Conference Paper

Willingness to Pay for National Health Insurance Among Motorcycle Taxi Driver in Depok City, Indonesia

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Abstract

Since 2014, Indonesia has implemented the National Health Insurance (NHI) program. For the program to succeed, coverage for the large number of informal sector workers needs to be addressed. However, incorporating informal sector workers into the NHI system poses difficulties. One common group of informal workers is motorcycle taxi drivers. This study aimed to assess willingness to pay for NHI among motorcycle taxi drivers. This cross-sectional study included motorcycle taxi drivers who were staying at certain places. Three driver bases were chosen randomly. Accidental sampling was used to enroll 158 driver respondents. The number of participants from each base was proportional to the number of drivers at each location. A study instrument was developed for data collection, and it was tested for validity and reliability. To calculate the Willingness To Pay (WTP) value, a contingent valuation method with open bidding technique was used. The study showed that the wtp for NHI among the drivers was 19,364 Indonesian Rupiah (IDR) Per Member Per Month (PMPM) for class III inpatient service and idr 27,439 and idr 37,159 for class ii and class i inpatient service respectively. The wtp for NHI program among the drivers was far below the amounts of the NHI premium. The wtp value was affected by income, age, and knowledge of NHI benefits. The average monthly income of drivers was idr 1,971,161, which is less than the monthly minimum wage of depok city (IDR 3,000,000). Because motorcyle taxi drivers have both low income and low wtp for NHI, the authors propose they receive NHI premium subsidy from the government.

Keywords: Contingent valuation method; National Health Insurance; open bidding technique; Willingness-to-pay

1. INTRODUCTION

The goals of health development are to increase awareness and the willingness and ability of all people to improve their health. One of the Indonesian government's efforts

to achieve these goals is to implement the National Health Insurance (NHI) program, which began in 2014. The NHI is a form of social protection to ensure the fulfillment of basic health needs.

Participation is one indicator of the success of the NHI program. NHI membership for individuals in the formal sector and for government employees, such as civil servants, police officers, and members of the army, is already standardized.

However, there is no specific policy to reach all informal workers and ensure their enrollment in the NHI. The International Labour Organization (ILO; 2014) reported that approximately 59% of the workforce consisted of informal sector workers in 2010, and this number fell slightly to 53.6% in 2014. Despite this decline, the number of informal sector workers is still higher than the number of formal sector.

Recent data show that the number of NHI participants of non-wage earning workers is still low, at only 13% of the total workforce (BPJS Health, 2016).The expansion of coverage to the informal sector is a major challenge to attaining the universal coverage target in 2019. The difficulty of including informal sector workers and those with limited ability to pay dues in the NHI impedes the goal of universal coverage. Siswoyo (2013) showed that although informal sector workers' awareness of the NHI program was high, they generally delayed joining.

This study measured willingness to pay (WTP) using Contingent Valuation Method (CVM). CVM was used to measure the WTP of the public good by asking directly what the price is willing to pay for a product. To obtain the desired values of the WTP, there are several methods that can be selected (i.e., bidding game, open-ended question, close-ended question, and payment card).

Curt Lofgren, et al (2008) conducted a study on the WTP for health insurance in rural Vietnam using open-ended questions and examined the variables of age, occupation, household size, and education level. Doan and Hoang (2014) conducted a study of WTP in the informal sector in Hanoi, Vietnam, and they found gender, education, economic status, and history of chronic disease to affect WTP. Ibok (2012) reported that the factors that influence the use of health insurance are education, married status, income, age, access to health insurance information, and employment.

Depok city is a growing city that attracts many people looking for work. In fact, the population grew from 1.2 million people in 2003 to 2.03 million people in 2014 (www.depok.go.id).

There are motorcycle taxi bases in every sub-district throughout Depok city. Motorcycle taxi driver included in the category of informal sector workers with an erratic income depend on how many passengers they have each day.

In classifying NHI participants, drivers are included in the category of non wage earners with no regular monthly income, so they must be registered as independent participants and pay monthly dues to participate in the NHI. The nature of driving jobs places drivers at high risk for accidents and health problems from exposure to air pollution that can cause respiratory disease, allergies, etc. Therefore, they need health insurance to secure access to health services once they get health problems. The aim of the current study was to assess the WTP for NHI among the drivers and its determinants.

2. METHODS

This cross-sectional study examined the following characteristics of the respondents: age, income, knowledge of NHI benefits, family size, marital status, education level, and history of chronic disease. Sample selection was performed in two stages. The first stage we choosing the sample of motorcycle taxi bases in the Beji, Cimanggis and Sawangan sub districts using a simple random sampling method. The number of respondents in each base was proportional to the number of drivers in each location. Accidental sampling was used during the second stage to select respondents at each base.

To calculate the number of samples, a preliminary study was conducted to determine drivers' WTP for NHI. This study found that the WTP for NHI was 32,082 Indonesian Rupiah (IDR) for class I inpatient service, IDR 25,667 for class II inpatient service, and IDR 20,250 for class III inpatient service. Using the WTP values and the assumptions of error tolerance is 5% and the difference is IDR 5,000 we found that the minimum sample are 166 people.

The inclusion criteria for drivers include the following: had not yet joined the NHI, currently working full time as a driver, and had not joined an online motorcycle taxi application.

This study developed a data collection questionnaire, which had been tested for validity and reliability. The CVM with open bidding technique was used for data collection. The questionnaire was designed to ask respondents directly how much NHI dues they were willing to pay per month. Then, respondents received a description of the benefits of each inpatient class (I, II, and III), along with an explanation of the advantages of joining and the risks of not joining the NHI.

Table 1: Characteristic of Respondents (Numeric Scale)

Variable	Mean	SD	Min-Max	95% CI
Age (years)	41.57	10.39	17–63	[39.98, 43.16]
Family size	3.87	1.324	1–7	[3.66, 4.07]
Income (IDR)	1,971,161	819,603	1,137,500–4,251,400	[1,908,381, 2,096, 762]
Education (years)	7.62	3.4	0–12	[7.09, 8.15]
Willingness to Pay (IDR)				
Class III	19,364	7,627	5,000–37,500	[18,195, 20, 533]
Class II	27,439	8,872	10,000–50,000	[26,080, 28, 799]
Class I	37,159	13,781	16,500–75,000	[35,047, 39, 272]

Note. CI = confidence interval. WTP = willingness to pay. IDR = Indonesian Rupiah.

To determine the factors affecting the WTP for NHI in each inpatient class, the investigators used multiple linear regression analysis with the enter method to include all independent variables into the modeling.

3. RESULTS

Table 1 presents respondent characteristics and Table 2 describes categorical variables.

Table 2 describes the categorical variables, namely the experience of chronic disease, knowledge, and marital status.

3.1. Multivariate analysis

Multivariate analysis was performed in three stages: normality test, multicollinearity test, and heteroscedasticity test.

3.1.1. Normality test

The skewness test examined the normality of the data. It was found that the WTP data for class III and class II met the assumptions of normality, but the WTP data for class I was not normally distributed. Natural logarithm transformation was applied to obtain normally distributed data. After the transformation, the WTP for NHI for class I data met the test of assumptions.

TABLE 2: Distribution of Respondents by Categorical Variables

Variable	n	Percent of Respondents
History of chronic disease		
No	97	58.4
Yes	69	41.6
Knowledge of NHI benefits		
Poor	80	48.2
Modest	62	37.3
Good	24	14.5
Marital status		
Divorced	16	9.6
Not married	17	10.2
Married	133	80.1

3.1.2. Multicollinearity test

Variance inflation factor (VIF) was examined to determine if the data met the assumptions of collinearity. If the tolerance value is higher than 0.1 and the VIF value is less than 10, then the model is free of multicollinearity problems. The results indicated that multicollinearity was not a problem (include VIF statistics here).

3.1.3. Heteroscedasticity test

A Breusch-Pagan test was conducted to determine the value of variance in the dependent variable (WTP for NHI for classes I, II, and III). After data transformation, p =.3277 for class I, which indicates that the variable was not heteroscedastic and the assumptions had been met.

The results of the multiple linear regression analyses for WTP for NHI for classes III, II, and I are shown in Tables 3, 4, and 5, respectively.

Based on Table 3, income was the most influential factor on the WTP for NHI for class III. Higher income was associated with higher WTP.

Based on Table 4, income and age were factors that influence the WTP for NHI for class II. Higher income was associated with higher WTP, and increased age was associated with lower WTP.

TABLE 3: Results of Multiple Linear Regression Analysis of Willingness to Pay for National Healh Insurance for Class III

Variable	Coefficient	SE	p value
Constant	19,081.53	4,852.80	0
Age	-111.42	71.761	0.123
Family size	-242.69	458.55	0.597
Income	0.002	0.001	.014*
Education	169.41	194.1	0.384
Unmarried (Reff: Divorced and Married)	-801.07	2,862.80	0.78
Married (Reff: Divorced and Unmarried)	454.87	2,016.10	0.822
History of chronic disease	-542.48	1,190.60	0.649
Knowledge of NHI benefits modest (Reff: poor and good)	2,318.60	1,301.60	0.077
Knowledge of NHI benefits good (Reff: poor and modest)	-5.051	1,848.85	0.998
R	0.326		
R2	0.106		
p value	0.0366		
*Significant at p <.05			

Based on Table 5, age, income, and knowledge were the influential factors on the WTP for NHI for class I. For class I, higher income and better knowledge were both associated with a higher WTP. Additionally, increased age was associated with a lower WTP.

4. DISCUSSION

The WTP for NHI among motorcycle taxi drivers increased from IDR 19,364 per member per month (PMPM) for class III to IDR 27,439 PMPM for class II and IDR 37,159 PMPM for class I. These results show that higher NHI benefits are associated with an increased WTP. This WTP amount was higher than that reported by Mubaroq (2008), who found that street vendors in Jakarta were willing to pay IDR 15,000 PMPM.

The current study also reports a higher WTP than was found in a study by the ILO (2010), which showed that informal sector workers in Indonesia were willing to pay between IDR 10,000 and IDR 20,000 PMPM.

TABLE 4: The Results of Multiple Linear Regression Analysis of Wilingness to Pay for National Health Insurance for Class II

Variable	Coefficient	SE	p value
Constant	27,693.01	5,588.90	0
Age	-176.21	82.64	.035*
Family size	-78.77	528.1	0.882
Income	0.002	0.001	.024*
Education	173.69	223.54	0.438
Unmarried (Reff: Divorced and Married)	-1,909.56	3,297	0.563
Married (Reff: Divorced and Unmarried)	1,178.72	2,321.90	0.612
History of chronic disease	1,334.65	1,371.20	0.332
Knowledge of NHI benefits modest (Reff: poor and good)	2,502.90	1,499	0.097
Knowledge of NHI benefits good (Reff: poor and modest)	-270.98	1,371.20	0.899
R	0.352		
R2	0.124		
p value	0.0125		
* Significant at p <.05			

The NHI contributes IDR 25,5000 for class III, IDR 51,000 for class II, and IDR 80,000 for class I. Even though the WTP value found in this study was higher than in others, it was still low.

Multivariate analysis revealed differences in the factors affecting WTP for NHI between inpatient classes. The main factor that influenced the WTP for class III was income. The main factors for class II were income and age, and the main factors for class I were income, age, and knowledge. As informal workers, motorcyle taxi drivers have an inconsistent income, which changes day to day. This seemed to be a major consideration in planning monthly spending, including paying dues every month if they decided to be an NHI participant.

The average income of motorcycle taxi drivers was IDR 1,971,161 per month, which is lower than the minimum wage of Depok city. Driver income has declined since the introduction of online app-based motorcyle taxi companies, such as GO-JEK, Grab, and Uber. Users of independent motorcycle taxis shifted to online app-based motorcycle taxis to get a cheaper price. Many previous studies have described the relationship

TABLE 5: The Results of Multiple Linear Regression Analysis of Willingness to Pay for National Health Insurance for Class I

Variable	Coefficient	SE	p value
Constant	8,189	1.073	0
Age	-0.008	0.003	.016*
Family size	-0.001	0.021	0.958
Income	0.17	0.074	.023*
Education	0.004	0.089	0.62
Unmarried (Reff: Divorced and Married)	-0.83	0.131	0.528
Married (Reff: Divorced and Unmarried)	0.046	0.092	0.62
History of chronic disease	0.88	0.55	0.11
Knowledge of NHI benefits modest (Reff: poor and good)	0.128	0.06	.033*
Knowledge of NHI benefits good (Reff: poor and modest)	0.027	0.084	0.747
R	0.398		
R2	0.159		
p value	0.001		
* Significanct at p <.05			

between income and WTP in the informal sector, and the main concern appeares to be the uncertainty of informal sector income. These results are in line with the Ibok research (2012), who showed that income was associated with health insurance use.

The WTPs for all three NHI classes were associated with age. Also, a study by Ibok (2012) showed that age influenced health insurance use because the demand for health insurance increased with age.

The demand for health insurance is increasing along with the increase of age. Similar results were obtained from a study conducted by Doan and Hoang (2014), which indicated that age affected the WTP for health insurance.

In Sri Lanka, Bendig and Arun (2011) examined community participation in health insurance and found that older individuals had a higher WTP for health insurance. The authors asserted that this finding was related to the higher risk of morbidity faced by older individuals.

Age was negatively correlated with WTP for NHI. This negative relationship was predicted as the average age of the drivers was 40 years, and limited income caused a low WTP for NHI. In addition, older respondents had more family members and had to

pay higher NHI dues every month. The authors assert that these factors caused older drivers to have a lower WTP.

Multivariate analysis revealed that level of knowledge of NHI benefits was positively associated with WTP for class I. It appears that less knowledge about the benefits of and procedures for joining NHI caused a low WTP for NHI. Additionally, poor knowledge of NHI was presumably related to lower levels of education, leading to a poor understanding of the importance of health insurance coverage. Although the drivers, in general, had limited information about the NHI program (e.g., benefits, procedures), education level was not significantly related to WTP for NHI across the classes. Previous studies, however, have found a relationship between education level and WTP for insurance. Lofgren et al. (2008) found that education affected perception in understanding risk, the degree of reluctance to accept the risk, and perception of the extent of loss due to illness. Higher education level was associated with an increased knowledge and need for health services, which the authors purported could affect WTP. Similar results were obtained by Masanjala, who found that education level affected WTP for health insurance in Malawi.

Another interesting finding is that family size did not affect WTP for any of the classes of coverage. Several previous studies on family size showed different results. According to Lofgren, et al (2008), family size affected the head of the households' perceptions of how much risk and financial losses the families were facing. However, Habtewold (2009) found that family size was not related to WTP, and the larger the family size, the higher the dues for health insurance.

It is possible that family size was not related to WTP for health insurance because larger families have higher expenses, and remaining funds may not be sufficient to pay health insurance dues.

Similar to family size variable, the current study found that the history of chronic disease did not affect the WTP for NHI. These results differ from those found by Doan and Hoan (2014), who found that people with a history of chronic disease in Vietnam had a higher WTP than those with no history of chronic disease. This is similar to the phenomenon of adverse selection in health insurance. In Wuhan, China, Barnighausen (2007) found that people with chronic disease had a higher need for health services. The difference between the studies could have been caused by respondents preferring to go to lower cost health centers than to pay dues for health insurance.

Marital status did not affect WTP for NHI only for class III. These results differ from those found by Nketiah-Amponsah (2008). In Ghana, marital status was found to be positively related to WTP, and married women were more likely to have a higher WTP

for health insurance than unmarried women. It is possible that, in the current study, marital status did not affect WTP for NHI because only 10.2% of the respondents were unmarried.

5. CONCLUSIONS

The average income of motorcycle taxi drivers in Depok City is lower than the minimum wage. This is a main cause for drivers' WTP for NHI being lower than the NHI dues for all three classes. The higher the class offered the more factors affect the WTP. Income, education, and knowledge of NHI benefits are positively correlated with WTP for NHI, and age is negatively correlateed with WTP for NHI. The results of this study encourage the local government to register the drivers as beneficiaries of the NHI subsidy program because their income is below minimum wage, and they can be considered poor. To prevent catastrophic health costs to drivers, it is necessary to provide a socialized form of NHI to motorcyle taxi drivers.

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