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Predicting chicken-meat purchasing behaviour in traditional and modern markets in West Java, Indonesia

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Abstract. Food safety has become a critical problem regarding chicken meat for the Indonesian authorities since severe outbreaks of Avian Influenza. The food safety issue is associated with the market channels where the chicken meat is sold. In Indonesia, the majority of people buy their chicken meat in the traditional market which has inadequate food safety controls. Therefore, understanding the consumers' behaviour of market choice is a good approach to know chicken-meat consumers' intention in modern markets in the future. The study focuses more on the social-psychological and socio-demographic factors that influence the intention of consumers in West Java, Indonesia using the theory of planned behaviour (TPB). The results show that consumers in modern markets had a higher level of education, income, amount of consumption, and purchasing frequency than in traditional markets. The subjective norms were the most influential factor to the intention of buying chicken meat in modern markets, followed by the perceived behavioural control (having enough money and the convenience), and attitude. None of the socio-demographic factors were significant. The findings can be used for making the right strategy such as advertising and campaign to encourage society to buy chicken meat in modern markets.

1. Introduction

Food safety has become a critical problem regarding chicken meat for the Indonesian authorities since severe outbreaks of Avian Influenza. The food safety issue is associated with the market channels where the chicken meat is sold. In Indonesia, the majority of people buy their chicken meat in the traditional market which has inadequate food safety controls. Therefore, understanding the consumers' behaviour of market choice is a good approach to know chicken-meat consumers' intention in modern markets in the future. The study focuses more on the social-psychological and socio-demographic factors that influence the intention of consumers in West Java, Indonesia using the theory of planned behaviour (TPB). The results show that consumers in modern markets had a higher level of education, income, amount of consumption, and purchasing frequency than in traditional markets. The subjective norms were the most influential factor to the intention of buying chicken meat in modern markets, followed by the perceived behavioural control (having enough money and the convenience), and attitude. None of the socio-demographic factors were significant. The findings can be used for making the right strategy such as advertising and campaign to encourage society to buy chicken meat in modern markets.

Indonesia is one of the countries severely affected by HPAI H5N1. The first outbreak of HPAI was officially reported in 2004 in Indonesia and infected wild water birds were suspected to have originated from neighbouring countries [8]. Since this initial outbreak, the disease has spread over numerous parts



of Indonesia [9] and became endemic. Outbreaks of avian influenza occurred frequently in parts of Java, Bali, and Sumatra [8]. According to the World Health Organization (WHO), there were 191 cases of human influenza A(H5N1) reported by the Ministry of Health of Indonesia, of which 159 died [7].

On the other hand, Indonesia's demand for poultry meat is expected to continue rising, predominantly driven by middle-class societies. By 2025, poultry consumption per capita in Indonesia is predicted to reach more than 9 kg per person annually [10], whereas, the current consumption in 2018 is approximately 7 kg per person annually [11]. In Indonesia, chicken meat and poultry products are recognised as the most important sources of animal protein [10].

The poultry meat supply chain in Indonesia consists of two primary channels: traditional markets (e.g. street vendors, wet markets) and modern markets (e.g. supermarkets, hypermarkets, and specialty stores). The traditional market does not provide cooled or frozen poultry meat products and sells warm chicken, whereas the modern market provides cooled or frozen poultry meat [12]. Consumers often prefer chickens from the traditional market because they perceive it as fresher [13] and healthier [14] than cooled chicken in the modern market [12]. Only specific segments of consumers such as wealthy Indonesians who normally live in capital cities prefer to buy their chicken in the supermarket because of better hygiene [14, 15].

The traditional market in Indonesia can be seen as an epidemiological system since it is based on a large smallholder poultry farming population that produces the most (>90%) poultry meat [8]. In such epidemiological systems, there are frequent interactions between various infection reservoirs and humans [8]. This condition supports the transmission of avian influenza from chicken to human and from human to human and can result in a human influenza pandemic [7]. Conversely, modern markets implement much better food safety requirements than traditional markets. Therefore, the consumption of chicken meat through the modern market should be preferred over the traditional market because it can reduce the transmission of avian influenza and increase the level of food safety.

Although the government of Indonesia has been regulating the poultry chain with food safety standards, food safety in traditional markets is still far behind that in modern markets. Traditional and modern markets also serve different segments of consumers with diverse preferences for poultry meat and food safety [12, 13]. Previous research by Indrawan (2018) revealed that to improve food safety regarding the Indonesian poultry supply, it is recommended that consumers would purchase their poultry meat from the modern market instead of traditional markets. Thus, it is important to understand the determinants of purchasing behaviour regarding market channels.

Currently, information regarding consumer behaviour towards chicken meat in Indonesia is scarce. Only a few studies have been conducted to gain insights into Indonesian consumers' decision-making regarding poultry consumption [12, 16]. According to a descriptive study [16], consumers in the Jakarta region purchased poultry chicken meat from traditional markets instead of modern markets. Freshness is the most important characteristic of chicken meat in traditional markets, while modern markets have safety guarantees as the strongest reason for consumers to purchase chicken meat [12, 13]. Furthermore, consumers change their purchasing behaviour because of their concerns about HPAI [14].

Although consumers' current preferences are known, their intentions to change retail outlets are not. There is no knowledge about the socio-psychological and socio-demographic factors that influence the intention of consumers to purchase poultry meat in modern markets in the future. A suitable framework for studying intention is the theory of planned behaviour (TPB) [17]. The intention to perform behaviours can be predicted through three constructs of the TPB: attitude, subjective norms, and perceived control behaviour [18].

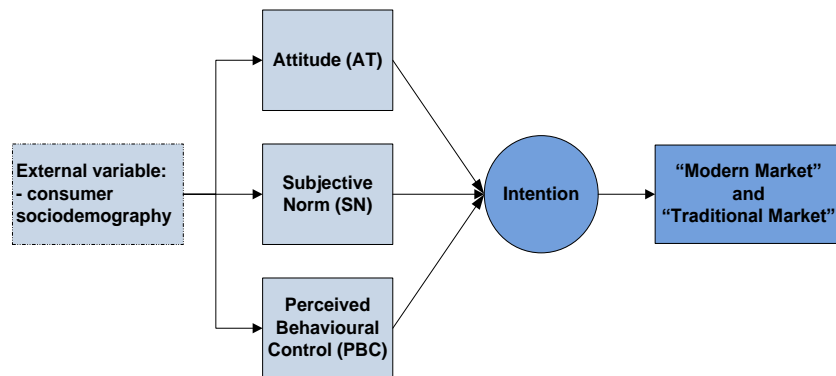


Figure 1. The theory of planned behaviour

Figure 1 depicts the theory of planned behaviour for consumers' intention to purchase chicken meat in the modern market and the traditional market in the future. The external variable is the relevant socio-demographic determinant based on prior research in the previous paragraphs. In this study, socio-demographic determinants consist of gender, age, level of education, marital status, income, amount of consumption, purchasing frequency for chicken meat consumers' behaviour. In addition, the direct constructs of intention according to the theory of planned behaviour are attitude, subjective norms, and perceived behavioural control.

2. Research Methods

As the first step in this research, a literature review was conducted to obtain relevant information regarding consumers' behaviour, food safety issues, chicken meat market channels, and the theory of planned behaviour.

The survey was conducted in four districts of West Java Province, namely Ciamis, Tasikmalaya, Subang, and Sukabumi from September to October 2016. These districts were selected because they have large broiler production, various poultry production systems, and had frequent influenza outbreaks between 2013 and 2015 [12, 13, 19, 20].

Convenience sampling was used to ensure a wide variety of participants and to reduce potential biases that may occur from socio-economic or cultural differences. It is typically used to assure that smaller groups are adequately represented in a sample.

Firstly, the quota was designed to include 25% of the respondents in each district. The reason for this was to obtain more information about chicken meat characteristics in each small city. The strata of consumers (target respondents) were chicken meat buyers, who are decision makers of chicken meat consumption for their families, in traditional and modern markets. Based on the designed quota, the sample size was 100 people per district. To anticipate respondent absences, the total number of samples was increased with 2.5% additional backup. Interviews were held with respondents who were buying poultry meat, at the time of the interviews. During the survey, four of the 410 participants provided incomplete information; therefore, we did not include them in our sample. In total there were 406 interviewed chicken consumers with around 100 respondents per district.

The questionnaire consisted of five parts. The first part was aimed at the socio-demographic characteristics of the respondents such as gender, age, education, household income, job description and family size. In this section, there were five closed questions and one open questions about age. The second part consisted of a couple of closed questions on consumer purchasing behaviour: the amount of chicken meat consumption and location to purchase chicken meat. In addition, five scaling questions for important attributes were also designed for decision making on purchasing chicken meat: (1) price, (2) quality, (3) safety guarantee, (4) the easiest way to purchase chicken meat, and (5) halal certification. The scaling questions had four levels: not important, less important, important and very important. The third part was conducted to measure the willingness to pay for an improved food safety guarantee of chicken meat, using the contingent valuation method (CVM) [21]. The fourth part was designed to

measure the intention to purchase chicken meat in the traditional and modern markets in the future, using the TPB framework to indicate each control measure of consumer intention. These control measures are the psychological factors that explain the intention, i.e. attitude, subjective norms, perceived behaviour control. Respondents were asked to their response to each statement using a five-point Likert's scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Lastly, the chicken meat characteristics such as carcass colour, carcass skin, carcass size, bone, freshness, and carcass form were identified using closed questions.

Table 1. TPB construct of consumers' behaviour on purchasing chicken meat

TPB variables	TPB Statement items	
Intention (I)	I1	I will always purchase chicken meat in the traditional market
	I2	I will always purchase chicken meat in the modern market
Attitude (A)	A1	Chicken meat in the traditional market is healthy to consume
	A2	Chicken meat in the traditional market came from processes which guarantee the healthiness
	A3	Chicken meat in the modern market is healthy to consume
	A4	Chicken meat in the modern market came from processes which guarantee the healthiness
Subjective norm (SN)	SN1	My family think that purchasing chicken meat in a traditional market is good
	SN2	My close friends and my family always buy chicken meat in the traditional market
	SN3	The majority of my family member ask me to purchase chicken meat in the traditional market
	SN4	My family think that purchasing chicken meat in a modern market is good
	SN5	My close friends and my family always buy chicken meat in the modern market
	SN6	The majority of my family member ask me to purchase chicken meat in the modern market
Perceived Behaviour Control (PCB)	PBC1	I have enough money to buy chicken meat in the traditional market
	PBC2	Traditional market is a convenient place to buy chicken meat
	PBC3	I have enough money to buy chicken meat in the modern market
	PBC4	Modern market is a convenient place to buy chicken meat

3. Data Analysis

The data from the survey were analysed into two different sections: 1) descriptive statistics of all measured variables in both channels, and 2) the determinants of consumers' intention to buy chicken meat in the modern markets in the future.

All raw data were input and coded manually according to the numbering of the original questionnaire in Microsoft Excel and then entered in SPSS 25. Subsequently, measurement levels were determined for each data type. For example, questions that had ranked categories (e.g. Likert's scale) as ordinal, questions with no meaningful rank (e.g. marital status, gender) as nominal, and questions with numerical data (e.g. age) as scale.

First, descriptive statistics were conducted to get an overview of the socio-demographic characteristics of the sample population and to summarize the consumers' responses in the survey. Descriptive statistics were studied for consumers in both, the traditional and the modern channels. This analysis was also carried out for outlet attributes and chicken meat characteristics. The results were expressed through the total population (N), percentage, mean (average), and standard deviation (variation). In addition, descriptive statistics of intention and the determinants were also conducted to obtain an initial overview of the percentage of each question.

Prior to conducting multivariable analyses, multicollinearity test was conducted using bivariate correlation. Spearman rank correlation coefficients (ρ) were calculated to identify multicollinearity between the independent variables. The goal was to prevent double measurements amongst similar independent variables. If Spearman's correlation is less than 0.8 and the p-value is more than 0.05, there is no multicollinearity amongst independent variables. No high levels of multicollinearity were observed between independent variables; all the correlation coefficients (ρ) were less than 0.8 [22]. Therefore, all the independent variables were retained for the multivariable analyses.

In addition, multivariable regression analysis was used to analyse which socio-demographic variables, outlet attributes, and chicken meat attributes were associated with the current poultry meat purchasing behaviour of the respondents regarding two market channels (traditional and modern). Logistic regression analysis (binary regression) was performed. In the first analysis, the association between the chosen market channel and the other variables was determined. The socio-demographic variables, outlet attributes, and chicken meat characteristics were set as independent variables, whereas, market channel (modern and traditional) was set as the dependent variable. The results of the regression analyses were summarized in a classification table, showing the frequency as well as the correct percentage for the dependent variable (market channel). The closer the correct percentage to 100%, the better the model and the fitness. Next, the Hosmer and Lemeshow test helps determine the fitness of the model by looking at significance (p-value > 0.05).

The results were presented into p-value and Confidence Interval (CI). P-value is the probability of a finding research and the value ranges between 0 and 1. Confidence interval (CI) is a range of values to ensure the accuracy or precision of an estimate. In this case, we used two levels of correlation which are significant at the level 0.01 (CI 99%) and 0.05 (CI 95%). Meaning that 99% or 95% of the sample represent the real population. The important socio-demographic determinants and chicken meat characteristics/outlet attributes towards the choice of market channels can be identified through p-value < 0.05.

Second, consumers' intentions and their determinants were analysed based on the theory of planned behaviour (TPB). TPB is a conceptual framework that explains changes in human behaviour such as the consumers' purchasing behaviour [23]. The consumers' intention, as a best available predictor of future behaviour, to buy chicken meat in two market channels (traditional and modern) is associated with three conceptually independent social-psychological factors defined in the TPB framework: consumers' attitude, social norms, and perceived behaviour control [18]. As an initial step, Cronbach alpha was used to check the internal consistency among the variables with the three psychological constructs. The variables within a construct were considered to have internal consistency amongst them if Cronbach's alpha was > 0.70 [22]. In cases of internal consistency, the scores of the underlying items were averaged (composited) to obtain a single direct measure (e.g., the mean score) of the construct [24]. This aggregated variable or latent variable was used in subsequent regression analyses. For variables with inconsistent item scales (Cronbach's alpha < 0.70), the individual items underlying the TPB variable were analysed separately.

Ultimately, multivariable logistic regression analysis will be conducted to quantify the effect of these constructs on the intention of purchasing chicken meat in modern markets. Multivariable logistic regression is a robust test predicting the probability of a dependent variable based on the value of two or more independent variables [25]. For the multivariable logistic regression analyses, the responses "agree" and "strongly agree" on the five-point Likert scale were considered to indicate a high level of intention. The responses "neutral", "disagree", and "strongly disagree" were considered to indicate a low level of intention [26]. Subsequently, all data input for each question in TPB constructs (attitude, subjective norms, and perceived behaviour control) was illustrated through a bar chart. This helped us to know the trend of the respondents' answers. Thus, the level of each question in a construct could be determined: low, moderate, or high. The intention of the modern market was predicted by using multinomial regression. All analyses in three sections were carried out using SPSS 25.

Finally, besides the multivariable logistic regression on the association of intention as the dependent variable and the psychological factors as predictors, a subsequent multivariable logistic regression was

performed to study the effect of socio-demographic characteristics on the TPB constructs that were found to be significantly associated with intention as the dependent variable and the evaluated socio-demographic variables as predictors.

The accuracy of the model predictions for all multivariable analyses was evaluated by checking the presence of potential confounding and interaction between independent variables. Interaction terms were significant if the p-value of the interaction between the independent variables was less than 0.05 [27].

The intention of purchasing behaviour chicken meat in traditional markets was determined using binary logistic regression with a similar approach. However, this study focused more on the intentions of modern markets.

4. Results and Discussion

The findings of this research are delivered in three parts. Firstly, the socio-demographic data of respondents is provided, together with the important determinants of socio-demographics of chicken meat purchasing behaviour, both in the traditional market and the modern market. Secondly, the theory of planned behaviour (TPB) constructs in traditional markets and modern markets. Thirdly, the social-psychological and socio-demographic factors affecting the intention to purchase chicken meat in the modern market are provided, based on the theory of planned behaviour.

In total, 406 chicken meat consumers in West Java were interviewed about their personal information and their intention to buy chicken meat in the future based on market choice. A total of 333 respondents chose the traditional market and 73 respondents chose the modern market. Every district had around 80% of traditional-market and 20% of modern-market participants. Approximately, 100 respondents were taken as samples for each district. Because of the study design, the proportion of people choosing a market channel was not representative of the real proportion. The number of female respondents and male respondents stood at about 98% and 2%, respectively, either in the traditional or modern market. Similarly, the most frequent respondents were adult participants ranging from 35 to 45 years old in both market channels. Furthermore, the majority of respondents were married people (more than 95% for both channels). There are several significant differences in consumer characteristics in both channels regarding the level of education, occupation, income, amount of consumption, and purchasing frequency.

In the modern market, the largest percentage (53%) of respondents graduated from university, while the majority (43%) of the respondents in the traditional market graduated from senior high school as the highest form of education. In terms of occupation and income, the respondents in the modern market were employees (41%). Most of them (92%) earned more than €115.2 per month. On the other hand, a large percentage of respondents in the traditional market were housewives (77.5%), and most of them obtained less than €115.2 per month. The survey also depicts that the respondents in both channels predominantly consumed chicken meat, ranging from 1–10 kg/month. Participants in the modern market did repurchase more often (9 times) than they were in the traditional market (5 times) within a month.

In order to understand more about current purchasing behaviour, the perceptions of respondents regarding the importance of outlet attributes and chicken meat characteristics are useful to know. Surprisingly, both traditional and modern markets had the same level of importance for most purchasing attributes.

Price was considered an important attribute in traditional markets and it has become a very important attribute in modern markets. The majority of buyers in both market channels thought that quality and safety guarantees were very important for the characteristics of chicken meat. Similarly, both respondents in the modern market and the traditional market agreed that the halal guarantee is a very important attribute. The attribute that was the least important was ease of buying.

In addition, respondents in the traditional market and the modern market had the same preferences for chicken meat characteristics such as yellowish carcass colour, clean skin, medium carcass size, intact bone, warm chicken meat, and intact carcass over other alternative characteristics.

Furthermore, a logistic regression of current purchases was conducted to identify the influential variables. The results of logistic regression showed a good model with a p-value > 0.05 on the Hosmer and Lemeshow. In addition, none of the socio-demographic variables had a correlation higher than 0.70, meaning that there were no multicollinearities. Therefore, the purchasing behaviour can be predicted throughout the dependent variable (market channel: traditional and modern market) by using independent variables (socio-demographics, outlet attributes, and chicken meat characteristics).

The results showed that six socio-demographic determinants and five outlet-features were significantly correlated with market choice. Education, occupation, income, amount of consumption, purchasing frequency, and marital status had a significant correlation with market choice. Five outlet attributes, which were a cheap price, quality, safety guarantee, halal certificate, and meat freshness, had a significant correlation to market choice.

Table 2. Theory of planned behaviour statements

TPB Statement		SD %	D %	N %	A %	SA %	Agreed Statement %
		(1)	(2)	(3)	(4)	(5)	(4 + 5)
Intention (How strong your intention)							
Traditional	I will always purchase chicken meat in the traditional market	0.2	15.8	22.7	48.5	12.8	61.3
Modern	I will always purchase chicken meat in the modern market	4.4	44.1	28.6	21.4	1.5	22.9
Attitude							
Traditional CA: 0.870	Chicken meat in the traditional market is healthy to consume	0.2	6.4	25.9	56.4	11.1	67.5
	Chicken meat in the traditional market came from processes which guarantee the healthiness	0.7	6.2	28.3	57.1	7.6	64.8
Modern CA: 0.860	Chicken meat in the modern market is healthy to consume	0.5	11.6	31.5	49.8	6.7	56.4
	Chicken meat in the modern market came from processes which guarantee the healthiness	0.2	10.8	31.8	48.5	8.6	57.1
Social Norms							
	My family think that purchasing chicken meat in a traditional market is good	0.5	11.1	16.7	59.4	12.3	71.7
Traditional CA: 0.859	My close friends and my family always buy chicken meat in the traditional market	0.7	13.3	19.7	56.7	9.6	66.3
	The majority of my family member ask me to purchase chicken meat in the traditional market	0.2	24.9	12.1	55.2	7.6	62.8
	My family think that purchasing chicken meat in a modern market is good	2.2	25.4	29.6	39.4	3.4	42.9
Modern CA: 0.878	My close friends and my family always buy chicken meat in the modern market	4.7	36.2	33.0	23.9	2.2	26.1
	The majority of my family member ask me to purchase chicken meat in the modern market	4.7	43.6	23.2	26.1	2.5	28.6
Perceive behavioural control							
Traditional CA: 0.373*	I have enough money to buy chicken meat in the traditional market	0.0	4.9	7.9	66.5	20.7	87.2
	Traditional market is a convenient place to buy chicken meat	1.2	16.5	17.5	55.4	9.4	64.8
Modern CA: 0.790	I have enough money to buy chicken meat in the modern market	0.7	20.7	20.4	47.3	10.8	58.1
	Modern market is a convenient place to buy chicken meat	0.2	13.8	13.3	56.7	16.0	72.7

CA (Cronbach alpha), SD (Strongly Disagree), D (Disagree), N (Neutral), A (Agree), SA (Strongly Agree)

*Average of 2 items in PBC was 0.373, therefore, it was divided into PBC 1 and PBC 2

Table 2 displays the distribution of consumers' responses regarding the theory of planned behaviour (TPB) framework. As can be seen in Table 2, the agreed statement (high level) of each statement in attitude, subjective norms, and perceived behavioural control in the traditional market was mostly higher than the modern market. The convenience statement in perceived behavioural control for the modern market was the only representation that exceeded the traditional market.

Attitude

Approximately, 67% of respondents believed in a healthy chicken meat supply in the traditional market. Meanwhile, 56% of respondents agreed on the healthy guarantee of chicken meat in the modern market. The processing systems in the traditional market and modern market were considered good and safe by the respondents, which accounted for 65% and 57%, respectively.

Subjective-norms

Almost three-fourths (72%) of the participants revealed that their families thought good-quality chicken meat was available in the traditional market. Furthermore, 63% of respondents admitted that their families asked them to purchase chicken meat in the conventional market. On the other hand, only 43% of respondents stated that their family considered modern markets a good place to buy chicken meat, and 29% asked the participants to continue buying chicken meat there. Based on the survey, close friends and families of participants bought the chicken meat in the traditional market (66%) and the modern market (a mere 26%).

Perceived behavioural control

The questionnaire revealed that the majority of respondents had enough money to buy chicken meat (87%) in traditional markets and perceived its channels as a convenient place (65%). Nearly half of the respondents (58%) stated that chicken meat on the modern market is affordable for them. The convenience level of the modern market (73%) was also higher than in the conventional market.

Intention

The level of intention for traditional markets was grouped into low intention (strongly disagree, disagree, and neutral) and high intention (agree and strongly agree), while, the level of intention for modern markets was categorized into low intention (strongly disagree and disagree), medium (neutral), and high level (agree and strongly agree). The percentage of each response can be seen in Table 2 and the frequency of all levels of the intention is shown in the bar chart in Figure 2.

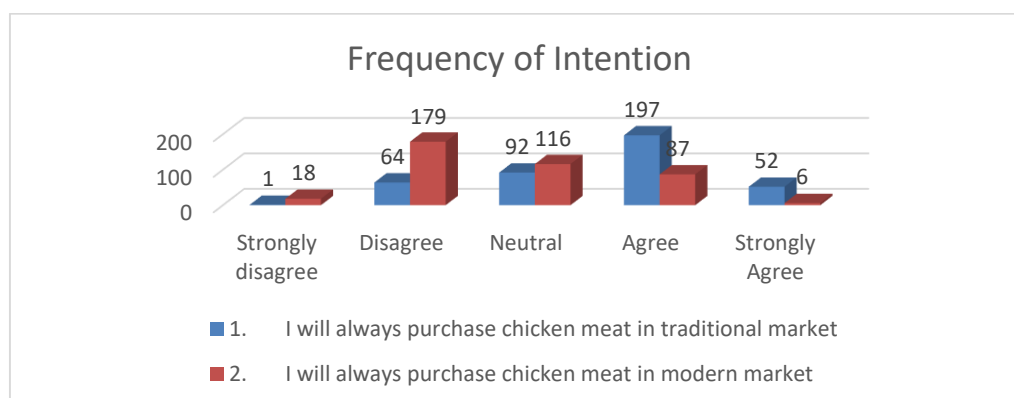


Figure 2. The frequency of intention in traditional markets and modern markets

Based on the table and bar chart, the intention of purchasing chicken meat in the traditional market exceeded that in the modern market. There were 249 (61%) respondents who wanted to continue buying their chicken meat in traditional markets with a high level of intention. On the other hand, a high level

of intention to purchase chicken meat in modern markets in the future was represented by 93 (23%) of respondents.

Lastly, a study of the socio-demographic and psychological factors associated with the intention to purchase chicken meat in the modern market depicted that subjective norms and the intention were categorized as high, neutral, and low levels due to the skewed data of questionnaires. The three psychological constructs (attitude, social norms, and perceived behavioural control) had internal consistency among the variables with a Cronbach alpha > 0.70 . Figure 3 represents the framework of the theory of planned behaviour to analyse the intention to purchase chicken meat in modern market channels.

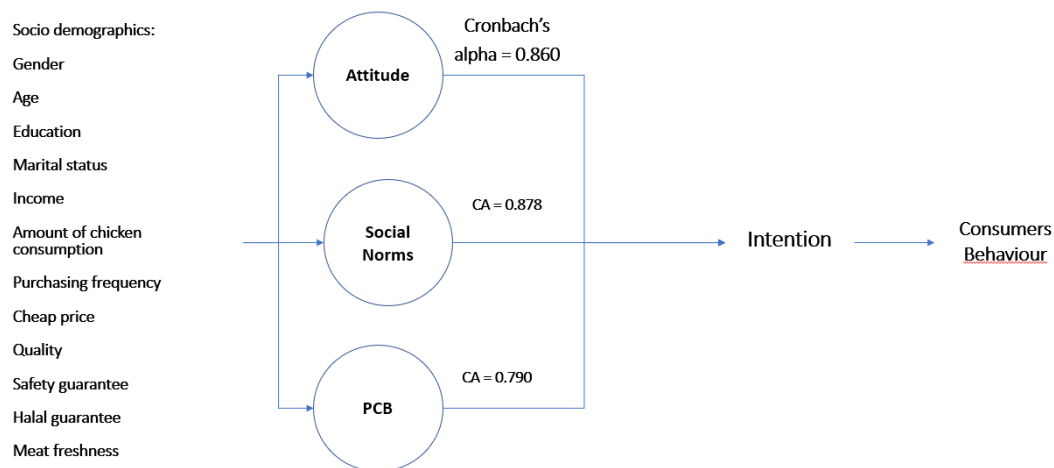


Figure 3. The TPB framework for modern market

Table 3 represents the result of the multinomial regression model, which aimed at all questions for the modern market. It represents the association between the intention to buy chicken meat in the modern market and the social-psychological constructs of attitude, social norm, and perceived behavioural control. Besides, it provides the correlation between the socio-demographic variables and the TPB constructs (intention, attitude, social norm, and perceived behavioural control). The p-values in Table 3 indicate the significant determinants, whilst, the odds ratios depict the amount of increasing outcome when the determinants are higher than the initial score on Likert's scale and vice versa.

In terms of psychological factors, the attitude was not statistically significantly associated with the consumers' intention to buy poultry in the modern market. The construct of the subjective norm did statistically significant (p-value < 0.01) influence the intention to purchase chicken meat in the modern market. Lastly, the perceived behavioural control was only statistically significant (p-value < 0.01) correlated to a low intention level.

None of the sociodemographic factors were significantly correlated with the psychological factors or with the intention to buy chicken meat in modern markets. The price of chicken meat (p-value: 0.016; 0.048) was the only outlet attribute that was statistically significant and associated with the subjective norm. Other outlet attributes, such as safety guarantee (p-value: 0.077, 0.951) and meat freshness (p-value: 0.183, 0.061), were not statistically significant. Another finding with regard to the outlet feature is that meat freshness (p-value: 0.036) was significantly associated with the neutral and high intention of purchasing chicken meat in modern markets.

Table 3. Determinants of positive intention to purchase chicken-meat in modern market ($n=409$)

Determinants	Intention ¹		Attitude	Subjective Norms ²		Perceived Behaviour Control
	Low	Neutral		Low	Neutral	
	P value	P value	P value	P value	P value	P value
Gender	0.870	0.186	0.874	0.522	0.520	0.715
Age group	0.805	0.613	0.150	0.803	0.632	0.982
Level of education	0.258	0.745	0.879	0.575	0.400	0.904
Occupation	0.907	0.772	0.574	0.507	0.855	0.496
Marital status	0.747	0.170	0.347	0.537	0.509	0.722
Income per month (€ / month)	0.226	0.081	0.679	0.998	0.916	0.799
Chicken meat consumption (kg/ month)	0.267	0.327	0.407	0.654	0.507	0.448
Category of purchasing frequency	0.439	0.299	0.185	0.740	0.453	0.447
Cheap price	0.223	0.298	0.079	0.016*	0.048*	0.849
Good quality	0.183	0.899	0.163	0.547	0.960	0.858
Safety guarantee	0.082	0.572	0.349	0.077	0.951	0.449
Halal guarantee	0.148	0.497	0.795	0.841	0.382	0.623
Meat freshness	0.627	0.036*	0.254	0.183	0.061	0.837
Attitude ^a	0.276	0.928				
Subjective norms ^b	0.000**	0.000**				
Perceived behavioural control ^c	0.000**	0.127				

Reference: ¹high intention, ²high SN

**correlation is significant at the 0.01 level (2-tailed)

*correlation is significant at the 0.05 level (2-tailed)

The Hosmer-Lemeshow goodness-of-fit test p -value: 0.212^aThe Cronbach's alpha of average two attitude statements in the modern market. Cronbach's alpha was 0.860^bAverage of 3 items in subjective norms regarding modern markets. Cronbach's alpha was 0.878^cAverage of 2 items in PBC regarding modern markets. Cronbach's alpha was 0.790

The results of this research are expected to contribute to improving the quality of the poultry meat supply in Indonesia. In addition, the findings will help policymakers understand more about consumers' preferences and their purchase behaviour for poultry meat before influencing their preferences for a market channel. In Indonesia, studying the poultry supply chain in modern market channels is necessary since the difficulties of delivering chilled or frozen chicken meat to consumers appear to be a major constraint to higher consumption in Indonesia [28]. In addition, lowering the price of cooled and frozen chicken meat in modern markets is still an issue. This issue can be addressed by improving the price-quality ratio by giving subsidies. Other challenges are political and institutional reactions to modern market channels and traditional markets [29]. One way to tackle these challenges is by advertising the food safety features of modern market channels. A campaign is another solution to encourage people to buy chicken meat in modern markets since the Indonesian government has to reduce the number of avian influenza outbreaks.

5. Conclusion

To conclude, chicken meat consumers in modern markets had a higher level of education, income per month, amount of chicken meat consumption per month, and purchasing frequency than they were in traditional markets. Quality, safety, and halal certification were the most important attributes, followed by the price and ease of buying.

The social-demographic determinants such as occupation, income, amount of consumption, purchasing frequency, and marital status were significant sociodemographic determinants. In addition, outlet attributes such as cheap price, quality, safety guarantee, halal certificates, and chicken meat freshness were also significant.

Subjective norms and perceived behavioural control significantly influenced the consumers' intentions. The attitude was not statistically associated with the intention. None of the socio-

demographic factors were significant to each psychological factor and the intention of purchasing chicken meat in modern markets. Given the significant association with subjective norms, cheap price was an important factor in outlet attributes. Chicken meat freshness was a significant feature of the intention. Ultimately, consumers' intention to purchase chicken meat in modern markets remained at a low level (23%).

All in all, consumers' intentions to buy chicken meat in modern markets were still low. The level of intention could be increased through the improvement of important determinants from the study for modern market channels.

6. Suggestion

Similar to other consumers' behaviour studies, our approach was limited by the sampling frame since we implemented convenience sampling that accounted for around 100 respondents in each district, making the representation in each district a bit lower. Furthermore, it is better to have a younger generation (under 35 years old) as participants in order to predict the future intention of purchasing chicken meat in modern markets. Prior studies revealed that Asian consumers who are under 34 years old value food safety attributes more highly than older consumers [30], and male consumers tend to purchase chicken meat through modern channels [31]. Therefore, male respondents are expected to participate more since this study predominantly had female respondents at around 98%. Further, the study is limited to educated participants, which may result in biased findings as educated people may be more prone to socially desirable responses [32]. Lastly, choosing rural areas may not be applicable to the capital cities since the participants represented the villagers.

References

- [1] Jevšnik M, Hlebec V, and Raspor P 2008 *Food Control*. **19**(8) 737–745
- [2] Verbeke W, Frewer L J, Scholderer J, and De Brabander H F 2007 *Analytica Chimica Acta*. **586**(1) 2–7
- [3] Kilpatrick A M, Chmura A A, Gibbons D W, Fleischer R C, Marra P P, and Daszak P 2006 *Proceedings of the National Academy of Sciences*. **103**(51) 19368–19373.
- [4] Vijaykrishna D, Bahl J, Riley S, Duan L, Zhang J X, Chen H, and Guan Y 2008 *PLoS Pathogens*. **4**(9) e1000161
- [5] Sims, L D 2007 *Avian Dis*. **51** 174–181
- [6] Hulse-Post D J, Sturm-Ramirez K M, Humbird J, Seiler P, Govorkova E A, Krauss S, Scholtissek C, Puthavathana P, Buranathai C, Nguyen T D, Long, H T, Naipospos T S, Chen H, Ellis T M, Guan Y, Peiris J S, Webster R G 2005 *Proc. Natl. Acad. Sci. U.S.A.* **102** 10682–10687.
- [7] WHO 2018. *Avian and other zoonotic influenza*
- [8] Loth L, Gilbert M, Wu J, Czarnecki C, Hidayat M, and Xiao X 2011 *Preventive Veterinary Medicine*. **102**(1) 50–58
- [9] Sims L D, Domenech J, Benigno C, Kahn S, Kamata A, Lubroth J, and Roeder P 2005 *Veterinary Record*. **157**(6) 159 LP-164
- [10] Wahyono N D, and Utami M M D 2017 *Journal of Physics: Conference Series*. **953**
- [11] Yadav R, and Pathak G S 2016 *Appetite*. **96** 122–128
- [12] Statista 2018 *Poultry consumption per capita in Indonesia from 2006 to 2005 (in kilograms)*
- [13] Indrawan D, Tacken G, and Hogeveen H 2018 *Poultry Science*. **97**(10) 3652–3660
- [14] Indrawan D, Rich K M, van Horne P, Daryanto A, and Hogeveen H 2018 *Frontiers in Veterinary Science*. **5** 94
- [15] ACNielsen 2007. *Report to the World Bank, Jakarta, Indonesia*
- [16] Dyck J, Woolverton A, and Rangkuti F Y 2012 *Bulletin of the World Health Organization*. **90**(4) 295 - 300
- [17] Ajzen I 2006 *Journal of Applied Social Psychology*. **32**(4) 665–683
- [18] Ajzen I 1991 *Organizational Behavior and Human Decision Processes*. **50**(2) 179–211

- [19] DGLAHS 2016 *Ministry of Agriculture of Indonesia*
- [20] DGLAHS 2017 *Ministry of Agriculture Indonesia*
- [21] Hanemaan M W 1984 *Discrete/continous models of consumer demand. Econometrica.* **52** 541-562
- [22] Field 2013 *Discovering Statistics using IBM SPSS Statistics*
- [23] Stern P C 2005. *Environtmental Law Rep. News Anal.* **34** 10785 - 10790
- [24] Cammock T, Carragher N, and Prentice G 2009 *Eur. J. Soc. Psychol.* **39** (2009) 401-414
- [25] Hidalgo B, and Goodman M 2012 *American journal of public health.* **103**(1) 39-40
- [26] Lau J T F, Yeung N C Y, Choi K C, Cheng M Y M, Tsui H Y, Griffiths S 2010 *Vaccine.* **28** 4632–4637
- [27] Dohoo W, Martin H, Stryhn 2003 *Atlantic Veterinary College, Charlottetown, PE, Canada*
- [28] USDA 2012 *Avian influenza: public health and food safety concerns*
- [29] USDA 2012 *Indonesia's Modern Retail Sector: Interaction with changing food consumption and trade patterns*
- [30] Chen K, Ali M, Veeman M, Unterschultz J, and Le T 2002 *Journal of Agricultural and applied Economics.* **34**(1) 67-79
- [31] Otieno D J and Kerubo D M 2016 *Targeted insights for value chain positioning.*
- [32] Kayser F G, Schultz P W, Berenguer J, Corral-Verdugo V, and Tankha G 2008 *European Psychologist.* **13**(4) 288–297

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