POLICY IMPLICATION OF BUFFALO MEAT IMPORTATION TO BEEF MARKETING: CASE OF BOGOR, INDONESIA

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ABSTRACT

Meat is the main source of animal protein. One type of meat that is most consumed by people is beef. The increasing price of beef due to the scarcity of beef in Indonesia, encourages the government to issue a policy of buffalo meat importation, in order to cope with the void of Indonesian meat stock. The problem is that this policy has many pros and cons from various parties. There are parties who support and there are also those who strongly oppose. Those who oppose this policy are governments in several regions and organizations that feel disadvantaged by the buffalo meat importation policy. Based on the phenomenon that occurs with the import of buffalo, in this study the authors are interested in analyzing Policy Implication of Buffalo Meat Importation to Beef Marketing: Case of Bogor, Indonesia. The method used is a Structural Equation Models (SEM) with 150 respondents. The result of this research is respondents were willing to buy and consume buffalo meat as long as the quality, health and halal were guaranteed.

Keywords: *Bubalus bubalis*, buffalo, importation, policy, structural equation model (SEM)

INTRODUCTION

Meat is the main source of animal protein. One of the most widely consumed types of meat is beef, which has an important role in meeting the nutrition of the Indonesian people. Demand for products related to nutrition fulfillment such as beef products is increasing along with population growth and improving living standards of Indonesian people.

Based on data from the Ministry of Agriculture, in general the development of beef production in Indonesia during the 2013 to 2017 grew by 2.56%. The number of beef production that cannot fulfill the needs is one of the causes of a high increase in beef prices. Such higher costs, in comparison to the production of conventional products, usually require comparatively higher prices and thus a higher consumer willingness to pay (Olbrich, Hundt and Grewe, 2014).

The following are data from the Ministry of Trade regarding the growth of beef prices in Indonesia for the period March 2013 to 2017 (Figure 1).

The solution taken by the government to fix the beef deficit is to open slot for buffalo meat importation that are much cheaper than beef. The key suppliers of frozen meat in 2015 were Brazil,

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India, Sudan, United States and Australia. Brazil is the dominant supplier of the frozen beef while India is the sole supplier of frozen buffalo meat (Hassan *et al*., 2018). With the buffalo meat importation from India, people are expected to be able to make substitution of beef, so that it can reduce the price of beef that is too high. The problem is that this policy has many pros and cons from various parties. There are parties who supports, there are also those who strongly oppose. The opposing parties in this regard are governments in several regions and organizations that feel disadvantaged by the Indian buffalo meat import policy.

There are various areas that are targeted for buffalo meat importation, and one of them is Bogor City. In addition, Bogor is one of the regions that has a high amount of meat consumption. Based on the phenomenon that occurs with the import of buffalo, in this study the authors are interested in analyzing the implications of buffalo meat import policy on the marketing of beef in Indonesia, a case study in the city of Bogor (Figure 2).

MATERIALS AND METHODS

This research was conducted in the area of Bogor City in March to December 2017. The selection of this location was motivated because Bogor City was one of the first cities to get buffalo meat quota from India. This research approach uses descriptive research with survey methods. This method was conducted by distributing questionnaires to selected respondents with certain criteria, such as: respondents ever bought or consumed beef (Non Vegetarian) with minimum 17 years old or over, domiciled in Bogor City. The number of samples to be used in this study is limited according to the rules of Structural Equation Model which is 5 times to 10 times the estimated variable parameters (Hair *et al*., 2006). This research has 25 variables. So the range of the number of samples used is 125 to 250 respondents, and 150 respondents will be taken. The sampling method has been done with multistage non probability sampling technique with stages (Table 1 and Figure 3):

1. The city of Bogor is divided into 6 sub-districts, namely North Bogor, South Bogor, East Bogor, Central Bogor, West Bogor and Tanah Sareal.

2. In each sub-district, 2 housing will be chosen using purposive sampling technique.

3. The number of respondents in each housing will be divided proportionally by using a sample fraction in accordance with the population in each sub-district.

4. The selection of respondents was done by convenience sampling.

The data obtained were analyzed using descriptive analysis and Structural Equation Modeling (SEM). Structural equation modeling (SEM) is a versatile multivariate statistical technique and application of this method have been increasing since its introduction in the 1980s (Xiong *et al*., 2015).

RESULTS AND DISCUSSION

General description of the respondents

The majority of respondents in this study belong to the age group of 22 to 26 years (44%). The majority of respondents were dominated by male (55%). The education level of respondents was dominated by undergraduate level (59%).The majority of respondents occupations were private employees (45%) and college students (25%) with total household expenditure per month dominated

Rp 1.000.000 to Rp 2.000.000 (27%).

Characteristics of respondents' buying behavior in this study showed that meat consumption is not necessarily local or imported meat (71%). This means that meat consumers in the city of Bogor are not too picky in relation to the area of origin of the meat, both imported and local. The amount of money spent by respondents to purchase meat> Rp. 100,000.00 (16%) per month. With a price range of meat per kg starting from Rp. 80,000.00 to Rp. 130,000.00 consumers purchase meat as much as ± 0.8 to 1.3 kg per month. The results showed that the respondent frequency of purchasing meat per month was 1 to 2 times (34%). That is, meat consumers must pay a fee of ± Rp 80,000.00 to Rp 260,000.00 to purchase meat. Meat mass for each purchase is the amount of meat in kg per purchase. The results showed that the meat mass for each purchase ranged from 0.5 kg to 1 kg (45%). That is, the respondents in this study paid a fee of ± Rp 50,000 to Rp 200,000.00 to purchase meat. The place of purchase is the location of buying meat (traditional markets, modern markets, slaughterhouses, traveling vegetable makers, others). Basically the place to purchase products depends on the preferences of each consumer. The results of this study indicate that most respondents purchase meat in traditional markets (41%).

Good information will give consumers more knowledge of a product. The results of the study showed that 46% of respondents occasionally find out information on the origin of meat at each purchase.

Measurement model

Reliability testing is the process of measuring the accuracy (consistent) of an instrument. This test is intended to ensure that the instrument used is an instrument that is reliable, consistent, stable and dependable, so that when used repeatedly can produce the same data. To test the reliability of the data, this research uses indicators based on variance extracted (VE) and construt reliability (CR) formulas (Figure 4).

The Variance Extracted (VE) value was used to measure the number of variants that can be captured by the construct compared to the variance caused by measurement error. While the value of composite reliability (CR) showed the consistency of each indicator in measuring the construct. The higher the value of composite reliability (CR) the more consistent the indicator in measuring the construct. Hair *et al*. (2010) stated that the construct reliability that can be received is a coefficient that is worth more than 0.70 while for calculating the variance extracted the recommended number is more than 0.5 (Table 2).

The results of processing in Table 2 show that all values of construct reliability (CR) and variance extracted (VE) in this study are above 0.70 and 0.50, so it can be concluded that the models in this study are reliable for use (Table 3).

The relationship between 'Quality' with the indicators. Quality assurance schemes had been seen as relatively important in the purchase of mince beef and such schemes were valued by consumers (Northen, 2000).Variable indicators that have the highest contribution to form the 'quality' latent variable are Q1 (fresh imported buffalo meat). This indicated by the Q1 load factor value of 0.93. That is, prospective consumers of buffalo meat assess the quality of buffalo meat based on its freshness.

The relationship between 'Safety and Health' variable with the indicators. Food safety is an important issue facing current consumers, the food industry and the government. Variable indicators that have the highest contribution to

form the latent variables of safety and health are SH4 (the cleanliness of buffalo meat imported from India is guaranteed). That is, prespective consumers of buffalo meat consumers assess the safety and health of buffalo meat based on the cleanliness of the meat. Today's consumers are better educated and hence, more updated about issues regarding food safety and compared to those in the past (Liana *et al*., 2010).

The relationship between 'Price' variable with the indicators. The price has a very important role in influencing consumer decisions to buy products, so as to determine the success of marketing a product or the amount of value in exchange from consumers on the benefits for owning or using a product or service (Aspan *et al*, 2017). Variable indicators that have the highest contribution to form the latent variable price is P3 (cheap production costs cause the price of imported Indian beef is cheaper than other meat).

The relationship between 'Halal' variable with the indicators. The acceptance of the halal products and services among Muslims and non-Muslims is caused by the perception that halal symbolizes healthier lifestyle and clean preparation (Aziz and Chok, 2016). Variable indicators that have the highest contribution to form the latent variable of halal are H2 (the halal status of buffalo meat imported by India is clear even though it is supplied by a non-Muslim majority state). That is, prospective consumers of buffalo meat consider the clarity of the halal status of imported Indian buffalo meat before making a purchase.

The relationship between 'Distribution' variable with the indicators. Variable indicators that have the highest contribution to form the latent variable of distribution are D2 (Indian imported buffalo meat is easy to obtain). That is, prospective consumers of buffalo meat consider that a good distribution is seen from the ease of obtaining buffalo meat.

The relationship between 'Information' variable with the indicators. Variable indicators that have the highest contribution to form the latent variable of information are I3 (I know the quality of meat imported by Indian buffalo).

The relationship between 'Willingness to Pay' variable with the indicators. The variable indicator that has the highest contribution to form the latent variable of willingness to pay is WP2 (I will only buy Indian imported buffalo meat when the price of beef rises. That is, prospective consumers of buffalo meat will only make purchases of buffalo meat if the price of beef goes up.

Respondents perception

This research produced several findings that would be compiled into managerial implications that are expected to be beneficial for the government as the maker of buffalo import policy. Based on the results of the study, respondents' perceptions of the quality of imported buffalo meat are still within the normal limits. In that sense, imported buffalo meat can be received in the market as a substitute for beef. On average the respondents considered that the freshness of the meat sold on the market showed the quality of the meat. Although the perception of buffalo meat as food is still unfamiliar, the average respondent is willing to buy buffalo meat as a substitute for beef as long as the imported buffalo meat is still fresh.

Based on the results of the study, respondents' perceptions of the safety and health of imported buffalo meat showed that on average the respondents were hesitant but believed that the government could not allow imported buffalo meat to circulate in the market if its safety and health were not guaranteed. The average respondent

considers that the cleanliness of imported buffalo meat circulating in the market is very important. The average respondent is willing to buy imported buffalo meat as long as the meat is clean.

Based on the results of the study, respondents' perceptions of the price of buffalo meat showed that the price of buffalo meat circulating in the market was affordable. It's just that what makes the respondents hesitant in assessing the price of buffalo meat is that the respondents cannot distinguish between imported and local buffalo meat because they do not include the origin of the buffalo meat.

Based on the results of the study, respondents' perceptions of halal buffalo meat, the status of halal buffalo meat circulating was clear even though supplied in non-Muslim countries. Although there are still respondents who doubt this, the respondents still believe that imported buffalo meat entering Indonesia has been proven halal. The fact that Indonesia is an Islamic State can be one reason respondents believe in the halal status of imported buffalo meat circulating in the market, because every product sold must pass halal selection first, if there are products that are not halal then the seller must clearly label the product is not halal.

Based on the results of the study, respondents' perceptions of the distribution of imported buffalo meat showed that the average respondent easily found imported buffalo meat in the city of Bogor. Based on the results of the study, respondents' perceptions of information related to imported buffalo meat showed that the government had provided sufficient information regarding imported buffalo meat. Based on the results of the study, the average respondent is willing to buy imported buffalo meat only if the price of beef is too high.

Structural model

The structural model describes the relationship between latent variables in the model. The relationship between quality, Safety and health, price, halal, distribution and information to willingness to pay (Table 4).

The results showed that quality, Safety and health, price, halal and information had a significant and positive influence on willingness to pay, this was indicated by the value of the loading factor and t-test on the five relationships. The values of loading factors for quality, safety and health, price, halal and information are positive with values of 0.20, 0.41, 0.52, 0.54 and 0.67 respectively. Whereas the t-test value produced on the relationship of quality, safety and health, price, halal and information with willingness to pay is 2.73, 1.98, 2.39, 2.93 and 3.96, which means that quality, Safety and health, price, halal and information have a significant effect on willingness to pay.

Distribution has a positive relationship with willingness to pay, so hypothesis 5 can be accepted. However, in contrast to quality, Safety and health, price, halal and information, the relationship of distribution to willingness to pay is not significant. The value of the loading factor of the distribution relationship with willingness to pay is indeed positive (0.01), but the t-test value of the distribution is 0.19, which is smaller than 1.96, which means that the distribution does not affect the willingness to pay significantly. So if the government improves the distribution of imported Indian buffalo meat in the market, it will only slightly affect the willingness to pay consumers.

CONCLUSION

This research showed that health, safety

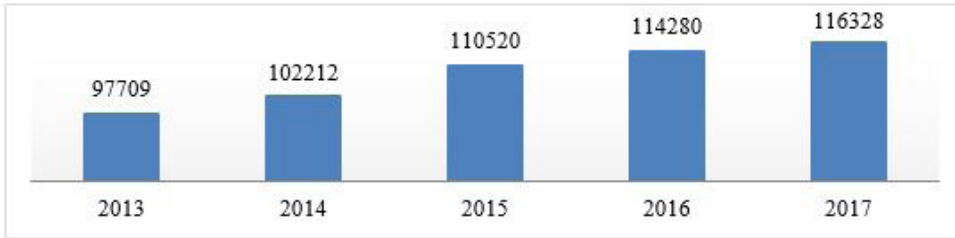

Figure 1. Beef Prices in Indonesia for the 2013 to 2017.

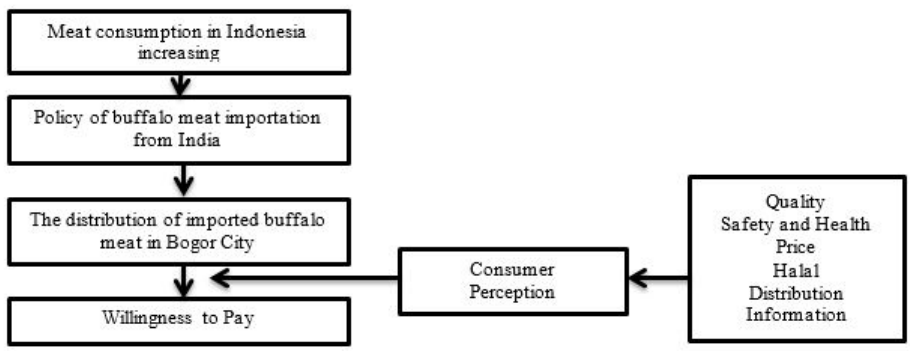

Figure 2. Framework.

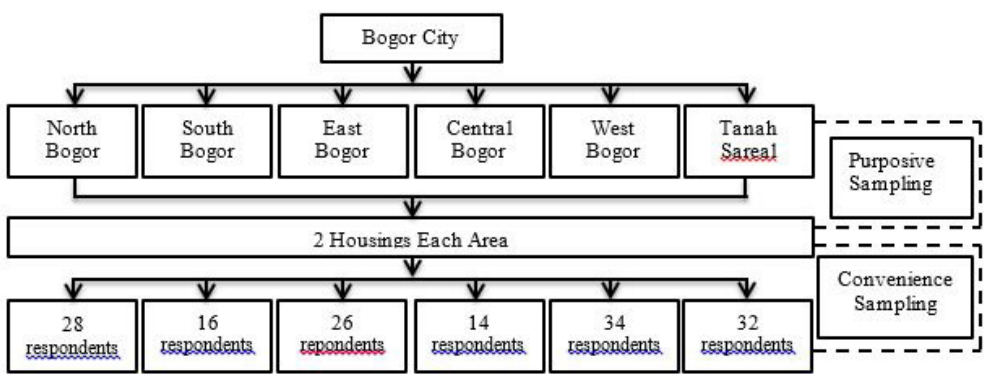

Figure 3. Respondents selection process.

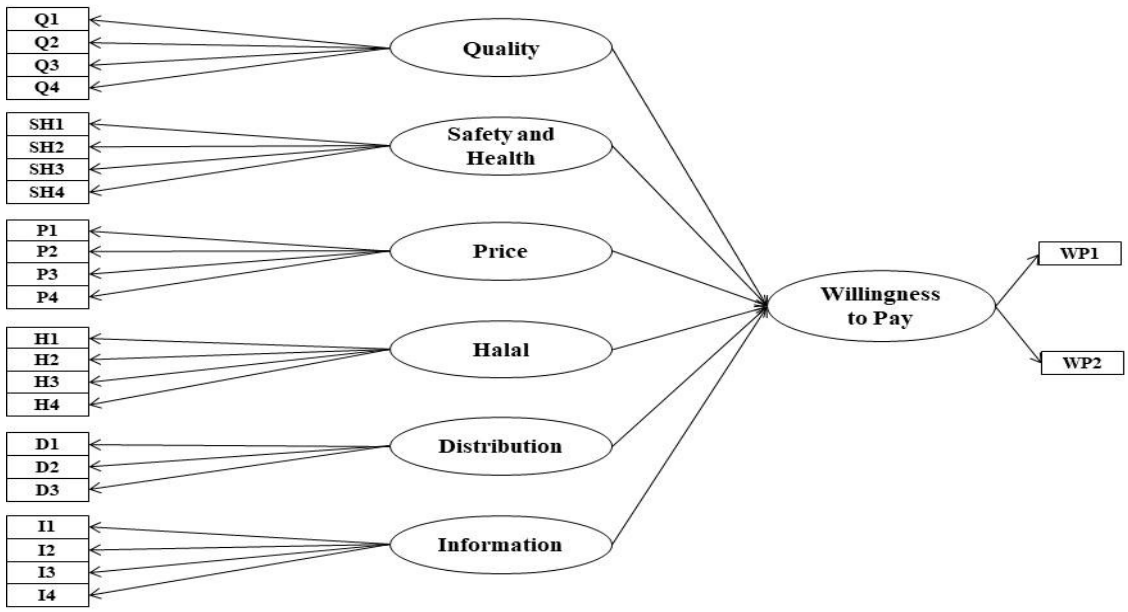

Figure 4. Structural equation model.

Table 1. Bogor city population.

Area	Total population	Sampel fraction	Total respondents
North Bogor	199248	0.19	28
South Bogor	104737	0.10	16
East Bogor	192812	0.18	26
Central Bogor	104682	0.10	14
West Bogor	236302	0.22	34
Tanah Sareal	226906	0.21	32
Total	1064687	1	150

Source: BPS (2017).

Table 2. Reliability test.

Latent variable	CR > 0.70	VE > 0.50	Status
Quality	0,82	0,53	Reliable
Safety and health	0,94	0,79	Reliable
Price	0,81	0,51	Reliable
Halal	0,87	0,63	Reliable
Distribution	0,89	0,72	Reliable
Information	0,81	0,51	Reliable
Willingness to Pay	0,80	0,69	Reliable

Table 3. Operational measures and scale reliability values.

Variables	Code	Indicator	Loading factor	t-table
Quality	Q1	Fresh imported buffalo meat	0.93	17.21
	Q2	The taste of buffalo meat is better than beef	0.64	12.96
	Q3	Soft buffalo meat texture	0.64	12.53
	Q4	The smell of buffalo meat does not smell	0.67	15.85
Safety and health	SH1	Indian's Buffalo meat are safe for health	0.86	22.72
	SH2	Indian's buffalo meat is not guaranteed safe, because it often appears in a illegally imported meat cases	0.88	23.06
	SH3	Government oversight of Indian imported buffalo meat is good	0.87	22.83
	SH4	The cleanliness of buffalo meat Indian imports is guaranteed	0.93	23.96
Price	P1	The price of Indian imported buffalo meat is more affordable than the price of local buffalo meat	0.66	16.06
	P2	The price of imported Indian buffalo meat is in accordance with the promised quality	0.72	14.95
	P3	The price of local buffalo meat is affordable	0.77	15.77
	P4	The price of local buffalo meat is in accordance with the promised quality	0.63	15.64

Table 3. Operational measures and scale reliability values (Continue).

Variables	Code	Indicator	Loading factor	t-table
Halal	H1	Indian imported buffalo meat products sold in the market have halal labels	0.67	17.77
	H2	The halal status of imported buffalo meat is clear even though it is supplied by a majority of non-Muslim countries	0.88	21.11
	H3	The process of halal labeling on imported meat is in accordance with Islamic law	0.80	20.16
	H4	Institutions that issue halal labels can be trusted even though they are in non-Muslim countries	0.80	19.93
Distribution	D1	Many stores sell imported Indian buffalo meat	0.82	16.14
	D2	Indian imported buffalo meat is easy to obtain	0.91	17.03
	D3	Imported Indian buffalo meat is always available in stores	0.82	16.13
Information	I1	Imported meat vendors always tell the origin of the meat they sell	0.63	14.9
	I2	Imported meat vendors always include information labels	0.63	14.61
	I3	I know the quality of Indian beef imported meat	0.79	18.47
	I4	The government has provided sufficient information about meat import policy and all aspects of its health and safety	0.73	17.66
Willingness to pay	WP1	I will still buy imported Indian buffalo meat even though the price is expensive	0.61	8.26
	WP2	I will only buy Indian imported buffalo meat when the price of cattle rises	1.00	4.81

Table 4. Hypothesis.

Hypothesis		Loading factor	t-value >1.96	Conclusion
H1	Quality	0.20	2.73	Supported
H2	Safety and health	0.41	1.98	Supported
H3	Price	0.52	2.39	Supported
H4	Halal	0.54	2.93	Supported
H5	Distribution	0.01	0.19	Not supported
H6	Information	0.67	3.96	Supported

and health, price, halal and information are significantly impacted consumer willingness to pay of buffalo meat in Bogor City. This research also showed a positive effect between distribution and willingness to pay, but unlike other variables, the relationship towards willingness to pay is not significant. That concludes distribution does not affect willingness to pay significantly. So when the Government improve the distribution of imported buffalo meat it will only slightly affect consumer's willingness to pay. This research also found that the lack of information regarding the quality of meat, the origin of meat, Safety and negligence can affect the willingness to pay consumers. Consumers generally want to consume clear information and benefits. Based on the results of this study, it is important for the government to continue to make an introduction to imported buffalo meat. Especially on the quality of buffalo meat which is no less good for health, ensuring that the buffalo meat is safe for consumption, ensuring its reliability and ensuring easy access to import buffalo meat at the nearest market / store, so that people can find this imported buffalo meat in the modern market that is easily accessible by the community.

REFERENCES

Aspan, H., I.M. Sipayung, A.P. Muharrami and M. Ritonga. 2017. The effect of halal label, halal awareness, product price and brang image to the purchasing decision on cosmetic products (case study on consumers of sari ayu martha tilaar in Bijai city). *International Journal of Global Sustainability*, **1**(1): 55-66.

Chung, C., B.C. Briggeman and S. Han. 2012. Willingness-to-pay for beef quality attributes of Korean grocery shoppers. *Journal of Agricultural and Applied Economics*, **4**: 447-459.

Erdem, C., I. Senturk and C. Ozkaya. 2010. Determinants of willingness to pay for imported meat products in developing countries: The case of Turkey. *International Journal of Economics Perspective*, **4**: 589-600.

Fathi, E., S.Z. Mohammad and I.K. Kanapathy. 2016. Drivers of consumers' willingness to pay for halal logistics. *Brit. Food J.*, **118**(2).

Ferdinand, A. 2002. *Structural Equation Modelling (SEM) Dalam Penelitian Manajemen.* Semarang (ID): Penerbit PT Elex Media Komputindo, Indonesia.

Hair, J.F., R.E. Anderson, R.L. Tatham and W.C. Black 1995. *Multivariate Data Analysis*, 4th ed. New Jersey (US): Prentice Hall.

Hassan, M.A., H.H.S. Abdel-Naeem, H.M.H Mohamed and N.A. Yassien. 2018. Comparing the physico-chemical characteristics and sensory attributes of imported Brazzilian beef meat and imported Indian buffalo meat. *Journal of Microbiology, Biothechnology and Food Sciences*, **8**(1): 672-677.

Kotler, P. 2000. *Marketing Management: Analysis, Planning, Implementation and Control.* Prentice Hall, New Jersey, USA.

Liana, M., R. Alias and M.R. Yacob. 2010. Consumers perception towards meat safety: Confirmatory factor analysis. *International Journal of Economics and Management*, **4**(2): 305-318.

Mendez, J.L., J. Oubina and N. Rubio. 2011. The relative importance of brand packaging price and taste in affecting brand preferences. *Brit. Food J.*, **133**: 1229-1251.

Olbrich, R., M. Hundt and G. Grewe. 2014. Willingness to pay in food retailing-an empirical study of consumer behaviour in the context of the proliferation of organic products. *European Retail Research*, **28**(1): 67-101.

Sumarwan, U. 2011. *Perilaku Konsumen Teori Dan Penerapannya Dalam Pemasaran*. Bogor, Ghalia Indonesia.

Yodfiatfinda. 2008. *Analisis persepsi konsumen dan kesediaan untuk membayar (willingness to pay) produk daging sapi impor di kota bogor*. Ms. Thesis, Institut Pertanian Bogor, Indonesia.