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Catastrophic out-of-pocket payment for health care and its impact on households: Experience from West Bengal, India

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Key words: Health Care, Catastrophic Healthcare Payment, Impact, West Bengal, India

Abstract

The present paper attempts to find out the major determining factors of catastrophic payment in health care, and the impact of such expenditure on household economic status. A survey of 3150 households in West Bengal, India, was analyzed using multi-variate logistic regression models to identify factors associated with catastrophic health expenditures, defined as household spending on health greater than 40% of non-food expenditure. The factors associates with catastrophic medical expenditures are: multiple spells of illnesses in the households, prevalence of chronic morbidity among the household members (Odds ratio 3.0, 95% CI), inpatient care (Odds ratio 1.4, 95% CI) and childbirth (Odds ratio 1.0, 95% CI). Other household characteristics, such as household size (Odds ratio 1.0, 95% CI) and rural/urban location (Odds ratio 2.1, 95% CI) are also important determinants of catastrophic spending. The analysis shows a common pattern of expenditure due to the treatment of minor illness on increasing the burden of catastrophe on the households, which overshadows the effects of one-time expenditures incurred for hospitalization. The cumulative amount incurred for minor ailments effects household's current food consumption, children's education, medical treatment of the other member, social recreation in a greater extent as compared to the hospitalization care or birth delivery. This study addressed the key findings to the policy maker to ensure better access and high degree of financial protection against the impact of illness.

Introduction:

Out-of-pocket (OOP) payment is the major health financing mechanisms across most of Asia and other developing countries (O'Donnell et al. 2005; O'Donnell 2008; Leive et al. 2008; Jogelkar 2008), often posing an enormous burden on underprivileged households (Sun et al. 2007; Fun et al. 2005; Garg 1998). The costs are frequently high enough so that households are unable to recuperate them from existing resources, and, hence, ultimately slip deeper into poverty. However, unfortunately, the option of financial protection mechanism to mitigate such burden is very limited (Su et al. 2006; *Xu* et al. 2003; Vaishnavi et al. 2009; O'Donnell et al. 2005; Flores et al. 2008). As a result, protecting households from catastrophic health expenditure continues to remain as a formidable challenge, particularly for countries with high levels of poverty.

India is no exception. Numerous studies (Narayanan et al. 2000; Peters et al. 2002; Pradhan 2002) have indicated that the poor in India become utterly vulnerable when they seek medical intervention for major ailments. Results from a study also indicated that, every year, about one quarter of the hospitalized people slip into poverty due catastrophic payment for availing such care (Peters et al 2002). A study of Anirudha Krishna (2006) has mentioned that the debt for health care have robust associations with poverty creation and the interaction of these factors is very significantly implicated with the analysis of households' descent into poverty. Also out-of-pocket payments on health care have been identified as one of the main reasons why people receiving microfinance credits default on loan repayments and trapping into poverty[4] (WHO 2006). A recent study on out-of-pocket expenditure and poverty has clearly shown that OOP health expenditures account for an average increase in poverty by as much as 3.6 and 2.9 percent for rural and urban India respectively. (Gupta 2009).

In this background, the present study intends to answer some fundamental questions about out-of-pocket expenditure in health in India, and their consequences on the households. The questions addressed in this paper include: What are the major determining factors for catastrophic payment in health care? Who are the most vulnerable due to catastrophic payment? How extensive is the economic impact of catastrophic payment on the poor households? How far the poor are protected against the financial consequences of ill health? The study attempts to find out the answers of the above pertinent questions in the context of West Bengal, one of the major eastern Indian states.

[4] *"Time and again we hear from microfinance institutions that the reason their clients can't repay loans or start businesses that flourish is health problems that either they or their family members are facing."* Says, Myka Reinsch, Director of Microfinance and Health Protection for Freedom from Hunger, a US-based nongovernmental organization.

Study area:

West Bengal is the home for about 80.18 million population (Census, 2001). It covers 7.8 percent of the total national population and has highest population density in India (904 per square kms). The total fertility rate is 2.0 and Crude Birth Rate is 17.9 (SRS 2008), while the Crude Death Rate is 6.2 (SRS 2008). The state's economy is rapidly growing, although it is still predominantly agrarian, having 72 percent of its population living in rural areas. The state's record in poverty elimination and human development present a mixed picture. The incidence of poverty (measured in terms of population below poverty line) in West Bengal is 24.7 percent (planning commission, 2004-05) compared to 27.5 percent nationally. The performance of West Bengal in terms of household amenities is lower in comparison to national average. As per recent district level household survey (DHLS3 2007-08), only 16 percent of rural households and 64 percent of the urban households had pucca (concrete) houses compared to 29 percent and 71 percent respectively for all over India. Only 55 percent of the households have toilet facilities, which is similar to the rest of India. In case of access to safe drinking water, 20.1 percent households are getting safe drinking water (DHLS3 2007-08).

Data and Methodology:

The study uses data from the household survey conducted in 2007 in three socio-economically representative districts of West Bengal namely; Malda, North 24 Parganas and Bankura. The households were selected on the basis of a two stage systematic random sampling method. At the first stage, from each of the selected districts, 35 primary sampling unit (PSU) covering both rural and urban areas were selected through PPS (probability proportion to size) method, and then 30 households were selected from each PSU through systematic random sampling procedure. The primary data was collected from households by the means of structured questionnaire. A total of 3150 households comprising 15277 individuals were covered during the survey.

The survey collected health care expenditure data for various categories of treatment like hospitalized care, outpatient care, birth delivery and chronic illness. The reference period however was considered differently for each of the case, i.e., recall period of a year was set both for hospitalization care and childbirth, three months was set for outpatient care and a period of one-month was considered for chronic illness. Chronic illness is defined as

a condition that is long-lasting (eg, more than 3 weeks and in many cases lifelong), which needs to be managed on a long-term basis. All the information was collected on last episode of illnesses (reported morbidity). Household health care expenditure is defined as the out-of-pocket expenditures on drug and medicines, consultation fees, hospital bed charges, transport charges to the treatment site and daily leaving cost, including food and lodging for the escorts of the ailing household member.

The present paper classifies the out of pocket payment for healthcare as catastrophic if it exceeds 40 percent of annual household non-food expenditure, considered as the cut-off level (Kawabata and Carrin 2002, Xu et al. 2003, Karami et al. 2009). We used household non-food expenditure as a proxy measure for a household's capacity to pay (CTP) and measured the catastrophic spending curve and catastrophic spending gap as defined by Wagstaff (2008). The curve plots out of pocket payment as a percentage of household's annual non food expenditure on y-axis and number of household on x-axis. By reading off the curve at the threshold one gets the catastrophic payment headcount—the fraction whose payments exceed the threshold. The area below the catastrophic spending curve represents overall amount by which the payment exceeds the threshold in the sample.

Analytical Methods:

The study attempts to understand the occurrence of minor illness (outpatient care), hospitalization care, chronic illness, birth delivery and burden of healthcare expenditures on the households. The share of health care expenditure in non-food expenditure (Rj) was derived as follows:

$$Rj = \frac{h\exp}{nf\ \exp} \times 100$$

Where, Rj is the share of health expenditure in non-food expenditure, $h\exp$ is the average household monthly expenditure on health; $nf\ \exp$ is the average household monthly non-food expenditure.

The study developed two separate models to answer the following two questions: (1) what factors are expected to influence the extent of catastrophic health care expenditure in a household (Model 1), and (2) how this expenditure would impact the basic consumption need of the affected households (Model 2)?

Model-1:

The first model was framed on a simple logit specification to predict the probability of catastrophic health expenditure in households, in respect to selected background indicators.

The explanatory variables considered were prevalence of illness, household characteristics, economic status of the household etc. Prevalence of illness was classified into four groups- (i) household having at least one member who was hospitalized anytime during the reference period (yes=1, 0 otherwise), (ii) household having a member who suffered from some ailments but was not hospitalized (yes=1, 0 otherwise), (iii) household having a member with chronic illness (yes=1, 0 otherwise), (iv) household having a female member who gave birth to at least one child in the last two years (yes=1, 0 otherwise). Type of treatment episodes included all types of care seeking, starting from self-medication to hospitalized care. Household size and rural/urban residence were considered as the background characteristics of the household. Economic status of the households was also included in the model using dummy variables as the proxy for income quintiles derived from total household's per capita expenditure. We hypothesize that households belonging to higher income quartiles are less likely to incur catastrophic health expenditure. The probability of catastrophic health expenditure was calculated by the simple logit equation, i.e.

$$pr[y=1]=\frac{\exp(x_j\beta)}{1+\exp(x_j\beta)}$$

Where, y is the presence of catastrophic health expenditure. The health care expenditure is exceed 40 percent of household's total nonfood expenditure representing the catastrophic health care expenditure or catastrophic cut-off mark. If it exceed the 40 cut-off marks then we considered Y = 1, Otherwise = 0. Xj is a set of predetermined variables, β a set of parameters to be estimated. The model goodness-of-fit was assessed by Hosmer–Lemeshow test.

Model-2:

Model-2 is developed to estimate the impact of catastrophic payment at various thresholds on selected indicators of (1) household's basic consumption, and (2) coping mechanisms to finance health care. The household's basic consumption includes

consumption of food, clothes, education, medical treatment, social recreation etc. The coping strategies are indicated by spending from regular income or savings, borrowing, selling / mortgaging assets, and so on. Taken together, these two sets of indicators reflect how much a household is entitled to spend on regular and transitory consumption of goods and services. In brief, they define the entitlement set of a household in a particular point of time.

In this model, a Basic Entitlement Index (BEI) for each household, who spent at least Indian rupee one for health care during the reference period, was developed using the following categorical variables (yes=1, 0 otherwise) as indicators of household's set of entitlements and using appropriate factor scores by applying principle component analysis (PCA). Stop children's education

- Reduced food consumption
- Postponed Daughter's marriage
- Stop medical treatment of any other member
- Stop social obligations / functions
- Stop purchasing of consumer durables
- Stop purchasing or expansion of house
- Spent from past saving
- Borrowing with interest
- Borrowing without interest
- Spent from general monthly income
- Selling property
- Mortgaging property

The BEI variable is highly loaded with the above high loading variables by PCA, varimax rotation. Finally we developed a regression model where BAI is considered as the dependent variable and OOPE threshold level is considered as independent variable. The functional form of the equation can be written as;

$$y_{hi} = \alpha_i + \beta_i x_{hi} (x_{hi} = 1)$$

Where y= basic entitlement index , h= inpatient care , x= OOPE threshold and the suffix i =1,2, 3, 4 and 5 represent 20%, 30%, 40%, 50% and 60% threshold level respectively.

Similarly, the functional form of the equation for outpatient care and institutional delivery can be written as:

$$y_{mj} = \alpha_j + \beta_j x_{mj} (x_{mj} = 1)$$

Where m=medical treatment for minor illness(outpatient visit), j= 1, 2, 3, 4 and 5 represent 20%, 30%, 40%, 50% and 60% threshold level respectively.

$$y_{idk} = \alpha_k + \beta_k x_{idk} (x_{idk} = 1)$$

Where id=medical care for institutional delivery, k= 1, 2, 3, 4 and 5 represent 20%, 30%, 40%, 50% and 60% threshold level respectively and 1 if the household experienced with catastrophic payment and 0 otherwise

Results:

Table 1 shows the average annual out of pocket expenditure vis-à-vis the percentage of household expenditure to the total expenditure for an episode of illness for various categories of treatment. The average affected household spending on inpatient care in rural area is Rs. 4340, which is about 11.55 percent of household's total annual expenditure. The medical spending for out patient care, chronic illness and birth delivery are Rs. 1170, Rs. 2637 and Rs. 592 that are around 4.03 percent, 5.73 percent and 3.96 percent of household total expenditure respectively. The data clearly and expectedly show disproportionately higher burden of inpatient treatment.

The above evidence on relatively higher potential of inpatient treatment is reconfirmed by the catastrophic spending curve by health care service uptake categories. Figure 1 shows that more than 30 percent of the affected households spent over 40 percent of their annual non-food expenditure (i.e., Household Capacity to pay, CTP) on in-patient care. The proportional spending is much lower for those who had spent only on out-patient care or treatment for chronic illness.

Table 2 demonstrated that the source of inpatient care had an important bearing on the OOPE incurred by the households for seeking such care. The households using private nursing homes/hospitals for inpatient care spent more than 25 percent of the annual household expenditure, while the clients of government facilities reported spending only 7 percent of the total expenditure.

To estimate how many households overshot the 40 percent threshold, the study estimated the catastrophic payment gap for hospitalization care (Wagstoff, 2008) where the gap is the average amount by which the out of pocket spend exceeds the threshold. Figure 2, which plots the out of pocket payment for healthcare as a percentage of household non-food expenditure on y- axis and number of households incurred such expenses on the x-axis, Shows that 133 households (out of 567) spent more than 40 percent of CTP (exceed the threshold) on inpatient care. The estimated average CTP per affected households was about Rs. 15755 ($328.23) implying that the catastrophic threshold (40 percent of CTP) was Rs.6302 ($131.30). In other words, about one-quarter (23.4%) of hospitalized people were found to have made catastrophic health care payment and demonstrated wide chances of tripping into poverty . It is also important to note that the rural users were more vulnerable to such payment since t around 25.3 percent of the affected household from rural areas, compared to 17.5 percent of their urban counterpart, overshot the cut-off mark. The possible reason for higher OOPE for inpatient care in rural areas could be related to huge travel-cost involved in seeking such services and accommodation for the patient and their relatives in distant locations. However, in case of birth delivery, catastrophic payment is higher in urban areas (Table1), which could be explained by easy availability of private nursing homes at urban centers. Further, the study shows that the middle class households have encountered higher OOPE at different thresholds, while overall annual expenditure on healthcare is taken into consideration (Figure 3).

The possible reason is may be the middle class people sought treatment from the private hospital rather than government hospital.

Model 1:

Table 3 present the estimated odd ratios obtained from the logit model. On the basis of Hosmer-Lemeshow test, the model's goodness of fit is satisfactory. As shown in the table households that reported having a member with chronic ailments are found showing much highest odds of incurring catastrophic payment for annual household medical expenditure, controlling for other variables (Table 3). This indicates that the probability of a household to incur catastrophic expenditure is highest for the treatment of chronic illness comparing to the inpatient care, outpatient care and institutional care for child birth. It reveals that the chronic illness is the most important determinant of catastrophic expenditure, which is similar to the reports of developed world (Merlis 2002; Water et al. 2005). The possible reason for higher probabilities of incurring catastrophic expenditure due to chronic illness rather than inpatient care is long term or life time treatment for chronic illness. Whereas

for inpatient care is one time shocked for health care to the household. So, although the inpatient care has a great intensity of health related shocked but the probability of incurring catastrophic expenses is higher due to chronic illness than the inpatient care.

Household that had a hospitalized member also demonstrated high level odds of incurring catastrophic OOP expenditure at any threshold, comparing to a household that did not have any member seeking in-patient care. For example, the odds for incurring 20% OOPE on healthcare was 1.4 times higher in case of household having a member hospitalized, which almost consistently increased across the OOPE thresholds. The odds become much higher, i.e., 1.7 times at the threshold when the household found incurring more than half the total non-food expenditure (above the catastrophic cut-off) on medical care seeking, in the case when in-patient care was sought for any of the member.

Among the household characteristics, the result shows that the household size had a positive association with catastrophic payment but the association is very weak across the thresholds. The study also reveals that the people who lived in rural areas are most likely to incur catastrophic expenditure on healthcare than their urban counterpart (Garg et al. 2005). The probability of incurring catastrophic payment in the rural areas has increased from 1.7 to 2.5 from lowest to highest cut-off levels.

On the basis of economic status, there is a significant difference between poor and rich economic groups. Poor people is 1.1 times vulnerable than the rich. This means a probability of facing catastrophic expenditure is 1.1 times higher than the rich.

Model-2:

The result shows that there are high positive correlation between basic entitlement index and catastrophic expenditure at various thresholds of OOPE. The regression coefficient of, say, 40 catastrophic thresholds on BEI for inpatient care is 0.88. This means that 1 unit increase of OOPE for inpatient care implies rise in status deterioration (BAI) of the household by 0.88 unit. . The basic entitlement index is derived from the variables related to household's basic consumption (household's consumption on food, cloths, education, medical treatment, social recreation etc.) and coping up mechanism to finance health(spending from regular income or saving, borrowing, selling mortgaging assets) as described in methodological section. Thus high positive correlation between basic

entitlement index and OOPE thresholds means a high chances of dropping out of children from school, curtail of food consumption, borrowing with interest and/or selling of property etc. due to increase in OOPE for health care. As evidence in table 4, regression coefficient of BEI on OOPE thresholds is highest for minor illness (outpatient visit) followed by hospitalized care and institutional care for birth delivery. This means that the medical expenses for minor illness has the highest impact on household economics, although chronic illness or inpatient care are the major determining factor for catastrophic expenditure for health care. The possible reasons for high adverse impact of minor illness(out patient visit) on household basic entitlement is a large number household members frequently suffer from minor illness, which induce necessary spending on frequent treatment and cumulate into higher expenses comparing the one time hospitalized treatment. In other wards, a small change (increase) in OOPE for outpatient care has a large impact on household basic entitlement as compared to the impatient care or institutional care for birth delivery. Although, in model 1, chronic illness is the most determining factor for catastrophic OOPE and that may have a greatest impact on household economics, but, unfortunately, due to data limitation chronic illness has not been considered in model 2.

Discussion:

Our analysis shows that the type of medical care, the number of illness episodes as well as the presence of a household member with chronic illness, hospitalizations, and institutional birth deliveries, were important factors leading to catastrophic expenditure. A household having a member with chronic illness has higher chance of catastrophic payment followed by the hospitalization care. Household across their economic status have demonstrated the risk of such catastrophe. It is commonly believed that hospitalization care is the most susceptible domain that has a greatest impact on household economic status. But this result shows that the medical expenditure for chronic illness is the most important determinant for catastrophic expenditure followed by the hospitalization care. Generally, the medical expenditure for the treatment of chronic diseases is lower than the hospitalization care, but, its treatment continued for long times. Thus, though apparently medical cost for chronic disease is not much but in aggregate terms it cumulates into higher expenditure than which is incurred for one-time hospitalization care. In other wards, it acts as a slow poisoning that household having members with chronic disease are slowly crosses the catastrophic thresholds and slip into poverty. However, the study shows that for hospitalization care economic status of the

household was one of the crucial factors for catastrophic payment, along the line of other studies (Xu et al. 2003, Berki 1986).

Among the household characteristics, household size has positive association on catastrophic payment but it is not a big issue. However, location of the household is one of the important factors for catastrophic expenses. Where, the rural households demonstrated high probability of encountering catastrophic payment comparing their urban counterpart (Yardim et al. 2009). Similarly treatment seeking from private hospital has high chance of experiencing such shocks than the household where treatment has been sought from the government facilities (Limwattananon et al. 2007, Kanjilal et al. 2007). Although the health care payment for chronic illness and hospitalization care were very crucial factors for catastrophic payment but medical care for minor illness has greater impact to household economic status deteriorating. Recurrent expenses on treatment for minor ailments is seen to pose broader impact on household amenities and leads to sacrifices of household's current food consumption, children's education, medical treatment of the other member, social recreation etc. In a nutshell, expenses on frequent treatment of minor ailments have been observed exerting a greater influence on household status deterioration, as compared to the OOPE related to hospitalization care or birth delivery.

However, on the other hand, the expanding risk pooling to the poor is very difficult in India because majority of the people are largely engaged in informal sector (Ranson 2002, Ekman 2004). Providing health care free-at-point-of-service does not adequately target spending on the poorest, but occupation or community-based schemes have also inherent limitations to achieve universal coverage. The study has demonstrate that the state has long way to achieve the goal of universal coverage. Except for people having a some subsides for living below the poverty line, or having life insurance, there is no significant risk pooling mechanism for health financing in West Bengal (Kanjilal et al. 2007). Risk pooling through health insurance is still far from reality. Only about 5 percent of households are having some sort of health insurance. As a mitigating strategy to coping up the financial shock, household has largely depleted their monthly general income, past saving; borrowing with/without interest, some times sold the property that make a multiple impoverishment to the household economics (Damme et al. 2004).

Our study had some limitations. We could not collect the information regarding household's sacrifices/income loss due to health care payment for chronic illness, which is the most important determinant of catastrophic expenditure in health care. Unfortunately we don't have a panel data set for time series analysis about the impact of catastrophic expenditure in health care. A national health insurance scheme for the poor has been started in this area after the study period. This may be an alternative risk pooling mechanism for protect the poor against financial consequences of ill health.

Finally we conclude that the catastrophic health spending is an important problem for the population in West Bengal, suggesting that more work is needed on developing methods of financial protection. More attention is needed on the poverty-inducing effects of repeated payments for minor ailments, rather than focusing on hospitalization and acute conditions. Protection of interest of this vulnerable people should be address in policy formulations to ensure better access and high degree of financial protection against the impact of illness.

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Tables

Table1: Average annual out of pocket expenditure vis-à-vis the percentage of HH expenditure to the total expenditure for various category of treatment

	Exp. Per affected household(HH) (In Rs.)	% of health expenditure to total annual HH expenditure
Rural		
Hospitalization	4340	11.55
Outpatient	1170	4.03
Chronic	2637	5.73
Birth delivery	592	3.96
Urban		
Hospitalization	5141	9.21
Outpatient	1232	2.45
Chronic	3030	4.14
Birth delivery	1117	4.69
Total		
Hospitalization	4532	10.81
Outpatient	1184	3.49
Chronic	2741	5.16
Birth delivery	687	4.15

Source: Household Survey, IIHMR, 2007

Table-2: Average out of pocket expenditure vis-à-vis the percentage of health expenditure to the total expenditure for hospitalization care, by public and private hospital

	Per affected household	% of health expenditure to annual HH expenditure
Government Hospital		
Rural	2674	7.55
Urban	2973	5.48
Total	2746	6.87
Private hospital		
Rural	10937	25.68
Urban	14410	25.55
Total	11734	25.65

Source: Household Survey, IIHMR, 2007

Table 3 : Estimated Odd ratio in logit model for different catastrophic thresholds/cut-off point

Variables	Odd Ratios (95 percent confidence interval)				
	20%	30%	40%	50%	60%
Uptake of care by the households member					
In-patient	1.4	1.5	1.4	1.7	1.7
Out-patient care for acute illness	0.8	0.8	0.8	0.8	0.8
Institutional care for childbirth	1.0	0.9	1.0	1.1	1.0
Out-patient care for chronic illness	3.0	2.9	3.0	2.8	2.8
Household characteristics					
Hosusehold size	1.0	1.0	1.0	1.0	1.0
Location (Rural=1)	1.7	1.7	2.1	2.4	2.5
Gender of hh head (female=1)	1.0	1.2	1.1	0.9	0.9
Economic status					
Poorest economic group	1.0	1.1	1.1	1.1	1.1
Richest economic group	0.65	0.71	0.69	0.71	0.76
Log likelihood	-8329.5	-6308.1	-4779.4	-3925.6	-3270.1
LR chi2(7)	587.4	426.7	365.3	268.6	222.5
Prob > chi2	0.0	0.0	0.0	0.0	0.0
Hosmer-Lemeshow test					
Number of observations	15210	15210	15210	15210	15210
number of covariate patterns	366.0	366.0	366.0	366.0	366.0
Pearson chi2(358)	717.0	600.9	546.2	511.7	530.8
Prob > chi2	0.0	0.0	0.0	0.0	0.0

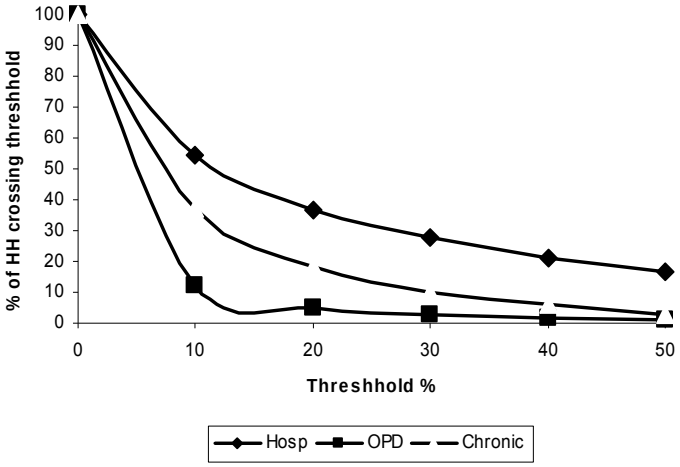
Source: Household Survey, IIHMR, 2007

Table 4 : Estimated regression coefficient at different cut-off levels of OOPE by type of care uptake

Variables	Coefficient for incurring OOPE at different threshold				
	20%	30%	40%	50%	60%
Hospitalization(N=567)					
BAI	0.87	0.93	0.88	0.84	0.97
F(1, 565)	43.21	45.89	34.66	27.74	32.93
Prob > F	0.00	0.00	0.00	0.00	0.00
T	6.57	6.77	5.89	5.27	5.74
Outpatient visits?- (N=3112)					
BAI	2.13	1.96	2.22	1.71	2.83
F(1, 565)	78.48	19.22	19.81	8.66	16.10
Prob > F	0.00	0.00	0.00	0.00	0.00
T	8.86	4.38	4.45	2.94	4.01
Institutional delivery (N=491)					
BAI	1.84	0.90	0.20	-0.01	-0.01
F(1, 565)	17.15	1.11	0.04	0.00	0.00
Prob > F	0.00	0.29	0.85	1.00	1.00
T	4.14	1.05	0.19	-0.01	-0.01

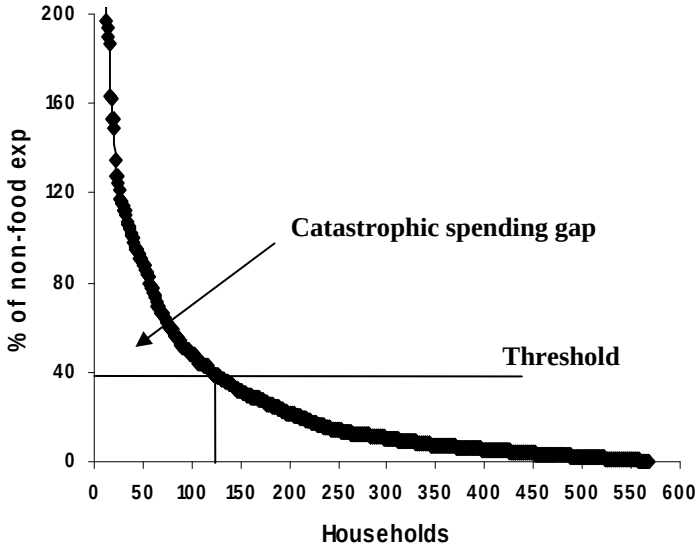
Figures

Figure 1: Catastrophic spending curve for various categories of treatment



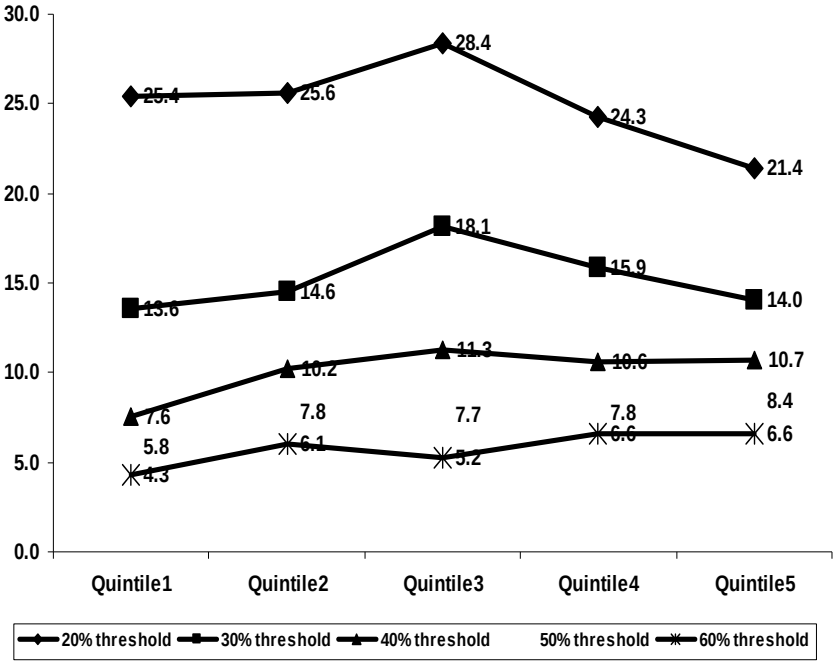
Source: Household survey, IIHMR, 2007

Figure 2: Catastrophic spending gap in hospitalization care



Source: Household survey, IIHMR, 2007

Figure 3: Household annual OOP for Healthcare as a percentage of total non-food expenditure at various thresholds, by income quintiles



Source: Households Survey, IIHMR, 2007