

Health Insurance and Adverse Selection in Urban Households

Varahrami V*

Department of Economics, University of Shahid Beheshti, Tehran, Islamic Republic of Iran

Abstract

Objectives: this paper wants to survey health insurance and factors which effect on it and surveys adverse selection in urban households of Iran.

Background: this paper uses from data of urban households of Iran insured and uninsured households in 2017. Estimation results with probit method reveal positive effects of education, income and health risk on buying health insurance in sample.

Methods: Probit model is used for estimation.

Results: Estimation results with probit method reveal positive effects of education, income and health risk on buying health insurance in sample.

Conclusion: Results show that, there is adverse selection in health insurance in sample.

Keywords: Health insurance; Adverse selection; Urban households; Health risk

Introduction

Health insurance is a type of insurance. Some factors effect on demand of health insurance such as income, education, household size and health risk. In health insurance, adverse selection is accrued more than other insurances. In this paper, sample size is 10000 urban households of Iran (Adverse selection survey in Iran's health insurance is so important especially in urban households there this paper surveys it) contains of 5000 insured and 5000 uninsured households in 2017. In health insurance market, consumers should have complete information about operations of insurance firms. Buying of health insurance is resulting from prior information about operations of insurance firms. This paper expects that, persons who use from health insurance be risk averse. There is asymmetric information in health insurance which can cause to adverse selection. In this paper, in part 2 adverse selection, in part 3 model, in part 4 empirical results and conclusion in part 5 are presented.

Adverse Selection

In health insurance, asymmetric information is existed commonly. People, who buy health insurance, have more information about their health respect to insurance companies and don't say anything about it. Similarly, if people don't aware about insurance conditions, therefore information of insurer is more than people. Averse selection is a source of market failure and is resulting from asymmetric information between insurers and people, and is concluded from selling insurance to high risk people. Some risk adverse people, buy more insurance and claiming more premiums which lead to drop out them from market [1]. Were studied about insurance and premiums [2]. They revealed that if insurers have complete information about risk conditions of consumers, insurance market is efficient and premiums will be determined efficient. Browne and Doerpinhous and Marquis found some evidences about adverse selection in health insurance market [3,4]. They revealed that, if in insurance markets, premiums were same for households with different health levels; they could not select to buy insurance according to their health level. Therefore, there are benefits for high risk households. In this condition, risk adverse people want to buy less insurance and insurers are facing with adverse selection.

Handel [5] investigated consumer inertia in health insurance markets, where adverse selection is a potential concern. He leveraged

a major change to insurance provision that occurred at a large firm to identify substantial inertia, and estimated a choice model that also quantifies risk preferences and ex ante health risk. He used these estimates to study the impact of policies that nudge consumers toward better decisions by reducing inertia. When aggregated, these improved individual-level choices substantially exacerbate adverse selection in his setting, leading to an overall reduction in welfare that doubles the existing welfare loss from adverse selection.

Lotfi et al. [6] aimed to evaluate the status of asymmetric information in Iran's health insurance market with respect to the demand for outpatient services. The estimation of parameters of the utility function of the demand for outpatient services (visit, medicine, and Para-clinical services) showed that households were more risk averse in the use of outpatient care than other goods and services. After estimating the health status of households based on their health insurance categories, results showed that rural-insured people had the best health status and people with supplementary insurance had the worst health status. In addition, the comparison of the conditional distribution of latent health status approved the phenomenon of adverse selection in all insurance groups, with the exception of rural insurance. Moreover, calculation of the elasticity of medical expenses to reimbursement rate confirmed the existence of moral hazard phenomenon.

Model

As a hypothesis, if an agent spent more effort to buy health insurance, then less effort is spent to buy other insurances. Therefore, there is a relation between selling health insurance and other insurances. Therefore:

***Corresponding author:** Vida Varahrami, Department of Economics, University of Shahid Beheshti, Tehran, Islamic Republic of Iran, Tel: 0982188807375; E-mail: vida.varahrami@gmail.com

Received September 24, 2018; **Accepted** October 23, 2018; **Published** October 30, 2018

Citation: Varahrami V (2018) Health Insurance and Adverse Selection in Urban Households. Health Care Current Reviews 6: 231. doi: [10.4172/2375-4273.1000231](https://doi.org/10.4172/2375-4273.1000231)

Copyright: © 2018 Varahrami V. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

$$N_O = \alpha - \beta N_H \quad (1)$$

In equation (1) (Vellakkal S 2009, Adverse Selection and Private Health Insurance Coverage in India A Rational Behavior Model of Insurance Agents under Asymmetric Information, Working Paper, NO 233), N_H is number of health insurance and N_O is number of other insurances. Insurer spend more effort to sell health insurance and expect $\beta > 0$, $1 > \beta > 0$.

π_H and π_O are profits of selling health insurance and other insurances;

$$\pi = \pi_H N_H + \pi_O N_O \quad (2)$$

(1) and (2);

$$\pi = (\pi_H - \beta \pi_O) N_H + \pi_O \alpha \quad (3)$$

$$\pi_H - \beta \pi_O = \theta \quad (4)$$

Insurers effort to determine β respect to maximization of their profit. If $\theta > 0$, π_H is more than π_O , in this condition, insurers want to sell health insurance. If $\theta < 0$, π_O is more than π_H and $\beta > 1$, insurers want to sell other insurances. Therefore insurers want to maximize its profit and effort to decrease β and use from strategies to decline adverse selection behaviors. If β increases, π_H declines and insurers should sell health insurance to risk averse people to avoid from adverse selection and reduce insurance claims.

Some people have habit to using from insurance and insurers want to sell insurance to them, because they are not high risk people and insurers will not face with adverse selection. Insurers want to sell insurance to high income households, because these households have more income to buy insurance. Deaton revealed that these households will be healthier than lower income households [7].

Empirical Results

In this paper, 10000 questioners are distributed between insured and uninsured households of urban households of Iran in 2017. This paper uses from probit model to estimate and equation (5) is estimated:

In equation (5), y_i is dependent variable, $y_i = 1$ if households have health insurance, and otherwise $y_i = 0$. X_i is health risk, this variable is scaling between 1 to 5. Households measure their health and scale it. 1 is very bad, 2 bad, 3 average, 4 good and 5 vary good. Bad and very bad are high risk and good and very good are low risk people. Some variables such as age, gender and type of work are affected on people health risk. For example, women or younger people are high risk. People with more health expenditures are high risk too.

Income is other variable that expected, there is a positive relation between household income and buying health insurance. Education is other variable, which expected that has positive effect on buying health insurance too. Educated people expected want to buy more insurance and know more about importance of insurance. Variable of education is years of schooling.

Household size is other variable. There is an expected positive relation between it and buying health insurance. Some researchers think that there is not any relation between household size and buying health insurance. Mean of above variables in 10000 insured and uninsured households of urban households of Iran in 2017 (this paper' sample)

Variable	Mean
Income _i	10000000 rial
Edu _i	12
Size _i	4
X _i	3

Table 1: Mean of sample.

Variable	Coefficient (z- value)
Income _i	0/352 (1/99)
Edu _i	0/271 (2/98)
Size _i	0/005 (1/12)
X _i	0/174 (2/17)

Log Likelihood: 87/32

Table 2: Estimation results.

are reveal in Table 1; equation (5) is estimated with probit: As Table 2, households with health risk want to buy more health insurance and there is a meaningful relation between health risk and buying insurance. Therefore there is adverse selection in health insurance market in my sample. Household's income has significant and important effect on demand of health insurance. Education has positive effect on buying health insurance and household size does not have meaningful effect on demand for health insurance [8,9].

Conclusion

This paper surveys effective factors on buying health insurance. According to empirical results, there is adverse selection in health insurance, in this sample. Lotfi confirmed the existence of moral hazard phenomenon in Iran's health insurance market too.

Estimation results reveal that, Income and education have important and positive effects on demand for health insurance. Therefore demand of health insurance is dependent to insurance habit of households and people with health risk want to buy more health insurance in urban households of Iran which will result to adverse selection. Then insurers should effort to absorb low risk people to buy insurance to decrease adverse selection.

References

- Vellakkal S (2008) Health insurance schemes in India.
- George AA (1970) The Market for "lemons": Quality uncertainty and the market mechanism. Quarterly J Economics 84: 488-500.
- Michal R, Stiglitz J (1976) Equilibrium in competitive insurance markets: An essay on the economics of imperfect information. Quarterly J Economics 90: 629-649.
- Marquis MS, Phelps CE (1987) "Price elasticity and adverse selection in the demand for supplementary health insurance". Econ Inq 25: 299-313.
- Handel B (2013) "Adverse selection and inertia in health insurance markets: When nudging hurts". Am Econ Rev 103: 2643-2682.
- Lotfi F, Abolghasem GH, Mahdavi G, Hadian M (2015) "Asymmetric information in iranian's health insurance market: Testing of adverse selection and moral hazard". Glob J Health Sci 7: 146-155.
- Deaton A (2006) Global patterns of income and wealth: Facts, interpretations and policies. WIDER Annual Lecture. Helsinki Pp: 1-38.
- Vellakkal S (2009) Adverse selection and private health insurance coverage in India a rational behavior model of insurance agents under asymmetric information.
- Wilson C (1977) A Model of insurance markets with incomplete information. J Economic Theory 97: 167-207.