



# ANALYZING CATASTROPHIC OUT OF POCKET HEALTH EXPENDITURE IN INDIA: DETERMINANTS AND METHODS OF FINANCING.

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## Abstract

The present paper attempts to estimate the level of out of pocket health care expenditure in major fifteen Indian states on the basis of population. In the present paper, if a household spends more than 20 percentage of their total budget share on medical expenditure, then they are experiencing catastrophe. Based on this the paper examines the financing pattern of out of pocket expenditure and tries to estimate the cost of effective health care insurance in India. We find that many people in the economy are witnessing out of pocket expenditure and financial catastrophe due to the sudden health shocks and most of the households are financing the health care expenditure out of their current income. The findings also reveals that each states faces a very high amount as medical expenditure and the amount of insurance offered by the government is really insufficient and it fails to satisfy the financial needs of people for their treatment. Findings suggests that it is essential to work the public health care system more efficiently and the number of health care centers wants to be increased irrespective of the sectors. Because the vulnerable sections of the society are more likely to experience financial catastrophe due to illness. The paper also attempts to estimate the cost of an effective insurance program in India. The findings shows only a very lesser people are enjoying the fruits of insurance throughout the selected states. And finally the present paper also analyse that if the state is providing a hundred percentage insurance coverage to people then how much state want to contribute as a percentage of its Gross State Domestic Product (GSDP). The findings suggests a large portion of its GSDP want to invest in its health sector to achieve the objective but which is a herculean task for a developing country like India.

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Keywords;

Catastrophic health expenditure; Out of pocket health expenditure.

## 1. Introduction:

India is the second most populous country with more than 1.3 billion residents which simply shows that India is rich in terms of its human resources. The human resource of any country act as a precious resource if the individuals are skilled, efficient and healthy. Thus health is an important aspect in both economic and social point of view. Various indices like Human Development Index take health as an important parameter in their ranking. Providing equal health facilities to all irrespective of their financial abilities is an important objective of every nation. But reality is quite different from this ideal situation. People are facing difficulties to meet their health care expenditures. Still the consequences of sudden health shocks and the financial burden associated with this remains an important problem among the policy makers. Health policies are not only concerned with improving the health status of population but also with protecting households from financial catastrophic of illness. Out of pocket expenditure can be defined as the expenditure spent by households out of their pocket rather than any other health insurance coverage. This out of pocket expenditure become catastrophic when the out of pocket expenditure disrupts standard of living of the households. In literature, catastrophic expenditure is defined as that level of out of pocket health expenditure which exceeds some fixed proportion of households' capacity to pay. (Rema Pal)

Obviously health can be treated as an economic good as well as a private good. In such a situation like this out of pocket health expenditure plays its vital role. Because those households who can't bear the health care expenditure will simply got excluded from the consumption of health care facilities which ultimately leads to the inefficiency in both economic and social scenario. Sixtieth round of NSSO data shows that outpatient care is more impoverishing than inpatient care in both urban and rural areas. If we are taking catastrophic out of pocket health expenditure is made from households' health payment budget share, then we can see that the budget share is drastically deviating among different income groups. High income groups are having a higher share of health payment budget share compared to that of low income classes. Seventy first NSSO report highlights that average expenditure incurred on a case of hospitalization by households belonging to quantile classes of monthly per capita consumer expenditure widely considered to reflect the level of living of the households. It is seen that expenditure incurred on hospitalization was broadly positively linked to with the levels of living irrespective of type of expenditure (that is medical expenditure or other expenditure). The relationship is stronger in urban areas than in rural areas. These reports simply showing that out of pocket health expenditure is highly correlated with the living standard of people.

Due to the huge balance of payment crisis, Government of India adopted new economic policy which consisting ideas of liberalization, privatization and globalization. Privatization simply means less role to government sectors in all aspects. As a result of this health sector also privatized. Due to privatization marketization of health care started to happen. This raise question of equity, cost and universal access of health care. Poor may denied from quality health care system due to these marketization. And they also lack adequate insurance coverage which ultimately forcing them to avoid the treatment. As a country like India which still faces a mass poverty, marketing healthcare possess its huge implication and it act as a challenge of UHC (Universal Health Coverage). According to World Health Organization, UHC means "ensuring that everyone, everywhere can access essential quality health services

without facing financial hardship.” As a part of strengthening the concept of UHC the Government started various policies and programs like providing health insurance to poor namely AYUSHMAN Bharath health insurance. But the sufficiency of allocated funds to the implementation of such programs is a big question to a country like India which is facing huge poverty in one side even reflects a satisfactory growth rate on the another side. Thus privatization of health care lead to catastrophic out of pocket expenditure to most of the households in India.

## 2. *Defining catastrophic out of pocket health expenditure:*

Different literatures defines catastrophic out of pocket expenditure differently. In the present paper we follows the definition given by Rema Pal in her article titled “Analysing Catastrophic OOP Health Expenditure in India: Concepts, Determinants and Policy Implications.” Rema Pal in her paper defines catastrophic out of pocket health expenditure on the basis of consumption of necessities. According to Rema Pal, catastrophic health expenditure is one which reduces the non-health expenditure to a level where household is unable to maintain consumption of necessities.

Following Rema Pal, in our study, we takes the threshold level of twenty percentage to determine catastrophe. That is if a household spends more than twenty percentage of their total budget share on medical expenditure, then that household experiences catastrophe. Because spending more than twenty percentage of total budget on medical expenditure will definitely affect the consumption of necessities and it becomes catastrophe.

## 3. *Data Sources:*

We use data collected in 71<sup>st</sup> round of socio economic survey conducted by NSSO during January to June 2014 which spans a period of six months is used for this study. This nationwide survey consists of 36480 households from the rural area and 29452 households from urban area. And this study classifies each states into percentile groups by their usual consumption expenditure. First percentile group represents the people who are very rich and the second percentile group consisting people they are also rich but less than the first category, the third group are middle income and the fourth group consisting poor.

The variables of interest for our study are out of pocket health expenditure by households and consumers’ usual consumption expenditure in a month which is the sum total of monetary values of all goods and services usually consumed by the households on domestic account during a month. Consumers’ usual consumption expenditure includes usual expenditures for households’ purposes, purchased value of any durables purchased by the last one year (monthly expenditure obtained by dividing by 12). If any household consumption (usually) from wages in kind, home grown stock, free collection was there, then the approximate monthly value of the amount usually consumed in a month was imputed. Binomial Logit is used to define the determinants of OOP health expenditure.

#### 4. *Econometric methodology:*

We used Binomial Logit model for the specification of determinants of catastrophic out of pocket health expenditure. By doing so we do estimates the probability of incurring catastrophic health expenditure and determines the extent of the effect of independent variables that are under consideration on the dependent variable. In the present paper, the chance of occurrence of out of pocket health expenditure than reference category is estimated by using the odds ratio.

Here the variable under consideration are out of pocket health expenditure as dependent variable and takes other five variables as explanatory. These explanatory variables includes education level of the households, social group, usual consumer expenditure and finally the cooking methods. It is important to note that usual consumer expenditure we takes as a proxy to household income because of the unavailability of data on households' income. In the absence of data on income the best variable which reflects the economic wellbeing of the society is consumer's expenditure on essential goods. Thus it is an important economic variable which determines the chance of happening out of pocket health expenditure. In particular we includes education of the household as another independent variable because literature shows a negative correlation between level of education and probability of occurrence of out of pocket expenditure. For instance Rema Pal (2012) shows that education reduces the chance of occurrence of OOP. We considers cooking methods used by the household as another independent variable. It can be considered as an indicator of wellbeing of households and affects the health risk. Use of unsafe cooking method will lead to illness. And we are interested to examine whether there exists any relation between the social group of the households and probability of occurring out of pocket health expenditure. In order to analyse these we includes social groups namely Scheduled Cast (SC), Scheduled Tribe (ST) and Other Backward Classes (OBC) as regressors in our estimation model.

One can say that health care spending differs across different regions. So we carry out our analysis for rural and urban sectors separately.

#### 5. *Empirical findings:*

Our analysis shows that the people belongs to fourth percentile (poorest section of the society) experiences out of pocket health expenditure across every states. Whereas the richer section are very less likely to experiences the same. The empirical analysis reveals that more than half of country's poor population are suffering OOP health expenditure which adversely affects their standard of living and quality of life. Along with this there exists a large scale disparity in average medical expenses across different states. The reason behind these type of larger disparities are the differences in the pervasiveness of health care institutions and the type of health care units that are avail there. Some states have less availability of health providers on the one side and on the other side there are plenty of health care institutions but people who can't pay will get excluded from it and the affordable people want to pay a comparatively higher amount as medical bill. The sector wise analysis of our study shows that both medical and non-medical expenditure in rural areas are comparatively lower than that of the urban sector.

Next we analyse the major sources of financing health care expenditure by different groups of people in the country. The major source of financing are mainly classified into five groups namely household income or saving, borrowing, sale of physical asset, contributions from friends and relatives and other sources. We find that in the case of rural households, the first and foremost source of financing is savings or sale of assets. The people belongs to poor category are mainly depends on household income or past savings as a major source of financing which have a very high impact on their consumption and ultimately lead to financial catastrophe. The richer sections are mainly depending on borrowings to finance the expenditure than the other three groups. Then we extends our analysis into the major determinants of out of pocket health expenditure and financial catastrophe. The analysis suggests that education helps to reduce the chance of occurrence of out of pocket expenditure and the catastrophe associated with this. The category wise analysis shows that households belong to OBC category have a higher probability for the occurrence of out of pocket health expenditure than other categories. Along with this our analysis suggests that use of safe and clean cooking methods plays a vital role in reduction of the health expenditures. By summarizing we find that less educated people, vulnerable sections of the society, people uses unsafe cooking methods have a higher chance to become catastrophic. This findings suggests that there is a strong need to subsidise health care services for the vulnerable sections of the society and spreading of education among people. Along with this the government should provide more subsidized clean and safe cooking fuels to rural as well as urban poor to reduce the incidence of catastrophe.

After this we estimate the cost of an effective insurance program in India. Along with this our interest extends to estimate the total health expenditure that is actually incurring for different states for one third of population and half of the population and it also estimating the amount of insurance people are receiving at present. The results states that people in every state faces a very high amount of health expenditure. The sharp increase in health expenditure is happening due to the privatization of the health care system. Many people are approaching private health care centers for treatment which sharpens the health expenditure and put them into catastrophe. Surprisingly our study reveals that none of the state have an insurance coverage of at least 50 percentage of its average total health expenditure. Even though the government provides many insurance programs to the people, still it is not satisfying their needs and many people are facing financial catastrophe due to some sudden health shocks. So this part of our analysis implies that the prevailing insurance programs of the government is really inadequate in every aspect and it lacks coverage also. So it suggests to increase the penetration of health insurance program throughout the country. Finally we analyse the cost of an insurance program and the required percentage of Gross State Domestic Product (GSDP) which ensures hundred percentage of coverage. The analysis shows that every state wants to spend a lion portion of their GSDP to make such a dream come true and which is currently unattainable for a developing country like India.

## 6. Discussion:

The present paper mainly discuss about the OOP health expenditure among people. The findings summarize that many people in the economy are witnessing out of pocket health expenditure and financial

catastrophe due to the sudden health shocks. People want to pay a large amount as medical expenditure accompanied with some amount of non-medical expenditure also. Next we examine the methods of financing these sudden expenses. The financing methods we considered were households' current income or savings, sale of physical asset, borrowings, contributions from friends and family members and other sources. As per the findings, most of the Indian households see current income as a main source of financing the health payments. Some richer classes in the rural area make payment by sale of their physical assets like land. Where some of the urban rich are concentrated on borrowings as a source to meet such expenditures. Among these various sources the most important one is the current income of the households which reduce the consumption of essential goods and thereby put under catastrophe.

Then we analyse the major determinants of out of pocket expenditure by using binomial logistic regression model. We take some economic and social variables under consideration. And examined the role of these variables in incidence of out of pocket health expenditure and financial catastrophe. Betterment of some variables like education, cooking methods can reduce the chance of occurring out of pocket health expenditures as the result says.

And finally, we extend the analysis in finding the cost of implementation of an efficient insurance program in the country. For this purpose we analyse the total health spending of different states. We analyzed the state level expenditure on health care for 25% of people and for 50% of its people. As our analysis shows each state is facing a very high amount as medical expenditure. After that we focused into the amount of insurance received by people in these same states. It was a surprising result that people are not receiving even half of their total spending on health care. These findings suggest that an actively penetrating insurance program is essential to the entire country.

Our results need to be interpreted with possible limitations of the study. Firstly, the data do not include travelling expenses of households associated with getting the treatment. That is why, the cost of illness may get underestimated.

Secondly, we don't get any information about the health status of households from this data base. The health status of households is a vital variable in determining the catastrophic out of pocket health expenditure.

Nonetheless, our analysis has many policy implications. The increasing amount of health care spending by people can be reduced if the public health care system starts working with more efficiency and the number of health care centers are increased irrespective of sectors. Government's health care policies should target equally to urban and rural areas. Because the analysis of the study shows that urban poor are experiencing an out of pocket health expenditure than the rural poor even though the difference is slight. It will be better if the government come with feasible insurance programs with increasing penetration and policies to avoid financial catastrophe. But it is not feasible to give a hundred percentage insurance to all the people in the country because it requires a larger spending as we saw in the analysis part. Thus a complete insurance protection to all the people in the country is not feasible with the current scenario of Indian economy.

## References:

- Rema Pal (2012) Measuring incidence of catastrophic out-of pocket health expenditure: with application to India, *International Journal for Health Care Finance and Economics*, 12, 63-85
- Ke Xu, David B Evans, Mrs Kei Kawabata, Riadh Zeramdini, Jan Klavus, Christopher JL Murray (2003) Household catastrophic health expenditure: a multicountry analysis, *The Lancet*, 362,111-117
- Raja Ramachandran, Vivekanand Jha (2013) Kidney Transplantation Is Associated with Catastrophic Out of Pocket Expenditure in India, *Plose one*, 10
- Chunling Lu, Brain Chin, Guohong Li, Christopher JL Murray (2015) Limitation of methods for measuring out of pocket and catastrophic private health expenditures, *Bulletin of World Health Organisation*, 93
- Omar Galarranga, Sandra G Sosa Rubi, Aaron Salinas-Rodriguez, Sergio Sesma Vazque (2010) Health insurance for the poor: impact on catastrophic and out of health expenditures in Mexico, *The European Journal of Health Economics*, 11, 437-447
- Soumitra Ghosh (2011) Catastrophic payments and Impoverishment due to out of pocket health spending, *Economic and Political Weekly*, 46,47, 63-70
- Renu Shahrawat, akrishna D Rao (2012) Insured yet vulnerable: Out of pocket Payments and India's poor, *Health Policy and Planning*, 27, 213-221
- Van Doorslaer, E Wagstaff, Van der Burg (2000) Equity in the distribution of health care in Europe and the US, *Journal of Health Economics*, 19, 553-583
- Ethel Mary Brinda, Rodriguez Antonio Andres and Ulrika Enemark (2014) Correlates of out- of pocket and catastrophic health expenditures in Tanzania: results from a national household survey, *BMC International Health and Human Rights*,14
- Joglekar, Rama (2012) Can insurance reduce catastrophic out of pocket health expenditure?, *IGIDR Publications*, 2275/82
- Kei Kawabata, Ke Xu, Guy Carnn (2002) Preventing impoverishment through protection against catastrophic health expenditure, *Bulletin of the World Health Organization*, 80, 612-612
- Ke Xu, B David, Evans, Carrin Guido, Rivera Augliar Mylera Ana, Musgrove Philip, Evans Timoty (2007) Protecting Households From Catastrophic Health Spending, *Health Affairs*, 26,4
- S.E Berki (1986) A look at catastrophic medical expenses and the poor, *Health Affairs*, 5,4

Damme Van Wim, Leemput Van Luc, Pror I.R, Hardeman Wim, Meessen Bruno (2004) out of pocket health expenditure and debt on poor households: evidence from Cambodia, *European Journal on Tropical Medicine and International Health*, 1046, 1365-3156

L. Wyszewianski (1986) Families with catastrophic health care expenditures, *Health Service Research*, 5, 617-634

Bonu Shekhar, Bhushan Indu, Peters H Davidson (2007) Incidence, Intensity, and Correlates of Catastrophic Out of Pocket Health Payments in India, *Asian Development Bank*, 1655-5252

Bhojani Upendra, Triveni, Devadasn Roopa, Munegowda, Devadasan Narayanan, Kalsteren Patrick, Criel Bart (2012) Out of pocket health payments on chronic conditions impoverish urban poor in Bangalore, India, *BMC Public Health*, 1186, 1471-2458

Doorslaer Erasmus Eddy van, O'Donnell Owen, Ravi P Greece. Rannan-Eliya (2005) Paying out-of-pocket for health care in Asia: Catastrophic and poverty impact, *EQUITAP Project*, 2

Wagstaff Adam, Dooslar Eddy van (2003) Catastrophe and impoverishment in paying for health care: with application to Vietnam 1993-1998, *Health Economics*, 10,1002

Minh Hong, Phuong Nguyen, Saksena Priyanka, James Chris, Ke Xu (2012) Financial burden of household out of pocket health expenditure in Vietnam: Findings from the National Living Standard Survey 2002-2010, *Social science and Medicine*, 96, 258- 263

Kumar Anil, Dilip Ramachandran, Dandona Lalit, Dandona Rakhi (2012) Burden of out of pocket expenditure for road traffic injuries in urban India, *BMC Health Services and Research*, 12, 285

Li Ye, Qunhong, Xu Ling, Legge David, Hao Yanhua (2012) Factors affecting catastrophic health expenditure and impoverishment from medical expenses in China: Policy implications of universal health insurance, *Bulletin of World Health Organisation* ,

Gotzadse George, Zoidze Akaki, Rukhadze Nadiya ( 2009) Household catastrophic health expenditure: evidence from Georgia and its policy implications, *BMC Health Service Research*, 1472