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PREFERENCE OF CONSUMER TOWARD IM- PORTED RICE AND LOCAL RICE IN KELANTAN

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ABSTRACT

Aim/Purpose	This research seeks to determine the consumer preferences between local and import rice by using theory of knowledge, attitude and perception model (KAP).
Background	Rice industry has received special attention from the government and was put as the most important food crop for ensuring the nation's food security. This study tries to reveal the preferences of the consumer for imported rice as compared to local rice based on their knowledge, attitude and perception.
Methodology	The simple random sampling technique is adopted in selecting 154 rice consumers in the Kelantan area. 154 questionnaires were distributed to them.
Contribution	This paper studies the preferences of the consumer for local and imported rice. The findings presented and conclusions reached could be of interests to consumers, researchers, society, manufacturers and government.
Findings	The findings from factor analysis supported the proposed model indicated that consumer knowledge is the first factor that influenced consumer preference on the rice followed by perception and attitude. It is also suggested that the demographic factor have a relationship with consumer preference based on their knowledge, attitude and perception.
Recommendations for Practitioners	The consumer knowledge of local rice in Malaysia should be promoted more through television and social media as this influences their attitude when purchasing rice at the market. The quantity and the availability of the local product should be based on the majority of the consumers that usually shop for rice in

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	medium amounts from the store near their house. Government should promote local rice to consumer more often to change their perceptions about local rice production in Malaysia.
Recommendation for Researchers	More studies can be done regarding the behavior of consumers toward imported rice compared to local rice either in Kelantan or other states in Malaysia.
Impact on Society	The findings can help rice producers to understand the customers' needs and wants. Hence, government and local producers need to fulfill society needs by producing rice which has the quality demanded by local consumers.
Future Research	This study focuses in Kelantan only which does not represent other states. Due to this, further research is required to obtain the national consumer preference for rice.
Keywords	Consumer preference, local rice, imported rice, knowledge, attitude, perception

INTRODUCTION

Rice has become an important food crop which people consume almost every day. It is the most popular grain that supports two-thirds of the world's population as it supplies energy, nutrient-rich complex carbohydrates, fiber, vitamins and mineral needed to support to human life. In Malaysia, many varieties of rice can be found on the market. These include local white rice and imported white rice, brown rice and specialty rice such as Basmati rice, fragrant rice, parboiled and glutinous rice. There are also many types of rice brands competing for the consumer demand in Malaysia, such as Cap Rambutan, Jasmine, Jati, Faiza and Sunflower. This rice has different characteristics determining price: taste, texture, grain length and quality. Most of the consumers in Malaysia prefer rice as the main source of energy instead as opposed to other food sources.

The rice industry has received special attention from the government and is regarded the most important food crop for ensuring the nation's food security. Agriculture and Agro-based Industry Minister, Datuk Seri Ismail Sabri Yaakob said that Malaysia would end rice import and be self-sufficient by 2020 to fulfil the consumer demand in Malaysia (Mohd Zin, 2014). To support the Malaysia's self-sufficiency policy, the rice import amount should depend on the production of local rice, but BERNAS still imports about 30% to 40% of the total supply of rice needed annually to fulfil the demand for rice in Malaysia (BERNAS, 2015). The USDA post in Malaysia says that rice imports increased from 900 million tons in 2012 to 1.1 million tons in 2013. Besides that, the rice production in Malaysia also showed increases of about 3.5% from 1.69 million tons in 2012 to 1.75 million tons in 2013 due to improvement in irrigation, increased planted area, good management and the new variety paddy with increase yield used. The International Grains Council (IGC) puts Malaysia's rice imports in 2013 to 2014 at 1.1 million tons, up from 1 million the year before (Chris, 2014). The increase in rice imports into Malaysia underlines government failure to policy aimed at gaining self-sufficiency in rice production by 2020. Customer preferences can be defined as a choice made by people who purchase the product over some other alternative product, when they are given the option to choose freely (Fife Schaw *et al.*, 2007). Customer's preference of rice is different from country to country. In Brunei, consumers purchased imported rice compared to local rice because of its availability in the market and followed family inherent traditions/practices because consumers have been using that rice since they were children (Galawat & Yabe, 2010). The information provided for food packaging products determine the desire of consumers to purchase (Zulariff, 2016).

Musa *et al.* (2011) conducted a survey to determine the consumer purchasing behavior for rice in Malaysia. He reported that consumer preferred local white rice in small packs compared to imported rice. Also, 70% of the respondents preferred to buy local rice due to its lower price and availability at the retail store. Besides, the demographic factor has an influencing effect on consumer attitudes

when purchasing rice. Based on the research, gender, marital status, and age of consumer shows a relationship with the frequency of purchasing rice in the market. A consumer that has a big household preferred to purchase rice more frequently compared to the consumer with a smaller household.

The studies of consumer preferences for rice show that socio-demographic factors and physical factors show a relation to preference on local rice. Their results indicated that age, educational level, marital status, gender and occupation of the consumer have a significant impact on consumer preference for local rice (Ogundele, 2014). Thus the consumer's knowledge about the product is an influencing factor that determines the consumer purchasing decision. Usually, the consumer makes a choice of product and service that will give them a high level of utility. Thus, the consumer preference and market competition in Malaysia makes it necessary for suppliers to develop efficient marketing strategies. Therefore, this study attempts to investigate the consumer preference for local and imported rice in Kelantan area. Specifically, the objective of this paper is to determine the demographic factors effect on consumer preference measured in terms their knowledge, attitude and perception. Factor analysis is used to analyze the inclination factor that influences consumer preference based on the proposed model to improve the local rice industry in Malaysia, and help the government to achieve self-sufficiency of rice by 2020.

METHODOLOGY

Conceptual Framework

The KAP conceptual framework (knowledge, attitude and perception) is used in this study to construct the questionnaire. The data has been collected from the population to determine the consumer preference based on their knowledge, attitude and perception taken on local and imported rice in Malaysia. The Figure 1 below shows the conceptual framework used in conducting this study.

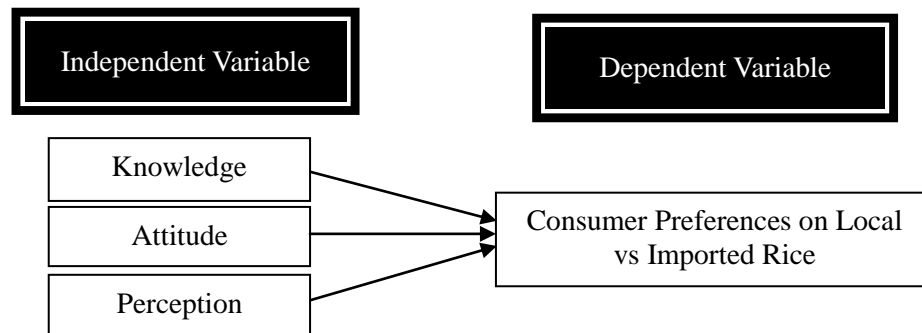


Figure 1: Study of consumer preference on local rice vs imported rice in Kelantan

(Adopted and modified from KAP Model)

Data Collection and Sampling Frame

A convenience sample of 154 respondents in Kelantan area was obtained using face-to-face interviews. The primary data was collected randomly using a structured questionnaire based on several sections related to the objective of this study and was said to be reliable due to the entire variable obtained was more than 0.6, as stated by Coakes and Ong (2011). Table 1 below shows that the results of reliability analysis.

Table 1: Reliability Statistics

No	Variables	Reliability Statistics (Cronbach's Alpha)	Number of Items
1	Knowledge	0.904	9
2	Attitude	0.694	17
3	Perception	0.786	20
4	All Variable	0.832	56

The first section of the questionnaire was information on demographic characteristics of respondents. The second section of the questionnaire covered on knowledge of consumer focus more on local rice. The next section was covered about consumer attitude when purchasing rice in the market. The last section of the questionnaire focuses on consumer perception toward local and import rice in Kelantan. Type of question in the questionnaire used was 1-5 Likert scale, dichotomous questions and ordinal questions.

Descriptive analysis was used to describe the demographic information of the consumer and to investigate the consumer consumption preference between imported and local rice. For demographic factor relationship with consumer preference based on knowledge, attitude and perception, the chi-square test was used to analyse the data. Then factor analysis was run to determine the most inclination factor on knowledge, attitude and perception.

RESULTS AND DISCUSSION

Descriptive Analysis

The descriptive analysis provided a demographic background of the respondents and the consumer preference when purchasing rice. The demographic background of the respondents was studied to identify whether those characteristics have an effect on consumer preference for rice in the study on the Kelantan area. Table 2 summarizes the selected demographic characteristics of the respondents for this study.

Based on Table 2, the respondents in this study were collected equally proportion between female (50%) and male (50%) from the different district area. The respondents in this study varied in age group, marital status, education level, race, income range, occupation sector, and family size. The largest portion of respondents age was 25 years old and below that was 50.6% which showed that the younger persons in the family often decided rice purchasing. What the majority of the respondents participated in this study was still studying in university and college. More than a half of the respondents were still single (55.2%). The majority (40.3%) of the respondents have attended secondary school, followed by degree student (26.6%), diploma (19.5%), primary school (6.5%), had never attended school (5.2%) and only 1.9% of the respondents have master or PhD.

The dominant race was made up from Malay that was about 87.0% of the total respondent, then Chinese (9.7%) and Indian (3.2%). About 31.2% of the respondent had an income range of RM500 to RM1000 while 29.9% of the respondents had lower than RM500 income mainly due to most of the respondents had low education levels and still young. The number of family members was sorted according to five categories of household size of 1 to 3 people, 4 to 6 people, 7 to 9 people, 10 to 12 people and 13 people and above. Most of the respondents (47.4%) had a household size of 4 to 6 family members while the household size of 7 to 9 was 27.9%, household size 10 to 12 was 14.3%, household size 1 to 3 was 15% and only 0.6% for household size 13 and above.

Table 2: Demographic Background of Respondents

Characteristics	Frequency (n=154)	Consumers (%)
Gender		
Male	77	50.0
Female	77	50.0
Age		
<25 years	78	50.6
25-35 years	39	25.3
36-45 years	15	9.7
46-55 years	11	7.1
>55 years	11	7.1
Marital Status		
Single	85	55.2
Married	65	42.2
Divorce	4	2.6
Educational Level		
Not attend school	8	5.2
Primary	10	6.5
Secondary	62	40.3
Diploma/STPM	30	19.5
Degree	41	26.6
Postgraduate/PhD	3	1.9
Race		
Malay	134	87.0
Chinese	15	9.7
Indian	5	3.2
Income Range		
<RM500	46	29.9
RM500-RM1000	48	31.2
RM1001-RM2000	22	14.3
RM2000-RM3000	23	14.9
>RM3000	15	9.7
Household Size		
1-3 people	15	9.7
4-6 people	73	47.4

Consumer preference for imported and local rice

7-9 people	43	27.9
10-12 people	22	14.3
13 people	1	0.6

The consumer purchasing decisions with respect rice was studied to determine the consumer preference between local rice and imported rice. The type of rice they usually purchase, shopping places, rice quantity and place where the consumer usually ate was summarized in Table 3. The results from Table 3 of the research indicated that 46.8% of the respondent preferred imported rice while 30.5% of them preferred local rice. Only 22.7% of the respondents preferred both local and imported rice. This shows that people in Kelantan area preferred import rice compared to local rice produced. A total of (53.2%) the respondents chose to buy rice from the store rather than the supermarket (43.5%) and open market (3.2%). Most of the respondents purchased rice from the store near their home due to the ease of the availability of the product. The result was supported by Abdullah *et al.*, (2011) that stated the choices where consumer purchase the rice was usually influenced by the availability of the product, changes in lifestyle and time constraint on women that worked. Kelantan people purchased imported rice due to the availability of the rice at the grocery shop near their house. Rice was sold in various quantities from the small packet of 5kg to the largest size of 50kg. Most (59.7%) of the respondents purchased rice in 25kg packaging, followed by 10kg (18.8%), 5kg (16.2%) and 50kg (5.2%). The respondents that bought 50kg packaging of rice was mainly due to large household size while 25 kg of rice was the standard packaging that people usually purchase in the market. More than a half of the consumer (86.4%) consumed rice at home, while only 9.7% of the respondents ate at restaurants and only 3.9% ate at their workplace or school. This showed that the majority of the respondents usually consumed rice that was cooked at home.

Table 3: Consumer Purchasing Decision of Rice

Characteristics	Frequency (n=154)	Consumers (%)
Type of Rice		
Imported rice	72	46.8
Local rice	47	30.5
Both imported and local rice	35	22.7
Shopping Places		
Supermarket	67	43.5
Open market	5	3.2
Store	82	53.2
Rice Quantity		
5 kg	25	16.2
10 kg	29	18.8
25 kg	92	59.7
50 kg	8	5.2
Place Eat Rice		
Home	133	86.4
Restaurant	15	9.7

Workplace/school	6	3.9
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Chi-square Test

Table 4 showed the summarized of the chi-square test for a relation between the demographic factor and consumer knowledge on local rice. The results indicated that region, age, and education level have a significant difference with knowledge of consumer on local rice. The null hypothesis for this section was there was no relationship between the demographic factors and consumer preference based on knowledge of local rice. Therefore, the null hypothesis was rejected for the region, age and education as stated in Table 4.

Table 4: Relationship between Demographic Background and Consumer Preference based on Knowledge of Local Rice

Variables	Chi-square	Degree of freedom	Significant	Decision
Region	66.297	16	0.000	Reject H ₀
Age	37.595	16	0.002	Reject H ₀
Gender	8.463	4	0.076	Fail to reject H ₀
Education	47.064	20	0.001	Reject H ₀
Income	24.7575	16	0.074	Fail to reject H ₀
Household size	18.710	16	0.284	Fail to reject H ₀

In Table 5, based on the results obtained from the chi-square, most of the demographic factors such as region, age, gender, education and income showed a significant relationship with consumer preference based on attitude when purchasing rice at the market. The null hypothesis for this section was there was no relationship between demographic factor and preference of rice based on consumer attitude when purchasing rice. Thus, the null hypothesis for household size was failed to reject due to no significant difference with the preference of rice based on the attitude as shown in Table 5.

Table 5: Relationship between Demographic Background and Preference of Rice based on Consumer Attitude when Purchasing Rice

Variables	Chi-square	Degree of Freedom	Significant	Decision
Region	59.207	16	0.000	Reject H ₀
Age	51.288	16	0.000	Reject H ₀
Gender	10.778	4	0.029	Reject H ₀
Education	37.646	20	0.010	Reject H ₀
Income	29.843	16	0.019	Reject H ₀
Household size	23.364	16	0.104	Fail to reject H ₀

As indicated in Table 6, there was a significant relationship between demographic factors such as region, age, education level, income and household size with the preference of rice based on consumer perception toward local and imported rice.

Table 6: Relationship between Demographic Background and Preference of Rice based on Consumer Perception

Variables	Chi-square	Degree of Freedom	Significant	Decision
Region	37.228	16	0.002	Reject H _o
Age	28.492	16	0.028	Reject H _o
Gender	7.258	4	0.123	Fail to reject H _o
Education	47.589	20	0.000	Reject H _o
Income	34.132	16	0.005	Reject H _o
Household size	27.901	16	0.032	Reject H _o

Factor Analysis

Factor analysis was used to analyze the inclination factor in perception, attitude and knowledge toward imported and local rice. In this test, the results were explained by the independent variables to get the proportion of total variation of the dependent variable. The Kaiser-Meyer-Olkin (KMO) sampling adequacy test and Barlett's test of Sphericity were first performed to confirm whether the factor analysis can be carried out as proper analysis or not. For this study, the Kaiser-Meyer-Olkin (KMO) got values of 0.802 which was more than 0.6. Thus the factor analysis can be run as a proper analysis. The significance level of $p < 0.000$ showed that the Barlett's test of Sphericity gave an appropriate level to perform factor analysis on the data for each scale (Tabachnick, 2007).

The inclination factor toward imported and local rice was summarized in Table 7, and the factor loading was obtained after a varimax rotation of consumer responses to the question related to the study. The factor was ranked according to the proportion of total variance explained, and the most inclination factor between knowledge, attitude and perception toward imported and local rice were identified.

The most inclination factor that influences consumer preference on imported and local rice was consumer knowledge on local rice. These factors consisted of six sub-variables and had 34.646% of total variance. The sub-variables were; I bought local rice because it was high quality (0.892), I bought local rice because of the delicious taste (0.890), I bought local rice because it was branded (0.863), I satisfied with the local rice quality compared to import rice (0.824), I bought local rice because of the cheap price (0.823) and I bought local rice because it was available everywhere (0.741). From this result, it showed that consumer had knowledge about local rice. Thus this influenced them when made the purchasing decision at the market.

The second factor was influenced by consumer perception on local and imported rice that showed a total variance of 26.278%. The factor consisted of five sub-variables that were; I will buy local rice if it is selling at the same price as import rice, but have high nutritional value (0.906), I will buy local rice if it is available at local markets (0.841), I will buy local rice if it is selling at the same price as import rice, but delicious (0.839), I have no problems buying local rice (0.836), and I am willing to pay more for high-quality local rice (0.562). The results indicated that the respondents got several of perception toward local and imported rice when they made a choice.

The last factor was consumer attitude when purchasing rice and the total variance obtained was 12.667%. There were two sub-variables obtained that were; I am concerned the rice that I bought was local or imported rice (0.791), and I will buy rice that has a brand and high quality (0.789).

Table 7: Summary of Factor Analysis Results

Items	Factor Loading		
	Factor1	Factor2	Factor3
Consumer Knowledge on Local Rice			
I bought local rice because it was high quality	0.892		
I bought local rice because of the delicious taste	0.890		
I bought local rice because it was branded	0.863		
I satisfied with local rice quality compared to import rice	0.824		
I bought local rice because of the low price	0.823		
I bought local rice because it was available everywhere	0.741		
Variance (percent of explained)	34.646		
Consumer Perception on Local and Imported Rice			
I will buy local rice if it is sold at the same price as import rice but have high nutrition value		0.906	
I will buy local rice if it is available at local market		0.841	
I will buy local rice if it is sold at the same price as import rice but delicious		0.839	
I have no problems to buy local rice		0.836	
I am willing to pay more for high-quality local rice		0.562	
Variance (percent of explained)		26.278	
Consumer Attitude when Purchasing Rice			
I am concerned the rice that I bought was local or imported rice			0.791
I will buy rice that has brand and high quality			0.789
Variance (percent of explained)			12.667
Total Percentage of variance			73.591

CONCLUSION

Based on the findings of this study, some recommendation was drawn for the future of local rice in Malaysia. The consumer knowledge on local rice in Malaysia should be promoted more through television and social media as this lead to their attitude when purchasing the rice at the market. The quantity and the availability of the local product should be based on the majority of the consumer that usually bought rice in medium amount and can get it at the store near their house. It was also recommended that government should promote local rice to consumer more often to change their perception on local rice production in Malaysia. This study also showed that the consumer was willing to pay more for local rice that had been improved. Thus, action in upgrading the rice quality should be done to fulfil customer demand.

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BIOGRAPHIES



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In addition he is the Head of Student Enterprise in UMK Jeli Campus handling more than 20 student companies that are involved with agro based products.



Mr Mohamad Amizi Bin Ayob is currently the Director of Agro Techno Park, leading the activity in landscape and activity inside the 3 Campus of Universiti Malaysia Kelantan (UMK) which are Jeli Campus, Kota Campus and Bachok Campus.

In addition he possesses 20 years of experience in the oil palm industry. With his vast experience has been acknowledged as an expert in Plantation Management.