# Public Willingness to Pay for Halal Certified Beef

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**Abstract.** *This research aims at analyzing the scale of public willingness to pay for halal-certified beef and the influence of age, income, awareness, perception, and religiosity on their willingness. This study employs a purposive sampling method to obtain 100 respondents. Descriptive statistical analysis is used along with contingent valuated method and logit regression. The result shows that 77 of the respondents are willing to pay more for halal-certified beef, while the other 23 are not. The average value of WTP obtained is 7% of the ordinary meat price. The result of logit regression analysis shows that awareness variable has a significant effect on willingness to pay halal certified beef, while the income, age, perception, and religiosity do not have a significant effect.*

**Keywords:** *Halal Certificate, Willingness to Pay, Consumer Behaviour, Contingent Valuated Method, Logit Regression*

**Abstrak.** *Penelitian ini bertujuan untuk menganalisis besaran kesediaan membayar masyarakat serta menganalisis pengaruh usia, pendapatan, awareness, persepsi dan religiusitas terhadap kesediaannya membayar daging sapi bersertifikat halal. Penelitian ini dilakukan di Provinsi DKI Jakarta dengan metode purposive sampling dan responden yang berjumlah 100. Metode analisis yang digunakan dalam penelitian ini adalah analisis statistik deskriptif, contingent valuated method, dan regresi logit. Hasil yang diperoleh menjukkan bahwa 77 responden bersedia membayar lebih daging sapi bersertifikat halal, sementara 23 lainnya tidak. Rataan nilai WTP yang diperoleh adalah 7% dari harga daging sapi biasa. Hasil dari analisis regresi logit menunjukkan bahwa variabel awareness berpengaruh signifikan terhadap kesediaan membayar daging sapi bersertifikat halal. Sementara usia, pendapatan, persepsi, dan religiusitas tidak berpengaruh signifikan.*

**Kata kunci:** *Sertifikat halal, Kesediaan untuk membayar, Perilaku konsumen, Contingent Valuated Methode, Regresi Logit*

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## Introduction

Consuming halal products is an obligation for Muslims and part of the worship of Allah. Disobeying this obligation is a serious violation against Islamic teaching. Besides, Muslims are suggested to consume good (toyyib) food. Ṭayyib or ṭayyiban can be translated as complement and perfectness of halal food in the forms of cleanliness, safety, health, usefulness and other aspects that are in accordance with conditions and needs (Kamaruddin et al. 2013).

*Halal* literally means "allowed"; in general; it can be translated into something that is allowed based on Islamic laws. *Halal* products are one of the crucial instruments for Muslims in performing various activities, including consumption. This is the order of Allah that has been stated in the Quran, Sura Al Baqara verse 168.

Basically, *halal* is a process of trust of the attribute that cannot be seen and cannot be confirmed, so it is difficult to be evaluated by individual consumers (Verbeke et al., 2013). For example, consumers buy meat at the seller who they think credible enough. This makes them trust the *halal* status of the meat and buy it from the seller. However, because the trust is implicit, it raises trust abuse cases (Zakaria, 2008).

In this case, abusing the trust is in the form of the discrepancy between the expected product with the real one. For example, the expected halal meat is mixed with the non-halal one. An instance for this type of case is the foreclosure of 178.5 kg of beef spindles in Ponorogo Regency (www.kompas.com accessed on 20th August 2017).

The selling of meat without halal guarantee has been a problem for Indonesian Muslim people considering that meat is one of the most consumed food. According to the data from the Central Bureau of Statistics, there had been an increasing trend of meat consumption per capita from 2007-2015.

Figure 1. Average of Consumption per Capita of Meat Product in a week in Indonesia in 2007-2015
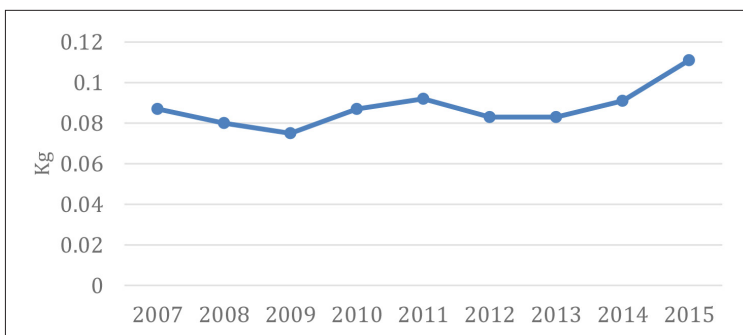


Source: Central Bureau of Statistics, processed in 2017.

The issue of cross-contamination between the *halal* and *harām* products also increases the consumers' risk in consuming the meat that is not in accordance with their preference (Verbeke, 20015). Such condition makes the consumers search for a guarantee to ensure that the product they buy is *halal*, and the certification of *halal* meat is an answer to provide guarantee and certainty of the meat that the consumers buy (Verbeke et al., 2013).

However, the improvement and implementation of *halal* certification on the chain of *halal* meat may increase the price of the meat (Angulo and Gil 2007). This is because of the additional costs in processing and handling the meat to be in accordance with Islamic law. Therefore, it is crucial to find out the consumers' willingness to pay for the *halal*-certified meat in order to describe the consumers' demand on the product.

This research refers to the previous study by Ibrahim (2011). This particular study aims at analyzing the willingness to pay (WTP) of Muslims in Georgia in buying premium qualified *halal* lamb. Verbeke et al. (2013) researched to find out the value of willingness to pay of the Muslims in Belgium in buying the *halal*-certified chicken in supermarkets and Islamic butcher shops. The research of Bonne et al. (2008) aims at finding out the factors affecting the *halal* meat consumption of the Muslims in Belgium using the planned behavior theory.

A research on the consumers' willingness to pay for *halal*-certified beef has not yet been done. This particular study aims at finding out the scale of consumer's WTP on *halal* certified beef and analyzing whether ages, income, awareness, perception, and religiosity affect the WTP for *halal*-certified beef.

## Literature Review

Kamaruddin, Ibrahim and Shabudin (2013) conducted research entitled "Factors Influencing Customers' Willingness to Pay for *Halal* Logistics". This research was conducted to 221 respondents spread over Selangor, Klang Valley, and Marang, Terengganu. The analysis instrument used is the logit model. The research reveals that the variables of parents' status and perception of *halal* logistics have a negative connection with the WTP for *halal* logistics, whereas the consumers' WTP for *halal* logistics has a positive connection with the demand and procurement cost of *halal* logistics.

Research by Verbeke et al. (2013), entitled "Credence Quality Coordination and Consumers' Willingness to Pay for Certified *Halal* Labelled Meat", was conducted to 202 Muslim respondents. This research is analyzed using the double hurdle model regression. The result concludes that Muslim consumers have been

willing to pay for the chicken meat with a higher price sold by the Muslim sellers rather than those sold in the supermarket. The female consumers pay more attention to the *halal* status of the meat compared to male consumers.

Bonne, Vermeir and Verbeke (2009) conducted research entitled "Impact of Religion on *Halal* Meat Consumption Decision Making in Belgium". The data was collected from 367 respondents of Muslim migrants living in Belgium. The research reveals that healthy behavior affects the intention to consume *halal* meat. The Muslims with high religiosity intend to consume the *halal* meat because they believe that the meat is healthy, whereas the Muslims with low religiosity intend to consume the *halal* meat because of the influence of their relatives from the same religion and because of their healthy behavior.

Research by Ibrahim (2011), entitled "Consumers' Willingness to Pay a Premium *Halal* Goat Meat: A Case from Atlanta, Georgia", was conducted to 89 respondents and used the probit model. The average of WTP for *halal*-certified mutton is 50 cents per pound of meat. The variables of income and amount of family members significantly affect the WTP for *halal* mutton on 1% degree.

Research by Bonne, Vermeir and Blackler (2007), entitled "Determinants of *Halal* Meat Consumption in France", was conducted by a survey to 576 of Muslim immigrants living in France. This research was analyzed using descriptive statistic and multiple regression methods. The result is that positive attitude towards consuming *halal* meat, relatives with the same religion, and the response for consuming the *halal* meat affect the Muslims' intention to consume the *halal* meat.

**Theory of Demand**

Demand is the number of products that a household is going to buy in a certain period if the household is able to meet the necessity in accordance with the determined market price (Case and Fair, 2007). Demand is a multivariate connection, which is not determined only by one factor but by many factors at once. Case and Fair (2007) define that the individual's demand on a product and its quantity is affected by several factors including the product price, income and wealth, another product price, expectancy, and taste.

**Theory of Consumers' Behavior**

Kotler and Keller (2016) state that the consumers' behavior might be affected by several factors including cultural factors (nation, race, region origin, social class, and religion), social factors (family, friends, and playgroups), and personal factors (ages and lifestyle).

## Method Of Research

The research population in this study covers all Muslims in Jakarta who have their own income. This research uses non-probability sampling and purposive sampling methods. The determination of the minimal sampling number uses Slovin formula. The formula results in the minimal number of respondents of 100. Contingent Valuation Method is used in the analysis to find out the value the society is willing to pay for the *halal*-certified meat. Employing a Likert scale, the factor analysis is used to reduce the variables, while the logit regression analysis is used to find out what kind of factors influence WTP for the *halal*-certified meat.

### Contingent Valuation Method

Contingent valuated method (CVM) is a method used to estimate the economic value of a product unsold in the market and is one of the methods for economic valuation. Hanley and Spash (2013) explain the operational stages of CVM application as follows: (1) building a hypothesis market, (2) getting the bidding value, (3) calculating the WTP average, (4) estimating the WTP bidding curve, and (5) aggregating data.

### Factor Analysis

Factor analysis is a statistic analysis applied to reduce the data or summarize several variables to be the new (construct) variable by still containing the most information in the original variable. Factor analysis identifies the connection structure among the variables or dimensions by seeing the correlation inside them (Ghozali, 2013). Factor analysis in this research is used to summarize the answers of each variable to produce the construct variables that are used in the logistic regression analysis.

### Logit Regression Analysis

This research uses the logit regression analysis method by the STATA 64 application. The binary logit or binary logistic regression model is the quantitative method of the connection between the probability of two choices of some characteristics chosen (Gujarati and Porter, 2009).

The logit basis used in this research is as follows:

$$WTP = \beta_1 + \beta_2 X_1 + \beta_3 X_2 + \beta_4 X_3 + \beta_5 X_4 + \beta_6 X_5 + u_i \quad \text{.................................(1)}$$

Where:

WTP     : willingness to pay

$\beta_1$      : constanta *(intercept)*

$\beta_2,.... \beta_6$ : parameters to be estimated

$X_1$      : ages

$X_2$      : income

$X_3$      : awareness

$X_4$      : perception

$X_5$      : religiosity

$\mu$      : error term

## Result And Discussion

### Validity and Reliability Tests

The validity test indicates that the correlation among each indicator of questions on the total construct score has greater value than 0.5, so it can be concluded that each indicator of questions is valid in measuring the three variables by using the Likert scale. On the reliability test, it finds the value of Cronbach's Alpha amounted 0.625 (Awareness), 0.877 (Perception), and 0.933 (Religiosity).

Hair et al. (2010) stated that an item with the Cronbach's Alpha value that is greater than 0.6 is reliable, so it can be concluded that all the answers of the questions of a construct using the Likert scale (variables of awareness, perception, and religiosity) are consistent and reliable.

### Contingent Valuated Method (CVM)

The contingent valuated method in this research is used to find out the value of the respondents' willingness to pay for the *halal*-certified meat. The result of CVM implementation is as follows: 1) building hypothesis market; 2) determining the scale of WTP Bid, and 3) calculating and estimating WTP average value.

The buildings hypothesis market of this research is based on the availability of meat that it's halal status and quality are doubted. This is doubled with the risk of non-halal substance contamination on halal products, which can bring anxiety to Muslim consumers in Indonesia. The government, through LPPOM MUI, has taken action by issuing a *halal* certificate to the meat products. The *halal* certificate guarantees that the process of livestock handling has met the Islamic requirement. This certificate is expected to give safety, comfort, and satisfaction for the Muslim consumers, especially for those who consume the meat.

However, the *halal* meat certificate raises additional costs in its implementation. The certification requires certain activities and additional equipment in the processing and handling of the meat that meets Islamic law. Consequently, *halal*-certified beef becomes more expensive.

The above scenario was explained to the respondents as an effort to provide a guarantee to the consumers. The WTP value of *halal* certified meat will be found out through the questions asked to the respondents, whether the *halal* certification is needed and whether the respondents are willing to pay a higher value for *halal*-certified products.

The determination stage of the auction value on the contingent valuation method should use the bidding game, which is the best model and will not raise the bias. However, the depreciation of the auction value with bidding game cannot be conducted due to various obstacles, so that the auction value bid will be conducted by the payment cards method. This method uses the payment card application with several bidding ranges provided. The respondents will answer by choosing the range of expense they are willing to pay for getting the *halal*-certified meat. The bidding range available is selected from research taken by Tieman et al. (2013) that is 0-5%, 5-10%, 15-20%, and 20-25%.

Calculating the estimation of WTP's average value of this research used an alternative estimation method. The alternative estimation method applied for the interval data is interval midpoint WTP model provided by Hackl and Pruckner (1999). This method assumes that the individual WTP value distributed into the existing interval is among the selected value with the greater next value. Shen (2012) assumes the midpoint of the existing as a WTP value. The distribution data of respondents' WTP is shown in Table 1.

Table 1. Distribution of WTP Value of Respondents Willing to Pay

| No | Bid Range | *Midpoint* | Number of Respondents | Percentage |
|----|-----------|------------|-----------------------|------------|
| 1 | 0-5% | 2.5 | 53 | 0.69 |
| 2 | 5-10% | 7.5 | 17 | 0.22 |
| 3 | 10-15% | 12.5 | 6 | 0.08 |
| 4 | 15-20% | 17.5 | 1 | 0.01 |
| 5 | 20-25% | 22.5 | 0 | 0 |
| | Total | | 79 | 1.00 |

Source: primary data, processed in 2017.

The WTP average value is acquired by using the following formula:

$$EWTP = \sum_{i=0}^{H-1} \frac{A_i + A_{i+1}}{2} P_i + \frac{A_H + A_T}{2} P_H \dots\dots\dots(2)$$

Where $A_i$ is the chosen WTP value, $A_{i+1}$ is the next greater WTP value, $P_i$ is the percentage of the respondents choosing the I WTP value, $A_H$ is the highest dealing value, $A_T$ is the top limited value, and $P_H$ is the percentage of the respondents choosing the greatest WTP value. The WTP average that is willing to be paid by the consumers to get the *halal*-certified beef is 7.05% over the regular beef price.

**Factor Analysis**

The main object of this method is to reduce the great data into one set of dimension by identifying how far each variable can be explained by each dimension. The factor analysis in this research is used to summarize 28 questions for the variables using the Likert scale (X3, X4 and X6) to produce the score of the variable factor.

Table 2. Variables of Factor Analysis Result

|  | Variables | Code |
| --- | --- | --- |
| Awareness | Awareness of *halal* aspects | X3_1 |
|  | Awareness of MUI label | X3_2 |
| Perception | Perception on *halal* meat ceritificate | X4 |
| Religiosity | Religiosity of belief and shall worship dimensions | X5_1 |
|  | Religiosity of *sunnah* worship and *hablumminannas* dimensions | X5_2 |

Source: primary data, processed 2017

**Logit Regression Analysis**

The logit regression analysis is the regression analysis used in the research using the data with the binary dependent variables (0 and 1). In this research, value 1 is given to the consumers who are willing to pay more for the *halal*-certified beef. Value 0 is given to the respondents who are not willing to pay more to the *halal*-certified beef product.

The testing is conducted to find out the influence of ages, income, awareness, perception, and religiosity on the willingness to pay more for the *halal*-certified beef. The estimation result of logit regression of the consumers' willingness to pay is conducted by the STATA 64 software and shown in Table 3.

Table 3. Regression Result of Public Willingness to Pay

| Variables | Coefisien | dy/dx | Statistic z | Probability z |
|-----------|-----------|-------|-------------|---------------|
| X1 | -0.00293 | -0.00036 | -0.14 | 0.889 |
| X2 | 0.35048 | 0.43640 | 0.57 | 0.572 |
| X3_1 | 0.52630 | 0.65531 | 1.24 | 0.241 |
| X3_2 | 1.36655 | 0.17015 | 3.71 | 0.000* |
| X4 | 0.74361 | 0.09259 | 1.86 | 0.063** |
| X5_1 | 0.39533 | 0.04922 | 1.05 | 0.294 |
| X5_2 | -0.01067 | 0.00132 | -0.03 | 0.976 |
| Constanta | -3.60682 | | -0.37 | 0.708 |

The logit regression result finds that the value of statistic Hosmer-Lemeshow amounted 6.77 and has the probability value of chi-square amounted 0.56 > 0.05, so $H_0$ is accepted, and the model is stated to be fit. Meanwhile, McFadden R-Squared has the value of 0.342, which means that the dependent variable can only be explained by the independent variable amounted 34%, and the rest is explained by other factors outside the model. The testing result indicates that the LR statistic has the value of 37.72 with the probability of 0.000 < 0.5, so it can be concluded that the independent variables jointly or simultaneously affect the dependent ones.

Table 3 indicates that from 7 independent variables tested there is one variable that significantly affects the dependent variables on 5% level that is variable of Awareness on MUI label (X3_2) and variable of perception (X4) that is significant on 10% level while the other variables do not significantly affect the dependent ones because they have the probability values of z-statistic greater than 0.05 and 0.1.

**Effect of Income on WTP**

The logit regression result indicates that the variable of income has the opportunity coefficient value amounted 0.043 with the probability of 0.57 > 0.05. So it can be concluded that the variable of income (X2) has no significant effect on WTP for the *halal*-certified beef. The opportunity coefficient of the variable of income (X2) indicates the positive sign amounted 0.043, which means that people with higher income will increase the probability of their willingness to pay for the *halal*-certified beef amounted 4.3%.

The result is not in accordance with the hypothesis in which the income

is considered to affect the willingness to pay significantly. This indicates that the income level is not the main factor affecting public willingness to pay for the *halal*-certified beef. The higher ability of purchasing power does not guarantee the people to be willing to pay more.

### Effect of Ages on WTP

The variable of ages has the opportunity coefficient amounted -0.00036 with the probability value of 0.889. On the significance level of 5% (0.05), it can be concluded that the variable of ages has no significant effect on the WTP for *halal*-certified beef. The result found is in accordance with the research conducted by Ibrahim (2011) and Kamaruddin et al. (2012), which found that ages do not significantly affect public willingness to pay. This indicates that public WTO for the *halal*-certified meat cannot be predicted through someone's experience, knowledge or belief that is formed during his/her whole period of life.

The opportunity coefficient of the age variable (X1) amounted -0.00036 indicates that people with older ages will reduce the probability of willingness to pay more for the *halal*-certified beef amounted 0.03%. The connection explains that the respondents with younger ages have more opportunity to be willing to pay more rather than the older respondents.

The result is in accordance with the research of Verbeke et al. (2013), which stated that the *halal* label on the meat product is important for the younger generation, but not for the older one. This is because the younger one has little trust in the *halal* product by only seeing the status and background of the seller. They demand that the labelling should be under a trusted organization to guarantee the *halal* status of the product.

### Effect of Awareness on WTP

The variable of awareness on the importance of *halal* labelling affects the willingness to pay for the *halal*-certified beef (X3_1) with the opportunity coefficient amounted 0.06. The probability value found is 0.214, that is fewer than the alpha level of 5%. The opportunity coefficient of the variable of awareness (X3_1) indicates the positive sign of 0.65, which means that people with higher awareness of the importance of *halal* labelling will increase the probability of willingness to pay for the *halal*-certified beef amounted 6.5%.

The awareness variable is the *halal* label of MUI (X3_2) having opportunity coefficient value of 0.1701 and probability Z equal to 0.000. It can be concluded that there is a significant influence of the awareness of *halal* label MUI on certified

*halal* certified beef. The opportunity coefficient of MUI *halal* label awareness variable (X3_1) indicates a positive sign of 0.1701. It means that people with higher levels of MUI label awareness will increase their probability of willing to pay for the *halal*-certified meat of 17.01%.

The result is in accordance with the research of Putri et al. (2016), which stated that public awareness level has a significant effect on the willingness to pay for the *halal*-certified product. The more someone is aware of the *halal* concept in various consumption activities, the greater the probability the person to be willing to pay more for getting a product with a *halal* guarantee. The *halal* certificate on the meat products is considered important enough to keep the product condition from the manipulation and contamination of non-*halal* substances, so people are willing to pay more for the service existence.

### Effect of Perception on WTP

The variable of perception has the opportunity coefficient value of 0.092 with the probability z of 0.06, which means that the variable of perception does not significantly affect the WTP for the *halal*-certified beef. The opportunity coefficient of the variable of perception (X4) is positive of 0.092, which means that people who think that the *halal*-certified meat is important will have a greater probability to be willing to pay for the *halal*-certified meat amounted 9.2%.

The result is in accordance with the research of Fathi, et al. (2016), which found the consumers' perception on the *halal* logistics has a positive correlation with the willingness to pay for the *halal* logistics.

### Effect of Religiosity on WTP

The variable of religiosity based on the belief and will-worship shows the opportunity coefficient value of 0.049 with the probability z of 0.292. It indicates that this type of religiosity variable has no significant effect on the willingness to pay for the *halal*-certified beef. The opportunity coefficient (X5_1) is positive of 0.049, which means that people with the higher level of religiosity based on belief and will-worship will have a greater probability to be willing to pay for the *halal*-certified beef amounted 4.9%.

The variable of religiosity based on the *sunnah* rituals and *hablumminannas* or relationship with other humans has the opportunity coefficient value of -0.0013 and the probability z of 0.976, which means that this kind of religiosity variable has no significant effect on the WTP for the *halal*-certified beef. The opportunity coefficient of -0.0013 indicates that people with the higher level of religiosity based

on the *sunnah* rituals and good relationship with other humans have a greater probability of being not willing to pay for the *halal*-certified beef amounted 0.13%.

The result is in accordance with the research of Astogini et al. (2011), which explained that the religious aspect has no significant effect on the decision of buying the *halal* products. This may because the religious aspects like belief, rituals, and consequence are an obligation for a Muslim, apart from his/her consumption activities. So, both factors have no connection with Muslims' decision to use *halal*-certified products/services.

## Conclusion

The existence of the *halal*-certified meat is considered important as an effort to avoid the manipulation and contamination of *harām* substance on the *halal* meat product. Of 100 respondents, 77 are willing to pay more while the rest (23) are not. Of the willing respondents, 53 are willing to pay for the *halal*-certified beef amounted 0-5%, and the rest are willing to pay for more than 5% of the prevailing meat price.

Based on the interview results using the contingent valuated method, the average value of the Muslims in Jakarta who have the willingness to pay for the *halal*-certified beef is 7.05% over the prevailing beef price. The value is acquired by using the interval midpoint method.

The logit regression analysis using the factor variable finds that only the variable of awareness that affects the Muslims in Jakarta to have the willingness to pay for the *halal*-certified beef, while the variables of income, ages, perception, and religiosity have no significant effects on public willingness to pay for the *halal*-certified beef.

## Limitation

This research does not use the bidding game method in estimating public WTP for the *halal*-certified meat. This research was only conducted in Jakarta Province and only used the level of 10% in determining the sample. Therefore, the space of this research is very narrow to find out better responds to *halal*-certified meat.

## Suggestion

Further research is expected to use the bidding game method to find better out the amount of cost of public willingness to pay for the *halal*-certified beef.

Research with greater sample and wider space area is expected to be conducted in the future. The further research is also expected to be able to investigate the *halal* process topics such as *halal* supply chain and *halal* logistics, considering that *halal* process has a very close relationship with various activities in the supply chain.

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