The Seybold Report

ISSN 1533-9211

DOI 10.5281/zenodo.8240958

ANALYSIS OF CONSUMER'S WILLINGNESS TO PAY FOR VARIOUS TYPES OF ORGANIC VEGETABLES IN SAMARINDA

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Abstract

The study was conducted using quantitative approach, which analyzed latent variables that relate to the consumer's purchasing power on organic vegetables using a scale in which the values can be measured. Results of the study on consumer classification showed that 73% of data accuracy in determining consumers "paying" and "not paying". There were 41 consumers who were not willing to pay the organic vegetables, which comprised of 15% consumers, gave reasons that they are satisfied with condition of the vegetables consumed at this time, and 26% consumers presumed that they do not afford to pay. Results of CVM analysis showed that maximum average of Willingness to pay (WTP) for each commodity was IDR 18 738 per kilogram for cabbage (*Brassica oleracea*), IDR 30 048 per kilogram for lettuce (*Lactuca sativa* L.), IDR 40 250 per kilogram for broccoli (*Brassica oleracea var. italica*), IDR 24 368 per kilogram for pak-choi/bok choy (*Brassica rapa* L.), and IDR 19 820 per kilogram for carrot (*Daucus carota*). Factors that Influence Consumers to Pay Organic Vegetables in Samarinda, partially there were 3 variables that have a significant effect on decision to pay organic vegetables such as Age (X_1), Occupation (X_3), and Price (X_6). These can be seen from significance that significantly affect with sig < 5%.

Keywords: Willingness to Pay; Organic Vegetable; Samarinda

INTRODUCTION

Samarinda is the capital city of East Borneo Province. Samarinda has tropical climate and high rainfalls, so that water supply is sufficient along with podzolic soil 57.5% of the urban area width that could support the agricultural sector. Moreover, agricultural sector is also supported by the river flows as the economic artery that makes Samarinda has strategic position for the economy in East Kalimantan (Marsal et al., 2023). In considering this, it is reasonable to say that Samarinda has the potential for agricultural development.

A healthy lifestyle is increasingly in demand by the world community today (Mozaffarian 2022; Noort et al., 2022), including the community in Samarinda. Various activities are conducted by the community to improve standard of living of health. The consumer's awareness on food security and environment issues have increased the demand for organic vegetables and increase the interest in organic farming, especially for urban middle class community (Sudirja, 2008; Tzouramani, Pavlos Karanikolas and George Alexopoulos, 2008).

Willingness to pay is the highest price of a person (consumer) (König et al., 2022; Yan & Zhao 2022), which is willing to pay for a benefit, goods or services, and make a benchmark for how

The Seybold Report
ISSN 1533-9211
DOI 10.5281/zenodo.8240958

musch potential consumers appreciate the goods or services and is an economic value which is defined as a measurement of the maximum number of people who are willing to sacrifice goods and services to obtain other goods and services, as well as Willingness to pay for goods or services that derived from natural resources and environment formally (Amelia, 2016; Kamal, 2014).

Willingness to pay is maximum price of goods, which is going to be purchased by consumer in certain time (Zhao and Kling, 2005). Willingness to pay is actually price in which the consumers reflect values, the values of goods and services, as well as sacrifices to obtain them (Simonson & Drolet, 2003). Willingness to pay means the community's willingness to accept or receive the burden of payment in accordance with the amount that has been set.

The consumer preference for organic foods may foster the consumer desires to purchase the organic products (Xie et al., 2015). So that, the increased demand of consumers, which is combined with the production chain organization will strengthen development of the organic sector (Tzouramani et al., 2008). Riana et al. (2019) studied on organic rice in Semarang, suggested that the demand of organic rice in Semarang has increased along with the shift of community to a healthier lifestyle. Distribution of organic rice is rarely found in traditional markets, but mostly found in modern markets. Organic rice has not been distributed evenly due to higher price than non-organic rice. Results of the research showed that 88% respondents were willing to pay more with an increase of between 5% and 25% of the current price of organic rice.

Therefore, the research becomes important to know market segmentation, consumers' willingness to purchase, and maximum value of the consumers' Willingness to pay for organic vegetables as part of efforts to strengthen organic vegetable farming in Samarinda.

METHOD OF THE RESEARCH

Research Approach

Study on Willingness to pay for organic vegetables in Samarinda was conducted by quantitative approach. It analyzed latent variables that related to consumers' purchasing power for organic vegetables using scale whose values can be measured, so that it could measure the consumers' Willingness to pay for organic vegetables. Values of the consumers' Willingness to pay (WTP) are obtained from Contingent Valuation Method (CVM) method. CVM analysis was conducted in several steps such as setting up hypothetical market, determining auction value (bidding games), calculating the mean of WTP, estimating WTP curve, and WTP aggregation (Fauzi, 2006).

Location and Time of the Research

The research was conducted at several locations that sell organic vegetables in Samarinda. Locations of the research were determined by purposive sampling or selected the locations based on the biggest sales for organic vegetables in Samarinda.

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ISSN 1533-9211
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Technique in Determining Respondent

This research used accidental sampling method to take samples of the organic vegetable consumers. Accidental sampling is a technique in choosing samples of people or units that are easiest to find and access. It conformed to the suggestion from Sugiyono (2011) that accidental sampling is accidentally taking respondents as samples. Respondents are consumers who purchase organic vegetables at several locations that marketing organic products. There were 100 respondents who represented the populations. The research was conducted for 5 months from June to October 2021.

Data Collecting Technique

Data collecting technique used primary and secondary data methods. Primary data was obtained through observation method and interview using questionnaires. Moreover, secondary data was obtained from reports and documentation of the related parties, especially business actors, government agencies, research and other relevant documentation.

Data Analysis

Contingent Valuation Method (CVM) was applied to measure the consumer's Willingness to pay for the organic vegetables. The operational stage was conducted to obtain the value of Willingness to pay, such as setting up the hypothetical market, determining the bid value of Willingness to pay (Obtaining bids) based on the product price that has been known by the respondents, and determining the estimated mean value of WTP.

RESULT AND DISCUSSION

The Consumer's Willingness to pay for Vegetables in Samarinda

Each individual or household will always try to maximize satisfaction when consuming goods and services at certain opinion. It will determine individuals or households to make requests for goods and services that will be consumed. Willingness to pay is a maximum price of goods, which will be bought by consumer in a certain period of time (Zhao and Kling, 2013). In fact, Willingness to pay is how the consumers reflect the goods and services values, as well as their sacrifices to obtain them through prices (Simonson & Drolet, 2004). Based on the statement above, it closely related to consumers in satisfying their wishes in consuming goods and services along with the consumers' Willingness to pay in accordance with values of the goods and services.

Willingness to pay analysis was conducted to find out the value of Willingness to pay or maximum cost expended by the consumers for the organic vegetables in Samarinda with 100 respondents. Table 1 is presented below on distribution of the respondent's Willingness to pay:

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ISSN 1533-9211
DOI 10.5281/zenodo.8240958

Table 1: Distribution of the respondent's willingness to pay

Respondent's Willingness to pay	Respondent (people)	Percentage (%)
Pay	59	59
Not Pay	41	41
Total	100	100

Source: *Processed primary data, 2021*

The table above shows that the percentage of people who are willing to pay for organic vegetables and not actually has less difference. But, the level of Willingness to pay for organic vegetables in Samarinda is higher than unwillingness to pay. Table 2 below presents the consumer's reasons don't want to pay for organic vegetables in Samarinda:

Table 2: Distribution of consumer's reasons don't want to pay for organic vegetables in Samarinda

Reason	Respondent (people)	Percentage (%)
Consumers are satisfied with condition of the vegetables consumed at this time	15	36.5
Consumers don't afford to pay	26	63.5
Total	41	100

Source: *Processed Primary Data, 2021*

Almost 63.5% consumers stated that they don't afford to pay and the rest, 36.5% consumers are satisfied with vegetables consumed at this time.

The consumer's Willingness to pay for organic vegetables in Samarinda can be analyzed using CVM (Contingent Valuation Method) through some stages as follow:

1. Setting up the hypothetical market

Consumers are given insight into the importance of consuming organic vegetables than conventional vegetables, which still use inorganic material, so that consumers will fully understand the content of organic vegetables and consider to purchase them.

2. **Obtaining bids of WTP (Willingness to pay)**

WTP values were obtained from bargaining method by asking the respondents whether they are willing to pay some money as a starting point. If the consumers agree then the amount of money to be agreed will be variable until an agreement is reached between the consumer and the seller.

3. Calculating the estimated mean value of WTP

The respondent's estimated mean value of WTP were calculated in accordance with the respondent's WTP distribution data. Results of WTP mean values for cabbage (*Brassica oleracea*) was IDR 18 738 per kilogram, lettuce (*Lactuca sativa* L.) was IDR 30 048 per kilogram, broccoli (*Brassica oleracea var. italica*) was IDR 40 250 per kilogram, pak-choi/bok choy (*Brassica rapa* L.) was IDR 24 368 per kilogram, and carrot (*Daucus carota*) was IDR

ISSN 1533-9211

DOI 10.5281/zenodo.8240958

19 820 per kilogram. These values reflect the respondent's high Willingness to pay for the implementation of the increased quality of the conventional vegetables into organic vegetables.

4. Presuming the WTP Curve

The respondent's WTP curve was established using cumulative sum of the number of individuals who selected for a WTP value. Correlation of these curves describes WTP level, which is willing to be paid with number of respondents who are willing to pay at the related WTP level. WTP curve in this study has negative slopes, which means that the higher of WTP value, the less people are willing to pay.

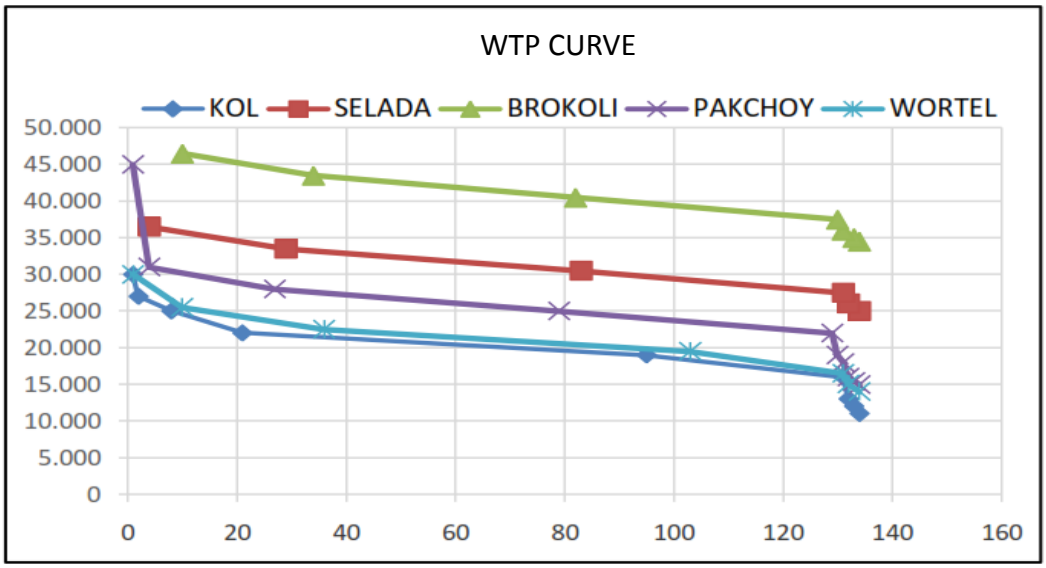

Figure 1: Presuming the WTP curve

Results of the research conformed to the research by Aufanada, et al. (2017) who studied Willingness to pay for organic products at the modern market in South Jakarta. Results of the study indicated that 82% consumers were willing to pay more 8.5% - 15% of the product prices at present. Factors that significantly affect Willingness to pay for the organic vegetables include education level, amount of income per month, and product quality.

Factors that Influence Consumers to Pay Organic Vegetables in Samarinda

The second purpose of the study was to answer some factors that influence consumers to pay organic vegetables in Samarinda. There are 7 independent variables as follow: Age (X_1), Education (X_2), Occupation (X_3), Number of Family Members (X_4), Income (X_5), Price (X_6), Quality (X_7), and Decision to Pay (Y). Based on results of Binary Logistic Regression analysis, Table 3 presents the Case Processing Summary as follow:

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ISSN 1533-9211
DOI 10.5281/zenodo.8240958

Table 3: Case Processing Summary

Quality of the Problem		Number of Sample (n)	Percentage (%)
Number of Selected Cases	Under Analysis	100	100
	The Missed Case	0	0
	Total	100	100
Unselected Case		0	0
Total		100	100

Source: Primary Data is Processed, 2021

Table 3 shows number of the observed samples and number of samples, which are failed to be observed. Number of total samples that were observed are 100. The analysis stated that no sample was missed to be observed with the value of 100%. Furthermore, there is a classification table, which shows the distribution of consumers who are willing to pay and not willing to pay by observation and by prediction. Table 2 presents the distribution of consumers. Classification of the consumer distribution:

Table 4: Classification of Consumer Distribution

Classification Table[a]					
	Observed		Predicted		
			WTP		Percentage Correct
			Not Pay	Pay	
Step 1	WTP	Not Pay	26	15	63.4
		Pay	12	47	79.7
	Overall Percentage				73.0

Source: Primary Data is Processed, 2021

Classification accuracy in predicting the influence of variable X on Y, 73%, It means accuracy in predicting the influence of variables X and Y "Pay and Not Pay" the organic vegetables, 73%. The greater classification accuracy, the better model will be used. In Binary Logistic Regression analysis, the thing that needs to be considered is: the table of Hosmer and Lameshow Test. Purpose of the test is to see that the model used in this research can be tested using the binary logistic regression. The obtained decision showed that the values of sig 20.8% $\geq$ 5%, so that H_0 accepted, which means that the used model fits the data or, in other words, the model can be tested logistically binary.

Table 5: Results of the binary logistice regression

Variables	Coefficients	P Value
Constant	-21.292	0.000
Age (X_1)	0.250	0.004*
Education (X_2)	0.013	0.883
Occupation (X_3)	0.185	0.023*
Number of Family Members (X_4)	0.028	0.746
Income (X_5)	0.040	0.672
Price (X_6)	0.290	0.009*
Quality (X_7)	-0.003	0.974
NegelkerkeR- Squares	0.356	
Observations	100	

Source: Primary Data is processed, 2021

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ISSN 1533-9211
DOI 10.5281/zenodo.8240958

Based on results of the binary logistic regression, there were 100 samples, which were observed with R-square was 35.6%, which meant that as a whole, the models affected on decision to pay organic vegetables, 35.6%, and the rest, 64.4% was affected by model, which was not exist in the study. Besides that, partially there were 3 variables that have a significant effect on decision to pay organic vegetables such as Age (X_1), Occupation (X_3), and Price (X_6). These can be seen from significance that significantly affect with sig < 5%.

Age has significance value 0.004 which means 0.004 < 5%, with coefficient value of 0.250, and it means that age has significant effect on decision to pay organic vegetables, every addition of one unit of age will increase Willingness to pay organic vegetables by 0.250. In fact, increasing age has an impact on declining health conditions and cells in the body. Consuming organic vegetables is one way to maintain health. Moreover, organic vegetables are really needed because they do not contain any chemicals. Besides that, organic vegetables are environmentally safe. Healthy lifestyles, which are environmentally safe, are becoming a new trend leaving old lifestyles that use non-natural chemicals such as artificial fertilizers, synthetic and chemical pesticides, as well as growth hormones in agricultural cultivation. Such healthy lifestyles require guarantees that agricultural products must be safe for consumption, high nutritional content, and environmentally safe (Mayrowani, 2012).

Occupation has significance value 0.023 that means 0.023 < 5%, and coefficient value of 0.185, and it means that occupation has significant effect on decision to pay organic vegetables, and every addition of one unit of occupation will increase Willingness to pay organic vegetables by 0.185. Occupation becomes one of factors that affect Willingness to pay because the occupational environment affect the consumption pattern of the white-collar workers, in general, who have 8 working hours and 30-45 minutes for break, and they do not have much time to purchase and consume the organic vegetables, so that they prefer to consume the junk foods, especially during the pandemic like today. Moreover, the companies do not allow their employees to buy foods outside of the workplace, but the foods are provided at work or they bring their own from home. It also prevails in other place, particularly in Samarinda as a big city. Therefore, most of the white-collar workers bring their own foods from home, which have been prepared with organic vegetables.

Price has significance value of 0.009 that means 0.009 < 5%, and coefficient value of 0.290, and it means that price significantly affect on decision to pay organic vegetables, every addition of one unit of price will increase Willingness to pay organic vegetables by 0.290. In general, the price of organic vegetables is more expensive than usual vegetables in the market. It is due to the care and cultivation requires special handling and higher cost. The materials, such as, organic fertilizer and vitamins are costly. For instance, hydroponic requires higher cost for the medium. However, high prices are not the reason to buy and consume organic vegetables.

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ISSN 1533-9211
DOI 10.5281/zenodo.8240958

CONCLUSION AND SUGGESTION

Conclusion

The consumer classification showed 73% of data accuracy in determining consumers "paying" and "not paying". There were 41 consumers out of total 100 samples of respondent who were not willing to pay the organic vegetables. On the grounds that 15 consumers are satisfied with condition of the vegetables consumed at this time, and the rest, 26 consumers presumed that they do not afford to pay. Results of CVM analysis showed that maximum average of Willingness to pay (WTP) for each commodity was IDR 18 738 per kilogram for cabbage (*Brassica oleracea*), IDR 30 048 per kilogram for lettuce (*Lactuca sativa* L.), IDR 40 250 per kilogram for broccoli (*Brassica oleracea var. italica*), IDR 24 368 per kilogram for pak-choi/bok choy (*Brassica rapa* L.), and IDR 19 820 per kilogram for carrot (*Daucus carota*). These values reflect the respondents' high Willingness to pay for the implementation of the increased quality of conventional vegetables into organic vegetables.

Suggestion

It is important for the consumers to comprehend the content of conventional and organic vegetables, so that they will recognize which vegetables will be more beneficial for consumers and their families.

Acknowledgement

Thanks to Brawijaya University for all the supports and facilitis.

Conflict of Interests

The Authors declares that there is no conflict of interest

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