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Financial burden of household out-of pocket health expenditure in Viet Nam: Findings from the National Living Standard Survey 2002–2010

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ABSTRACT

In Viet Nam, household direct out-of-pocket (OOP) health expenditure as a share of the total health expenditure has been always high, ranging from 50% to 70%. The high share of OOP expenditure has been linked to different inequity problems such as catastrophic health expenditure (households must reduce their expenditure on other necessities) and impoverishment. This paper aims to examine catastrophic and poverty impacts of household out-of-pocket health expenditure in Viet Nam over time and identify socio-economic indicators associated with them. Data used in this research were obtained from a nationally representative household survey, Viet Nam Living Standard Survey 2002, 2004, 2006, 2008 and 2010. The findings revealed that there were problems in health care financing in Viet Nam – many households encountered catastrophic health expenditure and/or were pushed into poverty due to health care payments. The issues were pervasive over time. Catastrophic expenditure and impoverishment problems were more common among the households who had more elderly people and those located in rural areas. Importantly, the financial protection aspect of the national health insurance schemes was still modest. Given these findings, more attention is needed on developing methods of financial protection in Viet Nam.

Introduction

Viet Nam is located in Southeast Asia and shares borders with China to the north and Laos and Cambodia to the west. The country covers an area of area of 331,000 square km and now has a population of about 85 million. Gross domestic product (GDP) per capita in Viet Nam in 2010 was approximately US$ 1200. Life expectancy at birth in Viet Nam in 2009 was 70.2 years for male and 75.6 years for female (General Statistics Office, 2010).

Like many other developing countries, Viet Nam is now using three main options to finance national health care expenditure including the state budget, insurance contributions and direct out-of-pocket payments by households (Ministry of Health of Viet Nam & Health Partnership group, 2008). Of the health financing sources, the state budget plays a critical role in protecting public health and ensuring equity in health care in Viet Nam. Recent data showed that state budget for health as percentage of total state budget (without health insurance) was 10.2% in 2008, and was about 25% of total health expenditure (Ministry of Health of Viet Nam, 2010).

National health insurance was introduced in Viet Nam in 1992 as a solution to help mobilize resources and create a more appropriate mechanism to mitigate the negative impact of user fees. Formally, Viet Nam has two national insurance schemes—a compulsory scheme and a voluntary scheme. The compulsory scheme consists of two separate sub-programmes: A social health insurance (SHI) scheme for the formally employed and targeted programme, the health care funds for the poor (HCFP). In addition, children under the age of 6 are provided with free health care. Voluntary health insurance refers to a not-for-profit health insurance that is also administered by the state. Voluntary health insurance targets population groups not covered by the compulsory insurance, such as dependents of people working in the formal sector and people working in the informal sector. The coverage of

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health insurance in Viet Nam increased from 16% of the population in 2002 to 60% in 2010. Health insurance contributions accounted for 18% of total health expenditures in 2009 (Ministry of Health of Viet Nam, 2011). The Vietnamese government is committed to achieving full population health insurance coverage by 2020 (Ministry of Health of Viet Nam & Health Partnership group, 2012).

The national health insurance benefit package covers most outpatient and inpatient care in government facilities; exclusions include interventions covered by vertical programs such as HIV/AIDS, drugs not on the Ministry of Health (MOH) list, treatments not yet approved by MOH, various interventions such as cosmetic surgery, dental care, treatment of self-inflicted injuries, treatment for drug addiction, etc. (Government of Vietnam, 2005). Currently, health insurance covers around 80% of all health services and the users are responsible for the remaining 20%. The co-payment rate for covered services varied from 0% to around 20%. According to the Ministry of Health, in 2010, national health insurance covered 80%–100% of health expenses of an insured patient incurred at designated health facilities (Ministry of Health of Viet Nam & Health Partnership group, 2010). During the past few years, provider payment methods for health care costs of national health insurance have changed but fee-for-service payments still dominate the system.

Apart from the state budget and social health insurance contributions, another relatively large financial flow is household direct out-of-pocket (OOP) payments, partially as a result of the hospital fee policy introduced in 1989 following the Decision No. 45/HDBT dated 24/4/1989 by the Vietnamese Government, which allowed hospitals to recover costs through user fees. Direct out-of-pocket payments for health care refer to the expenditures directly made by households when they use services, primarily for the purchase of drugs, payment of hospital user fees, diagnostic service fees and other indirect expenses related to seeking medical care at state or private facilities (including self-medication) (Ministry of Health of Viet Nam & Health Partnership group, 2008). In Viet Nam, the OOP payments as a share of the total health expenditure have been always high, ranging from 50% to 70% (Ministry of Health of Viet Nam & Health Partnership group, 2008).

The high share of household direct out-of-pocket payment reflects an inequity issue in a health system in general and in a health financing system in particular. The amount of OOP can be so high in relation to income that it results in "financial catastrophe" for the individual or the household. Such high expenditure can mean that people have to cut down on necessities such as food and clothing, or are unable to pay for their children's education. Moreover, many households have been impoverished because of the out-of-pocket health expenditure (Xu, Evans, Carrin, & Aguilar-Rivera, 2005; Xu et al., 2007; Xu et al., 2003).

A high incidence of catastrophic health expenditure and impoverishment is indicative of a lack of financial protection for households, which is key goal of universal health coverage (World Health Organization, 2010). Thus in order to progress towards the goal of universal coverage in Viet Nam, it is important to understand the magnitude of catastrophic expenditure, its poverty impact and associated factors. This paper aims to examine catastrophic and poverty impact of household out-of-pocket health expenditure in Viet Nam over time and identify socio-economic indicators associated with them.

Methods

Data

Data used in this research were obtained from a nationally representative household survey, Viet Nam Living Standard Survey (VLSS) 2002, 2004, 2006, 2008 and 2010. VLSS is a cross-sectional household survey conducted by the General Statistical Office (GSO) of Viet Nam every two years. The survey collected information through face-to-face interviews conducted by interviewers with household heads and key commune officials in communes containing sample enumeration areas. The numbers of households included in the VLSS in 2002, 2004, 2006, 2008 and 2010 were 45,000, 37,200, 36,756, 36,756 and 46,995 respectively. However, the number of households that were included in this research (with information on expenditure) in 2002, 2004, 2006, 2008, and 2010 were 29,530, 9188, 9189, 9189 and 9402, respectively. The weighted number of households for 2002, 2004, 2006, 2008 and 2010 were 17,276,879, 18,634,683, 21,471,506, 20,960,121 and 22,334,062, respectively.

Definitions of key variables

We used definitions from the World Health Organization (WHO) on catastrophic health expenditure and impoverishment. The measures of catastrophic health expenditure and impoverishment have been clearly described elsewhere (World Health Organization, 2005; Xu et al., 2003):

The dependent variables are dummy variables on catastrophic health expenditure and impoverishment. The independent variables are socio-economic indicators such as sex of household head, household size, number of old people in the household, number of children under 6 years in the household living area (urban/rural), if a member in the household had an insurance card, region and expenditure quintile. However, it should be noted that insurance information was not available in the 2002 VLSS data, and thus we could not use insurance an independent variable for the 2002 analysis.

- *Out-of-pocket health payments:* Out-of-pocket health payments refer to the payments made by households at the point they receive health services. Typically these include doctor's consultation fees, purchases of medication and hospital bills. Although spending on alternative and/or traditional medicine is included in out of pocket payments, expenditure on health-related transportation and special nutrition are excluded. Out-of-pocket payments are net of insurance reimbursement.
- *Household's consumption expenditure:* Household consumption expenditure comprises both monetary and in-kind payment on all goods and services, and the money value of the consumption of home-made products.
- *Household's capacity to pay:* A household's capacity to pay is defined as effective income remaining after basic subsistence needs have been met. Effective income is taken to be the total consumption expenditure of the household. Some households may report food expenditure that is lower than subsistence spending. This indicates that the household's food expenditure is less than the estimated poverty standard for that country. Such a situation could also be due to the fact that the reported food expenditure in the survey does not consider food subsidies, coupons, self-production and other non-cash means of food consumption. In this particular case the non-food expenditure is used as non-subsistence spending.
- *Household subsistence spending:* The household subsistence spending is the minimum requirement to maintain basic life in a society. A poverty line is used in the analysis as subsistence spending. Poverty line is defined as the food expenditure of the household whose food expenditure share of total household expenditure is at the 50th percentile in the country. In order to minimize measurement error, we use the average food expenditures of households whose food expenditure share of total household expenditure is within the 45th and 55th

percentile of the total sample. Considering the economy scale of household consumption, the household equivalence scale is used rather than actual household size. The value of the parameter β has been estimated from previous studies based on 59 countries' household survey data, and it equals 0.56.

- *Catastrophic health expenditure:* Catastrophic heath expenditure occurs when a household's total out-of-pocket health payments equal or exceed 40% of household's capacity to pay, which is the threshold we used in the regression analysis. However, we also examined how many households would be affected if lower thresholds of 10%, 20% and 30% were considered.
- *Impoverishment:* A non-poor household is impoverished by health payments when it becomes poor after paying for health services, based on the poverty line defined above.
- *Living standard:* In this study, we measured living standard of the households based on their consumption expenditure. Households were classified into living standards quintiles.

Data analysis

Data were analysed using Stata statistical software version 10. All analyses of the data from respondents were weighted according to the probability of each household unit being sampled to reflect the entire Vietnamese population. The weighting factor is provided by the GSO. Logistic regressions were used to identify the socio-economic correlates of the catastrophic and poverty impacts of household out-of pocket health expenditure.

Results

Out-of-pocket health payments

Table 1 shows the amount of out-of-pocket health payments made by a household a month (among the households who paid for health care during the last 12 months before the survey dates). In nominal terms, the means of OOPs were VND thousand 67.3 (US$ 4.39) in 2002, VND thousand 126.4 (US$ 8.04) in 2004, VND thousand 140.0 (US$ 8.72) in 2006, VND thousand 201.3 (US$ 12.2) in 2008, and VND thousand 243.0 (US$ 12.84) in 2010 (Table 1). In all of the five surveyed years, the means of the OOPs were higher among households that had health insurance enrollees, households from urban areas and households who belonged to higher expenditure quintiles (Table 2). OOP accounted for about 8.3–11.0% of household capacity to pay and 4.6–6.0% of total household expenditure (Table 3). The share of OOP to both household capacity and total household expenditure were higher among households that had no health insurance enrollee, households from rural areas and households who belonged to lower expenditure quintiles.

Pattern of catastrophic health expenditure and impoverishment

Table 4 presents the patterns of catastrophic expenditure (using different thresholds) and impoverishment over time. The rates and numbers of households with catastrophic expenditure remained high until 2008 but decreased in 2010. The proportions of households with catastrophic expenditure at the 40% threshold in 2002, 2004, 2006, 2008 and 2010 were 4.7%, 5.7%, 5.1%, 5.5% and 3.9%, respectively. In absolute terms, the numbers of households with catastrophic expenditure were 811,499 in 2002, 1,055,910 in 2004, 1,096,177 in 2006, 1,151,500 in 2008 and 862,661 in 2010. The same was true for impoverishment. The rates and numbers of households who were put into poverty were high until 2008 but declined in 2010. The rates and numbers of households who were pushed into poverty because of OOP were 3.4% or 590,446 households in 2002, 4.1% or 769,505households in 2004, 3.1% or 667,863 households in 2006, 3.5% or 742,587 households in 2008, and 2.5% or 563,785 households in 2010.

Determinants of catastrophic health expenditure and impoverishment

Table 5 presents the results of logistic regression analysis of the determinants of catastrophic health expenditure at the 40% threshold. The main findings on the determinants of catastrophic expenditure are: 1) Households with health insurance enrollees had lower rates of catastrophic expenditure. However, the statistically significant differences were only found for 2004 and 2006; 2) Having more people in the household was significantly associated with lower rates of catastrophic expenditure; 3) Having elderly people in the household was significantly associated with higher rates of catastrophic expenditure; 4) Having children under 6 years in the household was significantly associated with higher proportion of catastrophic expenditure in 2002 and 2008; 5) Households located in rural areas had significantly higher rates of catastrophic expenditure compared to those living in urban areas; and 6) Households that belonged to the highest quintile had significantly higher rates of catastrophic expenditure compared to those that belonged to the lowest quintile (except 2008). However, the statistically significant differences were only found for 2002 and 2004.

Table 6 presents the results of logistic regression analysis of the determinants of impoverishment. The main findings on the correlates of the impoverishment problem are: 1) Households with health insurance enrollees had lower rates of impoverishment. However, the statistically significant differences were only found for 2004 and 2010; 2) Having more people in the household was significantly associated with lower proportion of impoverishment; 3) Having elderly people in the household was significantly associated with higher rates of impoverishment; 4) Having children under 6 years in the household was significantly associated with higher rates of impoverishment in 2002; 5) Households located in rural area had significant higher rates of impoverishment compared to those living in urban areas. However, the statistically significant differences were only found for 2002 and 2010; and 6) Household belonged to the 2nd quintile had significantly higher rates of impoverishment compared to those belonged to the 1st quintile. Statistically significant differences were only found for 2002, 2004, and 2006 (Table 5).

Table 1
Means of OOP made by a household (Among the households that paid for health care during the last 12 months).

Year	OOP for outpatient services		OOP for inpatient services		OOP for other health services		Total OOP	
	VND 000	US$	VND 000	US$	VND 000	US$	VND 000	US$
2002	16.1	1.05	28.1	1.83	23.1	1.51	67.3	4.39
2004	48.4	3.08	51.5	3.28	26.5	1.69	126.4	8.04
2006	57	3.55	50.4	3.14	32.6	2.03	140	8.72
2008	78.6	4.77	78.4	4.75	44.3	2.69	201.3	12.20
2010	97.1	5.13	96	5.07	49.9	2.64	243	12.84

Exchange rate to convert from US$ to VND for 2002: 15.337; 2004: 15.717; 2006: 16.055; 2008: 16.494; 2010: 18.932.

Table 2
Means of OOP made by a household by socioeconomic status (Among the households that paid for health care during the last 12 months).

	2002		2004		2006		2008		2010	
	VND000	US$	VND000	US$	VND000	US$	VND000	US$	VND000	US$
Household with at least one health insurance enrollee										
No	NA	NA	106.5	6.78	120.1	7.48	154.5	9.37	200.5	10.59
Yes	NA	NA	108.7	6.92	122.1	7.61	183.3	11.11	237.4	12.54
Location										
Rural	57.7	3.76	90.4	5.75	102.2	6.37	150.8	9.14	208.3	11.00
Urban	92.2	6.01	156.5	9.96	170.2	10.60	248.5	15.07	285.8	15.10
Expenditure quintile										
1st quintile	20.9	1.36	28.4	1.81	34.9	2.17	53.8	3.26	69.2	3.66
2nd quintile	34.3	2.24	53.7	3.42	58.8	3.66	93	5.64	130.6	6.90
3rd quintile	51.4	3.35	80	5.09	88.9	5.54	135.1	8.19	190.4	10.06
4th quintile	74.8	4.88	111.1	7.07	139.4	8.68	188.5	11.43	287.9	15.21
5th quintile	148.9	9.71	266.5	16.96	286.7	17.86	420.4	25.49	481.5	25.43

NA: Data not available.
Exchange rate to convert from US$ to VND for 2002: 15.337; 2004: 15.717; 2006: 16.055; 2008: 16.494; 2010: 18.932.

Discussion

Household direct out-of-pocket payments for health care are an important indicator reflecting the extent of financial protection in a country. This study has provided updated evidence on the magnitude of the OOP, its catastrophic and poverty impact on households and factors associated with it in Viet Nam during the period of reform. Our analyses showed that the OOP in Viet Nam increased over the study period. In fact, the OOP as a share of the total health expenditure has been always greater than 50% (Ministry of Health of Viet Nam, 2008b; Ministry of Health of Viet Nam & Health Partnership group, 2008). According to the WHO, the level of OOP as a share of the total health expenditure greater than 40% can result in inequity in health care in a variety of ways (World Health Organization, 2009). The share of private health expenditure (mainly from the OOP) in Viet Nam was higher than that of other countries in the Asia Pacific region such as Thailand, Laos, Cambodia and China (World Health Organization, 2009).

Before discussing the results, we need to note some limitations of this study. First, the cross-sectional nature of the data limited our ability to study long-term impacts of household direct out-of-pocket payments. Secondly, because of inconsistencies and unavailability of the VLSS data over the study period, our analyses could not show the pattern of catastrophic health expenditure and impoverishment problems by type of medical care (e.g. hospitalization, outpatient and self-care, etc.). Thirdly, we were not able to study coping strategies of the households once they faced catastrophic health expenditure and impoverishment problems.

Nonetheless our study had some very important and pertinent results in relation to policy in Viet Nam. We found that many households incurred financial catastrophe and/or were impoverished because of out-of-pocket health payments. The percentages of households facing catastrophic expenditure and impoverishment remained high over the time between 2002 and 2008. However, a decrease in both catastrophic expenditure and impoverishment were observed from 2008 to 2010.

In comparing with countries in the prevalence of the catastrophic health expenditure and impoverishment of Viet Nam were lower than the corresponding figures for China in 2008 (catastrophic health expenditure: 14%; impoverishment: 6.8%) (World Health Organization – Regional Office for Western Pacific, 2011a) but higher than that for Cambodia in 2007 (catastrophic health expenditure: 4.3%; impoverishment: 2.5%) (World Health Organization – Regional Office for Western Pacific, 2011b), for Laos in 2008 (catastrophic health expenditure: 1.7%; impoverishment: 1.1%) (World Health Organization – Regional Office for Western Pacific, 2011c) and for the Philippines in 2009 (catastrophic health expenditure: 1.2%; impoverishment: 1%) (World Health Organization – Regional Office for Western Pacific, 2011d). An analysis by Xu, Evans et al. showed that the proportion of households facing catastrophic payments from out-of-pocket health expenses in Viet Nam in 1998 was 10.5% in Viet Nam, which was the highest level among 59 countries included in the study (Xu et al., 2003). Another study by van Doorslaer, O'Donnell et al., using various cut-off points to define catastrophic levels, confirmed the fact that the rates of catastrophic payments in Viet

Table 3
OOP as a share of household capacity to pay and of total household expenditure.

	2002		2004		2006		2008		2010	
	OOP/CTP (%)	OOP/EXP (%)	OOP/CTP (%)	OOP/EXP (%)	OOP/CTP (%)	OOP/EXP (%)	OOP/CTP (%)	OOP/EXP (%)	OOP/CTP (%)	OOP/EXP (%)
Household with at least one health insurance enrollee										
No	NA	NA	13.4	7.1	12.6	6.8	11.5	5.9	9.8	5.2
Yes	NA	NA	9.8	5.4	9.2	5.1	10.3	5.5	8.0	4.4
Location										
Rural	11.4	5.5	12.3	6.2	11.0	5.7	11.7	5.8	9.0	4.8
Urban	6.3	4.1	8.0	5.3	7.3	4.8	7.5	4.8	6.5	4.0
Expenditure quintile										
1st quintile	13.2	4.8	13.4	5.1	12.7	5.2	14.1	5.3	9.9	4.2
2nd quintile	11.2	4.9	12.3	5.8	10.5	5.1	11.7	5.4	9.5	4.6
3rd quintile	10.4	5.3	11.7	6.3	9.7	5.4	10.3	5.6	8.6	4.7
4th quintile	9.0	5.5	9.7	6.1	9.1	5.9	9.0	5.6	7.8	4.9
5th quintile	6.9	5.3	8.5	6.7	7.5	5.9	7.5	5.8	5.7	4.4
Overall	10.2	5.1	11.1	6.0	9.9	5.5	10.5	5.6	8.3	4.6

Note: OOP/CTP: OOP as a share of household capacity to pay. OOP/EXP: OOP as a share of total household expenditure.

Table 4
Pattern of catastrophic health expenditure and impoverishment.

	2002	2004	2006	2008	2010
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Cata10	5,325,195 (30.8)	6,324,426 (33.9)	6,419,485 (29.9)	6,651,836 (31.7)	5,442,449 (24.4)
Cata20	2,583,675 (15.0)	3,280,167 (17.6)	3,197,146 (14.9)	3,380,690 (16.1)	2,613,193 (11.7)
Cata30	1,435,719 (8.3)	1,903,326 (10.2)	1,882,429 (8.8)	2,028,348 (9.7)	1,483,744 (6.6)
Cata40	811,499 (4.7)	1,055,910 (5.7)	1,096,177 (5.1)	1,151,500 (5.5)	862,661 (3.9)
Impoverishment	590,446 (3.4)	769,50 (4.1)	667,863 (3.1)	742,587 (3.5)	563,785 (2.5)

(Cata10, Cata20, Cat30 and Cata40 mean a household's total out-of-pocket health payments equal or exceed 10%, 20%, 30% and 40% of household's capacity to pay, respectively).

Nam were very high compared to other countries in Asia (van Doorslaer et al., 2006, 2007). These previous studies suggest that the incidence of catastrophic health expenditure in Viet Nam has indeed decreased considerably by 2010.

The decrease in catastrophic health expenditure and impoverishment seem to suggest that health financing policies in Viet Nam have achieved their initial impacts. Indeed, these effects could be related to the increase in insurance coverage following 2008 Law on Health Insurance in Viet Nam was enacted in 2008, which came into effect on July 1, 2009. The law fully subsidized health insurance premiums for the poor and subsidized at least 50% of the premium for people falling in the near poor category, which is defined as having between 100% and 130% of the official poverty line. The scheme for the near poor was also considered compulsory by the end of 2009. Families were also encouraged to enrol through providing a 10% on premiums of additional members enrolling through voluntary schemes. However, OOP is likely still to be the principal source of financing health care in Viet Nam in the future because of several reasons. The 2008 law still stipulates that patients with health insurance will have co-pay for their hospital fee at different levels of payment depending on the level or category of hospital or the kind of beneficiary. In parallel, Decree 43/ND-CP on financial autonomy also encourages heath facilities to earn more income from clients and to use these extra revenues to pay higher salaries to staff. In addition, the most common provider payment method in Viet Nam is still the fee-for-service mechanism. The fee-for-service mechanism, coupled with an emphasis on financial autonomy, is likely to encourage supplier induced demand (whether beneficially for patients' health or not). Medical technologies are also becoming more and more high-tech, which leads to increases in the cost of care. Additionally, the private health care sector is encouraged to expand, which also leads to a shifting of the burden of health financing towards households. High prices of medicines and unavailability of medicines at hospitals also increases direct costs for households. These factors suggest that OOP will continue to play an important role in health care financing in Viet Nam. In order to achieve the fairness in financial contribution and protection against financial risk, it is important for Viet Nam to think about other alternative provide payment methods as well as appropriate solutions to contain health care costs.

Regarding the factors associated with catastrophic health expenditure and impoverishment, we found that having more people in the household was significantly associated with lower rates of catastrophic expenditure. The finding is in line with the research from other countries (Halliday & Park, 2009; World Health Organization – Regional Office for Western Pacific, 2011a). This suggests that people residing in a larger household could provide care to other family members and could lead to less health service utilization. Additionally, larger households could also be able to draw more resources at times of need, such as during an illness episode, from broader social networks.

We found that households with more elderly people had higher probability of encountering catastrophic expenditure. While Viet Nam is undergoing a demographic transition and experiencing rapid population ageing, there is still no specific policy on health for the elderly (Giang, 2008; Giang & Dfau, 2009). As elderly need more health care, as well as more expensive health care more attention needs to be paid to this vulnerable group in Viet Nam in the future.

Table 5
Determinant of catastrophic health expenditure using the cut-off point 40%.

	2002	2004	2006	2008	2010
	OR (p)	OR (p)	OR (p)	OR (p)	OR (p)
Household with at least one health insurance enrollee					
No	NA	1	1	1	1
Yes	NA	0.65(0)	0.75(0.01)	0.89(0.37)	0.81(0.15)
Sex of the HH's head					
Male	1(0.97)	0.88(0.25)	0.92(0.45)	0.99(0.93)	0.81(0.4)
Female	1	1	1	1	1
Household size	0.77(0)	0.78(0)	0.76(0)	0.78(0)	0.69(0)
Having elderly people in the household					
Yes	2.07(0)	2.03(0)	2.14(0)	2.41(0)	2.8(0)
No	1	1	1	1	1
Having the children in the household					
Yes	1.55(0)	1.09(0.5)	1.26(0.1)	1.36(0.02)	1.37(0.04)
No	1	1	1	1	1
Location					
Urban	Reference	1	1	1	1
Rural	3.95(0)	2.87(0)	2.45(0)	1.98(0)	1.67(0)
Expenditure quintile					
1st quintile	1	1	1	1	1
2nd quintile	1.03(0.81)	1.37(0.04)	0.81(0.14)	0.97(0.86)	1.29(0.14)
3rd quintile	1.17(0.14)	1.59(0)	0.94(0.68)	0.97(0.83)	1.33(0.11)
4th quintile	1.48(0)	1.6(0)	1.28(0.11)	0.85(0.31)	1.21(0.31)
5th quintile	1.62(0)	2.09(0)	1.36(0.09)	0.85(0.37)	1.03(0.9)

Table 6
Determinant of impoverishment.

	2002	2004	2006	2008	2010
	OR (p)	OR (p)	OR (p)	OR (p)	OR (p)
Household with at least one health insurance enrollee					
No	NA	1	1	1	1
Yes	NA	0.76(0.01)	0.81(0.13)	0.94(0.66)	0.71(0.05)
Sex of the HH's head					
Male	0.99(0.93)	1.08(0.6)	0.99(0.94)	0.92(0.56)	1.17(0.66)
Female	1	1	1	1	1
Household size	0.85(0)	0.84(0)	0.9(0.02)	0.88(0)	0(0)
Having elderly people in the household					
Yes	1.52(0)	1.55(0)	1.55(0)	1.24(0.09)	1.68(0)
No	1	1	1	1	1
Having the children in the household					
Yes	1.27(0.02)	1.05(0.74)	1.12(0.48)	1.06(0.72)	0.85(0.39)
No	1	1	1	1	1
Location					
Urban	1.79(0)	1.3(0.2)	1.38(0.19)	1.23(0.33)	1.98(0)
Rural	1	1	1	1	1
Expenditure quintile					
1st quintile	1	1	1	1	1
2nd quintile	3(0)	2.34(0)	2.01(0)	1.28(0.07)	1.25(0.16)
3rd quintile	0.25(0)	0.39(0)	0.22(0)	0.21(0)	0.16(0)
4th quintile	0.1(0)	0.04(0)	0.08(0)	0.01(0)	0.09(0)
5th quintile	0.02(0)	NA	0.04(0)	NA	0.03(0)

Households located in rural areas were also shown to have more catastrophic health expenditure and impoverishment problems than urban dwellers. Similar findings were reported by studies from Thailand (World Health Organization – Regional Office for Western Pacific, 2011b) and India (Bonu, Bhushan, Rani, & Anderson, 2009). This finding further highlights the importance of health care policy for the rural people. Methods of financial protection for people living in rural areas should be integrated in the rural development policies.

Financial protection is the most important aspect of health insurance coverage but our study revealed that, in Viet Nam, health insurance still had modest impact on protecting people from catastrophic payment and impoverishment. Indeed, data for 2008 and 2010 showed that having health insurance was not significantly associated with lower rates of catastrophic expenditure. Most of the studies on impacts of health insurance in Viet Nam consistently found that insurance has only had a modest effect on reducing out-of-pocket payments (Lieberman & Wagstaff, 2008; O'Donnell et al., 2005; Wagstaff, 2007; Wagstaff & van Doorslaer, 2003; Wagstaff & Pradhan, 2005). The modest impact of insurance on financial protection reflects the fact that people with health insurance are still paying quite high OOPs for the reasons discussed earlier.

Policies to expand coverage of health insurance in Viet Nam and, more importantly, to enhance impacts on financial protection should be emphasized in the future. In addition to the task of increasing 3 dimensions of insurance coverage (population, services, and cost coverage), Viet Nam's health insurance program faces a further challenge regarding the financial sustainability of the scheme. Since 2003, outlays have risen faster than revenues in both the compulsory and voluntary programs (Lieberman & Wagstaff, 2008). By 2007, overall health outlays exceeded its revenues (Ministry of Health of Viet Nam, 2008a). This means that the government needs to increase revenue coming into the national health insurance schemes. Encouraging more households to enrol through improving financial protection offered by the health insurance is an obvious option to do this in addition to rationalizing the benefits package, especially in relation to reimbursement for medicines and trying to move away from fee-for-service arrangements.

Conclusion and policy implication

Our study has provided up-to-date evidence on magnitude of the OOP, its catastrophic and poverty impact and some associated factors in Viet Nam during a period of reform. The findings revealed that there are many problem of financial protection in Viet Nam. Many households, especially those belonging to disadvantaged groups, encountered catastrophic health expenditure and/or were pushed into poverty due to health care payments. We also found that financial protection impact of the national health insurance schemes was still modest. Given the findings, to achieve universal coverage through effective health financing, the government of Viet Nam should commit to both maintaining the state budget for health and to increase the coverage of health insurance through promoting the implementation of the Law on Health Insurance. Importantly, there is a strong need to strengthen financial protection offered through the health insurance. Further, provider payment methods should be reformed and management capacity of health insurance system should be strengthened.

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