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Consumers' willingness to pay towards food safety: The case of meat consumption

(Kesanggupan pengguna membayar terhadap keselamatan makanan: Kes penggunaan daging)

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Abstract

This study is to determine consumers' willingness-to-pay (WTP) for food safety with reference to meat consumption. A total of 3,145 respondents were interviewed for this purpose. The contingent valuation method (CVM) was used to determine consumers' WTP for the consumption of meat. A logit and probit model was used to estimate the premium that consumers are willing to pay for meat. The results indicated that the important factors that influenced as well as determined the amount of premium that a consumer was willing to pay for meat are gender, age, marital status, household size and income, price levels, and number of children. Based on this study, it was found that the demand and consumption of meat was still high despite of the food scare incidents in the country recently. However, many Malaysian consumers are becoming more vigilant when buying meat due to concern on health and diet. This trend will certainly have effects on the present market of meat. Hence, to ensure a better development of the meat market, there is a need to formulate proper standards, policies and promotion programmes for meat safety, and to step up the efforts of Research and Development (R&D) in improving the production technologies and food safety systems for meat.

Introduction

Food safety is increasingly becoming an important public health issue. Governments all over the world are intensifying their efforts to improve food safety. These efforts are in response to an increasing number of food safety problems and rising consumer concerns. While less well documented, developing countries bear the brunt of the problem due to the presence of a wide range of foodborne diseases, including those caused by parasites. Thus, concerns about safe meat are definitely not new. We are apparently facing daily reports of meat or meat constituents whose safety have come under scrutiny. There are increasing consumer concerns about the safety of the meat they eat, highlighted by a number of "food scares" in recent years.

In Malaysia, the incidence of foodborne diseases has shown a fluctuating trend over the last 10 years. Efforts have been undertaken by the authorities in the introduction of hygienic food preparation techniques, adequate and proper housing and emphasis on environmental sanitation gradually covering the entire nation. Despite these efforts,

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outbreaks of food poisoning cases had been found to occur and the statistics had risen drastically from 897 cases in 1991 to 6,736 in 2000 (Anon. 2001). Although specific concerns vary from country to country, it is clear that food safety is becoming an issue of importance to consumers when making purchase decisions. According to Kramer (1990), consumer activism has forced policy changes in a number of areas important to the agricultural and food industries. Kramer also argued that consumer concerns can translate into market behaviour, frequently in volatile ways. It is also clear that concerns over food safety can have effects on future consumption levels.

It is likely that the perceptions of safety factors for many consumers are largely inaccurate. Nonetheless, they still use these inaccurate perceptions when making consumption decisions. Invisible hazards and imperfect information can cause substantial losses to all participants in the food chain. There is a need for improved physical, biological and economic data on food safety risks for consumers, producers, processors and regulators.

In Malaysia, the danger of 'modern' meat production to both our health and environment has been seriously criticised, as reported by the mass media. It is clear that participants at all levels of the meat industry must not only strive to educate consumers, but must also strive to gain the trust of consumers, in relation to meat and other food safety issues. Therefore, public concern and consumers' awareness about safe meat are very important in influencing their perceptions, attitudes and their purchasing behaviours.

With increasing food risks, consumers need to be careful while choosing food products. They should be equipped with relevant knowledge of the present hazards in meat safety. The objective of this study is to provide some insights on Malaysian consumers' food concerns and to estimate their willingness to pay (WTP) for food safety. Meat was used in this study to determine consumers' WTP. Knowing and understanding the needs of consumers for meat safety can boost profits for both producers and marketers. This study will be able to guide them in formulating effective marketing strategies for meat. This knowledge would also assist them in building competitive advantage in this particular market place.

Literature review

Consumer perceptions and concerns about food safety have increased significantly over the past 25–30 years (Sachs et al. 1987). Previous study by the Food Marketing Institute (FMI) reported that 69% of consumers considered product safety as a very important factor in food selection (Anon. 1994). This concern has influenced consumers' food preferences and shopping behaviours. A FMI survey showed that 94% of shoppers changed their eating habits to ensure a healthy diet, and 63% reported eating more fruits and vegetables (Anon. 1994).

The preference for organic produce is becoming stronger. Some consumers were even willing to pay a premium for it. A survey by Goldman and Clancy (1991) reported that 40% of consumers usually or always purchased organic produce due to food safety concerns; 33% were willing to pay a 100% premium for residue-free produce. The market value of organic produce in California increased from $5.4 million in 1986 to $7.6 million in 1987, reflecting an annual change of 41% a year (Franco 1989). A consumer survey by the Extension Service of Oklahoma State University showed that over 66% of respondents WTP averaged a 10% premium for safe foods (Cuperus et al. 1991).

In addition to the change in preferences, consumers are also paying more attention to food labels for information on product safety and nutrition. Results from a survey in 1990 showed that about 50% of respondents were interested in knowing whether pesticides, additives, and preservatives had been used in fruit and vegetable productions (Zind 1990). The changes in consumer preferences and shopping behaviours indicated that economic factors such as price and income are no longer

the only guide for consumers. Food safety concerns have become an important factor in determining food consumption.

Verbeke et al. (1999) explored the influencing factors on meat consumption decisions in Belgium using probit analysis. A cross-sectional survey was used as the basis for measuring consumption behaviour. Probit models were specified to measure the nature of change in meat consumption and specifically showed the extent media influenced the probability of reducing the level of meat consumption. A discrete choice model was specified, estimated and used to predict probabilities of change in consumers' behaviours over a range of demographic and media attention levels. Responses were limited to a discrete choice (yes and no), hence the adoption of limited dependent variable models is appropriate to the current problem (Greene 1995).

Two econometric models were used to estimate the consumers' WTP to reduce health risks due to pesticides in tomatoes and the probability of purchasing (Akgungor et al. 1999). A probit model was then used to estimate a demand model since the dependent variable contained zero values. Later, in determining the probability of purchase, a probit model was estimated. To test the impact of health risk perceptions on tomato purchases, a variable that measured the difference in perceived risk was incorporated to the tomato demand model 'risk difference' variable. The probit model revealed that the number of persons living in the household and tomato prices negatively affected the probability of tomato purchase.

There is a growing interest in the use of contingent valuation (CV) to value improvements in food safety, particularly in the United States. A number of studies estimated consumer WTP for food perceived to be safer, although not relating this to a specific reduction in risk. Revealed preferences and CV studies in the US reported that consumers were willing to pay higher prices for residue-free produce (Hammit 1986, 1990, 1993; Ott 1990; Misra et al. 1991; Van Ravenswaay and Hoehn 1991; Conklin et al. 1992; Huang 1993; Lin and Milon 1991).

While most studies have estimated consumers' WTP for safe foods, few studies have estimated WTP for specific risk reductions (Van Ravenswaay and Hoehn 1991; Buzby et al. 1995). Buzby et al. (1995) estimated that consumers' WTP were statistically insensitive to the size of the risk reductions associated with shopping at 'government standard' stores versus 'pesticide-free' stores. Wessells and Anderson (1995) also used risk reductions to elicit information regarding WTP based on CV techniques.

These CV studies were generally based on a simple expected utility model, which assumed a "defenceless" consumer facing a given risk, which was associated with a clearly defined outcome. Nonetheless, models have been developed which take into account situations where risks were continuous rather than discrete (Kwan Choi and Jessen 1991), where there was ambiguity over the exact level of risk (Van Ravenswaay and Wohl 1995) and where consumers took averting actions to reduce the risks they faced (Eom 1994).

Hammit (1993) estimated the WTP for reductions in health risk associated with consuming pesticide residues on vegetables using the CV technique with in-person interviews. Contingent valuation technique has been used to measure non-market goods including air quality, water quality, recreation, hazardous waste sites and health risks. The CV approach was used in studies for foodborne illnesses (Hammit 1986, 1990; Misra et al. 1991; Ott et al. 1991; Van Ravenswaay and Hoehn 1991; Buzby et al. 1995; Lin and Milon 1991). Eom (1994) also developed a contingent discrete-choice model integrating consumers' risk perceptions with their stated purchase behaviours for assessing a consumer's premium for a safer food.

Nevertheless, a conjoint analysis was used to measure the consumers' preferences to food safety and certification (Huang-Tzeng 1999). The four attributes namely, food safety, price, certification programme, and grade

were assumed to be the determinant attributes for fresh sweet pepper from the perspective of food safety.

In a study on market segmentation and WTP for organic products (Gil et al. 2001), consumers WTP were measured using the CV method which consisted of a dichotomous choice (DC) question and a maximum WTP question. A covariance analysis method was also used to test for differences in WTP. Their results showed that only likely and actual organic food consumers illustrated positive attitudes towards organic food and were willing to pay a premium for it. Among a wide range of products considered, consumers were willing to pay a higher premium for meat, fruits and vegetables suggesting that the organic attributes were more important in fresh and perishable products. In the case of meat, the higher premium could be partly explained by stories of food scares that have taken place around the world (BSE, dioxins).

As a conclusion, from the literature reviewed, it is apparent that CV technique was widely used to estimate the economic values for all kinds of products. The approach has great flexibility, allowing valuation of a wider variety of non-market goods and services compared to any other non-market valuation techniques. The CV technique is also a potentially valuable supplement to other pre-test-market methods. The CV approach involves asking people directly in a survey, on their level of WTP for certain products. Based on all these reasons, it is therefore appropriate to apply the CV technique in this study.

Methodology

In this study, contingent valuation (CV) method was used to analyse the data. WTP was measured empirically using the CV method (CMV). This methodology had also been widely used to assess the values of non-market goods such as environmental amenities (Mitchell and Carson 1989), mortality risk reduction (Jones-Lee et al. 1985) and morbidity risk reduction (Krupnick and Cropper 1992).

The basic model of the research is the Van Ravenswaay and Hoehn (1991) approach, an extension of Lancaster's attribute model (Lancaster 1971). The identified specification model for this study is as follows,

(1) $WTP = f(P, I, RA, G, E, Re, R)$

where,

WTP = Willingness to pay;
P = Price (RM);
I = Income (RM);
RA = Residential area;
G = Gender;
E = Education level;
Re = Region and
R = Race.

Subsequently, the logistic regression technique was used to estimate WTP (Hanemann 1984). Using this approach, the probability of saying "YES" to bids at different levels of the independent variable are estimated as,

(2) $P = (1 - e^{-x})^{-1}$

where,

x = Estimated regression logit regression equation and;
P = Probability of accepting the price.

Mean of WTP is estimated as the area under this probability function. This area shows the proportion of the population who would consume the goods at each level, and their associated utility. The area under the curve is estimated by integration techniques and can be expressed as,

(3) $E(WTP) = \int_{L}^{U} (1+e^{a+bPRICE})^{-1}\, dPRICE$

where,

$(1 + e^{a + bPRICE})^{-1}$, are the probability of saying "YES" and;
U and L are the upper and lower limits of integration respectively.

Estimating mean WTP within this framework relies on making some assumptions about the upper and lower limits of the integral, i.e. knowing the price amounts at

which the probability of saying "NO" is zero and the probability of saying "YES" is one. By applying this to the price behaviour, and assuming that individuals will not pay if they receive a disutility from it, negative WTP can then be ruled out and zero can be used as the lower limit. Bishop and Heberlein (1979) and Sellar et al. (1986) used the upper range for the integration of their price amounts as the upper limit for the integration. Hanemann (1984) argued that such an approach makes certain assumptions about the probability distribution for the unknown WTP in the sample. He argued that the upper limit should be infinity and that using the highest offered amount may be a poor approximation of the mean utility estimate when integrating between zero and infinity. In this study, zero was chosen as the lower limit of the integral and the maximum value as the upper limit. Confidence interval of WTP was also calculated using the variance-covariance matrix and a technique adopted for dichotomous CVM by Park et al. (1991).

The data for the study were gathered directly by interviewing respondents in a face-to-face setting, using prepared questionnaires. A total of 3,145 respondents were interviewed. The area of sampling frame were in major towns in Peninsular Malaysia; Lembah Klang, Pulau Pinang, Alor Setar, Kuala Terengganu, Kota Bharu and also Johor Bahru. Respondents were asked to complete a questionnaire regarding their WTP with respect to food safety based on the CVM format and also their profiles. Information on the socio-economic characteristics of respondents obtained included race, place of origin, age, marital status, education, size of family members, occupation, monthly and supplementary gross income *(Table 1)*. They were asked the following question and were required to respond by either "YES" or "NO":

The process of meat production is a usual scenario to us. However, a lot of us do not know about the danger of physical, chemical and biological contaminations/hazards that may occur in the production cycle, as what had happened in the mid–90s and also recently, in which our meats had been infected with Mad Cow disease, Food and Mouth disease, and J.E. virus. There are also researches which indicate that certain contaminations can cause serious health hazards. Thus, we have to be more concern about our health by consuming meat that have been certified safe even if it means that we have to pay more due to the high cost of inspection, implementation and maintenance of food safety systems. If the price of meat that is ensured of their safety, is __x____% higher than the market price, are you willing to purchase it?

where x ranged from 10% to 50% and representing a 'reasonable' additional amount of price to buy meat.

The willingness to pay is represented by the dichotomous variable of WTP, with values of 1 for those willing to pay the additional amount and 0 is otherwise. An OLS regression of the above relationship with WTP as the dummy variable is beseted by several problems namely: (1) non-normality of the error term, (2) heteroscedasticity, and (3) the possibility of the estimated probabilities lying outside the 0–1 boundary (Gujarati 1988). Since the dummy WTP is actually a proxy of the actual propensity or ability of willingness to pay, the probit and logit models guarantee that the estimated probabilities lie in the 0–1 range and that there are nonlinearly related to the explanatory variables. The difference between these two approaches is mainly in the distribution of the regression error terms. The logit approach assumes that the cumulative distribution of the error term is logistic while probit assumes that it is normal.

Income factor was taken into account in this study by including it as one of the independent variables in determining the overall WTP. As the price is only a small portion of the income, frequency of purchase increase in number of visits as a result of increase in income was not significant. Thus income was not used as a control variable in this study.

Although the contingent valuation

Table 1. Socio-economic profile of respondents

Characteristics		Number	Percentage (%)
Residential area	Rural	1,106	35.2
	Urban	2,039	64.8
Gender	Male	1,505	47.9
	Female	1,640	52.1
Race	Malay	1,505	47.9
	Chinese	1,266	40.2
	Indian	329	10.5
	Others	46	1.5
Age (years)	Below 20	309	9.8
	20–30	1,835	58.3
	31–40	696	22.1
	41–50	230	7.3
	Above 50	75	2.4
Marital status	Single	1,981	63.0
	Married	1,164	37.0
Household size	Staying alone	83	2.6
	2–4	758	24.1
	5–6	1,259	40.0
	Above 6	1,045	33.2
Family members below age 12	One	41	1.3
	2–4	1,318	41.9
	5–6	965	30.7
	Above 6	821	26.1
Education level	Never been to school	11	0.3
	Primary school	38	1.2
	Secondary school	1,224	38.9
	College/University	1,872	59.5
Occupation	Public sector	449	14.3
	Private sector	1,717	54.6
	Self-employed	285	9.1
	Housewife	42	1.3
	Others	652	20.7
Monthly household income	Below RM1,000	83	2.6
	RM1,000–RM2,000	767	24.4
	RM2,001–RM3,000	1,045	33.2
	RM3,001–RM4,000	627	19.9
	RM4,001–RM5,000	283	9.0
	Above RM5,000	340	10.8

method has been widely used for the past two decades, there is considerable controversy over whether it adequately measures people's willingness to pay for goods and services. People have enough practice in making choices with market goods, so their purchasing decisions in markets are likely to reflect their true willingness to pay. CV assumes that people understand the goods in question and will reveal their preferences in the contingent market, just as they would in a real market. However, most people are unfamiliar with placing dollar values on goods and services. Therefore, they may not have an adequate basis for stating their true values. The answers expressed in the willingness to pay question in the contingent valuation format may be biased because the respondent is actually answering a different question than what the surveyor had intended. Rather than expressing value for the goods, the respondent might actually be expressing their feelings

about the scenario or the valuation exercise itself. For example, respondents may express a positive willingness to pay because they feel good about the act of giving for a social good, although they believe that the good itself is unimportant. Respondents may state a positive willingness to pay in order to signal that they place importance on improved goods in general. Alternatively, some respondents may value the good, but state that they are not willing to pay for it, because they are protesting on some aspects of the scenario, such as increased taxes or the means of providing the goods.

Results and discussion

As shown in *Table 1*, the numbers of respondents from rural and urban areas were 1,106 (35.2%) and 2,039 (64.8%) respectively. Most of these respondents were females, which consisted of 1,640 (52.1%) as compared to males, which were 1,505 (47.9%). This is consistent with the study done by Robert et al. (1975), when couples were interviewed, and normally the wife or female partner would answer the questions. Females were also found to be more risk averse in terms of food safety. Therefore, they are in a better position to answer such questionnaires. In terms of marital status, 63.0% of the respondents were single and 37.0% were married. It is important to categorize the respondents' marital status because of its influence on the consumers' purchasing attitude with regards to frequency of purchasing.

The household size of most respondents has more than four members in the family, which equals to 73.2% *(Table 1)*. The household size usually influences consumers' attitude in making purchasing decisions as the number of members in the household affects the consumers' real disposable incomes.

From the interview, it was shown that 14.3% of respondents worked in the public sector. Those who worked in the private sector contributed 54.6%. Another 9.1% were self-employed, 1.3% was housewife and 20.7% were categorized as others such as studying or not working. Occupation is a very important factor because it usually reveals the consumers' social class, which can influence the pattern of purchasing behaviour towards meat. Occupation and income are related to each other. Consumers who earned higher incomes were believed to have different patterns of purchasing behaviours compared to those with lower income. It seems that consumers with higher income do not take into account the variations in the price of meat. From the survey, 60.2% of the respondents' income was below RM3,000.

Previous studies have identified a variety of demographic characteristics that affected consumers' WTP for food safety. The initial estimation of the model involved socio-economic characteristics such as residential area, gender, race, age, marital status, household size, children, education level, and occupation as the independent variables. The results of the estimated models using logit and probits are shown in *Table 2*, and a number of demographic factors are found to have significant influence on WTP for reducing food poisoning risks caused by meat.

Firstly, the regression analysis indicated a significant positive relationship between income and WTP for reducing risks of food poisoning. Consumers with higher incomes were more able to pay a higher price for safer and better quality meats, and had a lower marginal utility of money income. This was in accordance with the results from most previous studies.

Secondly, the regression analysis indicated a negative relationship between gender and WTP for safer food. While the majority of previous studies demonstrated a positive relationship between WTP and gender (Dunlap and Beus 1992; and Huang 1993), the evidence however, was not conclusive. The results appeared to indicate that it might be due to increasing awareness among male consumers or a greater concern by males on the impact of food safety on health.

Thirdly, age was found to positively correlate with WTP to reduce the risk of food poisoning. It clearly indicates that healthy eating is a rising trend among mature and older

Table 2. Coefficient estimate using logit and probit models

Variables	Logit model		Probit model	
	Coefficient	t-ratio*	Coefficient	t-ratio*
Constant	–3.68956	–11.2108	–2.00756	–11.7125
Gender	–1.62341	–11.4455	–0.98232	–12.4707
Age	0.06264	4.5477	0.04033	5.7733
Status	0.79839	5.2052	0.4456	5.3524
Household size	–0.53215	–11.9160	–0.32085	–13.9723
Income	0.00105	10.5238	0.00045	10.3049
Price	–1.16678	–19.2101	–0.63147	–20.4278
No. of children below 12 years old	0.23096	4.7222	0.14648	5.5680
Log likelihood function	–102.84		–1048.70	
McFadden R^2	0.5125		0.5036	
Percentage of right prediction	88.30		88.17	

*Significant at 1% level

individuals. They are demanding healthier food due to their greater fear of foodborne illnesses. This is also in accordance with past studies (Misra et al. 1991).

Next, the regression analysis also indicated a significant negative relationship between household size and WTP. Those with household size of 4 or more members were likely to be highly price sensitive. Significant differences in household size might be attributable to differences in annual income. Lower levels of per capita discretionary income might have caused larger households to be more financially conservative. In support of these results, Ritzmann (1982) detected that large households were able to spend less per capita on food expenditures and McCraken (1992) also reported that smaller households, such as without children exhibited greater per capita food expenditures

Finally, households with children (family members below age of 12) were found to have positive relationship with WTP. They were less likely to be concerned with meat price when making decisions. Parents have the responsibility and intrinsic interest in providing safe and wholesome meals for their children. This explained why households with children were less concerned about the price of meats.

The Maximum Likelihood Estimates (MLE) of the specification for logit and probit models are shown in *Table 2*. The factors in both models had expected signs and are significant at 1% level. The values of adjusted McFadden's pseudo R^2, which estimated the performance of the overall model, were 0.5125 and 0.5036 for logit and probit models respectively. The percentages of right prediction were 88.30% and 88.17% for logit and probit models respectively. Since these statistics were greater than 0.5, then the event is either expected to occur and not to occur.

Based on the estimation results, equivalent WTP measures were determined using logit and probit models at mean price, gender and marital status *(Table 3)*. The determined mean WTP for logit model ranged from RM1.08 to RM3.29, and from RM1.25 to RM3.54 per kg meat for probit model based on a 95% confidence interval. Based on the gender and marital status, female respondents were generally willing to pay more for meat as compared to males, and both sexes who are married, have a higher willingness-to-pay for meat than those who are still single. For example, in the logit model column, it is observed that WTP of married females, which was RM3.00 per kg was much higher than of married males (RM1.70). On the other hand, WTP of single females (RM2.36) was a little lower than females who are married. The results were similar when comparing both sexes who were still single.

Table 3. Mean WTP using logit and probit models (RM)

Model			Lower 5%	WTP	Upper 5%
Logit model	Male	Marriage	1.59	1.73	1.89
		Single	1.08	1.17	1.28
	Female	Marriage	2.78	3.01	3.29
		Single	2.18	2.36	2.58
Probit model	Male	Marriage	2.01	2.11	2.28
		Single	1.25	1.64	1.77
	Female	Marriage	3.16	3.31	3.54
		Single	2.62	2.75	2.95

However, the results demonstrated differences between the logit and probit models in terms of summary statistics. This was in accordance with previous study of Bowker and Stoll (1988) which reported that neither model dominated the other empirically in the binary dependent variable case. It was seen that the logit model performed slightly well than the probit model, in terms of McFadden R2 and percentage of right prediction. Hence, the mean WTP obtained from the logit model would be a more reliable measure. For that reason, the premium values of RM1.70, RM1.20, RM3.00 and RM2.40 per kg would be taken as the conservative WTP measures for meat.

Conclusion

In this study, 3,145 respondents were interviewed to determine their awareness, perceptions, attitudes and WTP towards meat safety. In general, the findings in this study indicate the majority of the consumers are aware of foodborne illnesses, but only some have the right perception towards it. Most of the consumers still continue to consume meat, although some are worried of the effects of foodborne risks in meat and thus, consume less.

This study used CVM to estimate consumers' decision on whether to pay a premium and how much more to pay for meat that is guaranteed safe for consumption based on the data collected from six major towns in Peninsular Malaysia. The results showed that price levels and household incomes are the most significant factors that influenced and determined the total premium that an individual was willing to pay for meat. The results, thus, should be able to assist the government and meat producers in considering the market potential of the product in near future.

The findings in this study should be useful in helping the government and players in the supply chain of meat products, in assessing the market potential for meat by formulating alternative policies for the meat industry.

Due to the food security issues among Asian countries as being reported by Fu et al. (2000), he too suggested that food safety as the quality dimension of the food security problems. It is expected that the provision and demand for safer food will become important food policy issues in most Asian countries as they are experiencing rapid economic growth with steady increases in the standard of living.

Although the awareness of the effect of food on our health is increasing, there is still a significant demand for meat. Subsequently, the Malaysian government, related institutes and associations should satisfy the needs of consumers, especially in the aspect of food safety management and current price of meat. Improvement on the quality of meat could increase its consumption and also meet identified market needs.

The government should use education as a medium for introducing food safety policies and should launch promotions on food safety through the mass media in order to help improve the meat industry in Malaysia. The producers, processors, retailer, distributors, and food handlers should be provided with enough knowledge on the right rules and regulations of how to produce safer meats.

Consumers too should be informed of any new developments and practises in meat safety. On the other hand, research should be intensified to generate more cost effective production technologies and food safety systems, in order to produce good quality meat at an affordable price.

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Abstrak

Kajian ini menentukan kesanggupan pengguna membayar bagi keselamatan makanan dengan rujukan terhadap penggunaan daging. Sejumlah 3,145 orang responden telah ditemu duga untuk tujuan ini. Kaedah penilaian kontingen (*contingent valuation method,* CVM) digunakan untuk menentukan kesanggupan pengguna membayar terhadap penggunaan daging. Model logit dan probit telah digunakan untuk menganggarkan premium kerana pengguna sanggup membayar bagi penggunaan daging. Keputusan kajian menunjukkan faktor penting yang mempengaruhi dan menentukan jumlah premium kerana pengguna sanggup membayar untuk daging adalah jantina, umur, status perkahwinan, saiz dan pendapatan isi rumah, aras harga dan bilangan anak. Berdasarkan kajian ini, didapati permintaan dan penggunaan daging masih tinggi walaupun wujudnya insiden kecurigaan terhadap keselamatan makanan di negara ini. Walau bagaimanapun, ramai pengguna di Malaysia menjadi lebih berwaspada apabila membeli daging disebabkan oleh perhatian terhadap kesihatan dan diet. Arah aliran ini sebenarnya memberi kesan terhadap pasaran daging masa kini. Oleh itu, untuk menentukan pembangunan pemasaran daging yang baik, adalah perlu untuk merumuskan piawaian yang betul, polisi dan program promosi bagi keselamatan produk daging, dan mengambil langkah menggalakkan Penyelidikan dan Pembangunan (R&D) dalam usaha memperbaik teknologi pengeluaran dan sistem keselamatan makanan untuk daging.