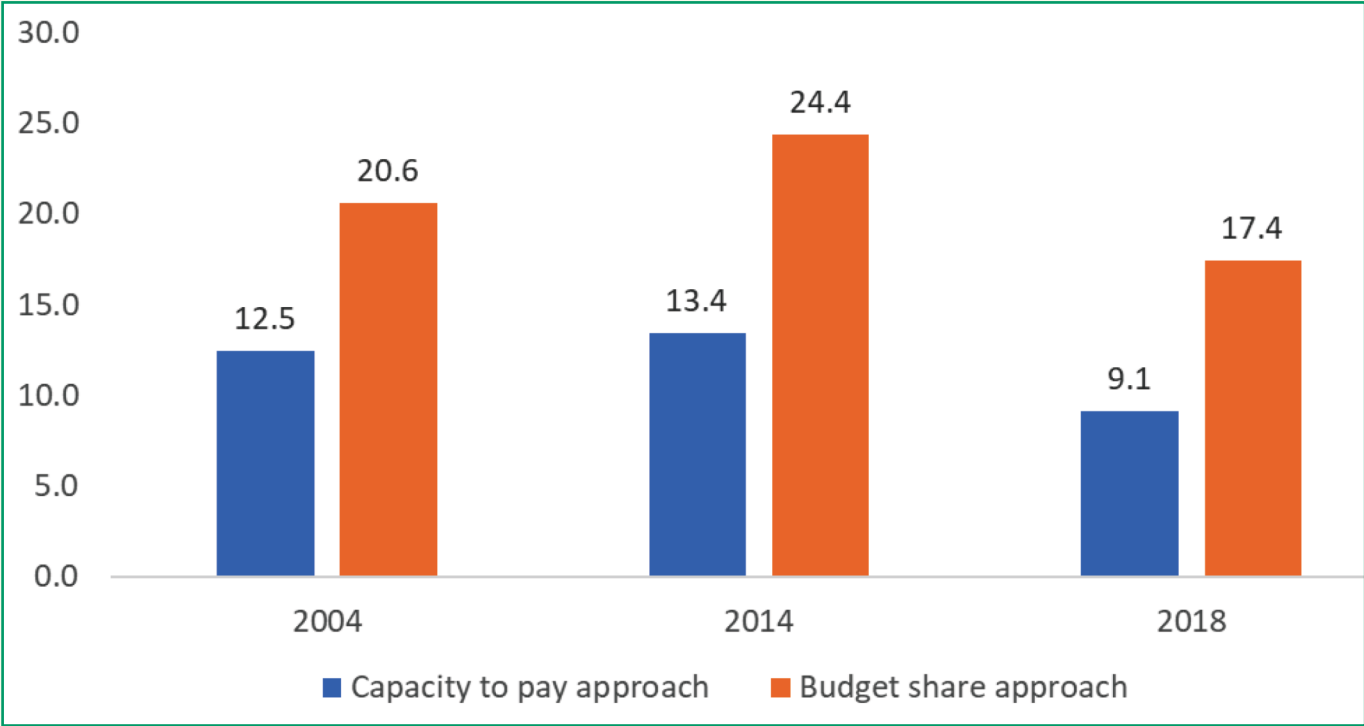
Results

Four main findings of the study are reported here. They are, declining incidence of CHS, low association of CHS using CTP and BS approach, varying economic gradient of CHS and inability to capture equity in health care using BS approach. Each of the results are presented below.

(A) Declining incidence of Catastrophic Health Spending

One of the key policy questions was, “What is the trends of CHS in India?” Fig 1 presents the incidence of catastrophic health spending based on capacity-to-pay and budget share approach. In the CTP approach, the incidence of CHS in India was 12.5% in 2004, 13.4% in 2014 and 9.1% in 2018. In case of budget share approach, the incidence of CHS was estimated at 20.6% in 2004, 24.4% in 2014 and 17.4% by 2018.

Fig 1: Incidence of catastrophic health spending (in percentage) by capacity to pay and budget share approach, 2004-18



(B) Low association of catastrophic health spending estimates by CTP and BS approach

The association of CHS estimated using CTP and BS approach was weak for both inpatient and outpatient services. The correlation coefficients for inpatient care using estimates from both these approaches were 0.67 in 2004, 0.57 in 2014 and 0.58 by 2018. The correlation coefficients were also similar for outpatient care. The alpha reliability test showed a lower coefficient (less than 0.8) for all the three periods.

Table 1: Correlation coefficient, alpha reliability value and concentration index by Inpatient and outpatient care in India, 2004-18

Time	Correlation Coefficient		Alpha Value		Concentration Index (Based on CTP)		Concentration Index (Based on BS)	
	Inpatient care	Outpatient care	Inpatient care	Outpatient care	Inpatient care	Outpatient care	Inpatient care	Outpatient care
2004	0.67	0.71	0.78	0.82	-0.17	-0.15	0.06	0.02
2014	0.57	0.65	0.71	0.77	-0.16	-0.20	0.20	-0.02
2018	0.58	0.65	0.71	0.76	-0.22	-0.22	0.02	-0.03

(C) Varying economic gradient of catastrophic health spending

One of the key questions was, “How well does the CHS capture the health spending of the poorest and poorer sections of the population?” Table 2 presents the estimated CHS by MPCE quintile (a measure of economic wellbeing of households) using CTP and BS approach over time. The estimated CHS using CTP approach had a strong economic gradient. Such variation was not found using the BS approach. For example, under CTP approach, in 2004, about 18% population in the poorest MPCE quintile and 13% in the poorer MPCE quintile had incurred CHS on health care (any health services) compared to 12% in the richer MPCE quintile and 11% in the richest MPCE quintile. In case of BS approach, the proportion of CHS by MPCE quintile was found to be higher in the richer MPCE quintile. The pattern was similar over time suggesting that the BS approach did not capture the economic variations in CHS.

Table 2: Percentage of population incurring catastrophic health spending based on capacity to pay and budget share approach by MPCE quintiles, 2004-18

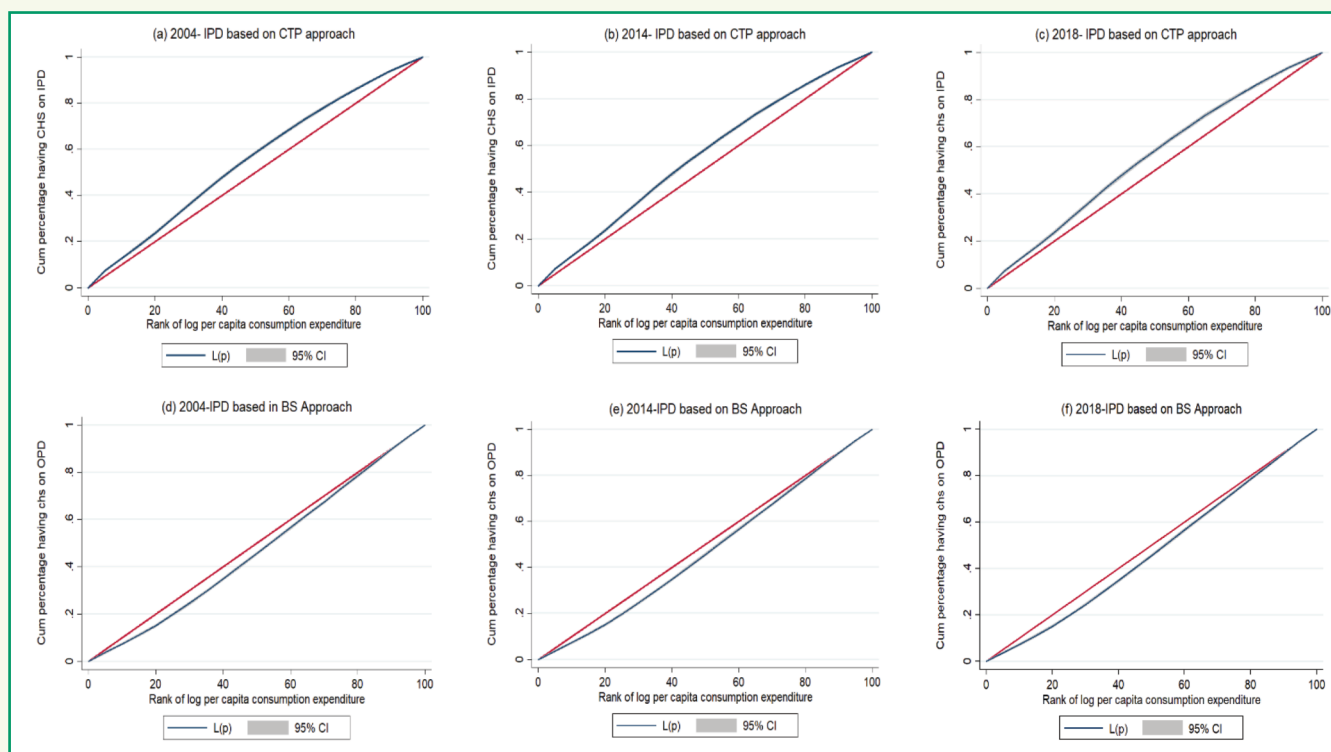
MPCE Quintile	Capacity to pay approach	Budget share approach
2004		
Poorest	17.95	20.60
Poorer	13.15	20.64
Middle	11.90	22.37
Richer	11.63	22.86
Richest	11.05	25.62
2014		
Poorest	21.14	27.35
Poorer	14.24	25.71
Middle	11.20	25.08
Richer	11.36	26.06
Richest	10.68	25.88
2018		
Poorest	14.51	19.68
Poorer	9.46	18.38
Middle	8.47	18.06
Richer	6.88	17.67
Richest	6.35	18.10

(D) Equity concern of catastrophic health spending

One of the pertinent issues was how well estimates of CHS captured the equity concern of health care? Findings suggested that the estimated CHS using CTP approach captured the equity concern well, whereas the BS approach failed to do so. The concentration index, a measure of inequality was much higher under CTP approach and close to 0 under BS approach (Table 1). The CI using CTP approach for inpatient care was -0.17 in 2004, -0.16 in 2014 and -0.22 by 2018. The CI under BS approach for inpatient care was 0.06 in 2004, 0.20 in 2014 and 0.02 in 2018.

Fig 2 presents the concentration curve (CC) of inpatient care using CTP and BS approaches. The first panel shows the concentration curve on inpatient care based on CTP approach while the lower panel shows the estimates based on BS method.

Fig 2: Concentration curves of catastrophic health spending on inpatient care using capacity-to-pay and budget share approach, 2004-18



Conclusion

Findings call for using the estimates of catastrophic health spending based on capacity-to-pay approach for public health programme and monitoring the health related development goals. Estimates of CHS based on budget share approach has many limitations such as, overestimation, inconsistency and does not capture the equity concern. A few questions to capture the per capita food consumption should be included in NSS health surveys.

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