Why Publicly-Financed Health Insurance Schemes Are Ineffective in Providing Financial Risk Protection

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This paper provides early and robust evidence on the impact of publicly-financed health insurance schemes on financial risk protection in India's health sector. It conclusively demonstrates that the poorer sections of households in intervention districts of the Rashtriya Swasthya Bima Yojna , Rajiv Aarogyasri of Andhra Pradesh, and Tamil Nadu Health Insurance schemes experienced a rise in real per capita healthcare expenditure, particularly on hospitalisation, and an increase in catastrophic headcount – conclusive proof that RSBY and other state government-based interventions failed to provide financial risk protection. Therefore, the policy that is needed would aim to achieve universal health coverage of the population, moving away from the current trend of piecemeal, fragmented approaches, to providing a thrust for primary health care.

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The Indian health sector has been the testing laboratory for launching several "financially innovative" schemes since 2005-06. The country has been witness to one of the most ambitious programmes in India's planned development years – the flagship National Rural Health Mission (NRHM) – since 2005-06. Two years later, from 2007, India witnessed a plethora of new initiatives, by the central and many state governments that entered the bandwagon of publicly-financed health insurance schemes. Given the commitment to upscale government expenditure on health, the central and state governments were devising various ways to spend additional resources through "innovative" schemes. The Andhra Pradesh government was the pioneer in launching the Rajiv Aarogyasri Scheme in 2007, followed by the central government (the Ministry of Labour and Employment) through the Rashtriya Swasthya Bima Yojna (RSBY) in 2008. Sensing political capital from neighbouring Andhra Pradesh, the then Tamil Nadu government launched its own version christened as Kalaignar's Insurance Scheme for life-saving treatment in 2009 (the scheme has since been rechristened as Tamil Nadu Insurance Scheme for Life Saving Treatment under the new government in 2011), and later by Karnataka's Vajpayee Aarogyasri model in the same year. Interestingly, Karnataka is the microcosm of this testing ground, where three government-supported health insurance schemes coexist (Yashaswini since 2003, RSBY and Vajpayee Aarogyasri).

1 Introduction

The country, which had a low density of health insurance coverage of about 75 million people (roughly about 16 million family beneficiaries) in 2007, saw an estimated 302 million people covered in 2010, covering roughly one-fourth of the population. Comparatively, the coverage is by any global standards quite breathtaking and occurred at a rapid rate in a span of three to four years (Reddy et al 2011). However, in terms of the benefit package, except the Employees State Insurance Scheme (ESIS) and the Central Government Health Scheme (CGHS), the publicly-funded models provide only limited hospitalisation cover to the beneficiaries. In terms of benefit-packages, while RSBY's package has been very moderate and cover largely secondary care hospitalisations, Rajiv Aarogyasri and the Tamil Nadu scheme have been the most ambitious of all the programmes, covering high-end surgical procedures at tertiary

level. The amount of coverage under RSBY is by far the least, with a maximum of Rs 30,000 on a family floater basis per annum. On the other hand, the coverage amount goes up to Rs 2 lakh per annum and Rs 1 lakh for four years on a family floater basis under Rajiv Aarogyasri and the Tamil Nadu scheme, respectively. Similarly, Karnataka's Vajpayee Aarogyasri provides coverage to both secondary and tertiary care hospitalisation with a maximum amount of Rs 2 lakh.[1]

Interestingly, state governments such as, Kerala extended the RSBY coverage to the above poverty line (APL) population, while Himachal Pradesh extended the package value to over Rs 1.75 lakh for a family of five people per annum. The premium for RSBY is jointly paid by the central and the state governments to the insurance companies, where the contribution is in the ratio of 3:1 (75% of central government and the contribution of state is 25%), except for the north-eastern states, where the contribution of the central and state governments is in the order of 9:1, respectively. On the other hand, as far as the state-based health insurance schemes are concerned, the entire premium is borne by the respective state governments.

The key objectives of any publicly-funded health insurance programme are multidimensional. Besides improving health outcomes, it is expected to enhance access and availability of essential healthcare services. But the critical goal of any health financing strategy is to protect households from financial catastrophe and impoverishment. This is expected to substantially reduce the households' out-of-pocket (OOP) spending on healthcare. The focus of this study is therefore to capture the impact, if any, of the publicly-financed health insurance programmes on financial risk protection in India. This is the first attempt that brings together evidence on financial risk protection of various publicly-financed health insurance schemes in the country. The early evidence reported in this journal by Narayana (2010) and Das and Leino (2011) essentially examined the impact of RSBY on enrolment and hospitalisation rates. The other assessments were earlier made by Rao et al (2009) on Rajiv Aarogyasri, while Reddy et al (2011) critically analysed various issues relating to publicly-financed health insurance models in India. Evaluating some early impacts of Rajiv Aarogyasri, a recent work by Fan et al (2011) indicated that although the programme appears to have had an impact by way of a decline on OOP payments in general, it had no significant effect on catastrophic health expenditures or on medical impoverishment.

This section provides a brief overview of publicly-funded health insurance schemes in India beginning from 2007, while Section 2 explains the data sources and methodology we utilised for this study. Section 3 is devoted to discuss the summary measures of OOP spending, its trends and pattern during the last one decade. Section 4 examines the real change in OOP expenditure and trends in catastrophic payments among different economic groups of households, across intervention and non-intervention districts. An analysis of the emerging trends and patterns in OOP payments and its policy implications with regard to health insurance programmes are outlined in Section 5. Finally, we conclude the study by outlining various

strategies and policy alternatives that are needed as a course correction, to remedy the current health financing conundrum and to improve financial risk protection strategies.

2 The Methodology

The present study examines financial risk protection in India's health sector, with special reference to the implications of various publicly-financed health insurance schemes. We use a pre-insurance and post-insurance approach that involves the period 2004-05 and 2009-10, respectively. Further, in order to capture the real impact of those districts that have rolled out health insurance programmes and those that did not, we have used a case-control approach. The number of intervention districts (IDs) (districts where RSBY and other health insurance schemes were rolled out and continuing until June 2009-10) stood at 321, while rest of the districts with a total of 291, comprise non-intervention districts (NIDs). The intervention districts group included 74 districts from Andhra Pradesh, Karnataka and Tamil Nadu, those that are covered under the respective state-based health insurance schemes (Table 1). These insurance schemes were rolled out gradually in different months of the years 2007 through 2009, so that we have a 1-3 year lag period to comprehensively capture its impact.
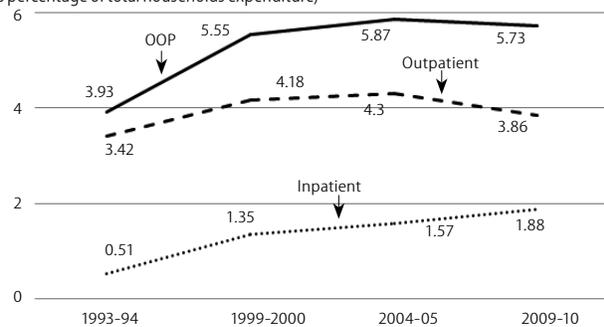
The data source for this study is drawn from the unit level records of the Consumer Expenditure Survey (CES), conducted by the National Sample Survey Office (NSSO), for the respective years. The two periods under study are quinquennial rounds of NSSO, where sample size is large enough, to capture the impact

Table 1: Number of Intervention and Non-Intervention Districts under Publicly-Financed Health Insurance Models (2004-05 and 2009-10)

Major States	Total Number of Districts		Number of Intervention and Control Districts		
	2004-05	2009-10	RSBY Districts	Districts Based on State Schemes	Control Districts
Andhra Pradesh	23	23		23	
Assam	23	27	4		23
Bihar	37	38	23		15
Chhattisgarh	16	16	11		5
Delhi	7	7	5		2
Goa	2	2			2
Gujarat	25	25	14		11
Haryana	19	20	14		6
Himachal Pradesh	12	12	12		
Jammu and Kashmir	10	11			11
Jharkhand	18	22	11		11
Karnataka	27	27	5	22	
Kerala	14	14	14		
Madhya Pradesh	45	45			48
Maharashtra	34	34	29		5
North-eastern states	53	59	10		49
Orissa	30	30	5		25
Punjab	17	18	10		8
Rajasthan	32	32	4		28
Tamil Nadu	30	31	2	29	
Uttar Pradesh	70	70	60		10
Uttarakhand	13	15	7		8
West Bengal	18	19	6		13
Union territories	10	12	1		11
All-India	585	612	247	74	291

Source: Based on reported coverage of the respective schemes.

Source: Estimated from Unit Level Records of respective Consumer Expenditure Rounds, NSSO.

at the state and groups of districts levels. For instance, the number of households surveyed during the period 2004-05 were 1,24,644 (79,298 rural and 45,346 urban households) and 1,00,855 households (59,119 rural and 41,736 urban) during 2009-10.

The CES collects information on expenditure of households' consumption for about 350 items. This includes food and non-food items, while the relevant non-food items that are examined here are institutional and non-institutional medical spending of households. Under the institutional head, households' health spending on services such as, medicines, diagnostic tests, doctor's fee, hospital and nursing home charges and other medical expenses are included. As far as the nature of items under the non-institutional head is concerned, expenditure on medicines, diagnostic services, doctor's fee, family planning appliances, and other medical expenses are obtained by the NSSO.[2] The recall period for non-institutional medical expenses is 30 days, whereas the reference periods for institutional health expenditure of households are 30 days and 365 days.[3] We use the 365 days recall for our analysis of the institutional health spending. Accordingly, the total OOP is worked out as the summation of inpatient and outpatient expenses taken together. The latest survey, 2009-10, distinguishes two types of reference periods. Under the schedule Type 1, the recall periods for institutional medical expenses are 30 days and 365 days, while under schedule Type II, the reference period for institutional expenditure is only 365 days only. As far as non-institutional expenses of households are concerned, Type 1 and Type 2 schedules have only one recall period, which is 30 days. We utilise data from the schedule Type 1, with the mixed recall period (MRP), to make it consistent with the earlier NSSO (2004-05) round.

We begin our analysis by reporting on the emerging trends and patterns in households' OOP expenditure in four different categories: (a) total OOP expenditure; (b) inpatient expenditure; (c) outpatient expenditure; and (d) overall drug expenditure (including inpatient and outpatient drug spending of households). The real change in expenditure by deflating nominal expenditure is presented to have an idea of the real impact of expenditure on households. Further, we analyse the impact of catastrophic spending on households due to insurance coverage. The publicly-funded health insurance schemes are intended to reduce catastrophic expenses of households by reducing

hospitalisation expenses in particular, and therefore, provide the much-needed financial risk protection. Catastrophic payments (Berki 1986) are defined as a scenario in which households report in excess of a given threshold of medical expenditure during a year. The threshold could take cut-off point, such as 5%, 10%, 15%, 20% and 25% of households' overall spending (Merlis 2002; Xu et al 2003 and 2007; Wagstaff and Van Doorslaer 2003; Van Doorslaer et al 2007). For the purpose of this analysis, we define catastrophic headcount as number of households making OOP expenditure greater than 10% of their total household expenditure. Accordingly, the headcount ratio of catastrophic payment (P_o) is calculated as:

$$P_o = 1/n \, \Sigma \, 1(T/x > z) \qquad \qquad \qquad ...(1)$$

where: 1(.) is an indicator function, which takes the value 1, if $T/x > z$ is true and 0 for otherwise; and n is the number of persons incurring expenditure on health for various thresholds.

3 Emerging Trends in OOP Payments

India has one of the most privatised healthcare markets in the world, both in terms of financing and provision of healthcare services. While India spends around 4.2% of its gross domestic product (GDP) on healthcare, the government's contribution is roughly one-fifth, while that of households' OOP is nearly 70% of the overall healthcare expenditure. It has been documented well in the past that over-dependence on OOP in India is marked by high inequity (World Bank 2002; GOI 2005; Garg and Karan 2008; Selvaraj and Karan 2009), which has implications for catastrophe and impoverishment (Van Doorslaer et al 2006; Selvaraj and Karan 2009; Ghosh 2011). Analysing the long-term trend, 1993-94 to 2004-05, Ghosh (2011) provides estimates of catastrophic and impoverishment impacts arising out of household's spending at disaggregated level by states. However, the present study is different in three respects: (1) the estimates here are up to the latest quinquennial CES, 2009-10; (2) provides an estimate of catastrophic headcount by different categories – hospitalisation, outpatients and drugs. These breaks-up are vital for understanding what causes catastrophic spending; and (3) the key departure of this paper is to dissect the implications of various government-financed health insurance schemes on financial risk protection. India has had large-scale changes in health financing strategy through NRHM and government-financed health insurance schemes, both of which occurred in the post-2005 period. Therefore, examining the latest trend (covering the period 2005-10) is critical.

It is interesting to observe that the share of household's expenditure on healthcare appears to have declined marginally for the first time in decades. The decline in OOP share in 2009-10 is contributed solely by the fall in share of outpatient expenditure. The hospitalisation expenses as a share of overall household expenditure increased further during 2009-10 to 1.9%, from approximately 1.6% in 2004-05 and 0.5% in 1993-94 (Figure 1).

As far as the per capita expenditure on health by households is concerned, the evidence suggests an all-round increase not only in nominal, but also in real (nominal expenditure deflated

by various measures of consumer price indices (CPIs)) terms. Households' real per capita OOP expenditure is reported to have increased significantly during the last five years of the survey period, at an average annual growth of approximately 1.9% (Table 2). The rise in real OOP expenses of households appears to be largely due to hospitalisation expenditure, while outpatient and drug expenditure remained almost stable during the period. Another observation that stems from the analysis of the households shows that the difference in per capita expenditure between the poorest and the richest quintile group of overall household expenditure is quite high across all categories, but much more among households incurring hospitalisation expenses. As observed earlier, although the expenditure pattern may show a progressive trend, the fact

Table 2: Real Per Capita and Growth of OOP Expenditure by Quintile Groups
(2004-05 to 2009-10) (PC in Rupees); (Growth in (%) – compound annual growth rate)

Years	Poorest	Second Poorest	Middle	Second Richest	Richest	All
OOP expenditure						
2004-05	12.21	22.35	32.80	51.91	112.92	41.83
2009-10	21.14	37.79	55.20	84.67	187.36	68.63
2009-10 (2004-05 prices)	14.17	25.32	36.99	56.73	125.53	45.98
CAGR (%)	3.02	2.53	2.43	1.79	2.14	1.91
Hospitalisation expenditure						
2004-05	2.83	5.38	8.09	13.56	32.99	11.20
2009-10	5.58	11.60	17.80	29.09	63.35	22.47
2009-10 (2004-05 prices)	3.74	7.77	11.93	19.49	42.44	15.06
CAGR (%)	5.73	7.63	8.08	7.53	5.17	6.10
Outpatient expenditure						
2004-05	9.39	16.97	24.71	38.35	79.93	30.63
2009-10	15.56	26.19	37.40	55.59	124.01	46.16
2009-10 (2004-05 prices)	10.43	17.55	25.06	37.24	83.09	30.92
CAGR (%)	2.12	0.67	0.28	-0.59	0.78	0.19
Drug expenditure						
2004-05	9.59	17.00	24.38	37.39	75.68	29.77
2009-10	15.95	27.34	38.70	56.57	123.47	46.86
2009-10 (2004-05 prices)	10.68	18.32	25.93	37.90	82.72	31.40
CAGR (%)	2.18	1.51	1.24	0.27	1.79	1.07

The nominal per capita expenditure data for 2009-10 is deflated to 2004-05 prices, by CPIs for rural labour (CPI-RL) for rural and CPIs for non-manual employees (CPI-NM) for urban areas separately.
Source: Same as in Figure 1.

remains that a large section, especially the vulnerable groups, fail to access healthcare when ill, owing to financial barriers (Selvaraj and Karan 2009). Needless to say, drug spending is the single largest component of households' OOP expenditure in India, across all quintile groups.

In order to design or evaluate any health insurance programme, one must recognise the structure of household's expenditure patterns. If one were to examine the quintile groups, it may appear that OOP expenditure is progressive as only 3.74% of poor households' spending goes into healthcare as against 7.23% of the richest quintile groups. This trend is driven largely by rural households' spending pattern, which indicates substantial inequity in spending. Inequity in spending is less pronounced in urban areas. This could be due to better physical access of healthcare facilities and to a lesser extent because of better purchasing power in urban areas among the poor for seeking treatment. This is clearly the trend in hospitalisation expenses as well, where the difference

between the rich and the poor is substantial and wider in rural areas than among their urban counterparts. Table 3 also reveals the proportionate share of hospitalisation expenditure as against outpatient expenses. Currently, hospitalisation expenses account for only about one-third of the overall OOP expenditure, while the remaining two-thirds are accounted for by outpatient care expenditure, especially on medicines. It is interesting to observe that all the current publicly-financed health insurance schemes cover only hospitalisation episodes and not outpatient care. Further, it must be noted that a relatively larger proportion of poor and other economically vulnerable (second poorest quintile and middle class) sections bear a higher burden of health spending on account of outpatient care. This is especially true of spending on drugs, where medicines accounted for three-fourths of all OOP spending of the poor, while for the rich it still accounted for over two-thirds of spending. The current thrust of insurance schemes clearly demonstrates the distortion and lopsided priorities of programmes, priorities that are in direct conflict with evidence.

Although the trends in OOP spending of households provide a clear direction of the way in which OOP expenditure has been moving in the last two decades, it is worth probing into the real impact of OOP spending through the lens of catastrophic expenditure analysis. When a household spends on healthcare, in excess of say, 5% or 10% of their overall spending, it is termed as a situation in which it incurs catastrophic payments. Catastrophic incidence is typically measured by the headcount of households which exceed a minimum threshold of OOP spending of total household spending. With 10% level as the threshold, 7.4% of poor households incurred catastrophic spending during 2004-05 (Table 4). The headcount of poor households incurring catastrophic payments has marginally risen between 2004-05 and 2009-10. The rise in catastrophic spending, in fact, is much larger among households with hospitalisation cases as compared to the households with only outpatient and drug spending. However, given that a substantial share of OOP spending comes from outpatient expenses, especially on drugs, the actual incidence is much

Table 3: Share of Households' OOP Expenditure by Quintile Groups (2009-10)

Sector	Poorest	2nd Poorest	Middle	2nd Richest	Richest	All
OOP expenditure (as % of overall households spending)						
Rural	3.53	4.42	5.13	5.93	8.35	6.01
Urban	4.08	4.79	5.08	5.72	5.84	5.35
All India	3.74	4.57	5.11	5.84	7.23	5.73
Inpatient expenditure (as % of OOP expenditure)						
Rural	24.14	28.99	31.50	31.34	33.34	31.44
Urban	29.66	33.11	33.32	38.57	34.65	34.78
All India	26.41	30.69	32.25	34.35	33.81	32.74
Outpatient expenditure (as % of OOP expenditure)						
Rural	75.86	71.01	68.50	68.66	66.66	68.56
Urban	70.34	66.89	66.68	61.43	65.35	65.22
All India	73.59	69.31	67.75	65.65	66.19	67.26
Drug expenditure (as % of OOP expenditure)						
Rural	77.12	75.34	73.19	70.31	67.90	70.79
Urban	72.98	68.07	65.66	61.91	62.36	64.38
All India	75.42	72.34	70.11	66.81	65.90	68.28

Source: Same as in Figure 1.

larger among these categories, but there has been a fall in catastrophic incidence owing to outpatient and drug spending during the period under consideration. Indeed, the decline in incidence of catastrophic spending has been rather sharp, as

Table 4: Percentage of Households Facing Catastrophic Expenditure on Health during Pre- and Post-Insurance Years

Quintile Groups	OOP Expenditure		Inpatient Expenditure		Outpatient Expenditure		Drug Expenditure	
	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10
Poorest	7.425	7.656	0.772	1.082	6.853	6.329	5.440	4.523
Second poorest	10.967	9.875	1.791	1.980	9.523	7.394	7.622	6.012
Middle	12.886	12.237	2.466	2.770	10.874	8.848	8.878	7.392
Second richest	17.882	16.197	3.507	4.496	15.109	10.979	12.593	9.591
Richest	23.690	22.456	7.318	7.954	18.293	16.207	16.713	14.852
All	14.570	13.684	3.171	3.656	12.130	9.951	10.249	8.474

Source: Same as in Figure 1.

Table 5: Mean Per Capita Real OOP Expenditure of Households

Treatment Effects	OOP Expenditure	Inpatient Expenditure	Outpatient Expenditure	Medicines Expenditure
2004-05 (pre-insurance period) (Rs)				
Non-intervention districts (NID)	34.01	8.05	25.96	24.53
Intervention districts (ID)	45.56	12.70	32.86	32.27
Difference between ID and NID	11.55	4.65	6.90	7.74
2009-10 (post-insurance period) (Rs)				
Non-intervention districts (NID)	39.70	13.48	26.22	26.90
Intervention districts (ID)	48.97	15.81	33.16	33.53
Difference between ID and NID	9.27	2.33	6.94	6.63
Difference between pre- and post-insurance period (Rs)				
Non-intervention districts (NID)	5.69	5.43	0.26	2.37
Intervention districts (ID)	3.41	3.11	0.30	1.26
Difference between ID and NID	-2.28	-2.32	0.04	-1.11

2009-10 figures are deflated on 2004-05 prices using CPI (RL) for rural and CPI(NM) for urban areas.
Source: Same as in Figure 1.

we move up the higher ladder of economic groups. In the case of inpatient expenditure, catastrophic incidence has consistently gone up in every quintile group.

4 Implications of Publicly-Funded Schemes

This section is devoted to capturing the emerging trends with respect to publicly-funded health insurance schemes, separately in the intervention and non-intervention districts, between 2004-05 and 2009-10. Since RSBY and other state-based health insurance schemes were introduced only in 2007 and after when they were rolled out in selected districts,[4] it is possible now to effectively capture the potential impact that these schemes have had on households' OOP expenditure. Eventually, it is equally feasible to tease out the impact and change in catastrophic payments of households before and after the introduction of publicly-funded health insurance programmes.

Table 5 provides a summary of changes in average real per capita OOP expenditure of households in pre- (2004-05) and post-insurance (2009-10) years, broken down by intervention and non-intervention districts. Effectively, such a comparison captures both the time and region effect of health insurance policy. Before the beginning of the insurance schemes (2004-05), households' OOP expenses, by all categories – inpatient, outpatient and drugs – were reportedly higher in the intervention

districts as against non-intervention districts. The variation in households' OOP expenses between case-control districts reveals that the OOP expenditure was as high as Rs 11.55 per capita, with a difference in expenses on medicines as much as Rs 7.74 per capita. This disparity continued to exist in the post-insurance years as well. The difference between intervention and non-intervention districts declined marginally in real terms in the post-insurance period but was still positive indicating that the health expenditure has also been on the rise in the intervention districts. However, it is apparent that the disparity in spending has become relatively significant in hospitalisation expenditure. The difference in household's spending on hospitalisation during the same period increased from Rs 8.05 to Rs 13.48 in non-intervention districts, while in the intervention districts it rose from Rs 12.70 to Rs 15.81.

We next move to analyse the emerging trends in the share of OOP expenditure in overall consumption expenditure of households. It is interesting to observe that the difference in share of OOP expenses of households between intervention and non-intervention districts appears to have experienced a sharp fall from 1.45% in the pre-insurance years to 0.75% in the post-insurance period. It is apparent from Table 6 that the disparity that existed in pre-insurance period between case-control districts (at 1.45%) has dwindled (to 0.75%) in the post-insurance years. It is remarkable to note that while non-intervention districts experienced an increase in the share of OOP expenses, the opposite occurred in intervention districts between the two periods under consideration. This is reflected in the negative change in the share of OOP expenses in the intervention districts. However, the decline in share of OOP expenditure in the intervention districts occurred due to a fall in outpatient expenditure, especially

Table 6: Percentage Share of OOP Expenditure in Overall Household Expenditure

Treatment Effects	OOP Expenditure	Inpatient Expenditure	Outpatient Expenditure	Medicines Expenditure
2004-05 (pre-insurance period)				
Non-intervention districts (NID)	4.88	1.16	3.73	3.52
Intervention districts (ID)	6.33	1.76	4.57	4.48
Difference between NID and ID	1.45	0.61	0.84	0.96
2009-10 (post-insurance period)				
Non-intervention districts (NID)	5.21	1.77	3.44	3.53
Intervention districts (ID)	5.96	1.92	4.04	4.08
Difference between NID and ID	0.75	0.16	0.60	0.55
Difference between pre- and post-insurance period				
Non-intervention districts (NID)	0.33	0.61	-0.29	0.01
Intervention districts (ID)	-0.37	0.16	-0.53	-0.40
Difference between NID and ID	-0.70	-0.45	-0.24	-0.41

Source: Same as in Figure 1.

due to the reduction in drug expenditure share. On the other hand, the share of hospitalisation expenses is not only relatively higher in intervention districts, but both intervention and non-intervention districts experienced a rise in its share in the post-insurance years. In contrast, outpatient expenditure share experienced a sharp and consistent fall during the post-insurance years, across both intervention and non-intervention districts.

The trends and patterns as observed in real mean OOP expenditure and its share in total expenditure provide a clear direction of the disparity of changes in various measures of OOP expenses in different settings. A change in mean and share of OOP expenses by different categories has implications for catastrophic payments. Table 7 captures the changes in catastrophic headcount ratio of households incurring catastrophic payments, measured by the percentage of households incurring over 10% of their overall spending on medical treatment. During the post-insurance period (2009-10), we observe that 11.01% of households appear to have incurred catastrophic expenditure in non-intervention districts as compared to 14.9% in intervention districts. The RSBY intervention districts reported a higher catastrophic burden than the non-intervention districts in both the periods under consideration. However, the difference across pre- and post-insurance years clearly suggest

Table 7: Catastrophic Headcount of OOP Expenditure (in % of households)

Treatment Effects	OOP Expenditure	Inpatient Expenditure	Outpatient Expenditure	Medicines Expenditure
2004-05 (pre-insurance years)				
Non-intervention districts (NID)	11.65	2.37	9.71	8.45
Intervention districts (ID)	15.89	3.53	13.23	11.06
Difference between NID and ID	4.24	1.16	3.52	2.61
2009-10 (post-insurance years)				
Non-intervention districts	11.01	2.76	7.99	6.75
Intervention districts	14.90	4.06	10.84	9.26
Difference between NID and ID	3.90	1.30	2.86	2.51
Difference between pre- and post-insurance years				
Non-intervention districts	-0.65	0.39	-1.72	-1.70
Intervention districts	-0.99	0.53	-2.38	-1.81
Difference between NID and ID	-0.34	0.14	-0.66	-0.10

Catastrophic headcount of inpatient and outpatient expenses taken together do not add up to that of total OOP because a number of households face catastrophic expenditure because of being both inpatients and outpatients separately.
Source: Same as in Figure 1.

a sharp decline in catastrophic headcount ratio because of overall OOP expenses from 4.24% in 2004-05 to 3.90% in 2009-10.

The decline in catastrophic headcount ratio during the post-intervention districts is brought about by a fall in catastrophic ratios in both intervention and non-intervention districts, with the decline being less sharp in the intervention districts. However, the sharper decline in the intervention districts is contributed mainly by a steep fall in the catastrophic headcount ratio on account of outpatient expenses and not due to hospitalisation expenses. On the whole, three clear trends are worth observing in the overall fall in catastrophic headcount ratio: (1) the decline in catastrophic headcount ratio is observed due to a sharp fall in outpatient care expenses, especially in drug spending; (2) catastrophic headcount ratio due to hospitalisation expenditure has indeed experienced an increase in the post-insurance period; and (3) districts that are under RSBY and other state-based insurance schemes (intervention districts) appear to have experienced a higher (0.53%) percentage of increase in catastrophic headcount ratio than the non-health insurance intervention districts with only 0.39% increase.

It is, therefore, evident from the above analysis that the catastrophic headcount ratio due to hospitalisation expenses of

households increased marginally in the post-insurance years, both in IDs and NIDs. Our further probe into catastrophic headcount of households arising out of hospitalisation, especially across different quartile groups of households is worth noting. This set of analysis is useful because RSBY and other state-based health insurance schemes are basically supposed to cover the poor (below poverty line (BPL)) population.

Catastrophic headcount ratios across expenditure quintile, both in the pre-insurance and in the post-insurance period are consistently higher in the intervention districts in comparison to those in the non-intervention districts. In general, the catastrophic headcount ratio is higher among richest than among poorest quintile group. The pattern in the two poorest economic groups (two poorest quintiles) in the post-insurance years, especially in the intervention districts, reflects that the catastrophic headcount ratio had risen as against a marginal increase among the poorest quintile groups and a fall in the second poorest quartile group in the non-RSBY, non-state-based health insurance districts. Therefore, poorer economic groups in intervention districts had indeed experienced a rise in the catastrophic headcount ratio.

The changes in the headcount ratios in the last column of Table 8, capture the difference-in-difference, namely, the time and region effects. Unlike the richest groups which appear to have experienced a sharp decline in the catastrophic headcount ratio (-1.77%), the poorer groups (especially, all the four lower income groups, namely, the poorest, second poorest, middle, and to some extent, the second richest income categories) in the RSBY districts experienced a rise in the catastrophic headcount ratio.

5 Discussion

Two major initiatives since the year 2005-06 in the Indian health sector are remarkable for giving a new direction to health system financing, namely: the NRHM and publicly-funded health insurance schemes (including RSBY, Rajiv Aarogyasri

Table 8: Catastrophic Headcount (%) Due to of Hospitalisation Expenditure

Quartile Groups	Non-Intervention Districts (NID)	Intervention Districts (ID)	Difference between ID and NID
Pre-insurance years (2004-05)			
Poorest	0.88	0.72	-0.16
Second poorest	1.42	1.96	0.53
Middle	2.14	2.61	0.47
Second richest	2.74	3.87	1.13
Richest	5.15	8.14	2.99
Post-insurance years (2009-10)			
Poorest	0.87	1.20	0.33
Second poorest	1.20	2.36	1.16
Middle	2.20	3.03	0.83
Second richest	3.54	4.93	1.39
Richest	7.05	8.27	1.22
Difference between pre- and post-insurance years			
Poorest	-0.01	0.48	0.50
Second poorest	-0.22	0.40	0.62
Middle	0.06	0.42	0.36
Second richest	0.80	1.06	0.26
Richest	1.90	0.13	-1.77

Source: Same as in Figure 1.

and the Tamil Nadu Chief Minister schemes, among others). NRHM largely relies (except for Janani Suraksha Yojana or the JSY scheme) on supply-side financing, through the traditional way of an integrated financing and provision functions under the umbrella of government ministries and departments. Demand-side financing, on the other hand, focuses on the split between financing and provision. Under demand-side financing, while the financing function is left to the government and/or contribution from employees, intermediated by an insurer or other financing intermediaries, healthcare is purchased by the intermediaries from both the public and private providers. Demand-side financing, is therefore, expected to lead to "money follows the patients", approach (Hsiao 2007: 953). Ironically, in a sector that is characterised by intrinsic market-failure due to supplier-induced demand and information asymmetry, "consumers" are being called up on to exercise their "choice" of choosing between providers.

The RSBY and other publicly-funded state government schemes veer towards this model. In this exercise, we have attempted to evaluate whether RSBY- and state government-based health insurance schemes have been able to provide the much-needed financial risk protection to the poorer segments of society. Our methodology, carefully calibrated for region and time (RSBY districts versus non-RSBY districts and pre- versus post-RSBY time period), brings out evidence of the emerging scenario of financial risk protection due to publicly-funded health insurance models.

The evidence from this study indicates that the share of households' expenditure on medical care appears to have declined marginally for the first time in decades. The decline is brought about by a significant fall in outpatient expenditure. The predominant component of outpatient expenditure is on drugs. On the other hand, expenditure on hospitalisation rose both in rural and urban India. In real terms, we find that households per capita OOP expenditure is reported to have increased significantly during the last five years of the survey period. The real rise in OOP expenses of households appears to be largely due to hospitalisation expenditure, while outpatient and drug expenditure remained almost stable during the

period. Before the beginning of the insurance schemes (2004-05), households' OOP expenses, by all categories – inpatient, outpatient and drugs, were reportedly higher in intervention districts as against non-intervention districts. This disparity continued to exist in the post-insurance years as well. However, it is apparent that the disparity in spending has become relatively significant in hospitalisation expenditure. As far as the share of hospitalisation expenses is concerned, it is not only relatively higher in intervention districts, but both intervention and non-intervention districts experienced a rise in its share in the post-insurance years. In contrast, outpatient expenditure share experienced a sharp and consistent fall during the post-insurance years, across both intervention and non-intervention districts.

Regarding the headcount in the catastrophic nature of hospitalisation, it increased marginally in the post-insurance years, both in intervention and non-intervention districts. Catastrophic headcount across income/expenditure quintiles, both in the pre-insurance and in the post-insurance period shows a consistently higher number in the intervention districts in comparison to the non-intervention districts. Further, the poorer income sections in RSBY and other state-based health insurance districts had indeed experienced a rise in catastrophic headcount, conclusive proof that RSBY and other state-based health insurance intervention failed to provide financial risk protection. So, rising per capita health spending on hospitalisation and the associated increase in the catastrophe headcount, especially among the poor population, is reflective of a continuation of the trend witnessed since the last two decades, with RSBY and state-based health insurance schemes making no impact whatsoever.

Despite its aim of providing financial cushion to patients suffering from illness, the track records of such insurance models are poor in securing financial risk protection (Wagstaff and Lindelow 2008; Wagstaff et al 2009). Such models are target-specific and designed to address low-frequency high-value hospitalisation expenses. Target-oriented approaches (BPL population) have never worked in the past due to several reasons. Identification of beneficiaries has never been easy. Andhra Pradesh, for instance, has rolled out insurance

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schemes for almost 85% of the population, while in several states, the BPL population has been inadequately covered. Unfortunately, the provision of healthcare has been turned into another poverty-reduction programme. While improving population health could make a major dent on poverty, there are other key dimensions of health sector including providing financial risk protection. By providing financial risk protection to the BPL population, it is assumed that the APL population does not face catastrophic payments and impoverishment. With only a thin line that separates the BPL from the APL, it is myopic to plan and make policies for BPL population involving healthcare.

The major design flaw of RSBY and other such state health insurance programmes is their narrow focus on secondary and tertiary care hospitalisation. While RSBY currently covers a limited package of secondary care hospitalisation, the state-level schemes cover only the high-end tertiary care hospitalisation. Essentially, these models are designed with an intention to address low-volume high-value financial transactions that could result in catastrophic expenditure and impoverishment of households. However, the evidence on catastrophic payments and impoverishment of households in India due to healthcare expenditure points in the opposite direction (Garg and Karan 2008; Selvaraj and Karan 2009; Berman et al 2010; Shahrawat and Rao 2011). The fact that only 2.3% and 3.1% of rural and urban population, on an average, are hospitalised at any given point of time, while 8.8% and 9.9% of the population access outpatient coverage (NSSO 2006), is strong evidence that outpatient care matters a great deal in the Indian setting. Further, if one were to examine the expenditure pattern of households, it is again clear that outpatient expenditure far outweighs inpatient care expenditure (in terms of per capita spending, share of the OOP expenditure and overall household expenses).

The narrow focus of these schemes typically endangers health system and its goal. Hospitalised treatment for secondary and selected surgical care at the tertiary level has been the thrust of these schemes. A hospitalisation episode is seen as a one-off solution to health problems, while prevention and promotion is relegated to the background. Private providers find it lucrative to turn simple ailment into hospitalisation episodes, which otherwise would have been treated at the outpatient care level. Indeed, several such hospitalisation episodes could have been well prevented had the primary care been strengthened. Such insurance programmes lack an overall vision for the health system and its population that it seeks to cover, due to compartmentalisation of care into secondary and tertiary care. Healthcare is not viewed as a continuum of care, rather seen as a compartmentalised care.

It is, therefore, clear that demand-side financing provides a narrow and single-minded thrust to market forces and competition, despite the abject failure of that model, profoundly exemplified by the healthcare market in the United States (US). The US spends twice (17% of gross domestic product) on healthcare as compared to other industrialised countries, but with poor health outcomes (one of the worst indicators with high infant mortality rate and maternal mortality rate and life expectancy). With run-away cost inflation in healthcare, that country failed to provide financial risk protection to almost 50 million (nearly 17% of the population). And yet, we find the market competition and market principles are being peddled as the right model for developing countries, as a panacea for government failure. Market forces appear to have come alive in recent times sensing immense opportunity to "commodify" and "medicalise" the "health market". It is the same market forces, which were bent upon preventing and denying every opportunity for the government to intervene in healthcare financing and provision. In the contemporary scenario, with markets everywhere battered by the global meltdown, governments are being called upon to expand their financing functions so that the private provider and insurance market gets "business", to survive and thrive, in the name of providing "efficient" and "quality" care. Navarro (2000) succinctly captures this trend:

> Thus, there is a growing call for increased partnership between public and private interests in which the latter are increasingly influential in shaping the nature of public decisions. In the new wisdom, client demand replaces patients' needs, risk is valued over security, market shares dominate over government planning, and entrepreneurship dominates over public services. This conventional wisdom has become almost a dogma, which, like all dogmas, is based more on faith than on evidence (Navarro 2000).

How efficient are insurance companies in containing cost? It is often argued that competition in insurance market brings down the prices. While we are yet to witness this phenomenon, premiums have only increased and are likely to rise in the coming years, as utilisation rate goes up. Evidence from Kerala's RSBY experience clearly suggests an increasing trend in premiums. A single purchaser has the potential strength to negotiate with fragmented providers using their monopsony power, rather than fragmented insurance companies. With the arrival of insurance companies, the administrative apparatus only grows, as several layers of administrative entities are added: insurers, third party administrators, reinsurers, etc, into their fold. Unfortunately, the cost of administering these entities and the profits that would ensue fall ultimately on the funders at some point (government in this case). The high transaction costs of insurance companies are well-documented (Woolhandler et al 2003), and therefore, the argument for cost containment under insurance setting is only illusionary. Households in several country settings (as in China recently) have witnessed rising costs despite health insurance, as households end up paying co-payments and deductibles with the development of health insurance, which can push up households healthcare costs.

Policy Implications

The systemic and intrinsic failure of the free market cannot be wished away against government failure in the health sector. Underinvestment, inefficient utilisation of resources and iniquitous distribution of public healthcare have been the bane of the last six decades of planned development in India's health sector. And part of the problem lies in utter neglect of governance,

poor monitoring and lack of accountability in the system. All these factors have given rise to mushrooming of an unregulated and an unmanageable private sector. The pressures from the private sector to open up the government treasury are clearly unmistakable. Given the current limitations of expansion, the private sector has now been given an open-ended cheque by the government, relinquishing its roles and responsibilities of providing the much-needed healthcare. The current health insurance schemes perpetuate this scenario, but these schemes are celebrated for their innovative technology and business line operations. Technology and insurance are viewed as magic bullets that can cure all ills.

Several key issues underlined above call for an urgent need to reverse this trend. This is critical in order to protect public health system, to cap healthcare costs from escalating, to provide much needed financial risk protection and to improve health outcomes of the population. Any policies, strategies and plans must give primacy to promotive and preventive care. Primary care must take precedence over secondary and tertiary care. Scaling up public investment must aim to strengthen primary care facilities.

Significant and sustained investment in the public health system is the need of the hour. Several promises and commitments made in the past, to step up government investment in public health system, from the current 1.2% of GDP to about 3%, must be realised. One of the quick gains of this strategy would be to focus on providing free medicines to all. India must not only flaunt its current status of being the "pharmacy of the south", but must turn its attention to providing free medicines and make it a reality. These and other key recommendations made by the High Level Expert Group on Universal Health Coverage recently would go a long way in addressing the persistent problems of the Indian health sector. These recommendations are expected to improve health outcomes significantly, reduce the burden of OOP spending on households, improve equity and access to healthcare in India. A decisive and concerted action on the part of various stakeholders is critical to make it a reality, as we begin to step into the path of Universal Health Coverage.

NOTES

1 For a detailed analysis of coverage, enrolments, benefit-packages of various publicly-funded health insurance schemes, see Reddy et al (2011).

2 These are covered under item numbers 410 to 419 and 420 to 429 for institutional and non-institutional health expenditure, respectively.

3 The two recall period-based estimations of total consumption expenditure of households are referred to as "usual reference period (URP)" and "mixed reference period (MRP)". The first time the Planning Commission, Government of India, released data on using two reference periods was in 2007 (GoI 2007).

4 State-based Rajiv Aarogyasri Scheme and the Tamil Nadu schemes covered the entire state by June 2010.

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