RESEARCH ARTICLE

FACTORS AFFECTING THE WILLINGNESS TO BUY HEALTH INSURANCE FOR UNIVERSITY STUDENTS IN THAI NGUYEN PROVINCE

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ARTICLEINFO	ABSTRACT
	Health insurance is one of the most important types of insurance for students. Without proper health insurance, an illness or accident can put them in a severe health condition and financial situation. The treatment and therapy bills can cause debt problems for whole families. Many factors are influencing to the decision of health insurance purchasing. In this paper, we introduce and examine the impacts of six factors affecting to students' willingness to buy health insurance, including price, quality of health service, payment policy, propagation, the role of the university, the competition with commercial health insurances by surveying with 120 respondents. The paper also determines the relationship between the profile of students and student's action and the relationship between proposed factors and their willingness to buy. We find that, except the price, remain proposed factors influence significantly the willingness to buy health insurance of students in Thai Nguyen province. Further, the profile of students also affects significantly to their choice and decision. Base on results, we suggest that to improve the willingness to buy, the health insurance companies should improve their quality, extend payment mechanism, improve communication and the roles of university in orienting the purchasing decision.

INTRODUCTION

Health is a precious property of everybody, however, to maintain a healthy state, people need not only doing exercises often but also have an essential financial condition. The effective way is to have a co-operating and sharing help from the community through health insurance. This plays a crucial role for students - the future owners of the country. With the development policies, humanitarian nature without profit aims, health insurance needs to focus on complete and practical health-caring and physical educating. Health insurance for students has developed widely in the whole country. It was institutionalized in the health insurance code by the Vietnamese Parliament. Accordingly, from January the first of 2010, students are subjects who have the responsibility to take health insurance, and it is an honor for them to become the compulsory beneficiaries of health insurance with the aid from the government. It is affirmed that health insurance is the best way, which is both beneficial and humanitarian. It helps the students sharpening the awareness of protecting themselves from illness and establishing a healthy environment. Taking health insurance will help them understand the meaning of community aid, and educate them the sense of humanity, mutual assistance, and the moral "All for one, one for all".

Although it holds very meaningful objectives, over 80% of the students take health insurance within three years. In the new school year of 2016-2017, there are still 20% of those who have not taken health insurance. In fact, it is not a small number of universities where is a lack of responsibility and do not pay attention to apply health insurance to the students. For those who do not have health insurance, they face many difficulties and even cannot pay for the bills when they, unfortunately, have a severe illness and need treatment for a long time with a high cost. Besides the reasons for awareness, policies, and operating the issue, it is the fact that numbers of universities lack in social responsibility and still do not obey the law strictly. After a period as a trainee at Thai Nguyen Social Security, we know that Vietnamese Social Security is a governmental organization who has the duty to operate the policies on social security and health insurance to laborers and people all over the country. To be aware of the importance of determining the factors that influence the tasks as mentioned above, and also to enhance the quality of managing and implementing the health insurance policies, this research is needed.

Literature Review

In 1943, Abraham Maslow proposed his theory over motivation, the hierarchy of needs, which has become one of the most famous theories within behaviorism (Landy and Conte, 2004). Generally, it proposes that when a person is young, he is more

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concerned with his physical wellbeing and as one become more secure in their physical world they started to focus on the social foundation. But when social needs are fulfilled, they start to seek to develop their own capabilities and abilities to the fullest. This five-factor-need theory has been modified several times since its first introduction by psychologists, but despite this and the fact that it has been many years since its' first introduction, it still has a great impact in the motivational area of psychology and organizational theory (Landy and Conte, 2004). Pauly (1968) argued that individual demand curves are fixed to health care and that the cost of marginal production remains constant. Accordingly, he determined the optimal and effective method for an uninsured patient: The willingness to pay for health care (as indicated by the demand curve) is equal to the cost of marginal health care. However, if the same individual is insured, they will receive low benefits for health care and move down the demand curve. Of course, if the demand for health insurance does not have price elasticity, the insured person will use more medical care and treatment services. Also, the marginal cost of health care will likely exceed the patient's willingness to pay for treatment, and therefore, will not be effective. Moreover, forcing individuals to pay for access to health care services through taxes can make treatment less effective than without insurance.

De Meza (1983) argued that the demand curve of a sick client is not the same when insured as not covered. Instead, the reimbursement of medical expenses by insurance companies will cause the demand curve to move outward like cash transfers. Therefore, consumers' willingness to pay increased as the coverage improved and Pauly model (1968) thus exceeded the inefficiency level caused by moral hazard. In contrast, Pauly (1983) admits that income has a powerful effect on serious patients. However, he also confirmed that moral risks among healthier customers are still ineffective. In particular, Nyman (1999) and Nyman & Maude-Griffin (2001) have given insight into Meza's basic principles proposed, using indifferent curves and budget constraints for analysis. The difference between effectiveness and inefficiency of moral hazard. Nyman (2003), in his study, tried to expand the moral hazard analysis to improve the theory of health insurance.

The Model

Model specification and hypotheses: Base on literature review, factors influencing to the willingness to buy health insurance can be explained by the conceptual framework as Figure 1:
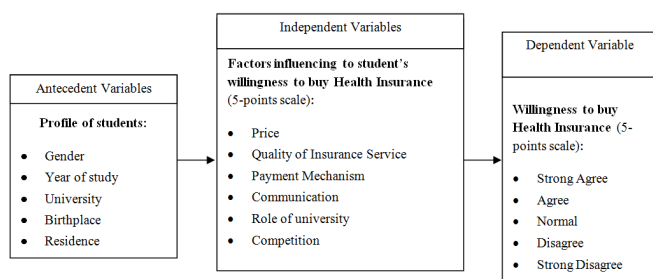
Figure 1. Proposed research model

To evaluation the impacts of proposed factors on the willingness to buy health insurance, we implement the multivariate regression equation as belows:

$$Y_i = b_0 + b_1 X_1 + b_2 X_2 + \ldots + b_6 X_6 + \varepsilon$$

In which:

Y   The willingness to buy health insurance
X_1 Price
X_2 Quality of insurance service
X_3 Payment Mechanism
X_4 Communication
X_5 Role of University
X_6 Competition
ε Error term

MATERIALS AND METHODS

This study used the description and empirical method for collecting, processing, and analyzing data on students with health insurance services. On the one hand, the descriptive research is the process of collecting primary data and using statistical tools to analyze, compare, and classify data in order to examine causal trends and relationships in order to make judgments fully and accurately the variation of research variables (Calderon and Gonzales, 1993). On the other hand, the empirical research method will evaluate the relationship between variables by using estimations, examining research hypotheses to analyze the effect of factors on the willingness to buy health insurance of students in Thai Nguyen province.

Data sources: The research was based on a survey of 120 students studying in universities and colleges in Thai Nguyen province. Due to limited time and financial sources, we use convenient sampling methods to select respondents. The main instrument used in the conduct of the study was the questionnaire checklist. It consisted of three parts. Part I is the profile of the respondents in terms of gender, year of study, university, birthplace, residence. Part II is the evaluation of respondents about the willingness to buy health insurance of university students in Thai Nguyen province in term of price, quality of insurance services, payment mechanism, communication, the role of the university and competition. We have used the 5-points questionnaire to assess the perceptions of respondents on proposed factors and the willingness to buy health insurance. The data is evaluated based on Likert's five-point scales as follows:

Table 1. Likert's five-point scales

Scale	Range	Evaluation Intepretation
5	4.20 - 5.0	Strong agree
4	3.40 - 4.19	Agree
3	2.60 - 3.19	Normal
2	1.80 - 2.59	Disagree
1	1.0 - 1.79	Strong disagree

We have an overview of descriptive statistics for all variables

EMPIRICAL RESULTS AND DISCUSSIONS

Since the independent variables included in the model cannot be simply measured through an observational question, we need to use more detailed scales to understand the nature of the major factor. To test whether the major factor is reliable and closely related to the detailed scales, we use the Cronbach Alpha test. Accordingly, if the Cronbach Alpha index greater than 0.7 indicates that the scale is reliable and ensures the representativeness of the major factor.

Table 2. Descriptive statistics of all variables

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Price	120	2.00	5.00	3.6750	0.74154	0.550
Quality of Insurance Services	120	1.20	3.40	2.4567	0.49616	0.246
Payment Mechanism	120	2.00	4.00	2.5833	0.46190	0.213
Communication	120	2.00	4.00	2.5806	0.46037	0.212
University Role	120	1.75	4.00	2.5750	0.48680	0.237
Competition	120	1.33	4.67	3.0389	0.71294	0.508
Willingness to buy	120	1.00	3.50	2.5042	0.51753	0.268

Table 3. Result of Cronbach Alpha Test

No.	Scale	Cronbach Alpha
1	Price	0.833
2	Quality	0.700
3	Payment Mechanism	0.779
4	Communication	0.829
5	University's role	0.851
6	Competition	0.863
7	Willingness to buy	0.715

Table 4. Regression's model summary

Model Summary				
R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.873	0.762	0.749	0.12146	1.428

Table 5. Regerssion's ANOVA

ANOVA					
Model	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Regression	30.206	6	5.034	345.6	0.000
Residual	1.667	113	0.015		
Total	31.873	119			

Results showed that Cronbach alpha coefficient of the factor group is from 0.7 or higher, so the scale of all factors is achieved the reliability.

Hypothesis:

To determine, measure and estimate the impact of proposed factors affecting the student's willingness to buy health insurance, we have used the multiple linear regression method including six independent variables: (1) Price, (2) Quality of Insurance Services, (3) Payment Mechanism, (4) Communication, (5) University Role, and (6) Competition. The dependent variable is the willingness to buy health insurance. Our hypothese are as follows:

- **H1:** Cut down the price of health insurance will increase the student's willingness to buy
- **H2:** Increase the quality of insurance services will increase the student's willingness to buy health insurance
- **H3:** Improve the payment mechanism will increase the student's willingness to buy health insurance
- **H4:** Enhance the communication will increase the student's willingness to buy health insurance
- **H5:** Strengthen the university role will increase the student's willingness to buy health insurance
- **H6:** Improve the competition capacity with commercial will increase the student's willingness to buy health insurance

Empirical results: Value of each factor to use in regression is average value of variables in that factor group.

The analyzing is done by Enter method. Regression result shows groups of independent variables are correlated with dependent variable with a significant level is 5%, $R^2 = 0.762$ and Adjusted $R^2 = 0.749$. In the table, R^2 (adjusted) = 0.749 indicated that six proposed factors (price, quality, payment mechanism, communication, university role, and competition) can explain 74.9% of the variation of the student's willingness to buy health insurance. Value of Durbin-Watson index equal 1.428 means that there is no correlation between the residuals. This means regression model does not violate the assumption of independence of errors. To inspect the relevance of the regression model, we consider the value Fisher statistics (F) in the Analysis of variables table (ANOVA). Value F = 345,6; Sig = 0,000, initially show that multiple linear regression consistent with the dataset and can be used. Variance inflation factor (VIF) of each factor with the value less than 10 proves that the regression model does not violate the multicollinearity phenomenon (the independent variables are correlated with each other). Regarding the rules when VIF exceeded 10 signs of the phenomenon of multicollinearity. By the above table, we see that the "Price" variable has the sig. value is 0.164, and the sig. value of the "competition" variable 0.082 is less than 0.05 means that they are not statistically significant. So those variables will be rejected. It means "Price" and "Competition" factor do not influence the willingness to buy health insurance of the universities' students in Thai Nguyen province. In fact, although the price of health insurance for university students is very low, so it does not affect their willingness to buy. Further, the competition between public health insurance with other commercial health insurance is not hard since they focus on different customer targets. The price of commercial health insurance is around 2,000,000 VND or much higher depending

on the brand and do not have reduced price for students (because their purpose is business). Hence, the student cannot afford to buy. Quality of insurance services is the most influential factor for improving the willingness to buy health insurance. Regression analysis results showed that factor "Quality" has a coefficient equal to 0.821 and Sig. value equal 0.000 < 0.05; it means when other factors do not change, if quality increase up to one unit, the willingness to buy health insurance of a student will increase 0.835 unit and vice versa, so the hypothesis H2: "Increase the quality of insurance services will increase the student's willingness to buy health insurance" is accepted. The role of the university is the second influential factor to the willingness to buy health insurance of students. This factor has coefficient 0.087 means when other factors do not change; if the role of university increases up to one unit, the willingness to buy health insurance of student will increase 0.087. Hence, the hypothesis H5: "Strengthen the university role will increase the student's willingness to buy health insurance" is accepted. Similarly, when other factors do not change, communication and payment mechanisms factor go up to one unit, the willingness to buy health insurance of students will increase respectively to 0.099 and 0.083 unit. Hence, two hypotheses, H4: "Enhance the communication will increase the student's willingness to buy health insurance" and H3: "Improve the payment mechanism will increase the student's willingness to buy health insurance" are accepted.

Policy implications: Students are a young generation, the knowledge and the resources of the future society. Health insurance is one direction that contributes to increase awareness of health-risks prevention as well as the awareness of the role of a student in the community and to become the leaders of the country in the future. Health insurance in Thai Nguyen province has gained remarkable achievements. The total participation ratio in the health insurance of student reached about 70%, and it's increasing over the years. Health insurance has contributed to initial health care for students. Most colleges have health care facilities and health insurance to pay for health care services cost of students. However, the number of participants is limited. 70% is an under expected ratio because of students as participants in compulsory according to the provisions of the Health Insurance Law. To improve the willingness to buy health insurance of university student in Thai Nguyen province, we would like to propose some solutions as follows

Increase the Quality of Insurance Service: According to the survey, we can see that the quality of service is the most underrated of the factors that may affect the purchase of health insurance. The survey results showed that 78% of students do not satisfy with the insurance services (rated as Disagree to Strong Disagree). In particular, the service attitude is not good (54%) and the quality of drugs is insufficient the demand (40%). Thus, hospitals, medical facilities, universities, and colleges need to care for improving the quality of university insurance services. Investment for equipment, construction, renovation and expansion of infrastructure is important to improve the quality of health care services. Specifically, should enhance the quality of the initial clinics. Here, medical instruments and the quality and quantity of drugs does not fulfill the demand, including a lack of highly specialized drugs. In addition to the existing list, one high-quality drug with high efficiency should be added to the list. To implement offload hospitals schemes, we need strengthening the implementation of socialized health care services, various forms of health care

organizations to meet the needs and quality of health care services. Upgrading, expanding, and new building of facilities would help to increase the number of patient beds that are severely overloaded. Developing the preventive health care network and coordinating the involvement of multiple departments to solve the urgent health problems of the community can minimize the risk of adverse health effects such as water shortage, pollution air and reduce the burden of diseases, costs and medical needs of the people. Strengthening cooperation with foreign government, non-governmental organizations willing to help us as Americans, Dutch, French… to take the project dispensing free or at low cost to people like drug prevention ancient courtesy. The project provided mosquito repellant and organize programs to disseminate knowledge about common diseases such as school myopia, a curvature of the spine.

Improve the Payment mechanism: Payment mechanisms need to be amended, supplemented, improved in administrative procedures, and during the health care process. The innovation of new payment methods and application of these would increase the acceptance in the young generation. Giving transparent and reasonable pricing of health insurance can build up trust in the health insurance company. Because of less attention to the policies of the State procedures, students need to be trained on health insurance policies through programs and dissemination at college. The present payment process is not really comfortable for patients. Especially, because students often do not take administrative procedures seriously. There should be a service for payment processes in hospitals/health care facilities to help them understand more about this. To improve both quality and convenience for people in the health insurance payment process, hospital/health care facilities should be able to receive payment through bank accounts or mobile accounts instead of cash. This is a general trend of social development, and is supported by banks like BIDV, Vietinbank, Vietcombank… as well as from mobile company like Viettel. This is certainly a convenient, effective, and safe payment for everyone, especially for students who are very keen to use modern technology.

Improve the Communication: To promote the propagation and dissemination of the Health Insurance Law was made necessary because the level of students understanding the purpose of health insurance is low. Health insurance agencies are responsible for the organization of marketing activities on health insurance policies. To innovate and enhance the content of information, communication, advocacy, and education in various forms to raise the awareness of students about the meaning, importance of health insurance and obligations of each of the participants.

To make the propagation deeper into this group, the media channels, radio and television stations in the province is essential:

- Electronic media is information dissemination channel for students, we can order articles to provide knowledge and the benefits of health insurance for students if they participate. There is some news website which closes to the student as Vnexpress.net, kenh14.vn, hoahoctro.vn, sinhvienthainguyen.info… with costs estimated at 2,000,000 to 20,000,000 (VND).

- Thai Nguyen TV channel is also an important channel, which can provide information to a large audience of the local students. We can order a TV report about the work of health insurance and its benefits for students. The estimated cost 1,500,000-3,000,000 VND for one report.
- Besides, promotion activity through leaflets is not difficult. We can ask some energetic students to do this, in return, they can be rewarded for certification of their operations, help them have more achievements to reach the title at the school as "5 goods Student," title "Poinsettia flowers"... with normally cost but could reach very high efficiency.

Raise the Role of University/College: The researched results also showed that the role of the university in health insurance is not appreciated. To enhance the importance and effectiveness, we need to put criteria participation rate of health insurance is one of the evaluation criteria of the competition in colleges. Make sure the health station at college has at least one staff from the intermediate level or higher level and do not take apart of the health insurance fund for paying doctors salary. In addition, colleges need to strengthen the preparation of human resources, medical equipment, and facilities to make sure that the initial health examination at college is following the Vietnamese jurisdiction and policies.
It can also provide the content of health insurance in the early political program, seminars, or student talk and do the marketing through clubs in universities.

Other solutions: In fact, health insurance cost in Vietnam is still low in comparison to the obtained fund, and the remaining value of the fund is not able to meet the health care demand of health insurance owners. The fund of health insurance would be empty very soon if we keep obtaining health insurance cost in the same way. The health insurance premium is the factor that decides the benefits of patients and health care facilities. Due to inflation and the socio-economical development, health insurance premiums have definitely changed if we want to integrate between science and technical services to the community-based health care in the world. So, it is very important to change the health insurance premium. It should be raised to 600.000 to 700.000 VND per year.

The amount that goes up with each person buying insurance is not too much, but it helps for insurance agencies to add one more great resource for health care. In the case of poor-quality services, patients prefer visiting private health care facilities. While public health care facilities do not increase, the number of private hospitals has increased despite high health care cost. Patients participate in health insurance mainly due to financial reasons, they are forced to rely on financial support from the state or they will go to the private hospitals to look forward to being in the best care, which would tend to increase further and it would affect to the community health insurance process. So, the Social Security agencies need to link closely with other departments and agencies to have better solutions to make better health insurance policy to provide hospital systems with the best quality. To promote the outcomes and experiences in health insurance implementation, Thai Nguyen health insurance agency needs to coordinate with the Department of Education and Training, to further improve the development of health insurance to students with a target of 100% student would be protected by health insurance.

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QUESTIONNAIRE

I. Personal profile of respondents
1. Full name:..
2. Email:...
3. Ethnic...
4. Gender:

        Male ☐   Female ☐

5. Year of study:

1 ☐   2 ☐   5 ☐
3 ☐   4 ☐

6. Univerity/college: ....
....
....
7. Birthplace: ....
....
....
8. Residence:

        At home ☐   In accommodation ☐
        In dormitory☐   In friend's house ☐

9. Have you ever bought Health Insurance?

Yes ☐   No☐

II. Factors affecting your willingness to buy health insurance

Mark "x" to blanksquare that you choose. Value from 1 to 5 is equals to levels of agreeing and estimation increased. The meaning of values as below:

5	4	3	2	1
Strong Agree	Agree	Normal	Disagree	Strong Disagree

No.	Criterias	Level of evaluation				
I	Price	1	2	3	4	5
1	You think the price of health insurance is good					
2	The objects are supported on health insurance in the purchase price is very reasonable					
3	The current health insurance premiums are commensurable with the quality of service					
II	Quality of Insurance Service	1	2	3	4	5
1	The quality of health care insurance in medical examination and treatment is good					
2	The attitude of servants in health care facilities when patients use health insurance is good					
3	Medicine offered is very good when using the health insurance card					
4	You are happy to participate in health insurance					
5	The period from the purchase time to the issuance time of the card is very convenient for users					
III	Payment Mechanism	1	2	3	4	5
1	The current level of support from health insurance is reasonable					
2	Procedure for payment of health insurance is easy for the patients					
3	Time to receive payment of health insurance is fast and convenient					
IV	Communication	1	2	3	4	5
1	You understand about your right with health insurance					
2	There are a variety of communication channels to help you have a clear understanding of health insurance					
3	You are happy with the marketing about health insurance					
V	Role of University/College	1	2	3	4	5
1	The dissemination of health insurance in your university is very well					
2	The collection of health insurance in your university is fast, compact					
3	Your university is responsible for the students who are insured					
4	You feel the direct medical care at your university very well					
VI	Competition	1	2	3	4	5
1	Students prefer public health insurance than Commercial health insurance					
2	The quality of public health insurance is better than Commercial health insurance companies					
3	There are more rights to benefit from public health insurance than when participating in commercial health insurance					
VII	Willingness to buy Health Insurance	1	2	3	4	5
1	Health insurance in university meet your demand					
2	Sometimes, you wonder "Why should I buy health insurance"					
3	You wish to use health insurance					
4	You are willing to buy health insurance					

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