Consumer Perceived Value of Organic Vegetables: Does Ethnic Group Matter?

Ong Choon Hee* and Tan Koh Lin

Azman Hashim International Business School, Universiti Teknologi Malaysia, Johor Bahru, 81310, Malaysia

ABSTRACT

This study examined the role of ethnic groups on factors influencing the perceived value of organic vegetables among consumers in Malaysia. An online survey questionnaire collected 385 responses. Partial least squares-structural equation modeling (PLS-SEM) was used to assess the validity, reliability, hypothesis testing, importance-performance map analysis (IPMA) of the study constructs. Partial least squares-multi-group analysis (PLS-MGA) was employed to examine whether there are significant differences among various ethnic groups. The findings revealed that food safety concerns, health concerns, and trust in organic food claim significantly influenced the consumer perceived value of organic vegetables. This study offers new findings regarding the role of ethnic groups in explaining significant differences among consumers toward the perceived value of organic vegetables. It also provides essential information to the ministry of agriculture, organic farmers, dealers, and retailers in developing marketing strategies and expansion plans to achieve higher household expenditures on organic vegetables.

Keywords: Consumer, ethnic group, food safety, health, organic vegetables, trust, perceived value

INTRODUCTION

In Malaysia, although the daily consumption of vegetable per-capita has steadily increased by 70% from the 1980s (66g) to the 2000s (112g), it is still far below the World Health Organization (WHO) recommended dietary guideline of 240g (Andrew et al., 2014). Despite most Malaysians expressing a positive perceived value of organic

vegetables, they do not consume them regularly despite the blooming organic food consumption rate worldwide for the past 20 years (Dettman & Dimitri, 2010). Marketability issues for Malaysian organic vegetables remain as challenges in light of the efforts to promote the consumption of organic vegetables.

According to Voon et al. (2011), the trust in organic food claims is significantly linked to consume organic food owing to the credence nature of it. Consumers are not able to evaluate effectively because the benefits of organic food cannot be observed directly or immediately. Moreover, growing food safety concern is another issue that often influences consumer perceived value of organic vegetables (Hoefkens et al., 2009). Nevertheless, organic vegetables are usually perceived as healthier than conventional vegetables. It is reasonable to believe that consumers are always willing to use health concerns as a reference when choosing organic vegetables (Chen, 2009). Perceived value is the focus of this research because it is related to consumers' attitudes toward, and social acceptance of, organic vegetables. Several studies quote that food safety concern, health concern, and trust in organic food claims as the key factors determining the success or failure of organic food (Hsu et al., 2016; Leong & Paim, 2015; Liang, 2016). Realizing the factors mentioned above, we are interested in investigating these factors in a Malaysian context to predict consumer perceived value of organic vegetables. This topic, however, is still limited from the Malaysian consumers' perspectives. Although some

studies have investigated consumers' intention to purchase organic food (Hsu et al., 2016; Janssen, 2018; Kasteridis & Yen, 2012; Niu & Wohlgenant, 2013; Rana & Paul, 2017; Shaharudin et al., 2010), the perceived value among consumers from different ethnic groups (i.e., Malay, Chinese, and Indian) in Malaysia has never been explored in this regard. Hence, this study attempts to bridge the gap by examining the role of ethnic groups on factors influencing consumer perceived value of organic vegetables.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Theoretical Foundations

The theory of consumption values (TCV) is a conceptual model proposed by Sheth et al. (1991) which describes and explains consumer choice. It clarifies that consumer choice is underpinned by various consumption values such as functional value, emotional value, conditional value, social value, and epistemic value (Sheth et al., 1991). Functional value describes that consumers decide to use a product based on how it can fulfil their utilitarian needs. However, emotional value affects a consumer's decision in consuming a product because of a product's capability to arouse emotions while using it. Next, conditional value explains the benefits of the products or services that consumers receive when utilizing them in a specific context. Further, social value influences consumer's decisions in buying or using the products or services owing to their association

with other groups of consumers and the products' social image. Finally, epistemic value refers to the consumer's interest in experiencing new products or services that can provide novelty and arouse curiosity. According to Sheth et al. (1991), a specific consumer choice may be influenced by one or several consumption values. A past study by Sweeney and Soutar (2001) used functional value and social value to measure consumer perceived value. However, this research adopts the dimensions of functional value, emotional value, and social value of TCV as fundamentals to establish the conceptual framework. Food safety concern was selected to represent functional value whereas trust in organic food claims acts for emotional value. Besides, health concern refers to the social value dimension of the TCV. Also, the ethnic group is chosen as a moderator in this study based on the social identity theory by Tajfel and Turner (1986). Social identity theory is a theory used to explain inter-ethnic group behaviours based on their beliefs, religion, language, culture, and perceived value. Thus, the theory of consumption values is complemented with the social identity theory to better predict consumer perceived value of organic vegetables in this research context. Based on the theoretical foundations above, the conceptual framework is established (see Figure 1).

Perceived Value

The concept of perceived value refers to the customers' assessment of the merits of a product or service based on what they received and when they used it (Zeithaml, 1988). Perceived value is a unidimensional construct that can be measured by a set of criteria to evaluate a consumer's perception of value toward a product (Agarwal & Teas, 2002). It influences consumer attitudes and predicts intention (Petrick & Backman, 2002). Consumer perceived value of organic vegetables is the consumers' evaluation of the benefits they will receive from consuming organic vegetables (Fiandari et al., 2019). According to Dagevos and Ophem (2013), the perceived value contained in food may comprise product, process, location, and emotional values. It is the assessment results made by the consumers pertaining to the benefits they obtained when consuming the food (Sirdeshmukh et al., 2002). Similarly, the means-end theory explains that consumers' perceived value is related to their behavior when individuals consume a product or service to fulfill their desired end states (Gutman, 1982). However, Zeithaml (1988) suggested that the establishment of value perceptions among consumers should include contextual or situational factors. Following Zeithaml's (1988) recommendation, this study introduces an ethnic group as a contextual factor to be tested in the research model. The theory of consumption value developed by Sweeney et al. (1996) was used as a basis to select the factors influencing consumer perceived value of organic vegetables. Dimensions of the consumption values such as functional (food safety concern), social (health concern), and emotional (trust in organic food claims) were selected as the predictor constructs of the perceived value of organic vegetables.

Food Safety Concern

In food-related research, the word "safe" is typically regarded as one of the factors driving consumers towards consuming foods. Safe food is a product that consumers can eat without fear of becoming ill (Johar et al., 2020). Vegetable safety is defined as the degree of consumers' worry about pesticide residues, additives, or chemicals added to vegetables that may jeopardize the food quality (Hsu et al., 2016). An organic vegetable is perceived not only as having a high value, but it is also considered as safe food as a result of organic farming practice (Yee & San, 2011). Food safety concern has received more and more attention in developing countries like Malaysia. Most Malaysian consumers perceive that organic vegetables are less likely to contain harmful substances than conventional vegetables (Michaelidou & Hassan, 2008). In a review by Shaharudin et al. (2010), food safety is related to the perceived value of organic food. It affects the functional and emotional dimensions of the perceived value when consumers make their choices toward organic food (Curvelo et al., 2019). Further, food safety is a function of belief that gives consumers a positive perception when evaluating the benefits of organic food. Hsu et al. (2016) found that consumers paid more attention to food safety when it came to the use of chemical additives and pesticides in the processing of vegetables. Those manufacturers that provide complete food safety information to the consumers will undoubtedly increase their perceived values of organic vegetables (Hsu et al., 2019). Thus, consumers who are concerned about

food safety perceived greater benefits of organic vegetables rather than conventional vegetables. Previous researchers, such as Hsu et al. (2016, 2019), have consistently found a positive link between food safety concerns and the consumer perceived value of organic vegetables. Based on the above explanation, it is hypothesized that:

H1: Food safety concern positively influences consumer perceived value of organic vegetables.

Health Concern

The health concern is defined as the awareness to link the consumption of nutrients with the results related to health (Sapp, 1997). Consuming organic vegetables is recognized as one of the most critical factors in preventing the development of chronic diseases (Ferrao et al., 2018). In recent times, consumers pay more attention to the health benefits of organic food to achieve a healthy diet. Health concern has a strong effect on consumer perceived value of organic vegetables when it comes to particular circumstances where consumers are having an illness, pregnancy, and other diseases (Richter, 2005). Consumers believe that organically grown vegetables provide substantial health benefits than conventional cultivation (Chen, 2009). According to Sia et al. (2013), organic vegetables have higher nutritional values and contain more significant benefits in preventing illness. Similarly, Ferrao et al. (2018) concurred that those consumers who desired a healthy diet and health-oriented lifestyle commonly perceived organic vegetables as having

higher contents of nutrients. They are extremely aware of the nutritional issues when selecting vegetables. Nutrient contents are the primary element for a health concern that results in consumers having a positive perceived value of organic vegetables. According to Al Mamun et al. (2020), the young Malaysian population is increasingly interested in having a healthy diet and getting involved in organic food consumption. Therefore, it is hypothesized that:

H2: Health concern positively influences consumer perceived value of organic vegetables.

Trust in Organic Food Claims

Trust in organic food claims is understood as belief, expectation, and feeling that consumers have about the product due to its credence nature (Voon et al., 2011). Credence good is a product that is difficult for the consumers to value after purchase or even after consumption. Consequently, consumers may rely on product information, labeling, brands, advertisements, certifications, and the reputation of the retailers. If they believe the retailer is highly committed to human health and environmental concerns, their trust in the retailer will increase. When trust is applied to organic vegetables, indicators like labels and certification logos tagged on the products will contribute to the establishment of trust (Liang, 2016). Further, organic certification assures vegetables are grown without using chemicals and pesticides (Barrett et al., 2002). Popular organic certification and labeling will create more trust in consumer

perception (Nguyen et al., 2020). Baker and Ozaki (2008) mentioned that consumers generally trusted popular brands of organic food because the risk was much lower than unpopular ones. Lin (2009) also agreed that consumers might lose their trust and refused to purchase organic products if the producers were accused of polluting the environment. When consumers are in a situation where there exists insufficient relevant information, trust in organic food claims could reduce perceived risk for all the parties involved (Voon et al., 2011). Moreover, observable attributes of organic food serve as measures of trustworthiness and build positive perceived value (Sa'ari & Koe, 2014). In a nutshell, the greater the trust in organic food claims, the higher the sense of the perceived value of organic products (Atkinson & Rosenthal, 2014). Hence, it is hypothesized that:

H3: Trust in organic food claims positively influences consumer perceived value of organic vegetables.

Ethnic Group

An ethnic group is operationally defined as a group of people who have similar beliefs, religion, language, culture, values, and behaviors within a nation. An ethnic group is also referred to as race in the population of this study. The way consumers perceived organic food depends on various demographic factors such as gender, age, level of income, education, and presence of children in the household (Omar et al., 2016; Vega-Zamora et al., 2020). Although research investigating the

demand for vegetables among households is common (Kasteridis & Yen, 2012; Niu & Wohlgenant, 2013), very few have studied the role of an ethnic group in perceiving the values of organic vegetables. In Malaysia, there are three major ethnic groups in the country; namely, Malay, Chinese, and Indian. The perceived value of organic vegetables may vary among the major ethnic groups. According to Andrew et al. (2014), other ethnic groups spend more on fresh vegetables and preserved vegetables than Malays. However, the study did not indicate the perceptions of the ethnic groups as regards organic vegetables. Different ethnic groups may have a dissimilar overall perceived value of organic vegetables owing to their beliefs and culture. Therefore, it is hypothesized that:

H4a: The influence of food safety concern on consumer perceived value of organic vegetables varies across different ethnic groups.

H4b: The influence of health concern on consumer perceived value of organic vegetables varies across different ethnic groups.

H4c: The influence of trust on organic food claims on consumer perceived value of organic vegetables varies across different ethnic groups.

Conceptual Framework

The above literature review and hypothesis development establish the following conceptual framework (see Figure 1) that guides this study.
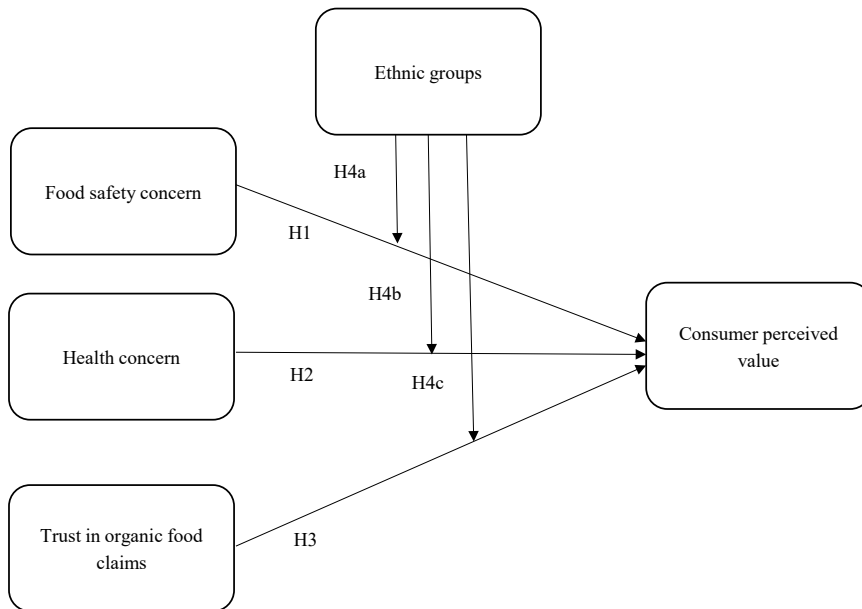

Figure 1. Conceptual framework

METHOD

Population and Sampling Method

The target population of this study comprised consumers who live in Malaysia. According to the Department of Statistics Malaysia (2019), approximately 32.58 million people live in Malaysia. According to Cohen (1992), the minimum required sample size for a research model of three arrows pointing at a construct is 59. The number of samples is associated with a significance level of 5%, 80% of statistical power, and a minimum R^2 value of .25. In the present study, the researcher used the judgmental sampling method to obtain the samples from the city of Johor Bahru, Malaysia. Judgmental sampling is purposive sampling where it allows researchers to approach their target population of interest directly. In this research, the researchers select the respondents where they fit the criteria of consumers or potential consumers of organic vegetables. The reason for selecting respondents who live in Johor Bahru is because it is a major city in the southern region of Malaysia and it is the most urbanized city in the country (Department of Statistics Malaysia, 2019).

Measures

Measures for the study constructs were adapted and modified from previous studies with strong reliability coefficients. Details of the steps are presented in Appendix 1. A 5-point Likert scale was utilized accordingly for all the measures.

Data Collection Procedure

This cross-sectional research used an online survey questionnaire to collect data from the respondents. Online survey forms were sent to the respondents, who were Johor Bahru residents, via emails and social media networks. A total of 385 responses were collected and prepared for subsequent data analysis.

Data Analysis

Partial least squares-structural equation modeling (PLS-SEM) was used to assess the validity, reliability, hypothesis testing, importance-performance map analysis (IPMA) of the study constructs. Partial least squares-multi-group analysis (PLS-MGA) was employed to examine whether there are significant differences among various ethnic groups.

RESULTS

Profile of the Respondents

Table 1 shows the profile of the respondents. There were 173 male respondents and 212 female respondents. The majority of the respondents had a Bachelor's degree (60.8%), followed by a Diploma/Certificate (16.4%), Master's (12.7%), high school certificate (9.6%), and Doctoral degree (0.5%). In terms of ethnic group, 35.6% of the respondents were Malays, 47.8% of the respondents were Chinese, and the rest of the respondents were Indians (16.6%). Most of the respondents were between 25 and 54 years (83.6%).

Table 1

Profile of the respondents

Description (n=385)	Frequency	Percentage
Gender		
Male	173	44.9
Female	212	55.1
Age		
Below 24	29	7.5
25-54	322	83.6
55-64	27	7
Above 64	7	1.8
Education		
High School	37	9.6
Diploma/ Certificate	63	16.4
Bachelor's Degree	234	60.8
Master's Degree	49	12.7
Doctoral Degree	2	0.5
Ethnic group		
Malay	137	35.6
Chinese	184	47.8
Indian	64	16.6

Measurement Model Assessment

This study employs the two-step approach to assess the measurement and structural models. First, we examined the measurement model by assessing indicator reliability, composite reliability, convergent and discriminant validity. The values for Cronbach's Alpha and composite reliability of all the constructs were above the recommended value of .7; thus, they were considered reliable. Next, convergent validity was evaluated by examining the outer loadings and values of the average variance extracted (AVE). Those indicators with outer loadings lesser than .7 were removed from the list of indicators. Two of the indicators (HC3, FSC1) were discarded during the analysis. Subsequently, other outer loadings for all the constructs were found to exceed .7 and the values of AVEs were above .5, indicating the establishment of convergent validity (Hair Jr. et al., 2017). Results of the measurement model are shown in Table 2.

Next, to assess the discriminant validity of the constructs, loading, and cross-loadings with Fornell–Larcker criterion were used in the analysis (Hair Jr. et al.,

2017). The loadings for all the study constructs were well above all of its loadings on other constructs, thus showing evidence of discriminant validity (Fornell & Larcker, 1981) (see Table 3). Likewise, all the diagonal values (square root of AVEs) were found greater than the off-diagonal values in Table 4. Therefore, discriminant validity was established.

Table 2

Results of the measurement model

Constructs	Indicators	Loadings	Cronbach's Alpha	Composite Reliability	AVE
CPV	CPV1	0.881	.930	0.947	0.781
	CPV2	0.861			
	CPV3	0.885			
	CPV4	0.903			
	CPV5	0.848			
HC	HC1	0.871	.904	0.932	0.774
	HC2	0.889			
	HC4	0.886			
	HC5	0.872			
FSC	FSC2	0.704	.849	0.891	0.621
	FSC3	0.771			
	FSC4	0.777			
	FSC5	0.817			
	FSC6	0.862			
T	T1	0.854	.922	0.945	0.811
	T2	0.905			
	T3	0.921			
	T4	0.920			

Notes: CPV: Consumer perceived value; HC: Health concern; FSC: Food safety concern; T: Trust in organic food claims.

Table 3

Loading and cross-loadings

Indicators	CPV	HC	FSC	T
CPV1	**0.889**	0.326	0.356	0.322
CPV2	**0.891**	0.285	0.422	0.400
CPV3	**0.879**	0.427	0.431	0.408
CPV4	**0.842**	0.374	0.387	0.323
CPV5	**0.915**	0.381	0.438	0.335
HC1	0.440	**0.871**	0.413	0.370
HC2	0.327	**0.889**	0.447	0.343
HC4	0.327	**0.886**	0.423	0.319
HC5	0.314	**0.872**	0.377	0.344
FSC2	0.275	0.346	**0.704**	0.150
FSC3	0.422	0.366	**0.771**	0.092
FSC4	0.254	0.334	**0.777**	0.118
FSC5	0.353	0.335	**0.817**	0.209
FSC6	0.447	0.455	**0.862**	0.238
T1	0.325	0.342	0.209	**0.854**
T2	0.391	0.448	0.309	**0.905**
T3	0.354	0.332	0.118	**0.921**
T4	0.390	0.294	0.113	**0.920**

Notes: CPV: Consumer perceived value; HC: Health concern; FSC: Food safety concern; T: Trust in organic food claims.

Table 4

Discriminant validity – Fornell-Larker criterion

Constructs	CPV	DHC	FSC	T
CPV	**0.884**			
HC	0.409	**0.880**		
FSC	0.462	0.472	**0.788**	
T	0.407	0.394	0.209	**0.900**

Notes: CPV: Consumer perceived value; HC: Health concern; FSC: Food safety concern; T: Trust in organic food claims.

Descriptive Analysis

Mean and standard deviation was used to analyze the response level of respondents. A five-point Likert scale was employed to measure the level of agreement among the respondents. If the score is less than 2.33, it is categorized as low. If the score is within the range of 2.33 to 3.66, it is classified

as moderate whereas if it is above 3.66, it is considered high. Table 5 shows that food safety concern has the highest mean value (M = 4.272) among the constructs. It denotes that the respondents were having high levels of food safety awareness concerning organic vegetables. Next, the respondents' perceived value of organic vegetables was high (M = 3.909) as well, indicating that their understanding of the benefits of consuming organic vegetables is high. However, both constructs of health concern (M = 3.075) and trust in organic food claims (3.392) were reported to have moderate levels as shown in Table 5.

Table 5

Descriptive statistics

Constructs	N	Min	Max	Mean	Standard Deviation
CPV	385	1.00	5.00	3.909	0.799
HC	385	1.00	5.00	3.075	0.925
FSC	385	2.20	5.00	4.272	0.613
T	385	1.00	5.00	3.392	0.861

Notes: CPV: Consumer perceived value; HC: Health concern; FSC: Food safety concern; T: Trust in organic food claims.

Collinearity Assessment

Collinearity assessment is crucial to ensure that the path coefficients are not biased before structural model assessment. Following the variance inflation factor (VIF) guidelines, it is acceptable if the VIF values for the predictor constructs are lower than 5, and the tolerance values stay above 0.2. Table 6 indicates that all VIF values of the predictor constructs were below 5, and the tolerance levels were above 0.2. Thus, the results provide evidence of non-collinearity.

Table 6

Collinearity assessment

Predictor Constructs	Tolerance	VIF	Target Construct
HC	0.686	1.458	CPV
FSC	0.776	1.288	
T	0.845	1.184	

Notes: VIF: Variance inflation factor; CPV: Consumer perceived value; HC: Health concern; FSC: Food safety concern; T: Trust in organic food claims.

Structural Model Assessment

The research model was tested with 385 cases with subsamples of 5000 to estimate the significance of path coefficients by using a bootstrapping procedure (Preacher & Hayes, 2008). According to the analysis results, the predictor constructs can explain 32.8% (R^2 = .328) of the total variance in consumer perceived value, which is below moderate in this case (Hair Jr. et al., 2017). Nevertheless, the predictive relevance of the model is above zero (Q^2 = .239), indicating that the research model has the predictive ability (Hair Jr. et al., 2017). The hypothesis testing results show that all the path coefficients are significant at the level of 1% (see Table 7), thus supporting H1, H2, and H3.

Table 7

Structural model assessment and hypothesis testing

Hypothesis	Path	β	STDEV	*t*-statistics	Decision
H1	FSC → CPV	.339***	0.049	6.865	Supported
H2	HC→CPV	.137***	0.052	2.615	Supported
H3	T → CPV	.283***	0.047	6.042	Supported

Notes: ***t*-value: 2.58 (1%); STDEV: Standard Deviation; CPV: Consumer perceived value; HC: Health concern; FSC: Food safety concern; T: Trust in organic food claims.

Partial Least Squares-Multiple Group Analysis (PLS-MGA)

This research applies PLS-MGA to examine the moderating role of an ethnic group in the research model. According to the guidelines provided by Henseler et al. (2009), if the *p*-value of the path coefficients is smaller than .05 or greater than .95, it indicates that there is a significant difference between the groups. Table 8 shows the path coefficients (HC→CPV) for Indian vs. Malay and Indian vs. Chinese are significant at the 5% error level, where the *p*-value is smaller than .05. Hence, the results revealed that the Indian community is significantly higher than Malay and Chinese in perceiving organic vegetables in the aspect of diet-health concern; thus, H4b is accepted. However, the results for other paths (FSC→CPV) and (T→CPV) did not indicate any significant difference among the ethnic groups. Therefore, H4a and H4c are not accepted.

Importance-Performance Map Analysis (IPMA)

The IPMA results help decision-makers prioritize areas for managerial actions. Figure 2 schematically displays the IPMA results with consumer perceived value as the target construct. Food safety concern has the highest importance level at 0.434 and it is treated as the most critical construct for managerial actions.

Table 8

Partial Least Squares-Multi-Group Analysis (PLS-MGA) results for the ethnic groups

Path	Ethnic Group (G1 vs G2)	Ethnic Group (G3 vs G1)	Ethnic Group (G3 vs G2)
FSC → CPV	0.712	0.835	0.940
HC → CPV	0.522	**0.027***	**0.026***
T → CPV	0.653	0.107	0.156

Notes: G1 (Malay), G2 (Chinese), G3 (Indian). *significant differences between groups at 5% error level (*p*<.05 or *p*>.95), CPV: Consumer perceived value; HC: Health concern; FSC: Food safety concern; T: Trust in organic food claims.
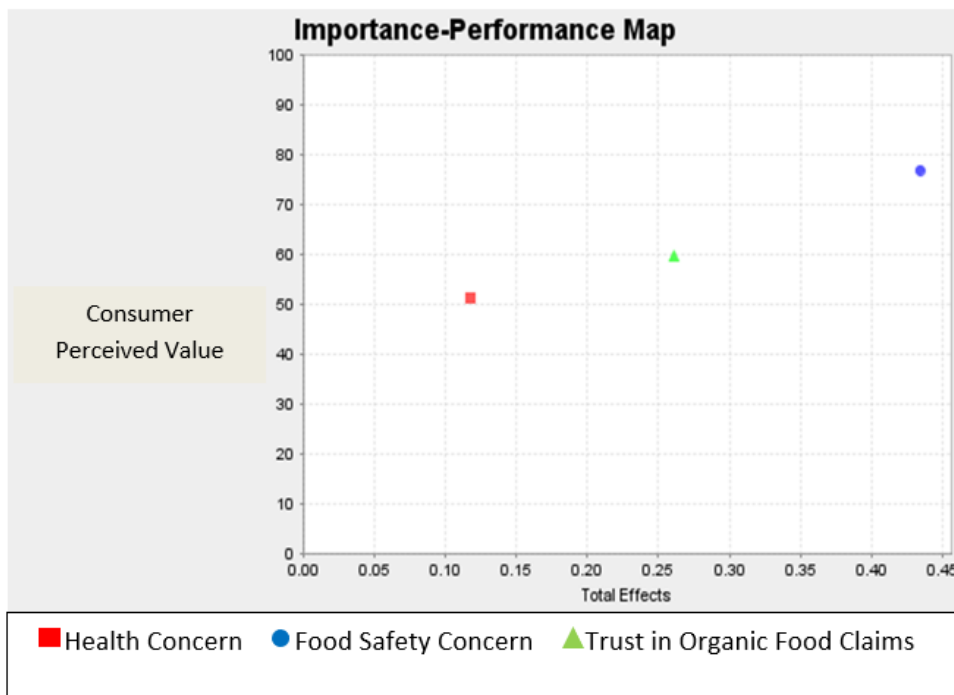
Figure 2. Importance-performance map analysis (IPMA) results with consumer perceived value (CPV) as the target construct

DISCUSSION

Referring to the statistical results of the study, all predictor constructs significantly influenced the consumer perceived value of organic vegetables. These results further validate H1, H2, and H3. The path of FSC→ CPV (β=.339, *p*<.01) specifies the significant positive influence of food

safety concern on consumer perceived value. This finding is in line with the study of Chandran et al. (2016) where the researchers mentioned that food safety concern had the most significant influence on the consumer perceived value of organic food. In Malaysia, consumers thought organic vegetables are safer to consume because they are chemical-free compared to conventional vegetables. However, for vegetables to be certified organic, the process of production must conform to the Malaysian Standard MS 1529: 2015 titled "Plant-based organically produced foods-requirements for production, processing, handling, labeling, and marketing." (Department of Standards Malaysia, 2015). This certification standard provides confidence and trust in food safety where the production and processing of organic vegetables must not use any mineral fertilizers, pesticides, and pollutants (Hsu et al., 2016). Further, Lian and Yoong (2019) were of the same opinion that food safety information such as the organic certification logo played a crucial role in assuring consumers of food safety.

Next, the second hypothesis testing result revealed that health concern (β=.137, p<.01) significantly influences the consumer perceived value of organic vegetables. The rationale behind this finding is that health concern has become a salient determining factor for consuming organic food (Chen, 2009). The increasing growth of health concerns in Malaysia has increased the demand for organic vegetables. This is evident when Malaysia has recorded the highest obesity and overweight rate among Asian countries, with male and female having these abnormalities constituted 64% and 65% of the population (WHO, 2019). Obesity may result in major illnesses, such as heart disease, hypertension, and diabetes. Additionally, the increasing affluence of the population has also provided consumers with more alternatives in consuming healthier food such as organic vegetables (Ling et al., 2018). This finding is in line with the past studies of Legrand and Sloan (2006), Lohr (2011), and Nasution et al. (2011) where they mentioned health needs were factors that motivated consumers to perceive the positive value of organic food.

Further, the third hypothesis testing result showed that trust in organic food claims (β=.283, p<.01) significantly influences the perceived value of organic vegetables. Although researchers claimed that food safety and health concerns are central to the existing consumer perceived values (Chen, 2009; Miller & Cassady, 2012), signaling theory explains that consumers would choose to trust a product if signals exist externally on the product. In the case of organic vegetables, the certification label, place of origin, and reputable brands served as signals (Roe & Sheldon, 2007). Similarly, Baker and Ozaki (2008), Essoussi and Zahaf (2009), and Lin (2009) asserted that consumer trust in organic food was built on the certification process, popular brands, and reputation of producers. However, confidence in organic vegetables is difficult to ascertain. This is due to the absence of visible characteristics that can differentiate organic vegetables

from non-organic vegetables. Without proper labeling and tagging on the organic products, it may lead the consumers to have a similar perception toward organic and non-organic vegetables as they are alike in appearance.

When investigating significant differences among the ethnic groups, the effect of a specific ethnic group on the likelihood of consuming organic vegetables yields different results. The Indian community was found to be significantly concerned as regards health than Malay and Chinese (see Table 8). This result explains that although Indian merely constitutes around 7% of the total population in Malaysia, they are more likely to perceive positive values of organic vegetables owing to health concern perception. As mentioned by Mohd-Any et al. (2014), culture is the key element that shapes people's beliefs, values, and eating habits of different ethnic groups in Malaysia. Culture may be a possible factor behind vegetable consumption because of dietary principles in the Indian community. Generally, Indians refrain from eating beef and adopt strict vegetarian diets in their daily meals.

CONCLUSION

This research has successfully examined the role of ethnic groups on consumer perceived value of organic vegetables in Malaysia. It highlights the significant differences among various ethnic groups on the relationship between the determining factors and the perceived value of organic vegetables. Practically, this study pinpoints food safety concern as the prominent construct for managerial actions. It suggests that focusing on the significant ethnic group and food safety concern should be able to increase consumer perceived value of organic vegetables.

THEORETICAL IMPLICATIONS

This study attempts to examine the role of ethnic groups (i.e., Malay, Chinese, and Indian) in understanding different patterns of the perceived value of organic vegetables among the three major ethnic groups in Malaysia. The PLS-MGA results revealed that the Indian community had a higher level of health concern than the Malay and Chinese, which in turn affected their perceived value of organic vegetables. These results correspond to a study by Andrew et al. (2014) where they explained when nutritional education was progressing, public perceptions on healthy lifestyles were also on the rise. The factor of health concern accepts the fact that being healthy needs the blend of food contents and nutrition (Mohd-Any et al., 2014). Hence, this study extends the theory of consumption value by introducing a contextual factor of an ethnic group in the research framework to better understand the perceived value of organic vegetables among different ethnic consumers in a multiracial country.

MANAGERIAL AND POLICY IMPLICATIONS

According to the findings of IPMA, food safety concern has the highest importance level at 0.434. Managerial actions should

emphasize food safety concerns in this aspect. The agricultural ministry of Malaysia should prioritize food safety practices and promote food safety assurance for organic vegetables by ensuring the certification process is strictly following the certification standard. Regular training should enhance knowledge of food safety among the producers. Other related parties (i.e., training providers, certification consultants) that are involved in the process of organic certification must be accredited by the Malaysian department of agriculture. The Malaysian organic logo (myOrganic) must be made known to the consumers via nationwide campaigns, social media networks, newspapers, and television to build greater food safety awareness on organic food (Hsu et al., 2016). Further, strict enforcement of legislation related to organic food production should be in place to develop consumer trust and positive perceived values of organic vegetables (Lian & Yoong, 2019). The department of agriculture, organic farmers, dealers, and retailers are required to understand the effects of food safety concerns if they were to gain more positive perceived values from the consumers.

Besides, producers of organic vegetables could use the findings of this research to strategize their business plan. For example, a company should emphasize food safety when promoting the benefits of organic vegetables via all possible advertising channels. Moreover, the findings of this study also reveal the significant role of the ethnic group, which affects consumer perceived value of organic vegetables.

Therefore, in the aspect of marketing implications, market penetration strategies should focus on offering consumers in-depth information regarding the benefits of organic vegetables according to the specific ethnic groups' concerns and perceived values. In this regard, organic vegetable producers can divide their target market into specific cohorts based on ethnic groups. This will allow their businesses to precisely approach a group of consumers with specific needs and wants. In the long run, this strategy benefits the companies because they can allocate their resources effectively to gain a competitive advantage. Although economic research suggests that Asian households are less likely to buy organic vegetables (Dettmann & Dimitri, 2010), however, with this effort, will eventually result in greater expenditures on organic vegetables among Asians and Malaysians in particular.

LIMITATIONS AND FUTURE RESEARCH

This study has some limitations that need to be addressed. First, this study selected only a major city to conduct data collection. The results obtained may not generalize to the entire population. Future research is proposed to include larger cities in the country and increase the sample size and number of responses collected. Second, the predictor constructs used in this study are not comprehensive; it is suggested that future research should include more relevant predictors, such as price and quality to increase the predictive ability of the research model. Third, we only selected three major

ethnic groups in Malaysia for this research. Future studies may consider including other ethnic minorities in the country to produce a more comprehensive report of the study.

ACKNOWLEDGEMENTS

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APPENDIX

Appendix 1

Measures for the constructs

Construct	Measures	Source
Consumer perceived value (CPV)	1. Organic vegetables have more freshness. 2. Organic vegetables have superior quality. 3. Organic vegetables are natural food products. 4. Organic vegetables are tastier. 5. Organic vegetables have more nutritional value than conventional vegetables.	Shaharudin et al. (2010)
Food safety concern (FSC)	1. I'm really worried about food safety because of my concerns with pesticides and fertilizers. 2. Food safety of vegetables nowadays concern me. 3. I have the impression that organic vegetables are natural food. 4. I think organic vegetables are safer to eat. 5. I take food safety into account a lot in my life. 6. I am prepared to eat organic vegetables as they are not harmful.	Shaharudin et al. (2010)
Health concern (HC)	1. I take organic vegetables because I'm concerning about my health. 2. I take organic vegetables to avoid compositions that are harmful to my health. 3. I take organic vegetables because I'm allergic. 4. I take organic vegetables because I'm afraid that the food condition of unknown origin affects my health. 5. Taking organic vegetables is the way I recognize higher nutrient contents for my health.	Ha and Dung (2017)
Trust in organic food claims (T)	1. I trust that those selling organic food are honest about the organic nature of their products. 2. I trust that local producers of organic vegetables are practicing organic farming. 3. I trust the organic certification logo on organic food labels. 4. I trust the information on organic food labels.	Voon et al. (2011)