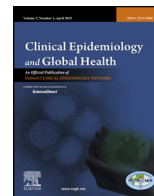




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Original article

How effective health insurance schemes are in tackling economic burden of healthcare in India

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ABSTRACT

Background: India is one of the most privatised health systems with high OOP payment for health care in the world. The financial burden of OOP payment has an iniquitous effect on access to health care as it restricts health care accessibility among poor. To provide universal health care access to all its citizen government has launched health insurance programs in the recent past.

Objective: The study attempts to understand the impact of health insurance schemes on tackling the economic burden of out of pocket expenditure and its effectiveness in reducing economic inequalities in health care spending.

Method: The study utilises National Sample Survey 2014 data to fulfill the objectives. Bi-variate analysis and two-part model were used to examine the association of health insurance with the level of health expenditure and financial burden.

Results: The paper shows that health insurance schemes are effective in reducing the burden of OOP expenditure but economic disparities in the financial burden of OOP expenditure exist where the poor with less income spends a greater share of household income than the rich.

Conclusion: An increasing coverage of poor under health insurance no doubt protects against health care impoverishment, but mere provision health care does not address the issue of equity in health spending as the burden of health spending was more among poor. The major implication of the findings is that there is a need for analysing the efficiency and equity implication of the health insurance schemes in providing financial protection

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1. Introduction

Together with demographic ageing, rising longevity and epidemiological transition in India, the demand for health care and consequently health expenditure is increasing across socio-economic strata. India has one of the highly privatised health systems in the world with the accelerated cost of health, and it ranks third among the South Asian countries in terms of Out-Of-Pocket Expenditure (60%) followed by Myanmar & Bangladesh.¹ Many of the times, the Out-of-Pocket spending, the principal source of health care financing in India, has a disastrous impact on the households as the households are forced to borrow and sell their assets to meet these expenses in the absence of any

prepayment mechanism.² More than 80% of health expenditure in India is met through private sources, which placed a considerable financial burden on households. Health shocks associated with catastrophic expenditure adversely impact household economics by pushing households into below poverty line.^{3,4,5} Further, inequality in access to health care exacerbates with a higher burden of OOP expenditure among the households with lower capacity to pay^{6,7} and hence restricts access to basic health care services.^{8,9,10} Addressing these issues in Indian context (given the high level of the poverty level, one-fourth of the population living below the poverty line) is significant as health might play a critical role in its development process.

During last decade the policy debate in India shifted from “health for all” to “health for all with financial protection.”¹¹ With the aspiration to provide universal health coverage to all the citizens, the governments both at the central and state level have launched various health insurance schemes in the recent past. The country, which had a coverage of health insurance as low as about 75 million people in 2007 saw the rapid increase and its insurance

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coverage rose to 302 million in 2010.¹² As per government report,¹³ health insurance covered approximately 15% of the total population. The manifold increase in insurance coverage was the result of the introduction of the government of India's flagship scheme of Rashtriya Swasthya Bima Yojana (RSBY).

Evidence on the adequacy of health insurance in financing health care and health care access showed mixed results.^{14,15,16,17} Examining the effectiveness of the pro-poor public-funded insurance schemes especially RSBY, studies show that these insurance schemes failed in providing financial protection to the poor.^{5,18,19,20} However, these studies were limited only to RSBY. After a long year gap of 10 years, the information released by National Sample Survey Office on health insurance has provided an opportunity to analyse the different health insurance schemes both public and private in financing health care. Further, it is also interesting to examine the role of insurance schemes to tear down the economic disparities in health expenditure which was not addressed in earlier studies.

The increase in coverage of insurance increases health care utilisation but might lead to the changes in health behaviour of the insurer leading to moral hazard problem as the additional amount of medical care demanded may drive up health expenditure. Thus, taking into consideration the presence of moral hazard, the present study attempt to investigate whether increasing insurance coverage reduces the cost of medical treatment or not. The objective of this paper is thus twofold: first, to understand the impact of health insurance on the burden of Out of pocket expenditure and secondly, to understand the role of health insurance in reducing economic inequalities in health care spending.

The remainder of the paper is divided into following parts. Data and method used for this study are discussed in section two. The socioeconomic differential in coverage of health insurance is presented in section three. Health care utilisation and OOP expenditure by insurance status are presented in section four. The empirical estimation of the impact of health insurance schemes on OOP is presented in section five. The last section discusses the inequalities in health care cost and the role of health insurance in this aspect.

2. Data and method

2.1. Data source

Data for the present study was drawn from 71 st round National Sample Survey, 2014, 'Social Consumption: Health' Schedule 25.0. This survey aimed at generating basic quantitative information on the behaviour of the sample households seeking treatment (for ailments) during the last 15 days and hospitalisation (as inpatients) during last 365 days. The information on the insurance coverage was collected for both the reference periods; however, we used information of hospitalisation during 365 days in our analysis. The NSSO 71 st round is not an evaluation of the insurance schemes. But it does draw attention to this wide gap between nominal coverage and effective coverage and this is consistent with most other evaluations of government-financed insurance schemes.¹⁹

2.2. Variables used

NSS provides information regarding sources of finance for healthcare expenses (income, saving, borrowing, sale of asset, etc.); annual amount of insurance premium paid by household members and reimbursement received (whether covered by any scheme for health expenditure support: government funded insurance scheme e.g. RSBY, Arogyasri, CGHS, ESIS, etc. employer supported health protection (other than govt.), arranged by

household with insurance companies, others, and not covered). This allows us to identify the insured and uninsured persons under a particular scheme with Out-of-Pocket (OOPE) Expenditure and socio-economic variables. The OOPE includes expenditure during hospitalisation such as registration fees, doctor's fee, medicine, tests, transportation etc. and exclude the health insurance reimbursement. For examining the impact of health insurance on health care expenditure, the present study has considered only those who were hospitalised and made hospitalisation expenditure during last 365 days.

2.3. Data analysis

Bivariate and Multivariate analysis were used to carry out the objective. For the econometric analysis, the outcome variable of interest is the amount of Out-of-Pocket Expenditure during last 365 days. To examine the impact of health insurance on OOP payment, two-part model was used as the OOP payment for certain cases have zero values and the two-part model was used in the study to capture the zero-inflated values. Two-part model has also used because it adds elasticity by modeling separate processes to describe the probability of positive expenditure and the ordinary OOP amount.^{21,22}

The first part estimates the probability of incurring OOP expenditure based on the full sample through logit model and second part models the level of expenditure conditional to OOP > 0 through linear regression. The first part is, whether the claim outcome is positive. Conditional on its being positive, the second part refers to its level. To be more specific, let Y_i denote the claim amount for individual i ($i = 1, 2, \dots, n$) and let x_i denote the vector of explanatory variables associated with it. Then the conditional distribution of Y_i given x_i is the logit function was:

$$f_Y(y_i; \theta | x_i) = \begin{cases} P_r(Y_i = 0; \theta_1 | x_i) & \text{if } y_i = 0 \\ f_Y(y_i; \theta_2 | x_i, y_i) P_r(Y_i > 0; \theta_1 | x_i) & \text{if } y_i > 0 \end{cases} \quad (1)$$

where $\theta = (\theta_1, \theta_2)$ denotes a pair of the parameter and the parameters in the first and the second parts.

To estimate $P_r(Y_i > 0; \theta_1 | x_i)$ for the first part in (1), we choose a logistic regression $P_r(Y_i > 0; \theta_1 | x_i) = \frac{1}{1 + \exp\{-\theta'_1 x_i\}}$

Several specifications have been applied for estimating $f_Y(y_i; \theta_2 | x_i, y_i)$ the second part in (1). Given $Y_i > 0$, one might simply assume the standard linear normal model

$$Y_i = \theta'_2 x_i + \epsilon_i$$

where ϵ_i are errors and assumed to be independent and identically distributed as a normal distribution with zero mean and a constant variance σ^2 .

3. Results

3.1. Coverage of insurance by socio-economic and demographic characteristics

Table 1 presents the distribution of people in different insurance categories by their socio-economic characteristics. The government funded insurance schemes like RSBY, CGHS, ESIS, etc. covered 12.8% of the population in India and other schemes (other than govt funded insurance schemes) cover 2.48 percent population. It was also observed that insurance coverage differed by place of residence and found to be higher in the urban areas (18%) than in rural areas (14%). The study revealed that education was playing an important role in access to health insurance as with the increase in

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