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Moral Hazard Problems Under Public Health Insurance Evidence from Vietnam

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Abstract: This paper investigates moral hazard problems. By using the matching estimator technique to estimate the effect of health care insurance on the demand for health care treatment, we find that the new health care policy enacted in 2005 is more likely to generate the effect of moral hazard on outpatient visits at state health care providers, but not on inpatient visits. In other words, we find strong evidence for the existence of moral hazard effect on outpatient visits at the state hospital system. Therefore, it is too risk bearing to manage health insurance funds at local or state levels if there are no appropriate policies to share the risk and prevent an overconsumption scenario because insured patients can take advantage of more medical services, which lead to a significant shortage of health insurance funds. The government should implement effective and efficient process management as well as impose an optimal deductible and copayment mechanism to solve critical issues of moral hazard. Additionally, to slower growth of health costs, the government should create public health services for home medical treatment to consult patients with minor ailments. This analysis is based on two large nationwide samples of Vietnamese Household Living Standard Surveys conducted in 2004 and 2006.

Keywords: Moral hazard, health insurance.

1. Introduction

The paper focuses on investigating the existence of moral hazard in the health insurance market under a framework where a public health administration finances health care through income taxes, mandatory health insurance to employees and pupils, and voluntary premiums paid by independent individuals. Our study is different from previous studies in that almost all previous studies on health insurance markets are based on a framework where private insurance provides supplementary cover alongside a universal public system, which only provides a basic package of health care services with limited access conditions to hospitalization and a long waiting time. Meanwhile, for publicly funded care in Vietnam, all insured patients are facing the same access conditions to state health care providers and medications.

There is a huge theoretical literature demonstrating that inefficiencies in insurance markets are due to these distortions (moral

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hazard and adverse selection) [see e.g., Arrow (1963), Pauly (1968), and Rothschild & Stiglitz (1976)]. Owning to sophisticated insurance markets, theoretical models often consider one of these distortions at the expense of the other. The policy implication would also be based on a dominant factor of these distortions.

In empirical studies, many authors have attempted to explore these distortions. Previous studies evaluated the market for individual insurance contracts (automobile, housing, health, etc.) in relationship to insurance coverage to decide whether adverse selection and moral hazard are present. In particular, within an adverse selection context, they mainly investigated whether riskier agents are willing to buy more coverage and, on average, end up using more care or services. In comparison, in a moral hazard context, they focused on exploring whether the level of utilization is greater when insurance reduces the out-of-pocket spending for health care [Pauly (1968), Manning et al. (1987), Coulson et al. (1995), and Chiappori et al. (1998)]. In other words, the basic story of moral hazard is similar to adverse selection, except for the inverted causality [Abbring et al.(2003)].

Overall, almost all empirical studies on moral hazard and adverse selection in health insurance markets have explored data from developed countries with private insurance company endorsement. There is a little empirical evidence on these distortions in the public health care framework in developing countries.

This study employs two-wave household surveys conducted by two populations designed to interview households randomly across the country. The surveys showed that insured individuals were faced with unexpected and exogenous changes in the incentive structure of health insurance policies. Additionally, all insured individuals have the same basic insurance coverage, and there is no endogenous bias generated by the private (extra) insurance decision. Hence, as pointed out by Chiappori et al. (1998) about ideal circumstances for testing the effect of moral hazard, these data share most of the ideal features to test for the impact of moral hazard on the demand for health care services.

To test for moral hazard effect, we follow Barros et al. (2008) to implement a matching estimator technique for average treatment effects and to investigate the presence of moral hazard in public health care without private insurance in Vietnam. In this context, insured individuals have been faced with sudden changes in the beneficial schemes since 2005. Consequently, we find strong evidence that the new health insurance policy generates a moral hazard effect on the demand for outpatient services. In particular, after the new regulations enacted in 2005, insured individuals now have incentives to increase their outpatient visits and maximize utilization of public health services.

Overall, moral hazard issues exist in Vietnamese public health insurance. As a result, it is too risk bearing to manage health insurance funds at local or state levels if there are no appropriate policies to share the risk and prevent an overconsumption scenario. For instance, the overconsumption of medical services also occurs when the government extends the cap regulation to allow insured patients the use of better medicines and medical technologies. This specially takes place in big cities where health care systems are better than in rural areas. Insured patients take advantage of more medical services, which lead to a significant shortage of health insurance funds in big cities. The government then has to reallocate the surplus fund in rural areas to offset the deficit fund in big cities. Thus, the

poor pays for the health care services obtained by the wealthy.

This study employs data taken from the two-wave Vietnamese Household Living Standard Survey conducted in 2004 and 2006 by the General Statistical Office of Vietnam. After unifying identical notation variables of both waves, the two surveys were merged to form cross sectional data for two years with 79,509 observations. The data provide detailed information on a nationwide sample of Vietnam based on the characteristics of current household living standards, all individuals in a family, employment status including careers and industries, health and disability covering health status and insurance schemes.

This paper is organized into six sections. Section 1 provides the introduction. Section 2 presents a review of pertinent scholarly literature. Section 3 offers a brief review of current health sector in Vietnam, while Section 4 briefly describes the data. The impact of moral hazard on demand for health care services is presented in Section 5. Finally, Section 6 summarizes the study's results.

2. Literature review

The crucial literatures with regard to this paper are on moral hazard effects, which are one of fundamental distortion mechanisms in insurance markets. In theoretical studies, previous literatures demonstrate that inefficiencies in insurance markets are due to these distortions [see e.g., Arrow (1963), Pauly (1968), and Rothschild & Stiglitz (1976)]. Theoretical models often consider one of these distortions at the expense of the other due to sophisticated insurance markets. The policy implication is also based on a dominant factor of these distortions.

Empirical studies, meanwhile, have focused on exploring both distortions. However, the distinction between moral hazard and adverse selection is an empirical puzzle. A number of empirical studies have investigated whether moral hazard exists in health insurance markets. Pioneering studies on this issue including Manning et al. (1987) using the RAND Health Insurance Experiment in the United States and Cameron et al. (1988) using Australian data, show significant moral hazard effects. In contrast to these results, Geil et al. (1997), and Riphahn et al. (2003) using German data and Chiappori et al. (1998) using French data conclude that both private insured and public covered individuals have an insignificant effect on either hospitalization decision or doctor visits. Overall, most previous studies have tried to deal with the endogeneity of the private supplemental insurance or add-on insurance coverage by finding instrumental variables.

As Chiappori et al. (1998) pointed out that there are two ideal circumstances for testing moral hazard. First, individuals are faced with an unexpected and exogenous change in the incentive structure. Within this context, adverse selection can be eliminated. Second, randomization test is also ideal for excluding any selection bias and allows the identification of increased utilization of health services with moral hazard. However, the simultaneous bias cannot be completely excluded because it is too difficult to identify the priori instrument variables.

In a recent study by Barros et al. (2008), employing the dataset of household survey conducted by the Portuguese census, implement a matching estimator technique to investigate the effect of moral hazard. They argue that insurance is exogenous and find evidence of the existence of moral hazard in specific types of health care services but not in others.

In empirical studies of adverse selection, previous studies on health care demand have found little evidence for the appearance of adverse selection impacts. For instance, Cardon and Hendel (2001), employ the National Medical Expenditure Survey conducted by the Agency of Health Care Policy in 1987. Bajari et al. (2006), using data from the Health and Retirement Study, a nationally representative sample of men and women born between 1931 and 1941 in the US, show evidence of moral hazard, but not of adverse selection. However, Riphahn et al. (2003) analyze the German Socioeconomic Panel data and expose the concept that the adverse selection occurs whenever people have high demand for health care; thus, they are most likely to buy add-on insurance.

3. Health sector in Vietnam

Currently, there are two main types of health insurance in Vietnam. The first fundamental insurance is mandatory for those who have labor contracts at least three months in length. The premium rate is three percent of the salary written in the labor contract per month (the wage base), of which the employer pays two percent and the employee pays is one percent. This type of health insurance also includes those who are retired or are receiving social benefits. This group receives a health insurance card without paying the premium rate, similar to Medicare programs. In addition, this mandatory insurance involves health insurance for pupils and students. Although the health insurance for students is called voluntary health insurance, all students are required to pay health insurance fees at the beginning of the school year, except for those come from poor families. For poor families, the government provides health insurance cards, similar those of Medicaid programs. Annually, local authorities evaluate and select poor families within the commune/ward based on the standardization levels of the poverty alleviation and hunger eradication program. If a family is classified as the poor household, each family member receives a health insurance card.

The second option is the voluntary health insurance program for those who are independent individuals without labor contracts and not eligible for Medicare or Medicaid programs. Even though the current premium levels of voluntary health insurance are very low compared to the real charges when they are treated at hospitals, the voluntary program does not encourage a significant amount of individuals to enroll because of several reasons. First, individuals are concerned about the low-quality services provided by local state health care providers. Second, they do not have confidence in the real benefits of health care insurance because of the complicated procedures to obtain reimbursement and the cap regulations for using medicines and technical diagnoses related to specific approval lists. As a result, individuals with high demand for health care services are more likely to participate in the voluntary program because there is no self-selection policy from the government. This is the common practice in health insurance.

Specifically, from the 2006 survey data, the ratio of healthy individuals without health insurance accounts for 31.12 percent of total uninsured cases (17,526 uninsured individuals), implying that individuals voluntarily purchase health insurance whenever they are less healthy and expect to have high demand for health care services. Therefore, self-selection effects may exist in the decision to take out voluntary health insurance.

According to the joint circular number 06/2007/TTLT-BYT-BTC issued on March 30,

2007 from the Ministry of Health and the Ministry of Finance, the premium fees for students in urban areas range from 60,000 to 120,000 VND/person/year[(1)] (US$ 3.72-7.44/person/year), and in rural areas, it ranges 50,000-100,000 VND/person/year (US$ 3.10-6.20/person/year). Meanwhile, annual premium fees of the voluntary health insurance for an adult living in urban and rural areas are 160,000-320,000 VND (US$ 9.92-19.84) and 120,000-240,000 VND (US$ 7.44-14.88), respectively. The government also provides free health care services for children under six years of age.

To pursue the universal health care system, the government provides health insurance at a very low premium rate compared to the benefits that an insured patient can be reimbursed for after treatment at a registered state hospital. For instance, an insured patient can receive a reimbursement amount up to VND 7,000,000 (US$ 434.00) per treatment. Additionally, if an insured patient is required to use advanced technology diagnosis, which costs more than VND 7,000,000 per treatment, the patient will be reimbursed up to 60 percent of the real treatment cost [e.g., 7,000,000 + (real treatment cost - 7000000) x 60%]. However, the total reimbursement will not exceed VND 20,000,000 (US$ 1,240.00) per treatment (source: The Joint Circular 21/2005/TTLT/BYT-BTC on 07/27/2005).

One of the most important health insurance policies having a strong influence on insured patients is Decree No.63/2005/ND-CP, which took effect on July 1, 2005 and extended more benefits to insured patients. Particularly, insured patients do not have to co-pay 20 percent of the total health treatment cost unlike before and are allowed to use advanced technology diagnosis according to the reimbursement policies mentioned above. Consequently, many insured patients were attracted to visit registered state hospitals to take advantage of the new regulations and maximize utilization of health care services. This suggests that moral hazard effect may occur when individuals are faced with unexpected and exogenous change in the incentive structure of the public health insurance policy. As pointed by Chiappori et al. (1998), this circumstance is ideal for investigating moral hazards.

Alongside the increase in demand for health care services, moral hazards may occur in another way in that the new law extends benefits to insured patients, but still sets the maximum amount of reimbursement per hospitalization treatment. Thus, an insured patient may take advantage of slack enforcement of the new law by visiting the hospital more than once if treatment costs are over the limited amount (VND 7,000,000).

Figure 1 plots the proportion of health insurance status in the total samples of the survey in 2006. Approximately 45 percent of the population in the sample were without any form of health insurance. Health cards for the poor account for 16 percent of total individuals, while voluntary health insurance accounts for approximately 19 percent.

(1) The average exchange rate in 2007: 1 USD = 16,123 VND. GDP per capita in 2006 was approximately US$ 723.00 (IMF source).

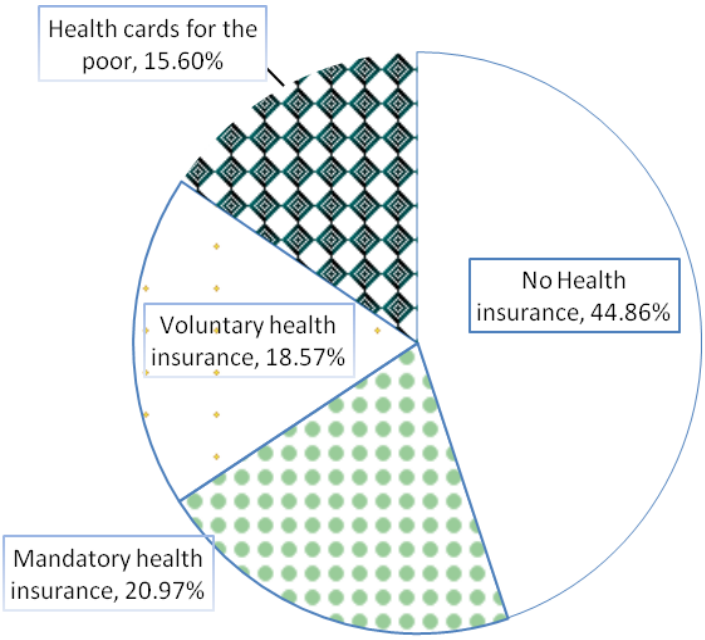

Figure 1: Health insurance status in the survey conducted in 2006.
Source: Vietnamese Household Living Standard in 2006

4. Data

The datasets for this paper are obtained from the two-wave Vietnam Household Living Standard Survey (VHLSS) conducted in 2004 and 2006 by the General Statistical Office of Vietnam. The VHLSS was designed as a nationally representative sample of households. The surveys are based on standardized questionnaires that were constructed and extended from previous annual surveys conducted 1992, 1998, and 2002 under technical assistance from the World Bank. The data cover a wide range of topics on the characteristics of all individuals in a household including demographics, income, employment, health and health insurance, education, housing, expenditure, fixed assets and durable appliances. Parents or guardians serve are representatives for children under 15 to answer the interviewer's questions.

The survey in 2004 interviewed 9,300 households, which included 40,438 observations. The survey in 2006 interviewed 9,189 households, which included 39,071 observations. Since notation variables of both datasets are not unified, we have to unify the identical notation variables before merging both datasets to conduct the cross section data for two years with 79,509 observations. All financial variables are also deflated by the growth rate of the 2004 consumer price index.

Since this study covers the two waves between 2004 and 2006, it enables us to investigate the existence of moral hazard as a result of the new Decree No.63/2005/ND-CP, which expands more benefits for insured patients.

Outpatient and inpatient visits are considered as primary dependent variables and the data are taken from the household surveys instead of hospital discharges. Hence, there are some limited information such as types of drugs used, diseases, and characteristic health status. The descriptive statistics for key variables are presented in Table 1.

Table 1: Descriptive statistics of key variables

Variables	Description of variables	Obs	Mean	Standard Deviation
Out_visits	Outpatient visits	79509	0.74	2.27
In_visits	Inpatient visits	79509	0.06	0.34
Level_sick	Level of sickness	79509	1.04	1.34
hlth_insu_req	1 = mandatory insurance; other = 0	79509	0.11	0.30
hlth_insu_stu	1 = pupil & student insurance; other = 0	79509	0.14	0.35
hlth_insu_cer	1 = health card; other = 0	79509	0.12	0.33
hlth_insu_ovol	1 = voluntary insurance; other = 0	79509	0.03	0.16
age	Age in years	79509	30.42	20.20
edu_years	Number of years of education	79509	6.55	4.03
urban	1 = urban; other = 0	79509	0.24	0.43
hlth_insu	1 = have health insurance; other = 0	79509	0.47	0.50
ln_inc_pc	Natural logarithm of household income per capita	79493	6.12	0.70
Family size	The number of individuals in household	79509	5.00	1.84
self_employ	1 = self employment; other = 0	79509	0.47	0.50
wage_employ	1 = wage employment; other = 0	79509	0.24	0.42
unemploy	1 = unemployment; other = 0	79509	0.34	0.47
house_work	1 = house work; other = 0	79509	0.23	0.15
disabled	1 = disabled; other = 0	79509	0.01	0.08
gender	0 = female; 1 = male	79509	0.49	0.50
married	0 = single; 1 = married	79509	0.45	0.50
divorced	1 = divorced; other = 0	79509	0.01	0.10

Source: Two Surveys of VHLSS conducted in 2004 and 2006.

5. The new health insurance policy and moral hazard

In this section, we investigate whether the new health insurance policy has generated a moral hazard effect. We focus on the basic health insurance involving mandatory insurance, Medicare and Medicaid, except for voluntary insurance. We also argue that this basic insurance is exogenous, meaning it is not correlated with the beneficiaries of individuals' health status. This assumption enables us to analyze the effect of having basic insurance on the demand for outpatient and inpatient visits.

As Chiappori et al. (1998) pointed out that an ideal circumstance for testing moral hazard is that individuals are faced with an unexpected and exogenous change in the incentive structure. On the other hand, to reduce simultaneous bias, another ideal test employs two populations that should be drawn randomly. For instance, Manning et al. (1987), employing the RAND Health Insurance Experiment, which is designed to randomize insurance type across individuals, establish the exogeneity of the insurance status and estimate the effect of moral hazard on health care utilization.

Turning now to our situation, insured individuals were faced with an exogenous change of the new health insurance policy since 2005 and the two-wave surveys were designed

to interview households randomly across the country. Therefore, this paper employs two populations that share most of the ideal characteristics to test for moral hazard effect. We propose a hypothesis that individuals with basic health insurance visit outpatient services more than the uninsured after 2005.

To test this hypothesis, we follow a recent study by Barros et al. (2008) and use a matching estimator technique. This technique is proposed by Adadie and Imbens (2006) and thereafter Borros et al. (2008) apply it to estimate the average treatment effect on the treated (ATT) of most common health insurance plans in Portugal. However, this approach has not explored health policy changes in one public health insurance mechanism. The methodology and procedures to use the matching estimator technique have been clearly presented in previous literature [e.g., Abadie et al. (2004), Abadie and Imbens (2006), and Barros et al. (2008)]. Therefore, we will not replicate them in this paper.

Our ATT estimates show the average increase in the demand for outpatient or inpatient visits among insured patients. Since the basic coverage for all types of health insurance are the same, our ATT estimates may not only eliminate the underestimation moral hazard due to at least one type of health insurances having more beneficiaries than the others, but also avoid overestimation moral hazard as result of supply-induced demand for outpatient and inpatient visits. In fact, no state hospitals have any incentive programs to attract insured patients because patients are overwhelmed and they often have to wait several hours for consultation.

We use "NNMATCH" function in STATA provided by Abadie et al. (2004) to estimate ATT. We expect that if there exists a moral hazard effect after 2005, then the ATT coefficient of 2006 is greater than that of 2004.

The estimated results are presented in Table 2. Column (1) shows three different age groups, including young (6-17), working (18-60), and retired (over 60). In column (2), M denotes matching and all regressions using with four matches (M=4). In column (3), we implemented four different criteria for each age group. In case I, dependent variables are a number of visits, which include private clinics and state hospitals and the treated independent variable is all types of health insurance including basic health insurance and voluntary insurance. In case II, the dependent and treated independent variables are similar to case I, but are estimated with bias-adjusted. In case III, the treated independent variable is similar to case I, but the dependent variables exclude the number of private visits. In case IV, the treated independent variable exclude voluntary insurance, and dependent variables exclude the number of visits at private clinics. N refers to the whole sample in each group and N1 refers to the treated individuals in case IV.

The vector of covariates in all regressions involve age, number of individuals in household, years of education, log of income per capita, level of sickness, other dummy variables such as married, divorced, unemploy, self_employ, wage_employ, house_work, and disabled. A brief description of these covariates is presented in Table 1.

It is worth noting that the perceived level of sickness (level_sick) is identified at three levels. In particular, the highest level of severity is defined as 3, the moderate level is defined as 2, and the low risk level is defined as 1. Windmeijer and Sntos-Silva (1997) shows that perceived health may be endogenous. For instance, the high level of sickness will have more demand for health care services. However, we introduce this variable to control for unobserved conditions and weigh it at the same degree in both populations. This may enable us to eliminate the endogenous bias.

Table 2 shows that with regard to the number of inpatient visits, the estimated ATT results in case I obtained with four matches are somewhat different from those in case II with bias-adjusted, implying that the four matching estimator is biased when there are continuous covariates such as age variable. Therefore, the results estimated with bias-adjusted are more reliable. However, in both case I and case II, dependent variables include the number visits at private clinics where insured patients cannot reimburse health care expenditure. Therefore, these first two cases will not reflect the impact of moral hazard on health care services precisely.

The estimated ATTs in case III are all positive and statistically significant at the 1% level, which is different from zero. With regard to the number of outpatient visits, ATT of 2006 is significant larger than that of 2004 in terms of magnitude, implying that moral hazard effect may exist on the number of outpatient visits. Meanwhile, with a view of the number of inpatient visits, both estimated ATTs in each group are not very different.

The larger concern is that the decision to purchase voluntary health insurance is an individual choice that is more likely to be influenced by unobservable individual characteristics, such as the individual's level of "risk". This may arise in adverse selection where those with higher risk are more likely to purchase voluntary health insurance and to use more health care services [Coulson et al. (1995), and Chiappori et al. (1998)]. Therefore, the estimated ATT results in case III may be influenced by adverse selection because the treated independent variable involves voluntary health insurance. In other words, the estimated results may be overestimation due to selection bias.

The aim is to separate the moral hazard effect from the adverse selection effect. To do so, we separate the case of voluntary health insurance from the insured individuals. The estimated ATTs in case IV are best suited for investigating moral hazard effect. In particular, ATTs are all positive and statistically significant and different from zero. With regard to the number of outpatient visits, ATTs of 2006 are significant greater than those of 2004 in terms of magnitude, suggesting that the new health insurance policy generates an impact of moral hazard on outpatient visits. The retired or elderly cohort has the largest estimated ATT (0.6189) for number of outpatient visits. The second largest estimated ATT (0.2185) is obtained for working cohort. The estimated ATT for the young cohort is small (0.1201). Generally, these results fail to reject our hypothesis. Moral hazard is more likely to appear when insured patients increase outpatient visits to take advantage of the new benefits for enrollees since 2005.

With regard to inpatient visits, the difference between estimated ATTs of 2004 and 2006 is not significant in terms of magnitude. This suggests that the insured patients only favored outpatient procedures because of either the convenience of recovering at their own home, instead of staying overnights at a hospital, or the limited reimbursement. The insured patients are expected to prefer outpatient treatment to inpatient treatment given that outpatient costs less. Specifically, technological advances and patient preferences have also promoted the growth of outpatient treatment.

Overall, we find strong evidence for the existence of moral hazard effect on outpatient visits at the state hospital system after health insurance policy changes in 2005. Therefore, implication policy may impose deductibles and copayment for outpatient services. However, it is still uncertain how much deductible mechanism the insurance company should impose to avoid the possibility of reverse causality, which leads individuals without health insurance to opt for the voluntary program. Consequently, the government may not achieve its objective for universal health care.

Table 2: The impact of moral hazard on outpatient and inpatient visits

(1) Age group	(2) M	(3) Estimator_case	(4) # outpatient visits ATT		(5) # inpatient visits ATT	
			2004	2006	2004	2006
6_17 Young	4	Matching (case I)	0.0068	0.0095	0.0109**	0.0157***
			(0.0373)	(0.0508)	(0.0053)	(0.0060)
	4	Bias-adjusted (case II)	-0.0046	0.0036	0.0100**	0.0148***
			(0.0365)	(0.0527)	(0.0048)	(0.0046)
	4	Bias-adjusted (case III) (excluding private clinics)	0.0609***	0.1818***	0.0119***	0.0145***
			(0.0164)	(0.0298)	(0.0041)	(0.0045)
	4	Bias-adjusted (case IV) (excluding private clinics and voluntary insurance)	0.0405**	0.1201***	0.0123***	0.0152***
			(0.0169)	(0.0334)	(0.0041)	(0.0046)
			N=10112	N=8894	N1=5681	N1=6017
18_60 Working	4	Matching (case I)	0.0039	0.1266**	0.0405***	0.0310***
			(0.0387)	(0.0516)	(0.0064)	(0.0061)
	4	Bias-adjusted (case II)	-0.0048	0.1161**	0.0393***	0.0309***
			(0.0337)	(0.0533)	(0.0051)	(0.0054)
	4	Bias-adjusted (case III) (excluding private clinics)	0.1823***	0.3436***	0.0389***	0.0310***
			(0.0216)	(0.0276)	(0.0051)	(0.0054)
	4	Bias-adjusted (case IV) (excluding private clinics and voluntary insurance)	0.1452***	0.2185***	0.0369***	0.0255***
			(0.0250)	(0.0288)	(0.0055)	(0.0056)
			N=22541	N=22626	N1=5645	N1=7470
>60 retired	4	Matching (case I)	-0.1748	0.0126	0.0881***	0.1028***
			(0.1463)	(0.1442)	(0.0239)	(0.0221)
	4	Bias-adjusted (case II)	-0.1065	0.0298	0.0828***	0.0958***
			(0.1375)	(0.1389)	(0.0236)	(0.0175)
	4	Bias-adjusted (case III) (excluding private clinics)	0.5427***	0.6320***	0.0876***	0.0971***
			(0.0982)	(0.1067)	(0.0231)	(0.0174)
	4	Bias-adjusted (case IV) (excluding private clinics and voluntary insurance)	0.5668***	0.6189***	0.0732***	0.0850***
			(0.1144)	(0.1119)	(0.0254)	(0.0206)
			N=3648	N=3664	N1=952	N1=1287

Dependent variables are counts. We use nnmatch procedure in STATA to estimate the average treatment effect on demand for outpatient and inpatient services and heteroskedasticity-consistent standard errors.
Standard errors are in parentheses.
Source: VHLSS in 2004 and 2006.

6. Conclusion

As in many previous studies, this paper also addresses critical issues of moral hazard within the Vietnamese public health care framework. We find that the moral hazard is more likely to cause an increase in the number of outpatient visits to state health care providers. Therefore, to achieve the prospective target of the universal health insurance by encouraging more voluntary insurance buyers, the government must implement effective and efficient process management as well as impose optimal deductible and copayment mechanism to struggle over critical issues of adverse selection and moral hazard, and concurrently consider balancing the health insurance fund as a top priority. In particular, if the government could provide public health services similar to the National Health System in the UK and promote self-treatment for minor ailments, these would support patients in feeling confident to have their minor ailments treated and lead toward decreasing their dependency on the healthcare system. Consequently, public health insurance may avoid a huge budget deficit or bankruptcy: doing so may decrease issue of being overburdened because patients will be likely capable of treating minor ailments, instead of visiting hospitals for unnecessary general practitioner consultations.

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