Food retailing: Malaysian retailers' perception of and attitude toward organic certification

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11.1 Introduction

Certification is considered to be a voluntary assurance quality scheme that is approved by a recognized accredited body (Albersmeier, Schulze, & Spiller, 2009). The purpose of standards and certification of food products is to demonstrate quality to, and obtain the trust of, consumers with whom producers do not have a direct relationship (Higgins, Dibden, & Cocklin, 2008). Aspects of the quality of food products or commodities that are sometimes regulated and referred to in certification schemes include attributes such as safety, nutritional content, labeling, production processes, and/or branding (Busch & Bain, 2004; Doherty & Campbell, 2014; Watts & Goodman, 1997). However, academic literature on organic and food certification in food retail is somewhat limited. Studies have examined the perception of producers and consumers on food certification, and in particular, determinants such as sociodemographic characteristics and willingness to pay (WTP) for food safety and quality (Probst, Houedjofonon, Ayerakwa, & Haas, 2012; Uggioni & Salay, 2014); consumers' awareness, trust, purchasing decision and WTP (Essoussi & Zahaf, 2009; Gerrard, Janssen, Smith, Hamm, & Padel, 2013); and environmental and animal welfare (Nasir & Chiew, 2010).

According to Anders, Souza-Monteiro, and Rouviere (2010), information asymmetries and uncertainty of product safety and quality are increasing in the global food retail sector. Information asymmetries occur when the processing of food products cannot be verified by the retailers or consumers of, for example, organic products. Such products are considered to be credence products (Darby & Karni, 1973; Roe & Sheldon, 2007; Voon, Sing, & Agrawal, 2011). The credibility of food certification is important to reduce food product uncertainties and the overall cost of information asymmetries between producers and retailers in the food supply chain (Anders et al., 2010; Caswell, 1998; Deaton, 2004; Manning & Baines, 2004). The credibility of food certification is related to consumers' trust in the coordination of food supply chains, which have become such a crucial element of modern international food markets (Albersmeier et al., 2009).

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Safety and the characteristics of food product processes are becoming increasingly important in the operation of food systems (Caswell, 1998; Havinga, 2013). Quality assurance schemes are useful in food retailing as an important product and marketing attribute that offers a great opportunity to differentiate food retailers in the market and add value to their products (Botonaki, Polymeros, Tsakiridou, & Mattas, 2006; Jervell & Borgen, 2004). Hence, implementation of food certification by retailers influences consumer behavior related to food quality control and the safety of food products (Hatanaka, Bain, & Busch, 2005; Havinga, 2013).

11.2 Malaysian organic and food retailing

Food retailing in Malaysia has developed rapidly with new retail concepts emerging and competing with traditional retail formats (Chamhuri & Batt, 2013; Hassan, Sade, & Rahman, 2013; Mohd Roslin & Melewar, 2008). Chamhuri and Batt (2013) found that the development of the food retail industry has changed, together with Malaysian consumer behavior, because of several factors including personal disposable income, convenience need, high awareness of food safety and food quality, and changes in dietary habits. Mohd Roslin and Melewar (2008) agreed that retailers have to reconsider operational strategies in order to influence changes in consumer behavior patterns and increase consumption.

The Malaysian government is responsible for regulations on all food, drink, and ingredients that are locally manufactured or imported into Malaysia under the *Food Act 1983* and the *Food Regulations Act 1985*. These regulations are to ensure that food and drink are protected from any illegal ingredients that can harm people's health or safety. These regulations are implemented by the Food Safety and Quality Division of the Ministry of Health. Organic products must have obtained organic certification in order to carry the government-approved logo *Skim Organik Malaysia* (SOM) and display it on packaging (Department of Agriculture Malaysia, 2007; Stanton & Emms, 2011).

Malaysian consumers appear increasingly aware and educated about organic foods, particularly in the context of potential contributions to sustainability and wellbeing (Euromonitor, 2013). The presence of more organic specialist retail stores, as well as more space allocation to organic food products in leading hypermarkets and supermarkets, has increased consumers' awareness of organic food products (Euromonitor, 2013). According to Terano, Yahya, Mohamed, and Saimin (2014), the development of modern retail formats in Malaysia, such as hypermarkets and supermarkets, is becoming increasingly sophisticated in providing better services and products, including the introduction of organic food products. Although Malaysian consumers are increasingly aware of organic products, previous studies found that price is a major barrier in purchasing intention toward such products (Azam, Othman, Musa, AbdulFatah, & Awal, 2012; Kai et al., 2013). Other studies noted that consumers with high incomes and preferences toward the

perceived benefits of organic products are likely to have the highest intention to purchase (Rezai, Teng, Mohamed, & Shamsudin, 2012; Voon et al., 2011).

There are a growing number of quality guarantee schemes at national and international levels that offer higher food welfare and food quality. For example, the Soil Association Certification, which is the biggest umbrella organization for organic farming in the United Kingdom, provides the most common logo that can be found on British organic products (Baker, Thompson, Engelken, & Huntley, 2004; Gerrard et al., 2013; Janssen & Hamm, 2012). However, in the global context, the increasing number of organic brands, certification labels, and organic stores, among other features, does not appear to have increased consumers' trust in organic products (Hamzaoui-Essoussi, Sirieix, & Zahaf, 2013). Several studies have found that international consumers are not convinced about purchasing more organic food because of skepticism and uncertainty toward organic logos and certification schemes (Aarset et al., 2004; Aertsens, Verbeke, Mondelaers, & Huylenbroeck, 2009; Hughner, Mcdonagh, Prothero, Shultz, & Stanton, 2007; Janssen & Hamm, 2012; Lea & Worsley, 2005; Padel, Röcklinsberg, & Schmid, 2009).

These views are consistent with those of Organic Monitor (2006) with respect to consumer knowledge of organic labeling in Asia, which indicated that the number of organic products imported from around the world and the accompanying plethora of organic logos was leading to confusion among Asian consumers. Dardak, Zairy, Abidin, and Ali (2009) revealed that more than 40% of the respondents in their survey did not recognize the Malaysian Organic Certification, and more than 60% had never heard about it, especially those who were from outside Kuala Lumpur, the capital. Stanton and Emms (2011) found that most Malaysian consumers tend to be confused between certified and noncertified organic food products.

However, despite research on consumer perceptions and behavior in relation to organic and food certification, the literature with respect to retailers' perceptions is extremely limited in developing countries and markets, including Malaysia. Essoussi and Zahaf (2008) emphasized that distribution, certification, and labeling are all related to consumers' confidence when consuming organic food products, reflecting the fact that consumers are concerned over trusting the certification process. However, it is inadequate to focus on the wariness of consumers over guarantees of product quality/knowledge, labeling, certification or pricing, and communication strategies. Instead, organic certification should also be observed from the supply side and retailers clearly contribute at various scales and with diverse approaches to consumers' level of knowledge of, preferences for, and trust in, organic products (Hamzaoui-Essoussi et al., 2013). Therefore, the absence of research on retailers and organic products appears to be a significant gap in knowledge of organic certification in the food system.

11.3 Hypotheses development

Three constructs with respect to organic certification have been identified and included in a series of hypotheses developments.

Product attributes

H1. Organic certification of product attributes has a positive relationship with the importance of organic certification amongst Malaysian food retailers.
H2. Organic certification of product attributes has a positive relationship with organic issue (lack of knowledge, lack of trust, and misuse of organic certification).

Sustainability attributes

H3. Organic certification of sustainability attributes of products has a positive relationship with importance of organic certification amongst Malaysian food retailers.
H4. Organic certification of sustainability attributes of products has a positive relationship with organic issue (lack of knowledge, lack of trust, and misuse of organic certification).

Organic certification issues

H5. Organic issue (lack of knowledge, lack of trust, and misuse of organic certification) has a positive relationship with importance of organic certification in food retailing.
H6. The organic certification issue (OCI) (lack of knowledge, lack of trust, and misuse of organic certification) mediates the relationship between the organic certification of product attributes and the importance of organic certification in Malaysian food retailing.
H7. The OCI (lack of knowledge, lack of trust, and misuse of organic certification) mediates the relationship between the organic certification of sustainability attributes and the importance of organic certification in Malaysian food retailing.

11.4 Research method

There are several major differences between the current research and previous studies on food certification in Malaysia. First, previous research that examined food certification focused on consumers instead of retailers. For example, Dardak et al. (2009) and Ahmad and Juhdi (2010) selected Malaysian consumers who went to supermarkets as their sampling unit. Second, food retailers in Malaysia are considered as having a stronger presence than in other Asian markets, with an increasing number of retail outlets such as supermarkets, hypermarkets, and convenience stores. Running in parallel with the increase in retail outlets, it will be interesting to know how significant food and organic certification is as a retail attribute in Malaysian retailing. This is particularly because the number of consumers of organic foods has significantly increased due to the presence of more organic specialist stores, as well as more shelves containing organic food in leading supermarkets and hypermarkets (Euromonitor, 2013). Third, food certification is significant to retailers in developed and developing countries as they strengthen their structural power in the food chain. However, previous research on food certification in

Malaysia did not cover organic certification in detail, and no research has focused specifically on Malaysian retailers' perceptions of organic certification.

A survey strategy was deployed when collecting the data in order to have a clear picture of retailers' perceptions toward organic certification. This approach allows the collection of large amounts of data from a sizeable population in a highly convenient way (Saunders, Lewis, & Thornhill, 2009) and can be carried out to collect information regarding people's knowledge, expectations, and behavior (Neuman, 2003). Therefore, this research utilized a questionnaire as the survey instrument for gathering the data.

The survey was designed to examine perceptions toward organic certification as well as other forms of food certification in the context of Malaysia. This survey used seven-point Likert scales, anchored from strongly agree to strongly disagree, in order to measure all items in the questionnaire. Using seven-point Likert scales is a suitable and most frequently used means to measure attitudes and behaviors in organizational research (Sekaran, 2006). A draft version of the questionnaire survey was also pretested with a small number of retailers before it was distributed to retailers more widely. The pretest is important to ensure the respondents understand the content of a questionnaire when answering it (Sekaran, 2006). Indeed, it helps to rectify or minimize any inadequacies or biases before administering the questionnaire.

The total population of supermarkets and hypermarkets in Malaysia is 1335 and 174 outlets, respectively (Euromonitor, 2015). The survey was conducted among modern food retailing formats (hypermarkets, supermarkets, and organic specialty stores), irrespective of whether these retailers sell organic products or not. This is in order to obtain perceptions from a range of food retailers. Due to the premium price of organic food products, it is difficult to find organic food products in any small convenience outlets. The questionnaire was distributed by mail as this is suitable for large sample sizes (Saunders et al., 2009; Sekaran, 2006). In the previous study by Ali and Suleiman (2016), which focused on small and medium enterprises regarding halal food production practices, the response rate using mail was 17%.

The distribution of the questionnaire survey was focused on food retailers located in big cities and urban areas of Malaysia; specifically the two areas of Kuala Lumpur and Selangor. Based on the list provided by the Companies Commission of Malaysia and Organic Alliance Malaysia's directory, there are 432 organic food retailers, and thus, a census approach was adopted in this study as the questionnaire was distributed by mail to all these retailers. Many food retail stores are located in the major cities, urban centers and larger towns in Malaysia. These are areas with high concentrations of middle and high income households (Euromonitor, 2014; FAS Kuala Lumpur, 2013). The questionnaire took approximately 15 minutes for respondents to complete.

Data were collected over a 4-month period from November to February 2016. A total of 432 questionnaires were delivered and administered in the two study locations. Out of the 432 questionnaires, 106 retailers responded, which is a 25% response rate. After screening of the data, four of the questionnaires were excluded

due to most of the questions not being filled in. Therefore, 102 questionnaires were used for the analysis. Three types of retail format were represented in this research; supermarkets, hypermarkets, and specialty organic specialty stores. A retail store with range from 80,000 to 220,000 square feet is classed as a hypermarket, while a supermarket is usually at 20,000 square feet. An organic specialty store is a store that offers consumers a particular type of merchandize (Terano et al., 2014).

11.5 Descriptive statistics

The profile of the businesses that participated in this study was as follows: 45 (44.1%) were supermarkets followed by specialty stores (38−37.3%) and hypermarkets (19−18.6%). Given that hypermarkets accounted for less than 20% of responses, it is not surprising that the majority of retailers were small and medium size stores. Almost two-thirds of responses came from Selangor (65−63.7%) with the remainder from Kuala Lumpur (37−36.3%). Given that responses were dominated by organic specialty stores which are often relatively small in size, retailers with less than 10 employees contributed almost 60% of responses, whilst retail outlets with more than 20 employees accounted for over a quarter of respondents. Retailers that have an annual turnover of less than US$0.12 million accounted for almost 30% of the respondents. Only 12.7% of retailers had an annual turnover of more than US$0.70 million. Nearly 30% of all the retail stores surveyed had been in business for over 10 years, with 30.4% (31) established for between 6 and 10 years. This was closely followed by 29.4% of retailers that had been set up between 3 and 5 years ago. Fewer than 10% of retailers had been established for less than 3 years.

11.6 Findings

11.6.1 PLS-SEM analysis

Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to analyze questions on retailers' perceptions of and attitudes toward organic certification. Many business disciplines, as well as marketing, apply PLS-SEM, and it has become a widely recognized method in recent years (Diamantopoulos, Sarstedt, Fuchs, Wilczynski, & Kaiser, 2012; Sarstedt, Ringle, & Hair, 2014a). The primary purpose of PLS-SEM in business research is to test concepts and theories (Hair, Ringle, & Sarstedt, 2011; Sarstedt, Ringle, Smith, Reams, & Hair, 2014b). PLS-SEM is a suitable technique when analyzing non-normally distributed data (Falk & Miller, 1992). Using Likert scales to measure individual perceptions will likely yield non-normally distributed responses (Aibinu & Al-Lawati, 2010). Therefore, since the survey uses Likert scales, PLS-SEM is an appropriate technique to analyze retailers' perception of and attitudes toward organic certification.

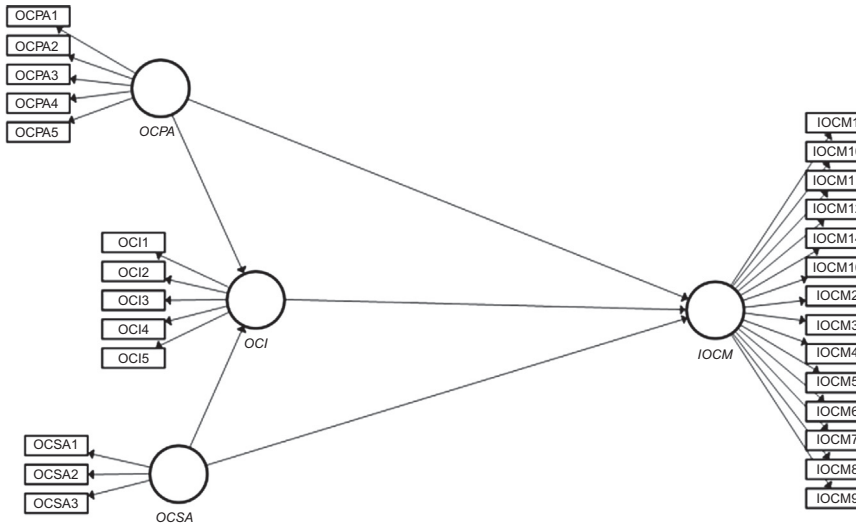

Figure 11.1 Conceptual framework of Malaysian retailers' perception of and attitude toward organic certification.

Based on the limited literature available on the organic certification process in Malaysia and elsewhere, three main themes with respect to organic certification have been identified in terms of their importance for organic certification in Malaysian food retailing: namely, product attributes, sustainability attributes, and certification issues. The conceptual framework depicted in Fig. 11.1 consists of four constructs; Organic Certification on Product Attributes (OCPA) (organic certification determines organic food product attributes based on safety, quality, taste, and appearance); Organic Certification on Sustainability Attributes (OCSA) (organic certification identifies organic food products as an important aspect of sustainability strategies with respect to environmental practices); OCI (issues that affect the credibility of organic certification such as lack of knowledge, lack of trust, and misuse of organic certification and labeling); and Importance of Organic Certification in Malaysia (IOCM) (the credibility of organic certification as a quality assurance scheme in Malaysian food retailing). Hair et al. (2011) explained that typically there is a two-step-process of PLS-SEM assessment that needs to be followed. This involves the separate assessment of the measurement models and the structural model.

11.6.2 Internal consistency reliability

Table 11.1 presents the composite reliability (CR) values. The results indicate that the measurement model has satisfactory internal consistency reliability as the CR of each construct exceeds the recommended level threshold value of 0.70. CR values are as follows: OPCA—0.919, OCSA—0.930, OCI—0.890, and IOCM—0.945.

Table 11.1 Composite reliability

Latent construct	Composite reliability
OCPA	0.919
OCSA	0.930
OCI	0.890
IOCM	0.945

OCPA, organic certification on product attributes; *OCSA*, organic certification on sustainability attributes; *OCI*, organic certification on issue; *IOCM*, important of organic certification in Malaysia.

11.6.3 Indicator reliability

Table 11.2 shows the indicator's outer loadings of the measurement model. There are 25 indicator outer loadings above 0.70, and two indicator values of 0.40−0.70. Five indicators were removed from the scale in order to increase the average variance extracted (AVE) above the suggested threshold value.

11.6.4 Convergent validity

All constructs for this study have AVE ranging from 0.552 to 0.817, exceeding the requirement threshold value of 0.50 (Table 11.3). Therefore, the results indicate that the measurement model in this study has adequate convergent validity.

11.6.5 Discriminant validity

Cross loadings

Cross loadings were examined, as the indicator outer loadings for each construct were greater than all of its loadings on other constructs (Table 11.4). Indeed, this method tends to be flexible when establishing discriminant validity (Hair et al., 2011). Therefore, the result of cross loading indicates that all the 27 measurement items loaded distinctly on the specified constructs as establishing the discriminant validity of the four constructs.

Fornell—Larcker criterion

Table 11.5 demonstrates that all constructs in the measurement model have met the requirement criteria, whereby the square root of AVE values is greater than the highest correlation with any other constructs.

11.7 Evaluation of the structural model

11.7.1 Collinearity assessment

Hair et al. (2011) suggested that a tolerance value of 0.20 or a variance inflation factor value of 5 and higher, respectively, indicates that the constructs probably

Table 11.2 Outer loadings

	IOCM	OCI	OCPA	OCSA
IOCM1	0.756			
IOCM10	0.769			
IOCM11	0.763			
IOCM12	0.766			
IOCM14	0.609			
IOCM16	0.578			
IOCM2	0.738			
IOCM3	0.750			
IOCM4	0.721			
IOCM5	0.803			
IOCM6	0.730			
IOCM7	0.838			
IOCM8	0.793			
IOCM9	0.750			
OC15		0.737		
OCI1		0.792		
OCI2		0.772		
OCI3		0.797		
OCI4		0.834		
OCPA1			0.837	
OCPA2			0.882	
OCPA3			0.921	
OCPA4			0.798	
OCPA5			0.723	
OCSA1				0.886
OCSA2				0.913
OCSA3				0.912

IOCM, important of organic certification in Malaysia; *OCI*, organic certification on issue; *OCPA*, organic certification on product attributes; *OCSA*, organic certification on sustainability attributes.

Table 11.3 Average variance extracted

Latent construct	AVE
OCPA	0.697
OCSA	0.817
OCI	0.619
IOCM	0.552

AVE, average variance extracted; *OCPA*, organic certification on product attributes; *OCSA*, organic certification on sustainability attributes; *OCI*, organic certification on issue; *IOCM*, important of organic certification in Malaysia.

Table 11.4 Cross loadings

	IOCM	OCI	OCPA	OCSA
IOCM1	**0.756**	0.267	0.609	0.616
IOCM10	**0.769**	0.601	0.519	0.545
IOCM11	**0.763**	0.594	0.482	0.532
IOCM12	**0.766**	0.525	0.550	0.495
IOCM14	**0.609**	0.432	0.411	0.352
IOCM16	**0.578**	0.458	0.362	0.414
IOCM2	**0.738**	0.164	0.647	0.523
IOCM3	**0.750**	0.280	0.613	0.526
IOCM4	**0.721**	0.207	0.553	0.604
IOCM5	**0.803**	0.348	0.572	0.593
IOCM6	**0.730**	0.097	0.602	0.591
IOCM7	**0.838**	0.470	0.524	0.568
IOCM8	**0.793**	0.357	0.515	0.545
IOCM9	**0.750**	0.393	0.503	0.574
OCI1	0.450	**0.792**	0.205	0.314
OCI2	0.257	**0.772**	0.117	0.163
OCI3	0.419	**0.797**	0.164	0.232
OCI4	0.411	**0.834**	0.235	0.342
OCI5	0.386	**0.737**	0.146	0.312
OCPA1	0.593	0.199	**0.837**	0.488
OCPA2	0.611	0.176	**0.882**	0.559
OCPA3	0.686	0.214	**0.921**	0.586
OCPA4	0.534	0.067	**0.798**	0.525
OCPA5	0.560	0.278	**0.723**	0.687
OCSA1	0.702	0.366	0.727	**0.886**
OCSA2	0.613	0.306	0.541	**0.913**
OCSA3	0.634	0.299	0.563	**0.912**

The results marked in bold indicate where the highest value is expected.
IOCM, important of organic certification in Malaysia; *OCI*, organic certification on issue; *OCPA*, organic certification on product attributes; *OCSA*, organic certification on sustainability attributes.

Table 11.5 Fornell–Lacker criterion

	IOCM	OCI	OCPA	OCSA
IOCM	0.743			
OCI	0.503	0.787		
OCPA	0.719	0.228	0.835	
OCSA	0.722	0.360	0.682	0.904

IOCM, important of organic certification in Malaysia; *OCI*, organic certification on issue; *OCPA*, organic certification on product attributes; *OCSA*, organic certification on sustainability attributes.

Table 11.6 Collinearity assessment

	IOCM	OCI
IOCM		
OCI	1.150	
OCPA	1.872	1.871
OCSA	2.039	1.871

IOCM, important of organic certification in Malaysia; *OCI*, organic certification on issue; *OCPA*, organic certification on product attributes; *OCSA*, organic certification on sustainability attributes.

Table 11.7 Significance testing result of the structural model path coefficients

	Path coefficients	*t*-Values	Significance levels	Results
OCPA → IOCM	0.434	4.888	***	0.000
OCSA → IOCM	0.322	3.610	***	0.000
OCI → IOCM	0.288	3.809	***	0.000
OCSA → OCI	0.383	2.223	**	0.026
OCPA → OCI	− 0.033	0.206	NS	0.837

$^{*}P < 0.10$, $^{**}P < 0.05$, $^{***}P < 0.01$.
OCPA, organic certification on product attributes; *IOCM*, important of organic certification in Malaysia; *OCSA*, organic certification on sustainability attributes; *OCI*, organic certification on issue; *NS*, not significant.

have collinearity issues. Table 11.6 shows the collinearity assessments and reveals there were no multicollinearity issues in the structural model.

11.7.2 Structural model path coefficients

Table 11.7 shows the results of the path coefficients, *t*-statistics, and significance level for all hypothesized paths. Moreover, this result was used to determine the acceptance or rejection of the proposed hypotheses and is presented in Table 11.8.

Table 11.7 reveals that the relationship of OCPA and IOCM is significant with $\beta = 0.434$ and *t*-value = 4.888. The path coefficients between OCSA and IOCM are significant with $\beta = 0.322$ and *t*-value = 3.610. The relationship of OCI and IOCM is significant with $\beta = 0.288$ and *t*-value = 3.809. Moreover, the OCSA and OCI relationship is also significant with $\beta = 0.383$ and *t*-value = 2.223. In contrast, the relationship of OCPA and OCI is not significant with $\beta = -0.033$ and *t*-value = 0.206. Therefore, H1−H4 are supported, whilst H5 is not supported (Table 11.8).

11.7.3 Coefficient of determination (R^2 value)

The coefficient of determination (R^2 value) measures the predictive accuracy of the model and is mostly used to evaluate the structural model. The R^2 values range from 0 to 1, with higher levels indicating higher levels of predictive accuracy. In

Table 11.8 Hypotheses testing results

	Hypotheses statement	Result
H1	Organic certification on product attributes has a positive relationship with importance of organic certification in food retails	Supported
H2	Organic certification on sustainability attributes has a positive relationship with importance of organic certification in food retails	Supported
H3	Organic issue has a positive relationship with importance of organic certification food retails	Supported
H4	Organic certification on sustainability attributes has a positive relationship with organic issue	Supported
H5	Organic certification on product attributes has a positive relationship with organic issue	Not supported

marketing research, R^2 values of 0.75, 0.50, or 0.25 for endogenous latent variables can, as a rough rule of thumb, be respectively described as substantial, moderate, or weak (Hair et al., 2011; Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014; Sarstedt et al., 2014b), while in other disciplines, R^2 value of 0.20 is considered high. In addition, the rule of thumb for acceptable R^2 values is difficult to provide because it depends on the model complexity and the research discipline. An IOCM R^2 value of 0.68 is considered moderate and OCI R^2 value of 0.11 is considered weak.

11.7.4 Effect size f^2

The f^2 effect sizes which were interpreted by following the guidelines that the f^2 values of 0.02, 0.15, and 0.35 indicate an exogenous construct's small, medium, or large effect, respectively, on an endogenous construct (Hair, Hult, Ringle, & Sarstedt, 2014; Hair et al., 2011). The result implies that the effect of OCPA has the highest effect size on the importance of organic certification in food retailing ($f^2 = 0.30$), followed by OCSA and OCI with values of $f^2 = 0.14$ and $f^2 = 0.19$, respectively. The effect of OCSA has a small to medium effect on OCIs ($f^2 = 0.08$) followed by OCPA ($f^2 = -0.009$).

11.7.5 Blindfolding and predictive relevance q^2

Hair et al. (2014) suggested that the values of 0.02, 0.15, and 0.35 indicate small, medium, or large predictive relevance of exogenous constructs for a certain endogenous construct. Consequently, the predictive value of OCPA; OCSA; and OCI for the importance of organic certification in food retailing was small ($q^2 = 0.08$, $q^2 = 0.05$, and $q^2 = 0.06$, respectively). Meanwhile, the predictive value of OCPA and sustainability attributes had a small predictive impact on OCI ($q^2 = -0.006$ and $q^2 = 0.03$).

11.7.6 The mediating effects analysis

The direct effects of OCPA and OCSA to IOCM are significant; however, the indirect effects of OCPA to IOCM are not significant compared to OCSA. This means that some of the direct effect relationships of OCSA to IOCM are absorbed by the OCI mediator.

The strength of OCI mediates the relationship between OCSA and IOCM and needs to be determined by using the variance accounted for (VAF). When the outcomes of VAF are more than 80%, it indicates a full mediation. VAF that is more than 20% and less than 80% can be characterized as partial mediation. While, VAF less than 20% can conclude that no mediation exists (Hair et al., 2014). The VAF between OCSA and IOCM via OCI is 25%. This indicates that VAF is partially mediated since it is larger than 20% but smaller than 80%. Based on these results, H6 was not supported, whilst H7 was supported (Table 11.9).

The result of the structural model path coefficients reveals that the relationships of OCPA and IOCM, OCSA and IOCM, OCI and IOCM, and OCSA and OCI were all significant, whilst the relationship between OCPA and OCI was not significant. Moreover, hypotheses testing demonstrated that H1, H2, H3, H4, and H7 were supported, and H5 and H6 were rejected (Table 11.9).

Table 11.9 Summary of hypotheses

	Hypotheses statement	Result
H1	Organic certification on product attributes has a positive relationship with importance of organic certification in food retails	Supported
H2	Organic certification on sustainability attributes has a positive relationship with importance of organic certification in food retails	Supported
H3	Organic issue has a positive relationship with importance of organic certification food retails	Supported
H4	Organic certification on sustainability attributes has a positive relationship with organic issue	Supported
H5	Organic certification on product attributes has a positive relationship with organic issue	Not supported
H6	Organic certification issue mediates the relationship between organic certification on product attributes and the importance of organic certification on food retailing in Malaysia	Not supported
H7	Organic certification issue mediates the relationship between organic certification on sustainability attribute and the importance of organic certification on food retailing in Malaysia	Supported

11.8 Discussion

Although organic certification is important in order to ensure the safety and quality of organic food products, building trust in certification, including with the inspection bodies, is also important as it helps to prevent any fraud or misuse of certification and labeling for organic food products (Munteanu, 2015). Findings from the survey showed that Malaysian food retailers perceived organic certification as a signal of trust in the related local authority approval of local and international organic food products. As highlighted previously, organic certification is a mandatory requirement for ensuring food products can be marketed as organic in Malaysia. This situation also applies to imported products that need to comply with Malaysian standards. Supporting this approach, Janssen and Hamm (2014) argue that an effective certification and labeling system is required in order to have high levels of trust and develop confidence levels among consumers and food retailers. Indeed, the level of consumers' confidence and trust is especially related to distribution, certification, and labeling concerns (Essoussi & Zahaf, 2008).

The PLS-SEM results also confirmed that product attributes were significantly associated with the importance of organic certification in Malaysian food retailing. The relationship between product attributes and the IOCM is much greater than sustainability issues. This particular finding is important for food retailers as they perceived that organic certification is a major factor in determining organic food products' attributes that are more related to the production, safety, and quality. Due to credence attributes, organic certification is an instrument that can help to verify the status of organic food products.

The relationship between organic certification of product attributes and OCIs was not significant. The reason for these insignificant relationships was because the food retailers perceived that to claim the food products to be organic they have to be certified as such by recognized certification bodies. By doing this, food retailers can prevent any misuse and mislabeling by producers or manufacturers who want to sell organic food products without any valid certification. In addition, supporting organic food products that carry organic certification will ensure that organic food products have to go through the entire certification process in order to obtain valid certification. This is particularly important for local fresh products in terms of obtaining the SOM accreditation, because this accreditation is developed by the Malaysian Department of Agriculture (DOA) which ensures all organic food products follow the Malaysian organic regulations.

The findings of this research indicated that the importance of organic certification is also related to environmental attributes, which have previously been recognized as significant in broader Malaysian society (Sinnappan & Rahman, 2011). Participants believed that organic certification indicates that organic food products are helping to preserve the environment and that this is important for consumers that are concerned about such environmental matters. In the Asian context, this finding is supported by Sirieix, Kledal, and Sulitang (2011) who similarly found that Chinese consumers perceived that organic food products make agriculture

more environmental friendly. The research also confirms that the importance of organic certification in Malaysian food retailing is significantly associated with sustainability attributes. This indicates that food retailers perceive that food products that are claimed to be organic are produced by farmers or producers concerned with environmental as well as animal welfare. In addition, Malaysian food retailers' attitudes toward organic food products and certification represent their concern with sustainability issues, especially as Malaysian consumers become more aware of environmental issues as well as the benefits of consuming organic foods. Organic certification is therefore not only reassuring consumers with respect to the quality and safety of organic products but is also a symbol of sustainable agriculture and healthy living, together with process-related quality and the use of safe or natural raw materials (Midmore, Francois, & Ness, 2011).

The PLS-SEM analysis confirmed that the importance of organic certification for food retailing in Malaysia is affected by OCIs (in terms of path coefficients and statistical significance). Generally, organic food products can be found in specialist shops and supermarket chains in Malaysia and there are also traditional retail shops and wet markets that sell organic food product. However, the credibility of organic status cannot be determined without organic certification (Stanton & Emms, 2011). Aryal, Chaudhary, Pandit, and Sharma (2009) also agree that it is difficult to determine the status of organic food products without appropriate mechanisms and quality assurance schemes. This information indicates that Malaysian food retailers perceived that these issues can affect the credibility and trust of organic certification, particularly Malaysia's own certification, SOM.

11.9 Conclusions and recommendations

This research is very significant for Malaysian food retailing as there are limited academic studies on organic food certification in this context. The organic market can appear niche and this may be one of the reasons why few studies have been conducted on the subject, particularly in Malaysia and other developing countries. Nevertheless, there are many aspects that can be explored through investigating Malaysian food supply chains, and the impacts of food certification are expected to become more important in the future. For example, the study by Hamzaoui-Essoussi et al. (2013) highlighted that organic certification is an important source of consumer trust in food retailing.

Future research should focus on the elements of credibility and trust toward organic and food certification in relation to organic producers and consumers. Moreover, there is potentially great value in further comparing credibility and trust in organic certification with halal certification (Syed Marzuki, Hall, & Ballantine, 2012), as well as the potential overlap between the concepts, especially in the Malaysian food market. Finally, better insights into the equivalence of different organic certification would be advantageous, as this is an issue that has drawn attention not only in Malaysia but around the world (Willer & Lernoud, 2016). This

is also likely to become even more of an issue in Malaysia given its desired positioning as an international food hub and increased Association of Southeast Asian Nations regional trade in food (Willer & Lernoud, 2016).

In conclusion, as with many types of food certifications, Malaysian food retailers perceived organic certification as an important attribute for organic food products in order for the market to grow positively for them, as well as to increase the awareness of consumers. Organic principles emphasize people's need to consume food products that can potentially benefit their personal health, but at the same time can benefit the health of the environment. It is expected that the recommendations and suggestions provided in this study will help improve the reputation of organic certification, particularly SOM, as the DOA and Malaysian food retailers want to convince consumers to support local organic food products. However, the production of organic foods in Malaysia is still limited. Malaysian food retailers believe that there are more local producers and farmers that want to produce organic food products and use SOM as a certification mark for selling these.

In order to improve Malaysian organic food retailing, it is imperative that all parties in the supply chain work together by promoting organic food and its certification. Indeed, although it would require a high commitment and effort from all the parties, food retailers should be much more active in increasing the awareness of consumers toward organic food products and organic certification. Organic food products that carry SOM or equivalent organic certification can be effective promotion tools to influence and convince consumers to purchase organic food products. Although the price of organic food products is a major barrier in organic retailing, improved cooperation between different stakeholders may be able to reduce these prices. Supporting organic producers by improving innovation processes and brand building may also help them to reduce costs. In fact, one of the initiatives the Malaysian DOA has taken is to waive the application fees when applying for SOM, and this can be a first step to reduce the price of organic food products. Such measures may also encourage greater commitment to organic certification from producers who are seeking to add value to their products. Most importantly, credible quality assurance schemes supported by food retailers will give peace of mind to consumers when purchasing organic food products.

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