ON THE EXAMINATION OF OUT-OF-POCKET HEALTH EXPENDITURES IN INDIA, PAKISTAN, SRI LANKA, MALDIVES, BHUTAN, BANGLADESH AND NEPAL

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Abstract. The aim of this study is to analyze the healthcare expenditures in seven South Asian countries namely, India, Pakistan, Sri Lanka, Maldives, Bhutan, Bangladesh and Nepal. The longitudinal data has been taken for 19 years from 1995 to 2013. We specifically examine the out-of-pocket healthcare expenditure in these countries. The per-capita health expenditure differences have been compared. We also develop panel data pooled OLS model for out-of-pocket expenditure with the factors affecting it, i.e. per capita health expenditure, household final consumption expenditure and public health expenditure. The work is in line with the earlier studies of determinants of out-of-pocket health expenditures. The results suggest that Maldives has the highest per capita health expenditure while out-of-pocket health expenditure as a percentage of total expenditure on health is highest for the India. The fixed and random effect is evidenced on health expenses across the years and cross section based on various determinants. The novel aspect of the work is that, this is an attempt to explain healthcare financing in the developing economies. The key determinant of out-of-pocket expenditure is the final household expenditures as the percentage of gross domestic product.

Keywords: out-of-pocket expenditures, OOPHE, healthcare, South Asian, per-capita expenditures.

JEL Classification: H51, I10, I18.

Introduction

The out-of-pocket health expenditure (OOPHE) is one of the main issues in the policy decisions in the national settings. The rising health expenses in the *emerging economies* have drawn special attention toward building of suitable health shelter plans and basic healthcare facility that minimizes the OOPHEs. Health, as defined by World Health Organization, is "a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity". Almost 37 million people die each year due to diseases (both communicable and non-communicable). Hence, the health of population is a key issue in public policy discourse in any society of today's world. The main task of the work is to analyze healthcare expenditures in seven South Asian countries namely, India, Pakistan, Sri Lanka, Maldives, Bhutan, Bangladesh and Nepal. The rising

healthcare expenses remain the main problem for growth strategies in the developing countries.

Health care includes all aspects of medical and pro preventive care, which cannot be limited to the care financed by public expenditure or the government sector, but it should also include the private expenditure as borne by the individuals. This private cost borne by citizens is also referred to as the out-of-pocket health expenditure. Out of pocket payments are those which are made at the point of service. In most of the developing countries around the world, total spending on health care is dominated by huge amount of private out-of-pocket health expenditures. And contrary to expectations, this expenditure is not on a downward trend as the economies, around the globe, grow and financial conditions of the population improve.

Out-of-pocket financing of health care is the principle source of healthcare financing in most developing

economies and India is no exception to this trend. The tremendous significance of health care imparts huge importance to this issue due to which healthcare reforms are being initiated in many countries all over the world. Healthcare reforms in India were introduced as early as in 1980s but the main thrust in these reforms came in 1990s. However, the government was slow in implementing these reforms but still they have had substantial impact on the structure, organization and delivery of health care services around the country.

The introduction of user fees as a part of the India-Eighth Five-Year Plan was one of the most significant policy shift in public health care spending of that time. These user fees were waived for people who were below the poverty line. But, at that time the definition of poor or what we call the poverty line was arbitrary that led to limited benefit for most of the poor people. The private health care sector grew a lot when the public spending on health care was reduced in 1990s and private sector moved in to exploit this opportunity. One of the major reforms in the recent times is the launching of National Rural Health Mission (NRHM). Under this mission, many a states have reported considerable improvements in the various health indicators like out-patient cases, institutional deliveries, disease control, total immunization and family welfare services.

Managing health care costs is a tedious task and one of extreme importance for the policy makers. It depends on the approach to health care. One of the approaches to health care is market-based where the private organizations and individuals provide healthcare services. The main aspect of this market based system is the competition amongst the players which although detrimental to the welfare of poor people, as it leads to increase in costs, promotes and incentivizes these institutions to develop new medical advances and bring them into the market as soon as possible. The other approach is the government-financed system in which the government tries to provide some minimum health coverage for all its citizens using the taxes and other charges. The reach of the government-financed systems is more as compared to the market-based systems.

One of the biggest challenges to public expenditure policies for all the governments around the world is the rapid growth in the direct medical costs and prescription medicines' cost as well. Most of the countries have adopted co-payment systems (mix of market based and government financed) as a measure to contain the health care expenditure by avoiding consumers' moral hazard and minimizing the unnecessary use of health care services. Previous studies on this issue have found that these co-payment systems can reduce unnecessary medical utilization.

Even though all the developing countries have some form of the government financed healthcare system, still the health costs are so high that people have to pay out of their pockets. Catastrophic payments for health can be related with the household resources. The ratio of health expenditure to total consumption expenditure can easily show the household health expenditure in relation to aggregate consumption expenditure. A commonly used threshold of 10 percent implies that the households may be forced to give up other basic necessities or sell their belongings for healthcare expenditure (e.g. Pradhan and Prescott 2002, Ranson 2002, Wagstaff and Doorslaer 2003, Wagstaff et al. 2003, Russell 2004).

The rest of the work is organized as: Section 1 deals with the literature survey, Section 2 and 3 discusses the data sources and empirical model employed, Section 4 offers the empirical results and discussion and last section ends with the conclusion.

1. Literature review

A fair amount of research has been undertaken by many researchers on healthcare financing, analysis of out-of-pocket expenditure on healthcare and the welfare implications of healthcare financing reforms in many countries all over the world. The efficiency and equity implications of the different strategies have also been extensively studied. Many such researches have also been undertaken in the Indian context.

Pannarunothai and Mills (1997) analyze data from household health interview survey for a large urban area in Thailand. An inequitable pattern of out-of-pocket health expenditure has been observed in context of income quintile and per capita. The disadvantaged have been found to be least likely to be covered by the government health care schemes while the civil servants made minimal out-of-pocket payments and did not even contribute to the government medical benefit fund. This shows the inequality in access to not just good facilities but also to government benefit schemes which are mainly directed towards deprived people but do not benefit them much.

Kutzin (2001) defines a conceptual framework that has the objective of enhancing the insurance aspect of health care systems. This framework has been proposed to be used as a tool for descriptive analysis of the policies and functions of existing health care systems as well as for identifying new policies for the same. It highlights the need for coordinated reforms instead of focus on particular organizational forms of health insurance.

Mugisha et al. (2002) in their work on examination of out-of-pocket health care expenditure in Burkina Faso found high levels of out-of-pocket health care expenditure (almost 80%) by the households. They used descriptive analysis and a multivariate analysis using the Tobit model on 800 urban and rural households in Nouna health district.

Xu et al. (2003) investigate the catastrophic out-of-pocket health care expenditures for various countries as

the initial step for policy reforms. Regression analysis has been used for a cross-country household survey of 59 countries using variables associated with out-of-pocket health care expenditure. They define catastrophic expenditure as exceeding 40% of household income remaining after meeting the basic needs. The payments were found to be highest for the countries in transition and in some Latin American countries. They argue that people can be protected from catastrophic healthcare expenditure by reducing reliance on out-of-pocket payments and providing financial risk protection to the poor households. They suggested that health care services should be improved and made more easily available and accessible to the poor people.

Falkingham (2004) investigates the level and distribution of out-of-pocket healthcare expenditure in Tajikistan and examines the extent to which these payments hinder the access to health care for poor people. The period of study ranges from 1990–1999. The analysis shows that there are considerable differences in health-care utilization rates across the various socio-economic groups. The differences have been observed to be related to the ability to pay. High out-of-pocket health expenditure costs are taking a toll on the social welfare with the population having to sell their assets for better health facilities.

Damme et al. (2004) examines the effect of out-of-pocket healthcare expenditure on income of households and how it can lead to debt in the rural areas. They survey 26 households for two years to conclude that in Cambodia even modest out-of-pocket healthcare expenditure can lead to indebtedness and subsequently poverty. It has been suggested to correct this by a accessible public healthcare system with safety nets for the poor.

Glied (2008) has examined the effect of alternative health care system financing strategies using data from OECD countries and Canadian health care system for the study. He concludes that in Canada the effects of health insurance, which is publicly funded, are modestly redistributive. He has also suggested that there is no systematic relationship between efficiency with which the health care system operates and the form of health care financing used (cost being used as a proxy for efficiency). Further, he mentions that health care financing has negligible impact on distribution of well-being in society.

Raban et al. (2013) describes out-of-pocket payments and catastrophic health expenditures from household surveys in India. They conclude that the catastrophic health expenditures have been rising over time. The other inpatient and outpatient costs have also risen from 2004-05 to 2009-10.

There are quite good number of attempt (e.g. Acharya et al. 1993, Sauerborn et al. 1996, Fabricant et al. 1999, Hotchkiss and Gordillo 1999, Pannarunothai and Mills 1997) that deals with the macroeconomy and health,

household curative expenditures and household strategies. Therefore, the out-of-pocket expenditures and health issues became one of the main concern for the policy decisions and economic development.

Some of the recent studies (e.g. Galárraga et al. 2010, Truffer et al. 2010, Bernard et al. 2011, You and Kobayashi 2011, Marshall et al. 2011, Martin et al. 2012, WHO 2015) that examines the Health insurance for poor, Health spending projections, OOP expenditures for Nonelderly Adults, Determinants of OOP health expenditures, Risk of OOP, US health spending and Global health issues. However, there are no studies that document the healthcare financing in developing countries like India, Pakistan, Sri Lanka, Maldives, Bhutan, Bangladesh and Nepal.

2. Data sources

The data for this study has been collected from the World Bank database for all the countries. This data is updated annually and adjusted according to the publicly available reports from Ministry of Finance, Central Bank, National Statistics Offices, WHO and other authentic sources for respective countries. Also, the estimates are sent out to Ministries of Health of the countries prior to their publishing.

The data has been collected for seven South Asian countries for a period of 19 years, from 1995 to 2013. We have taken the data on various parameters to make country-wise analysis. We have formed the longitudinal dataset and panel data pooled OLS has been employed. The parameters are out-of-pocket health expenditure (% of total expenditure on health), out-of-pocket health expenditure (% of private expenditure on health) and health expenditure per capita (current US$). For running the regression on out-of-pocket health expenditure, the regressors used are: health expenditure per capita (current US$), total health expenditure (% of GDP) and household final consumption expenditure (% of GDP). Since the data on household final consumption expenditure was not available, for the complete period under consideration for Maldives, we run panel regression taking into account those missing values.

3. Empirical model

The methodology for country-wise comparison involves the use of two statistical tools namely, descriptive statistics and regression analysis. For comparison of the countries on the parameters: out-of-pocket health expenditure (% of total expenditure on health), out-of-pocket health expenditure (% of private expenditure on health) and health expenditure per capita (current US$), descriptive statistics have been calculated. Graphical representation has also been used for the analysis (see, Fig. 1). The summary statistics are reported in the next section.

Next, we develop a model for estimating out-of-pocket health expenditure by regressing it on the following independent variables: health expenditure per capita (current US$), total health expenditure (% of GDP) and household final consumption expenditure (% of GDP). These independent variables have been taken according to the literature as well as because it is suspected that these variables will have an impact on the out-of-pocket health expenditure. To explain the structure of OOPHE in the developing nations, (i) the health expenditure per capita, (ii) health expenditure as percentage of GDP and (iii) household final consumption expenditure, are the three main factors provide an insights on the health expenses delivery. The scholars like Damme et al. (2004), Falkingham (2004), Glied (2008), and Raban et al. (2013) mainly take into account these factors to elucidate the out-of-pocket health expenses in the national settings. We have built the following panel regression model to account the determinants of health expenses in the Asian countries.

The regression model that explains how out-of-pocket health expenses are determined:

$$OOPHE_{it} = \Theta_0 + \Theta_1 \cdot HEPC_{it} + \Theta_2 \cdot THE\ \%GDP_{it} +$$
$$\Theta_3 \cdot HHFCE\%GDP_{it} + \varepsilon_{it}. \qquad (1)$$

Description: Θ_0: intercept; Θ_1: Coefficient of health expenditure per capita; Θ_2: Coefficient of total health expenditure as % of GDP; Θ_3: Coefficient of household final consumption expenditure ε: error term; OOPHE = Out-of-pocket health expenditure (% of total expenditure on

health)/ Out-of-pocket health expenditure (% of private expenditure on health); HEPC = Health expenditure per capita (current US$); THE%GDP = Health expenditure, total (% of GDP); HHFCE%GDP = Household final consumption expenditure, etc. (% of GDP).

The log-transformed equation with logarithm is given as:

$$LNOOPHE_{it} = \Theta_0 + \Theta_1 \cdot LNHEPC_{it} +$$
$$\Theta_2 \cdot LNTHE\ \%GDP_{it} + \Theta_3 \cdot LNHHFCE\%GDP_{it} + \varepsilon_{it}. \quad (2)$$

These two equations are estimated for all the six countries using pooled OLS and fixed and random effects model. The main task of the work is to analyze healthcare expenditures in seven South Asian countries. The pooled OLS adopted for the empirical design is quite capable to explain such relationship.

4. Empirical results and discussion

First, we summarize the value of descriptive statistics for all the countries for the parameter, out-of-pocket health expenditure (% of total expenditure on health). The results are tabulated in Table 1. A graphical representation has also been shown for better understanding (see Fig. 1). We observe that the mean of out-of-pocket health expenditure as a percentage of total expenditure on health is the highest for India and lowest for Bhutan. On the other hand, the deviation is highest for Bhutan and lowest for Bangladesh while the range is highest for Maldives. This implies that India has the highest out-of-pocket expenditure as a percentage

Table 1. Out-of-pocket health expenditure (% of total expenditure on health) (source: author's calculation)

Parameter	India	Sri Lanka	Pakistan	Maldives	Nepal	Bangladesh	Bhutan
Mean	65.56	45.31	64.02	27.13	57.32	59.38	20.12
Standard Deviation	3.86	2.16	5.40	8.50	8.86	2.09	6.06
Kurtosis	−1.00	0.56	−0.51	0.93	−1.67	−1.03	−1.08
Skewness	−0.53	0.53	−0.14	1.08	0.17	−0.07	−0.17
Range	12.46	8.88	18.26	34.18	23.84	7.39	19.57
Minimum	58.21	41.69	54.76	14.92	45.72	55.92	11.22
Maximum	70.68	50.58	73.02	49.10	69.56	63.31	30.79

Table 2. Out-of-pocket health expenditure (% of private expenditure on health) (source: author's calculation)

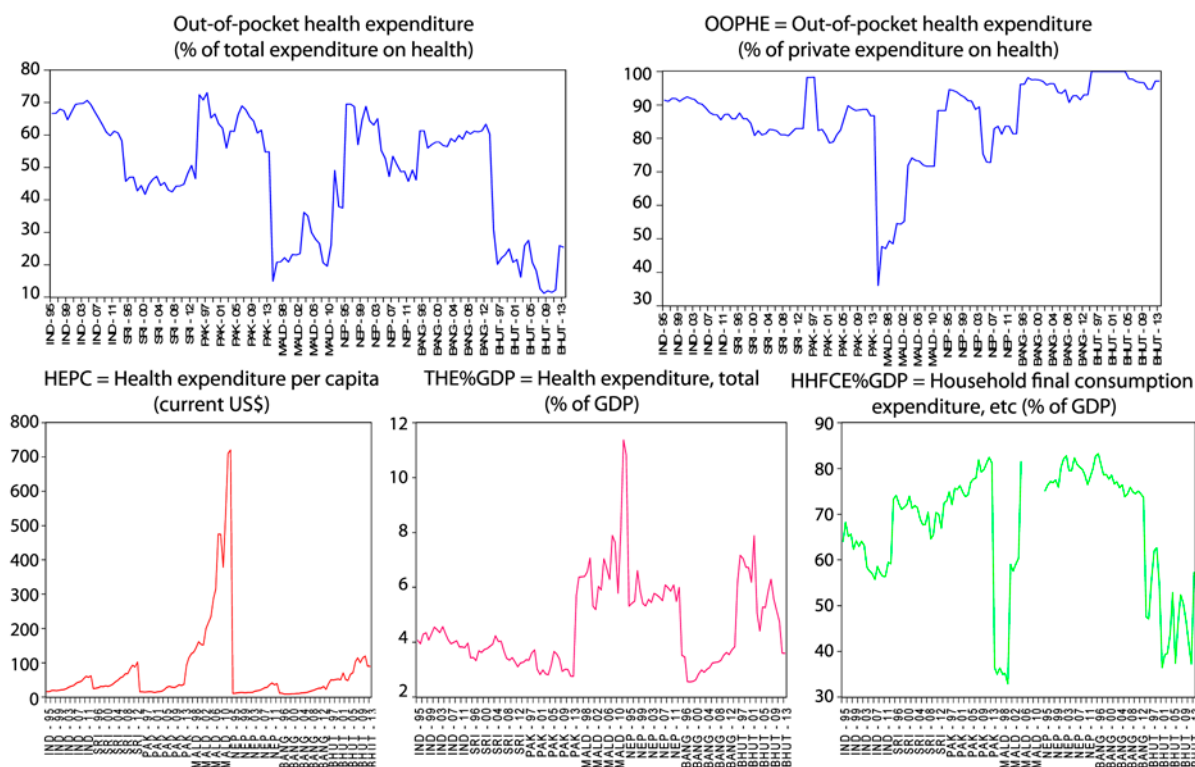| Parameters	India	Sri Lanka	Pakistan	Maldives	Nepal	Bangladesh	Bhutan
Mean	89.60	82.98	87.09	65.13	85.65	94.95	98.39
Standard Deviation	2.36	2.03	6.07	15.60	7.12	2.27	1.90
Kurtosis	−1.48	−0.07	−0.19	−0.97	−0.88	−1.20	−0.87
Skewness	−0.46	0.95	0.64	−0.11	−0.44	−0.31	−0.67
Range	6.86	6.80	19.59	52.26	21.84	7.44	5.26
Minimum	85.55	80.81	78.64	36.08	72.78	90.71	94.74
Maximum	92.41	87.61	98.22	88.34	94.62	98.15	100.00

Fig. 1. Out-of-pocket health expenditure and household consumption (source: author's calculation)

of total health expenditure which shows that in India most of the healthcare cost is borne by the individuals themselves. From the Figure we can observe that the except for Maldives, it has somewhat remained constant for all the other countries.

Next we analyze the out-of-pocket health expenditure as a percentage of private expenditure on health. The results are shown in Table 2. We observe that the mean is highest for Bangladesh and lowest for Maldives while the deviation is highest for Maldives and lowest for Bhutan. India is almost in-between the set. Range is also the highest for Maldives followed by Nepal. From the Figure 1 we observe that it is almost between 85–100% for all the countries except Maldives for which it is initially low and has risen over the years. This implies that the condition has worsened over time for Maldives and the out-of-pocket expenditures are rising.

Another parameter that is analyze is the per capita health expenditure (current US$). This is the highest for Maldives followed by Bhutan, Sri Lanka, India, Pakistan, Nepal and the least for Bangladesh. The Figure 1 shows that it has been rising over time for all the countries with the rise being steepest for Maldives. The deviation is also the highest for Maldives followed by Bhutan and the least for Bangladesh. This shows that the health condition of the population of Maldives is very poor as compared to its neighboring South Asian countries. India is at the fourth place well behind

Bangladesh, Nepal and Pakistan. This implies that we still have a long way to go.

Next, we run the pooled OLS regression on out-of-pocket health expenditure (as shown in Tables 3 and 4) using the regressors: health expenditure per capita (current US$), total health expenditure (% of GDP) and household final consumption expenditure (% of GDP). Two different regressions have been performed, Table 3 with raw data and Table 4 using the logarithmic values. Both the results are summarized in the Table 3 and 4. Since the data for Maldives was not completely available, the pooled regression has taken care of missing values. When we investigate the impact of health expenditure per capita and health expenses as percentage of GDP and final consumption over the period, the above tables show significant impact on OOPHE. The cross section analysis explain the impact of internal growth of each countries, the random effect model shows significant shock only in terms of health expenses per capita and the disposable income available in each developing countries[1].

The output reported in Panel A, Table 3, the last row shows the slope of household income as one of the main determinant of health expenses in these south Asian countries. The slope appears to be positive and statistically significant. This implies that disposable household income positively

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[1] The results on fixed and random effect regressions are not reported here, can supplied on request.

influence the rate of private health expenses. More specifically, if we look at the log-transformed results in Panel B, the slope of health expenses as percentage of GDP and household income remains the main determinants of out of pocket health expenses in these emerging Asian economies. The positive significant slope explains that out of pocket health expenses are positively associated with the health expenses incurred and availed disposable income. The Table 4 does not provide any important consequences based on private health expenses. The results are in line with the previous outcome but not significant. Another thing, which is evident, is that the per capita health expenditure is negatively

correlated with out-of-pocket health expenditure while the household final consumption expenditure is also negatively correlated but not significant. This shows that a trend is not evident and we cannot generalize this observation.

Conclusions

Healthcare is of prime importance to everyone in the world, and rising healthcare expenses remain the main concern for the policy maker in emerging economies and well developed nations. The rising out-of-pocket health expenditures all over the globe are a cause of worry for all the

Table 3. Determinants of out-of-pocket health expenditure (% of total expenditure on health) (source: author's calculation)

Panel A: Pooled OLS for Raw data					
OOPHE	Estimate	t-stat	p-value	Adj. R^2	F-stat
				0.63	71.93*
Intercept	35.18	4.27*	0.000		
HEPC	−0.14	−5.23*	0.000		
THE %GDP	−2.98	−3.45*	0.001		
HHFCE%GDP	0.51	5.74*	0.000		
Panel B: Pooled OLS for log-transformed values					
OOPHE	Estimate	t–stat	p–value	Adj. R^2	F–stat
				0.67	83.81*
Intercept	1.39	1.89***	0.061		
HEPC	−0.21	−5.00*	0.000		
THE %GDP	0.32	3.20*	0.002		
HHFCE%GDP	0.87	6.02*	0.000		

Note: * significant @1%, ** significant @5%,***significant @10%.

Table 4. Determinants of out-of-pocket health expenditure (% of private expenditure on health) (source: author's calculation)

Panel A: Pooled OLS for Raw data					
OOPHE	Estimate	t-stat	p-value	Adj. R^2	F-stat
				0.27	15.94*
Intercept	102.25	12.78*	0.000		
HEPC	−0.15	−5.79*	0.000		
THE %GDP	−0.43	−0.52	0.607		
HHFCE%GDP	−0.10	−1.11	0.271		
Panel B: Pooled OLS for log-transformed values					
OOPHE	Estimate	t–stat	p–value	Adj. R^2	F–stat
				0.21	12.06*
Intercept	4.69	11.78*	0.000		
HEPC	−0.09	−3.78*	0.000		
THE %GDP	0.05	0.86	0.391		
HHFCE%GDP	0.03	0.38	0.708		

Note: * significant @1%, ** significant @5%,***significant @10%.

policy makers and economists. This is mainly worrisome for the developing countries as much of their population is below poverty line and so, providing affordable healthcare to them is very important and equally difficult. The study investigates the out-of-pocket healthcare expenditure for seven South Asian countries and all these seven countries are regarded as developing countries, by preparing the longitudinal panel dataset. Next, we performed the pooled OLS for out-of-pocket health expenditure using the self-governing variables as- health expenditure per capita (current US$), total health expenditure (% of GDP) and household final consumption expenditure (% of GDP). The results suggest that Maldives has the highest per capita health expenditure while out-of-pocket health expenditure as a percentage of total expenditure on health is the highest for India. The fixed and random effect is evidenced on health expenses across the years and cross section based on various determinants. The novel aspect of the work is that, this is an attempt to explain healthcare financing in the developing economies. The key determinant of out-of-pocket expenditures is the final household expenditures as the percentage of GDP.

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