Analyzing the community decision making to purchase pet insurance: Case study of animal lovers in Indonesia

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CHRONICLE	ABSTRACT
	This study aims to measure people's decision-making to buy their pet insurance and compare it with the amount of insurance premium rates offered. It is important due to the increase in people's income which has triggered the birth of a community of pet lovers as part of the middle-class people's lifestyle in Indonesia. The survey data was conducted using the Stated Preference (SP) format through questionnaires and interviews to determine the public response to pet insurance premiums. The collected data were analyzed using descriptive methods, decision-making analysis was on the basis of the choice of the dichotomous Contingent Valuation Method (CVM), and logistic regression analysis. Based on the calculation analysis using the logit method shows that the ability of the public to pay pet insurance premiums is IDR289,454.54. Analysis of calculations using the Turnbull method was obtained at IDR365,000.00. The results of the WTP amount, both using the logit method and using the Turnbull method, are greater than the minimum premium amount offered which is IDR190,000.00. The results of this study indicate that the premium rates for pet insurance offered are still within reasonable limits, compared to the size of the decision-making by the animal lover community in Indonesia. This provides a very good prospect for insurance companies that have insurance products for pets in Indonesia. This study was conducted to provide empirical evidence that the decision-making of the animal lover community is greater than the premium rate for pet insurance that has been offered. Thus, this research strongly supports the development of pet insurance companies in Indonesia, which can provide pet protection to stay healthy and well looked after.

1. Introduction

Keeping pets at home is fun, and it is getting liked by all members of the community. The types of pets being kept are also increasingly varied. Pets can be cats, dogs, ferrets, and reptiles. For some people, raising animals is not only used as a recreational activity, and not only as a playmate, it turns out that raising animals provides several other positive benefits for the keepers (Castillo-Huitrón et al., 2020). Unconsciously, the keeper will think that the pet is part of a family member that fosters a sense of affection for the keeper (Martens et al., 2019). These feelings can lead to caring, empathy, and strong bonds. Owning a pet can foster high self-confidence in children because pets are often seen as family or playmates who love their keepers for who they are. When meeting his friends, talking about his cute and adorable pets might be a fun topic (Churchill & Ward, 2016). Gradually, this condition can grow self-confidence in children. Owning a pet fosters a sense of responsibility to the keeper. Because they think of them as a family that needs attention, and are responsible for giving them food, and drink, playing with them, and allowing them to rest. Having a pet can reduce boredom or boredom. When we do

not have friends to play with, pets are a great choice to play with. Seeing cute pet behavior can also eliminate boredom and boredom (Su & Martens, 2017; Prokop & Fancovicová, 2016).

In recent years, most Indonesians have become pet owners. Caring for pets has a risk in the form of animal health itself (Srilertchaipanich, 2015). Although the cost of pet health care is not as expensive as humans, it is necessary to do health care because some pets are vulnerable to disease and can pose a health threat to humans (Churchill & Ward, 2016; Azhar et al., 2018; Jofre-Bonet & Kamara, 2018). Therefore, it is necessary to carry out regular vaccinations to protect pets from diseases and their effects on humans (Mutaqin & Usami, 2019; Taslim et al., 2020a; 2020b). Also, the risk of accidents that suddenly can sometimes occur in pets, in the form of pets can be lost or stolen and even die. In general, people who have decided to have a pet will always keep their pets mentally and physically healthy. To minimize the risks that occur, the best medical care must be given to their pets (Flegr & Preiss, 2019; Owen, 2019).

Minimizing the risks that will occur in pets can be done with an insurance system (Golubyatnikova et al, 2019; Dobson et al., 2002; Poret, 2019). Pet insurance in foreign countries is no stranger. Moreover, some countries such as France and Japan already have regulations regarding the protection of animals both animals in general and pets. Insurance is a financial tool for managing risk (Bon et al., 2018; Saputra et al., 2018; Sidi et al., 2018; Sidi et al., 2017.a; 2017.b; and Sukono et al., 2017.a; 2017.b). Insurance is an agreement that occurs between two parties (Sukono et al., 2018; Sidi et al., 2019; Saputra et al., 2019; and Prabowo et al., 2019a; 2019b). The first party is obliged to pay contributions (premiums) that have been determined and agreed upon (Sukono et al., 2014; Riaman et al., 2018). Whereas the second party is obliged to provide a full guarantee to the payer of premiums in this case the first party if there is a risk that befalls the first party or his property by the agreement that has been made and agreed (Sukono et al., 2017; Sukono et al., 2019a; 2019b; 2019c; and Cahyandari et al., 2017).

The problem in this research is how much the decision to pay pet insurance premiums is reasonable for the pet lover community. To find out the decision of willingness to pay insurance premiums, several researchers have conducted research. Elsantil & Hamza (2019) and Eslamian et al. (2016) have made observations that show that most people are willing to spend money to improve the quality of life of their pets. Pet owners consider their pets as members of their family. Some pet owners can even owe money to provide welfare for their pets. The demand for insurance will increase if the owner has a feeling of love for what they can insure (Pauliuc et al., 2018). The pet insurance business will continue to grow because there is demand from pet owners (Curran, 2018). The research of Guidotti et al. (2018), used traditional C4.5 decision tree induction in insurance companies to design marketing strategies. This is done to obtain optimal results for pet insurance companies.

Shaik et al., (2008) studied the willingness to pay for a potential insurance policy: a case study of trout aquaculture. The results of their study found that the producers have an "effective" interest in insurance that is, they are willing to pay for the product. Also, the producer's willingness to pay premium rates of 2 to 11 percent for insurance. Further, Srilertchaipanich (2015) estimated the willingness to pay pet insurance premiums in Bangkok. Estimation is carried out using the preferred method in evaluating the response of the animal owner to the amount of the insurance premium and coverage. Data obtained through a questionnaire survey, estimated using the Logit regression model, to estimate willingness to pay for each attribute in the product. The results of the study, which involved eighteen combinations of three variations, showed that the three variations were pet age (young, adult, old), pet size (small, large), and plan type (economy, standard, first-class). The main independent variables which include the amount of routine spending on pets, presence of disease in pets and age of pet owners have a significant effect on insurance purchasing decisions. Estimates of willingness to pay insurance premiums range from 439.70 baht to 4,670.23 baht depending on the insurance coverage purchased.

Table 1
The model with major variables

Reference	Title	Methodology	Major Variable
Xiu, Xiu, Bauer (2012)	Farmers' willingness to Pay for Cow insurance in Shaanxi Province, China	Contingent Valuation Method (CVM) and Heckman selection model	Age, Gender, Time, Education, No. of Cows, income, etc.
Khan, Chander, and Bardhan, (2013).	Willingness to pay for cattle and buffalo insurance: an analysis of dairy farmers in central India	Semistructured interview schedule, Contingent valuation approach and statistically analysed	Age, Caste, education, occupation, etc
Williams et al., (2016)	Consumer preferences for pet health insurance	Random Parameter Logit and Multinomial Logit Model	Age, male, child, education, employed, etc.
Carlson et al., (2019)	Monetizing Bowser: A Contingent Valuation of the Statistical Value of Dog Life	value of statistical life, Estimation method and Contingent Valuation Method (CVM)	Age, female, race, Hispanic, Insurance, etc
This Proposed	Analysis of Community Decision Making to Purchase Pet Insurance: The Case of Animal Lovers in Indonesia	Contingent Valuation Method (CVM) and Logistic Regression Model	BID, Age, race, education, income level, etc/

Besides, Williams et al., (2016) investigated the consumer preferences for pet health insurance. This study uses a choice experiment survey. The results of their study are that pet insurance premium, reimbursement level, unlimited benefits and wellness included in pet health insurance plans have significant effects on their purchase decisions. Furthermore, Carlson et al. (2019, 2020) studied the value of statistical dog life (VSDL). They use a contingent valuation of a national sample of dog owners that elicited willingness to pay for changes in mortality risk for pet dogs. The result of this study recommended $10,000 as the value of statistical dog life (VSDL). By following the previous description, we are interested in measuring the community's willingness to pay (WTP) of pet owners to make their decision in buying a pet insurance policy in Indonesia. The willingness to pay for pet insurance will be calculated using the Contingent Valuation Method (CVM). The model with major variables can be seen in Table 1. On the basis of previous studies, the current study aims to calculate and determine pet insurance premiums. Also, to analyze the decision of willingness to pay and investigate the factors that influence the decision of animal owners' willingness to pay pet insurance premiums.

2. Materials and methods

2.1 Concept of Contingent Valuation Method (CVM)

The Contingent Valuation Method (CVM) allows all commodities not traded on the market to be estimated in economic value. CVM is a direct calculation method, in this case, it directly asks for a decision on willingness to pay to the public with an emphasis on individual preferences for valuing public objects with an emphasis on money/monetary value standards (Mutaqin & Usami, 2019). One of the most commonly used CVM models is the dichotomous model (Mitchell and Carson, 1989). Limaei et al. (2016), state that this approach is the best alternative to answer the deficiencies of the Contingent Valuation approach which is based on open questions and bidding games. This approach is considered closer to the theory than other models, such as open-ended CVM or CVM bidding games. In general CVM analysis involves three main stages namely (Gupta & Kumar, 2019; Sanmukhiya, 2019):

a) Identification of goods and services to be evaluated, that is, researchers must first have a clear concept of what will be evaluated, changes in the quality and quantity of what is a policy concern and what types of non-market goods and services will be evaluated.
b) Hypothetical scenario construction is a type of question and the proposed scenario will greatly affect the outcome that will be generated in the CVM analysis. There are three essential elements in this stage, namely a description of the policy changes to be evaluated, a description of the market to be developed, and a description of the payment method.
c) The elicitation method is a technique to extract information about the ability to pay from respondents by asking the amount of payment through a certain format. Elicitation format in CVM generally consists of five types, namely open-ended, Bidding game, Payment card, Single bounded dichotomous, and double bounded dichotomous.

2.2 Calculation Of WTP Value Using The Logit Method

Decision willingness to pay (WTP) can be interpreted as the maximum amount a person decides who is willing to pay to avoid decreasing something (Kim, 2018; Liu et al., 2018; Mbabazi, 2016). Makwinja et. al. (2019) and Oduniyi et al. (2020), The willingness to pay (WTP) decision is one part of the CVM (Contingent Valuation Method) that will be used in this study. The right approach for estimating willingness-to-pay decisions is with CVM. CVM is a direct economic assessment method through a person's Willingness to Pay (WTP) question. The logit model is a non-linear regression model that produces an equation where the dependent variable is categorical. The expected value of WTP can be estimated from the two coefficients obtained from logit namely α and δ. WTP average expectation values are:

$$E(WTP) = -\frac{\alpha}{\delta} \tag{1}$$

 with
α: vector coefficient related to the independent variable
δ: coefficient vector related to "bid"

2.3 Calculation Of WTP Value Using The Turn Bull Method

Turnbull method is a non-parametric approach to the calculation of the value of losses and economic values. This approach relies on the "yes" and "no" distribution of respondents to the auction question response (Wang & Zhang, 2019). If the respondent answers "no" to the auction value offered, then the maximum WTP value will be lower than the auction value (Zhang & Qian, 2018; Slingerland, 2019).

The lower bound value of WTP can be calculated using the following formula:

$$E(WTP) = \sum_{j=0}^{M} B_j (F_{j+1} - F_j) = \sum_{j=0}^{M} B_j f_j^* \tag{2}$$

The diversity (variance) of WTP is:

$$V(E_{LB}(WTP)) = \sum_{j=1}^{M} \frac{F_j(1-F_j^*)}{T_j^*}(B_j - B_{j-1})^2 \qquad (3)$$

with

F_j : "No" Distribution

T_j : Total respondents

N_j : Number of responses answered "no"

B_j : Auction / Bid value

F_j^* : $F_{j+1} - F_j$

J : 1,2,3,4

2.4 Logistic Regression Model

Logistic regression is one of the statistical models that can be used to analyze the pattern of relationships between a set of independent variables with a categorical or qualitative dependent variable (Koster & McElreath, 2017; Purwandari et al., 2019; Rahmani et al., 2019). The interpretation of the logistics model is the same as the OLS model, which is the slope of the parameters. The slope is interpreted as a change in logit (p) due to changes in one free variable unit. The advantage of using logistic regression is the presence of odds ratios. Odd is the chance of an unsuccessful occurrence of the response variable. The ratio indicates how likely it is with the odd value of the emergence of a successful event in one group compared to another group. If the observation Y to i is agreed / willing to pay then denoted Yi = 1, the opportunity is Pi, while the opportunity for Yi = 0 (disagree) is (1-Pi). The logit function must be transformed so that it becomes a linear form, one form of transformation is known as logit transformation (Anjum, 2019).

$$Li = Ln\left(\frac{Pi}{1-Pi}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_j x_j \qquad (4)$$

where the Odds ratio is as follows:

$$\left(\frac{Pi}{1-Pi}\right) \qquad (5)$$

Li is known as logit, which is the logarithm of previous and linear ratios in independent variables and parameters. Parameter estimation of the logistic regression method can be done by using the Maximum Likelihood Estimator (MLE) method, where the optimal parameters can be obtained by the numeric method.

Testing of model parameters is done to check the goodness of the model. The statistical test performed was using the G test statistic and the Wald test statistic.

a) Test G

The results of the simultaneous significance test are based on the G test statistic. The G test statistic is the maximum likelihood ratio test used to test the role of independent variables simultaneously (Sidi et al., 2017b; Sirait et al., 2020)

The general formula for the G test is:

$$G = -2\ln\left[\frac{L_0}{L_1}\right] \qquad (6)$$

with

L_0 : Likelihood without independent variables

L_1 : Likelihood with independent variables

With a hypothesis:

$$H_0 : \beta_1 = \beta_2 = \dots = \beta_p = 0$$

H_1 : there is at least one value $\beta_i \neq 0$

i : 1, 2, 3,…,p

The G test statistic follows the distribution of chi-square ($\chi 2$) with free degrees p. The rule of decision is to reject H_0 if $G >^2_{p(\alpha)}$.

b)   *Wald test*

To test the compatibility coefficient, we can use the Wald test (Sidi et al., 2017.b; Sujarwo & Rukmi, 2018). The Wald test is a univariate test for each logistic regression coefficient (often called a partial test).

- H_0 : univariate predictors did not significantly influence response $(\beta_i = 0; = 0,1,2,...,p)$.

  H_1 : univariate predictors significantly influence response $(\beta_i \neq 0; = 0,1,2,...,p)$.

- Level of significance: α
- Test Statistics:

$$Wi = \left(\frac{bi}{SE(bi)} \right)^2 \qquad (7)$$

  with
  bi :   Estimator bi
  $SE(bi)$:   Standard error estimator of bi

- Critical area: H_0 is rejected if $|Wi| > |Z_{\alpha/2}|$

3. Results and discussions

3.1 Characteristics of Respondents

The data were obtained from questionnaires and interviews with 40 respondents, pet owners in the city of Bandung. The data sample was 40 respondents, 24 (60%) of whom were women and 16 respondents (40%) were men. Based on data processing using Microsoft Excel, obtained data on pet types namely Poodle, Terrier, Pomeranian, Bulldog, Chihuahua, Golden, Siberian Husky, and others. Percentages of respondent pet types are shown in Fig. 1.
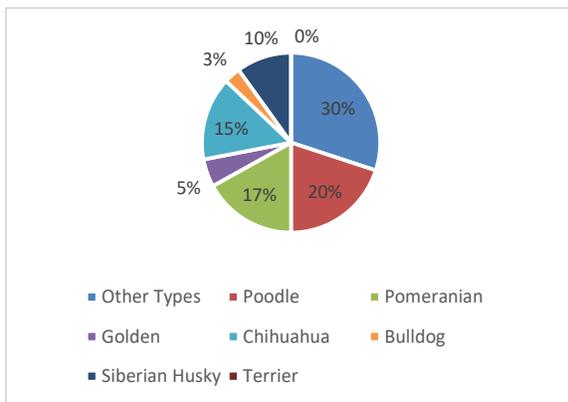
Fig. 1. Type of Pet
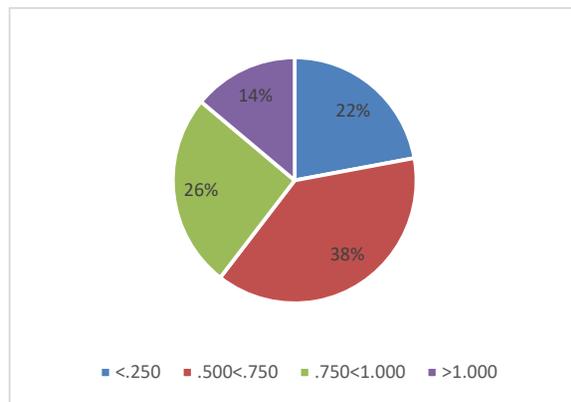
Fig. 2. Pet Monthly Expenditures (IDR $\times 10^6$)

Fig. 2 displays the monthly expenditure data for pets. There are 5 monthly expenditure ranges for pets that are less than IDR 250,000.00 (14%); IDR 250,001 - IDR 500,000.00 (19%); IDR 500,001.00 - IDR 750,000.00 (33%); IDR 750,001 - IDR 1,000,000.00 (22%) and more than IDR 1,000,001 (12%). The data shows that expenditure for pet dogs that has the most pet expenses is IDR 750,001.00 - IDR 1,000,000.00. Each proportion of monthly expenditure is shown in Fig. 2. Also, during the interview stage, a survey was made related to the health of their pets. At that stage, they were asked if their pets were sick. Based on interviews with pet owners, data obtained 55% of them said NO and 45% said YES. Data shows that more dogs are in good health, at 55% and 45% in sick animals.

3.1 WTP Value Calculation Using The Logit Method

The logit method in this study was processed using Minitab software with binary logistic regression. Where the response variable is the decision of the respondent "agree" or "disagree" on the value of the offer in question. After processing by

entering the response variable in the form of a decision to agree/disagree with the respondent, a logistic regression model is obtained as follows:

$$Li = 1.27326 - 0.0000042\,BID + 0.493961\,US + 0.182781\,PKRJ + 0.0474858\,PEND$$
$$+ 0.0000002\,PENH + 0.0706003\,JENS$$

with

Li : Opportunity for the community to decide whether or not to pay

β_0 : Interception

β_{1-6} : Regression Coefficient

BID : Product Price in Rupiah
US : Pet's age
$PKRJ$: Type of Work
$PEND$: Education Level
$PENH$: Income Level (IDR)
$JENS$: Types of pets

WTP of respondents with equation 1 as follows:

$$E(WTP) = -\frac{\alpha}{\delta}$$
$$E(WTP) = -\frac{1.27326}{-0.000042} = IDR\ 289,454.54$$

So the expected WTP or E(WTP) obtained is IDR 289,454.54 WTP aggregate or total WTP that can be obtained to estimate the WTP decisions of all pet owners in the city of Bandung. The total WTP is obtained from the multiplication of the WTP value with the number of pet owners in the city of Bandung which recorded 133 people in 2019. The total WTP obtained was IDR 37,918,444.74. The proportion of WTP to income from pet owners is 6.34%. If we compare Bangkok, The estimated willingness-to-pays ranged from 439.70 baht to 4,670.23 baht depending on the conditions of the insurance plans (Srilertchaipanich, 2015). Also in India, The mean WTP per year for the indigenous cow, crossbred cow, and buffalo were Rs 246, 771, and 656, respectively (Khan, Chander & Bardhan, (2013). Furthermore, in Shaanxi province (China), the average insurance value for such per cow was Yuan 4,000. According to a 5% premium rate and 50% subsidy from the government, farmers should pay 100 Yuan per cow per year.

3.2 WTP Value Calculation Using The Turn Bull Method

The expected WTP decision from the turn bull method is IDR 365,000.00. WTP results are obtained by using the calculations in equation 2 as follows:

$$E(WTP) = \sum_{j=0}^{M} B_j (F_{j+i} - F_j)$$
$$= \sum_{j=0}^{M} B_j f_j^*$$
$$E(WTP) = (190,000 \times 0) + (225,000 \times 0.1) + (375,000 \times 0.3) + (575,000 \times 0.4)$$
$$= 365,000.00$$

The variance value of WTP with equation 3 is as follows:

$$V(E_{LB}(WTP)) = \sum_{j=1}^{M} \frac{F_j(1 - F_j^*)}{T_j^*}(B_j - B_{j-1})^2$$

$$V(E_{LB}(WTP)) = \sum_{j=1}^{M} \frac{0.2(1-0.2)}{10}(190,000 - 0)^2 + \frac{0.2(1-0.2)}{10}(225,000 - 190,000)^2$$
$$+ \frac{0.3(1-0.3)}{10}(375,000 - 225,000)^2 + \frac{0.6(1-0.6)}{10}(575,000 - 375,000)^2$$

$$V(E_{LB}(WTP)) = (0.016 \times 36,100,000,000) + (0.016 \times 1,225,000,000) +$$
$$(0.021 \times 22,500,000,000) + (0.024 \times 40,000,000,000) = 2,029,700,000$$

The variant obtained from the above results is IDR 2,029,700,000. This variance/variability value can be used to calculate how much confidence we have in the estimated average value of the WTP decision. From the results of the variant, the standard error is IDR 45,052.00. So that the 95% confidence interval for the lower bound WTP decision will be 365,000 ± 1.96 (45,052.19) or 365,000 ± 88,302.29 or IDR 453,302.29 and IDR 276,697.71 Total WTP can be obtained to estimate the WTP decision for pet insurance premiums on a whole. The total WTP decision obtained was IDR 47,815,000.00. The proportion of WTP decisions to the income of animal owners is 8%. This value illustrates the proportion of the WTP decision value paid by pet owners for pet insurance premiums towards pet owners.

3.3 Factors that affect the Willingness to Pay pet insurance

Related to the decision of the pet owner's willingness to pay pet insurance premiums. Some factors or causes influence the public's decision to provide a pet premium assessment. In this study, the response variable used is in the form of a choice of whether or not to pay a premium. Respondents who decided that they were willing were given a score of one and those who decided not were given a score of zero. Seven independent variables influence the decision of people's willingness to pay pet insurance premiums, including the value of the offer, the age of the pet, occupation, education level, income, and the type of animal. Factors that have significant influence can be determined using logistic regression analysis through statistical software that is this study using Minitab software. The results of the analysis of influencing factors can be seen in Table 2.

Table 2
Results of an analysis of the factors that affect the willingness to pay pet insurance premiums.

Parameter	Coefficient	P-Value	Odds ratio
Bid (IDR)	-0.0000042	0.131	1.00
Type of animal	0.0706003	0.649	1.07
Animal age	0.493961	0.388	1.64
Type of work	0.182781	0.630	1.20
Level of education	0.0474858	0.907	1.05
Income level	0.0000002	0.729	1.00

Log-Likelihood = -23.161			
Test that all slopes are zero: G = 5.473; DF = 6; P-Value = 0.485			
P-Value = evident at the level α = 10%			
Goodness-of-Fit Tests			

Method	Chi-Square	DF	P
Pearson	36.4746	31	0.229
Deviance	43.5497	31	0.067
Hosmer-Lemeshow	12.2763	8	0.139

The results of the regression significance test were simultaneously based on G test statistics. G test statistics are hypothesis testing to see whether all the coefficient factors are bid, animal age, occupation, education level, income level, and pet type with zero. Based on the results of the log-likelihood of -23,161 resulting in a G statistic of 5.473 and a P-Value of 0.485 so that the null hypothesis must be accepted, which means that no at least one slope model is not equal to zero or independent variables simultaneously have a significant effect on the probability of deciding whether to agree or not. agree to pay a premium according to the offer offered at the real rate α = 5%.

So, it can be concluded that the resulting regression model is quite good. The interpretation of each independent variable is as follows:

a.   Bid

The supply variable is important because the value of the offer determines whether people decide whether or not to pay the value of the offer offered. The coefficient is negative (-) which means that the supply variable has a negative effect, the lower the value of the offer, the greater the chance of deciding to agree. The supply variable has a coefficient of -0.0000042 which means an increase in the value of the offer of Rp. 10,000.00 will affect the probability of deciding to disagree by 0.42%. The supply variable has a P-Value of 0.131 which indicates that the variable has no significant effect at the level of significance = 10%. The odds ratio value of the supply variable is 1.00, which means that the lower bid value influences the respondents to decide they are willing to pay WTP one time greater than the higher bid value.

b) Age of Pets

The pet's age variable has an important influence on the likelihood and amount of loss (care costs) for the pet; Physically, the older the pet, the more likely it is that pet sickness will occur. The coefficient is positive (+) which means that the animal age variable has a positive effect, the older the pet, the greater the chance of deciding to agree. The animal age variable has a coefficient of 0.493961 which means that the increase in the age of the animal 10 years will affect the chances of deciding to agree by 4.9%. The animal age variable has a P-Value of 0.388 which indicates that the variable has no significant effect on the significant level $\alpha = 10\%$. The odds ratio value of the income variable is 1.64 which means that the higher age of the animal influences respondents to be willing to pay a WTP one times greater than respondents who have lower pet age.

c) Work

The coefficient is positive (+) which means the type of work variable has a positive effect, the higher the level of one's work, the greater the chance of deciding to agree. The variable type of work has a coefficient of 0.182781, meaning that an increase of 1 level of work will affect the chance of deciding to agree by 0.18%. The type of work has a P-Value of 0.630 which indicates that the variable has no significant effect on the real level $\alpha = 10\%$. The value of the income variable odds ratio is 1.20 where the higher type of work influences the respondent to decide to be willing to pay WTP one time greater than the respondent whose type of work is lower.

d) Education Level

Educational level variables can influence how individuals see insurance. Higher educated people may better understand how the costs and benefits compared to insurance. The education level variable has a coefficient of 0.0474858, meaning that an increase in 1 level of education will affect the chances of deciding to agree by 0.04%. The type of work has a P-Value of 0.907 which indicates that the variable does not have a significant effect on the real level of $\alpha = 10\%$. The odds ratio value of the education level variable is 1.05, which higher level of education influences respondents to be willing to pay a WTP one times greater than respondents whose education level is lower.

e) Income Level

The income level variable is very influential because this is a clear key variable for insurance purchase decisions. Variable income level has a coefficient of 0.000002 means that an increase of IDR 100,000.00 in the level of income will affect the opportunity in deciding to agree by 0.2%. The level of income has a P-Value of 0.729 which indicates that the variable does not have a significant effect on the level of significance $\alpha = 10\%$. The odds ratio value of the income level variable is 1.00 which higher income level influences respondents to be willing to pay a WTP one times greater than respondents whose income level is lower.

The goodness of the model test with the Pearson, Deviance, and Hosmer Lemeshow methods obtained a P-*value* on Pearson of 0.229; Deviance of 0.067; and Hosmer-Lemeshow by 0.139. The expected P-value of each method is greater than 0.100 (using a 10% significance level) because the null hypothesis is a good model for transferring data (model fit). The Deviance and Hosmer-Lemeshow method results in the conclusion that there is not enough evidence to conclude that the model obtained is not good in data fit, while the Pearson method is obtained by the opposite conclusion.

4. Conclusion

In this paper, the Contingent Valuation Method (CVM) is used in Bandung, West Java Province, Indonesia to obtain data on the willingness to pay (WTP) decisions for pet insurance premiums, for pet owners. The data sample was 40 respondents, 24 (60%) of whom were women and 16 respondents (40%) were men. There are total combinations of pet insurance products. The attributes include Bid (IDR), type of animal, animal age, type of work, level of education, and income level. Based on the characteristics of pet owners, it can be concluded that the dominant pet owner is female, has a fairly high education and belongs to the middle and upper classes of society. The majority of family dependents are two people, have pets with an average age of 2-5 years, and an average income of IDR 3,500.00 per month. The decision value of the willingness to pay (WTP) for pet insurance premiums is obtained in two ways, namely the logit method and the Turnbull method. The expected WTP result from the logit method is IDR 289,454.54. The expected WTP from the Turnbull method is IDR 365,000.00. The result of this WTP decision is greater than the minimum premium offered, which is IDR 190.000,00.

The value of the WTP decision obtained illustrates the PAP decision of pet owners to buy pet insurance premiums. The factors that affect the willingness of pet owners to pay pet insurance premiums are influenced by the value of the offer, age of the animal, type of work, education level, income level, and type of pet. After the logistic regression, it turns out that there are no variables that have a significant effect. This study only includes variables: bid, age of pet, occupation, level of education, and level of income. Of course, it does not rule out other variables to have a significant effect. This study also uses only 40 possible sample data, so the analysis results may not be accurate. Therefore, further research was carried out covering other variables that were considered to have a significant effect, and analysis was carried out using more data samples.

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