Determinant Factors For Destination Selection Of Halal Eco-Tourism Using Confirmatory Factor Analysis

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Abstract:** This study aims to analyze determinant factors for destination selection of halal eco-tourism using confirmatory factor analysis. Destination of halal eco-tourism is place for tourism that educate visitors about environmental awareness and providing halal compliant entertainment. The research method implemented in this study using quantitative approach namely questionnaire analysis. The endogenous latent construct is customer intention to visit destination of halal eco-tourism. The four exogenous latent constructs are brand equity, culture, quality and social. This study developed the research framework with adoption of social distance theory. The sample size of corresponding respondents is 300 customers that have intention to visit tourism places that halal compliant. Next, this study analyzed measurement model using confirmatory factor analysis for pooled model approach. Then, the validity and reliability constructs of measurement model were validated using three main model fit indexes namely absolute fit, incremental fit and parsimonious fit. Next, structural model of path analysis was performed using structural equation modelling was performed. The multivariate regression analysis was performed with maximum likelihood approach. The result shows the absolute fit (RMSEA) is 0.029, incremental fit (CFI) is 0.997 and parsimonious fit (Chi-square/degree-of-freedom) is 1.247. All of three model fit indexes indicate the measurement and structural model is good fit with actual data. Multiple regression analysis shows all four exogenous latent constructs indicates significant relationship to endogenous latent construct namely customer intention to visit destination of halal eco-tourism. The contribution of this study is it adding new knowledge to literature of tourism management. In addition, this study provides clear understanding for policy makers in developing eco-tourism attraction that meet with customers preference in generating profits for tourism industries. The novelty of this research is it provides a clear procedure for performing confirmatory factor analysis for validating model fit with real data.
Keywords:** Customer Intention; Social Distance Theory; Halal Eco-tourism; Structural Equation Modelling.

1. INTRODUCTION

The increasing demand of halal eco-tourism was attracted more visitors to visit halal destination. The contemporary image of destinations in countries where Islam is the main religion is still closely associated with traditional Islamic behavioral norms as opposed to traditional norms in Western societies (Battour, et al., 2018; Henderson et al., 2006). Most of

the Malaysian citizen is Muslims. Therefore, Malaysia need to show the originality of Islamic heritage in Malaysia especially for promote halal eco-tourism industry. Halal eco-tourism must apply halal activities that are comply with Islamic rules. Halal eco-tourism industries are seemed as a main instrument for regional development and as new economic activities development. Eco-tourism industry can help community development by providing source of livelihood to local community. Eco-tourism industry also can help local community for the conservation of ecology and biodiversity that finally provides some economic incentives to the local community. The high income generate from halal eco-tourism industry was help poor people in rural area to get income through selling handcraft, traditional food products and services provide such as tourism guide.

Halal tourism is a segment of the world tourism market that is gaining momentum, due to its growth and increasing size (Vargas-Sanchez and Moral-Moral, 2019). As report by Global Muslim Travel Index (2016) Halal tourism have a good potential, as there were nearly 120 million Muslim tourists in 2015 and are expected to reach 168 million in 2020 (Harahsheh, et. al., 2019). In Malaysia, the demand for halal tourism was increased from 2015 until 2017. The statistic shows that the estimated total numbers of tourism arrivals in Malaysia were approximately 5.15 million. In 2016 and 2017, the total number of tourism was approximately 5.53 million and 5.38 million respectively. This number shows that Malaysia have a good potential to be halal eco-tourism hub worldwide due to high number of tourism visit Malaysia. However, halal eco-tourism activities could be implement as constraints to Islamic teachings. These constraints are critical and one of the main challenges for tourism planning and marketing. Therefore, halal eco-tourism destinations may have good strategies in order to overcome these constraints. Eco-tourism activities such as visiting natural area is one of the good activities in eco-tourism industry. These activities are enables to develop economic of local communities. Besides that, eco-tourism activities give a good experience regarding nature, landscape, flora, fauna and their habitats, as well as cultural artifacts from the locality. Therefore, in order to encourage more visitors, come to visit eco-tourism destination in Malaysia, it must be comprehensive and account for the factors that can contribute to customers intention to visit halal eco-tourism destination. Thus, this study was investigating factors that contribute to customers' intention to visit halal eco-tourism destination in Malaysia.

2. LITERATURE REVIEW

Halal eco-tourism industry must provide a good environment in order to attract more visitors to visit Malaysia. Halal eco-tourism that provided a nature area of tourism is one of the strategic that can attract visitors to visit. Ecotourism, ski running, sailing, fishing, nature photography, animal and plant observation, hiking and climbing are all parts of nature area tourism (Musgrave and Dávid (2011). Therefore, many strategies can be done by tourism guider to promote the eco-tourism industry. It is also import to provided halal eco-tourism, who are looking for Halal-friendly destinations that provide products and services that do not contradict with Islamic Sharia (Harahsheh, et. al., 2019; Battour et al., 2011; Battour et al., 2012; Nassar et al., 2015; Sriprasert et al., 2014). Battour, et al., (2019) showed that trip quality, trip value, satisfaction and word of mouth have a significant impact on the non-Muslim tourists' perception of halal tourism products and services. Mudofir, et al., (2018) concluded that the development of halal eco-tourism destination will be successful if the manager can have business collaboration between institutions and maintain the mutual trust so that the visits of domestic or foreign tourists will increase. Teeroovengadum (2019) demonstrate empirically that stronger environmental identity leads directly to more positive

ecotourism attitude, greater interest towards ecotourism and a higher willingness to pay a premium.

a. Customer intention

The concept of "intention" has proved to be an enduring endeavor for a wide range of researchers. Study by Younus, et al., (2015) regarding factors affecting customer purchase intention perceived value, customer knowledge, celebrity endorsement have significant relationship with purchase intention. The study conducted by Chen, et al., (2018) regarding the Consumer Behavior of Intention to Purchase Green Products in Belt and Road Countries found that Environmental attitude, product attitude, social influence, and perceived monetary value positively affected purchase intention.

b. Quality of the product

Study on the quality of product suggest that perceived quality is the most important affecting customer purchase intention (Vo and Nguyen, 2015). investigate the relationship between the green value, emotional value, environment conscious, consumers' perceived quality, and repurchase intention towards green products found that green value has significant relationship with both perceived quality and repurchase intention.

c. Brand image

Brand image is one of the strategic necessity which helps companies to create more value to customers and also to develop sustainable competitive advantages. Successful brands image will increase trust in products and intangible services, and customer will be able to better visualize and identify their services (Shahroudi and Naimi, 2014). Sabri Erdil (2015) investigate the effects of price image, brand image and perceived risk on store image and purchase intention of consumers in apparel sector. This study found that the price image, brand image and perceived risk have significant impact on the purchase intention. While, Chovanová, et al., (2015) found that purchasing of branded products and preference of brand origin is depend on the age of consumers.

d. Culture

Culture is one of the important element in customer intention to buy a products or services. Study by Halimi, et al., (2011) found that culture is a determining factor to predict the consumers' intention to do online shopping among young consumers. Ali al-Qudah and Ahmad (2013) review the influence of cultural values on consumers' intention to conduct online transactions. They propose the importance of culture and cultural values and based on their review shows the significant impact of culture on online shopping.

e. Social

Yin, et al., (2019) analyzes the influence of social interaction on consumers' purchase intention and found that cultural dimensions are proved to have a significant effect on users' social interaction. Study that focus on social impact especially from the friend or family influence to is still lack of researchers. Therefore, this study tries to introduced a new variable that is social influence to visit halal eco-tourism destination.

3. METHODOLOGY/MATERIALS

This section described main element of research element for this study with introducing three stage of research methodology. The first step is research design, variable selection, population and sample selection process. The second step involving calculation for reliability, validity and measurement of variables. Next, the third step is developing regression and path analysis for structural equation modelling.

3.1 Research design, variable selection, population and sample selection process

The research framework for this project is illustrated using Figure 1. The four independent variables in this framework are brand equity, culture, social and quality. The independent variable is customer intention to visit halal eco-tourism destination.

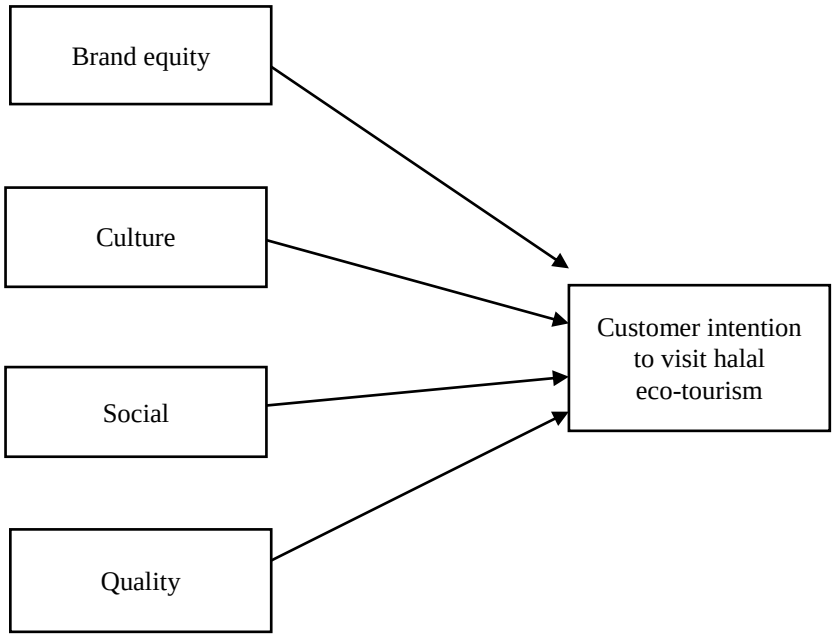

Figure 1. Research framework for evaluating customer intention

Descriptive statistics for sampling of population is shown in Table 1. The number of samples are 300 participants that have annual salary in three range. The sampling method in this study using stratified sampling method to represent population. The number of male respondents in this survey is 160. Meanwhile total number of female respondents is 140.

Table 1: Descriptive statistics for respondents

Salary range (USD)	Male	Female	Total
7,000-12,000	45	55	100
13,000-18,000	50	50	100
19,000 and above	65	35	100
Total	160	140	

3.2 Reliability, validity and measurement of variables.

During confirmatory factor analysis (CFA), this study focused on root means square error of approximation RMSEA for model fit checking. The root means square error of approximation (RMSEA) avoids issues of sample size by analyzing the discrepancy between the hypothesized model, with optimally chosen parameter estimates, and the population covariance matrix. The RMSEA ranges from 0 to 1, with smaller values indicating better model fit.

The absolute measure of fit is based on the non-centrality parameter. The formula for RMSEA is represented by Equation (1).

$$\text{RMSEA} = \frac{\sqrt{\left(\chi^2 - df\right)}}{\sqrt{\left[df\left(N-1\right)\right]}}$$

…… (1)

In Equation (1), the variables are described as follow:

χ^2 : Chi-square statistics value,

df : Degree of freedom for the model,

N : Sample size for observation

The value of RMSEA should be less than 0.08 to make sure the model is fit with data. The RMSEA is considered as parsimony-adjusted index where values closer to 0 represent a good fit. In Equation (1), if χ^2 is less than df , then RMSEA is set to zero.

3.3 Regression and path analysis

Maximum likelihood estimation (MLE) is a method that determines values for the parameters of a model. The parameter values are found such that they maximize the likelihood that the process described by the model produced the data that were actually observed.The derivation of maximum likelihood estimation (MLE) follow this procedure. Let $X_1, X_2, ..., X_n$ be a random sample from a distribution that depends on one or more unknown parameters $\theta_1, \theta_2, ..., \theta_m$ with probability density (or mass) function $f\left(x_i; \theta_1, \theta_2, ..., \theta_m\right)$. Suppose that $\left(\theta_1, \theta_2, ..., \theta_m\right)$ is restricted to a given parameter space Ω . Then:

(a) When regarded as a function of $\theta_1, \theta_2, ..., \theta_m$, the joint probability density (or mass) function of $X_1, X_2, ..., X_n$:

$$L\left(\theta_1, \theta_2, ..., \theta_m\right) = \prod_{i=1}^{n} f\left(x_i; \theta_1, \theta_2, ..., \theta_m\right)$$

……... (2)

In Equation (2), ($\left(\theta_1, \theta_2, ..., \theta_m\right)$ in Ω) is called likelihood function.

(b)Next, consider $\left[u_1\left(x_1, x_2, ..., x_n\right), u_2\left(x_1, x_2, ..., x_n\right), ..., u_m\left(x_1, x_2, ..., x_n\right)\right]$ as m-tuple that maximize the likelihood function, then:

$$\hat{\theta}_i = u_i\left(X_1, X_2, ..., X_n\right)$$

……. (3)

In Equation (3), $\hat{\theta}_i$ is the maximum likelihood estimator of θ_i for $i = 1, 2, ..., m$.

The goal of maximum likelihood estimation is to find the values of the model parameters that maximize the likelihood function over the parameter space. Next, the maximum likelihood estimator is an extremum estimator obtained by maximizing, as a function of θ , the objective function for maximum likelihood is described in Equation (4) for data are independent and identically distributed.

$$\hat{l}\left(\theta; x\right) = \frac{1}{n}\sum_{i=1}^{n} \ln f\left(x_i \middle| \theta\right)$$

……..… (4)

Equation (4) is being the sample analogue of the expected log-likelihood $l(\theta) = \mathrm{E}\left[\ln f\left(x_i|\theta\right)\right]$,where this expectation is taken with respect to true density.
The advantages of maximum likelihood estimation (MLE) can be classify to three main points. The first part is MLE provides a consistent approach which can be developed for a large variety of estimation situations. The MLE also is considered as unbiased estimator where if the average data from a lot of random samples with replacement, theoretically, it will equal to the popular mean. Next the MLE shows variance is really small that narrow down the confidence interval. Therefore, the advantage of the specific MLE procedures is that greater efficiency and better numerical stability can often be obtained by taking advantage of the properties of the specific estimation problem. The specific methods often return explicit confidence intervals.

4. RESULTS AND DISCUSSIONS

The objective of this study is to evaluate the correlation of four exogenous latent constructs namely brand equity, culture, social and quality with endogenous latent construct namely customer intention to visit destination of halal eco-tourism. This study implemented pooled confirmatory factor analysis (CFA) to assess validity and reliability of measurement model. Confirmatory factor analysis (CFA) is a multivariate statistical procedure that is used to test how well the measured variables represent the number of constructs.

4.1 Pooled Confirmatory Factor Analysis (CFA)

Figure 2 shows measurement model for evaluating customer intention to visit destination of halal eco-tourism. There are four exogenous latent constructs namely brand equity, culture, social and quality. There are ten items for each of the exogeneous latent construct. In addition, there is one endogenous latent construct namely customer intention to visit destination of halal eco-tourism. The endogenous latent construct was developed using ten items.

In measurement model of Figure 2, the fitness indexes are shown in Table 1. There are three indexes of model fit that indicates absolute fit, incremental fit and parsimonious fit. Table 1 shows the absolute fit and incremental fit do not meet the required level for model fit. However, parsimonious fit already achieved the required level. Therefore, the measurement model in Figure 2 need modification according to modification index values.

Table 1: Model fit indexes for measurement model

Name of category	**Name of index**	**value**	**Acceptance level**	**Comments**
1. Absolute fit	RMSEA	0.104	RMSEA< 0.08	The required level is not achieved
2. Incremental fit	CFI	0.878	CFI > 0.90	The required level is not achieved
3.Parsimonious fit	Chi-square/df	4.259	Chi square/ df <5.0	The required level is achieved

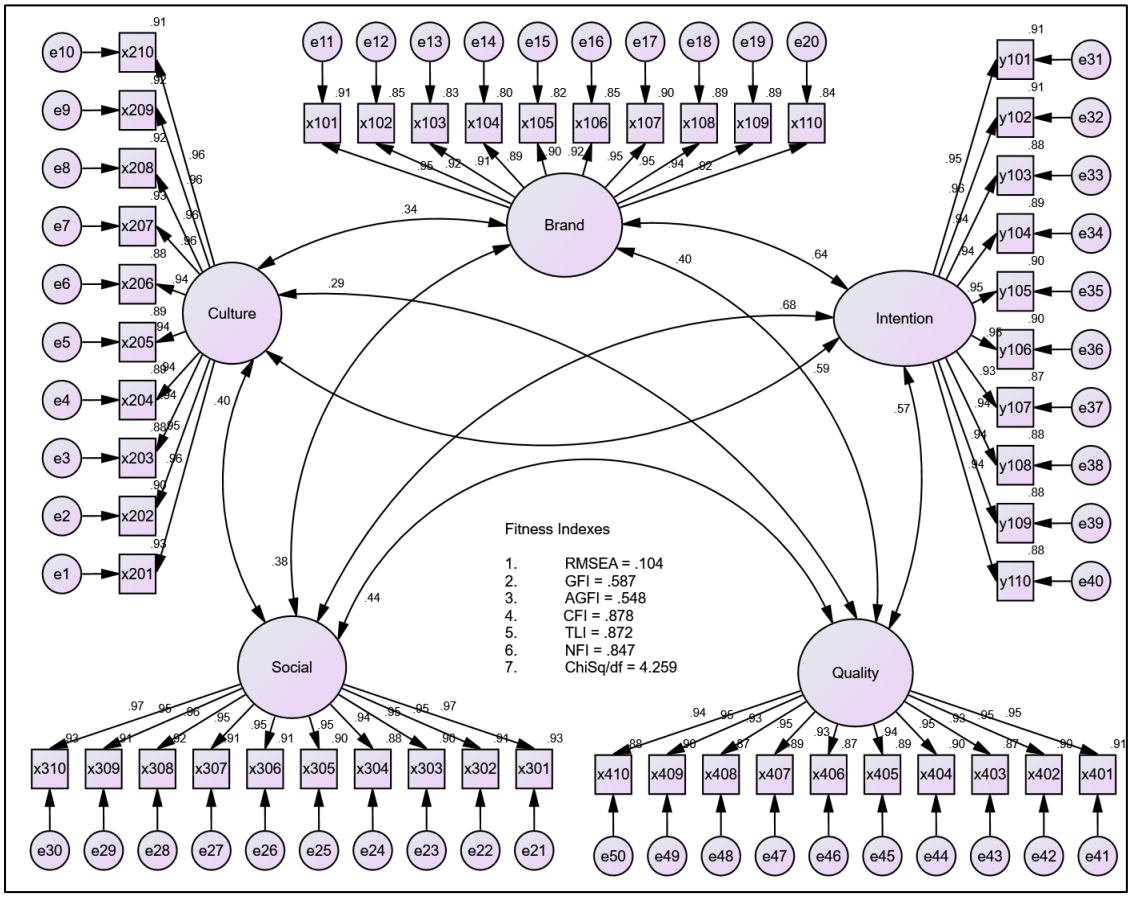

Figure 2. Measurement model for first stage of confirmatory factor analysis

Next, this study deleted four items for each construct according to modification index. The function of deleting items is to increase model fit for measurement model. The model re-specification model was performed with considering correlation among error of items. High modification indicates the errors are correlated and need some modifications. The modification of correlated errors is using two ways whether deleted the respected items or set as free parameters. Figure 3 shows the second stage of confirmatory factor analysis for measurement model. In the measurement model, each construct has six items.

Figure 3 shows factor loading for items of exogenous latent constructs are larger than 0.65. Therefore, this indicates measurement model in Figure 3 shows unidimensional characteristics for each of exogenous latent construct. In the same time, unidimensional characteristics also examined for endogenous latent construct. The endogenous latent construct is customer intention to visit destination of halal eco-tourism. All of factor loading for endogenous latent construct is larger than 0.65, that indicates uni-dimensionality requirement is achieved.

Then, this study evaluated the model fit using three types of indices. Table 2 shows absolute fit using Root Mean Square Error of Approximation (RMSEA). The value of RMSEA is 0.084 which is larger than 0.08. Therefore, measurement model is not fit with actual data. Next, this study performed incremental fit using Comparative Fit Index (CFI). The value of CFI is 0.948, that indicates the fit in question is better compared to the independence model. This study also performed parsimonious fit using Chi-square/degree-of-freedom. The value of parsimonious fit is 3.112 that less than required level. Therefore, measurement model in Figure 2 is parsimonious model. Parsimonious models are simple models with great explanatory predictive power. They explain data with a minimum number of parameters, or predictor variables.

Table 2: Model fit indexes for second stage of confirmatory factor analysis

Name of category	Name of index	value	Acceptance level	Comments
1. Absolute fit	RMSEA	0.084	RMSEA< 0.08	The required level is not achieved
2. Incremental fit	CFI	0.948	CFI > 0.90	The required level is achieved
3.Parsimonious fit	Chi-square/degree-of-freedom	3.112	Chi square/ df <5.0	The required level is achieved

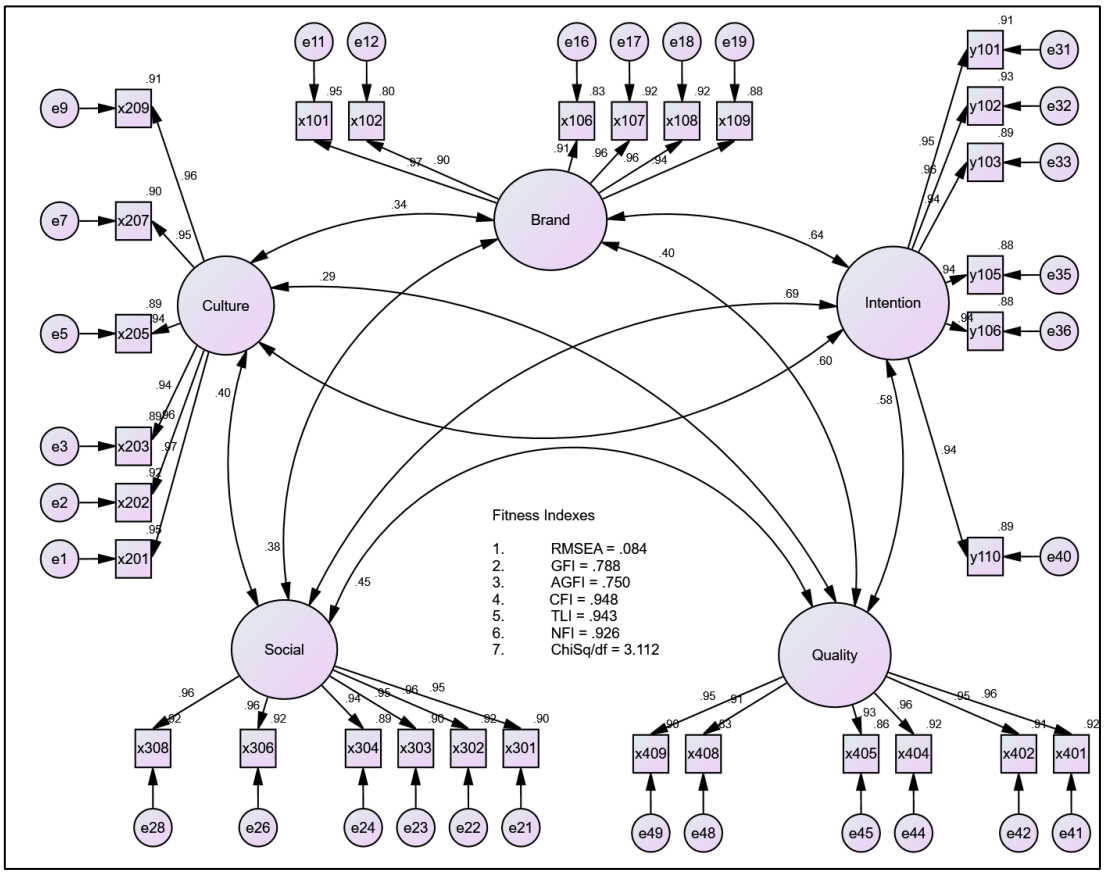

Figure 3. Measurement model in second stage of confirmatory factor analysis for pooled model.

Next, to improve second stage of confirmatory factor analysis, this study deleted items with correlated errors that show high value of modification index. Figure 4 shows measurement model in third stage of confirmatory factor analysis for pooled model. In stage three, all latent constructs are represented by three items.

Table 3 indicates model fit indexes for third stage of confirmatory factor analysis. There are three types of model fit indices. The absolute fit is represented by Root Mean

Square of Error Approximation (RMSEA) and Goodness of Fit Index (GFI). The value of RMSEA is 0.029 and GFI is 0.959, both of this fitness index is achieved required level. Therefore, the measurement model shows good fit between the hypothesized model and the observed covariance matrix.

The incremental fit is represented by four types of index namely Adjusted Goodness of Fit (AGFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI) and Normed Fit Index (NFI). The value AGFI is 0.938, CFI is 0.997, TLI is 0.996 and NFI is 0.985. The value for incremental index are meet with requirement level of model fitness. The incremental fit index shows the fit in question is better compared to the independence model.

The parsimonious model fitness index is represented using ratio of chi-square value over degree-of-freedom. The parsimonious index is set adjustments to penalize models that are less parsimonious, so that simpler theoretical processes are favored over more complex ones. The more complex the model, the lower the fit index. Table 3 shows parsimonious is 1.247 that meet requirement level for model fitness.

Table 3: Model fit indexes for third stage of confirmatory factor analysis

Name of category	**Name of index**	**value**	**Acceptance level**	**Comments**
1. Absolute fit	RMSEA	0.029	RMSEA< 0.080	The required level is achieved
	GFI	0.959	GFI > 0.900	The required level is achieved
2. Incremental fit	AGFI	0.938	AGFI > 0.900	The required level is achieved
	CFI	0.997	CFI > 0.900	The required level is achieved
	TLI	0.996	TLI > 0.900	The required level is achieved
	NFI	0.985	NFI > 0.900	The required level is achieved
3.Parsimonious fit	Chi-square/degree-of-freedom	1.247	Chi square/ df < 5.0	The required level is achieved

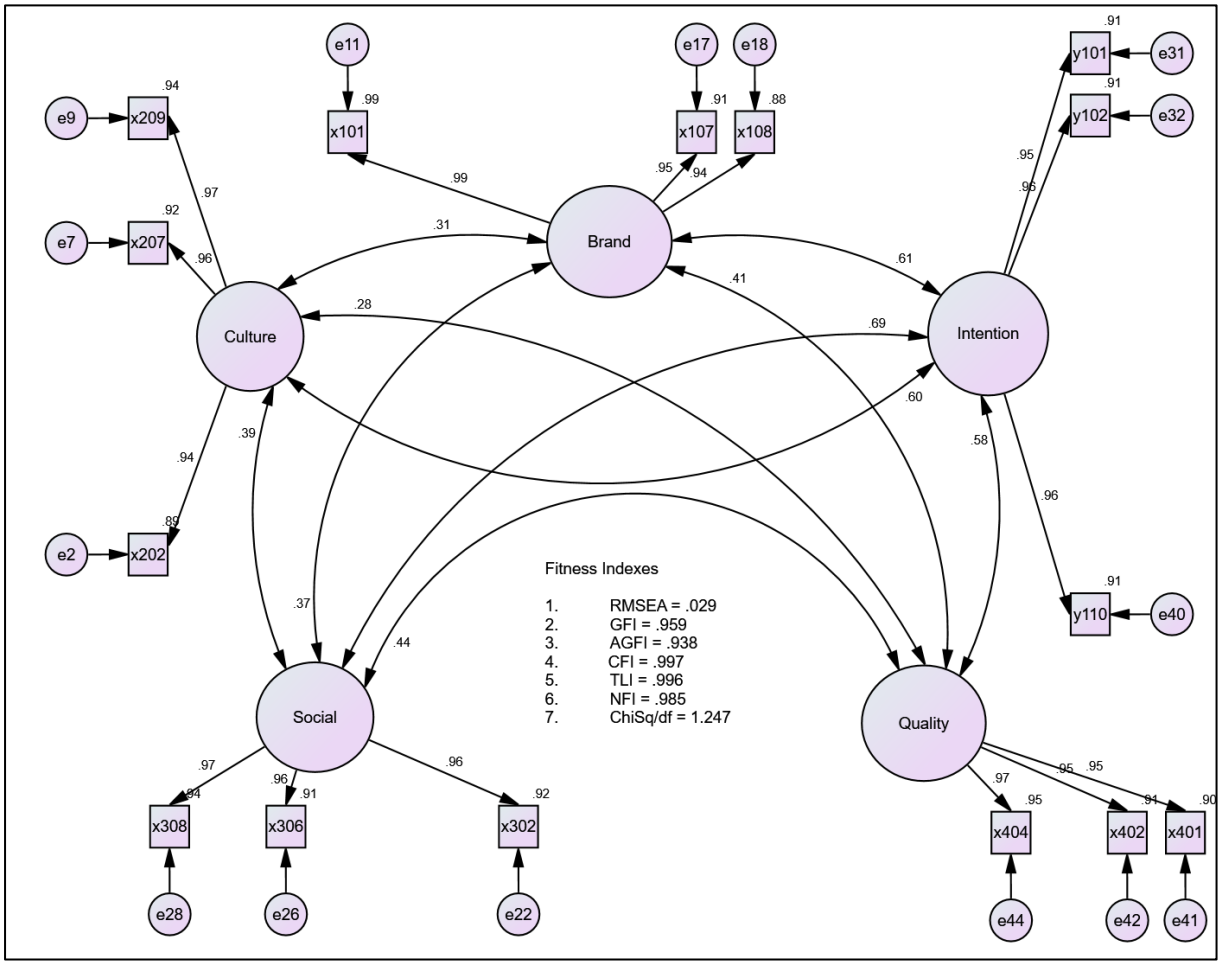

Figure 4. Measurement model in third stage of confirmatory factor analysis for pooled model.

Figure 3 contributes the measurement model that meet requirement of absolute fit, incremental fit and parsimonious fit as shown in Table 3. Therefore, measurement model in Figure 3 is suitable for assessing causal relationship between four exogenous latent constructs with one endogenous latent construct. The measurement need to be evaluated for unidimensional characteristic, validity and reliability.

Unidimensional characteristic is the quality of measuring a single construct, trait, or other attribute. In this study, the measurement model in Figure 3, indicates all of factor loading for items for each construct is larger than 0.65. Therefore, the measurement model in Figure 3 achieved unidimensional requirement.

Then, this study evaluated validity of measurement model for assessing customer intention to visit destination of halal eco-tourism. The Cronbach Alpha (CA) is a measure of internal consistency that indicates relationship of consistency for a set of items considered as a group. The Cronbach Alpha for four exogenous latent constructs and one endogenous latent construct is higher than requirement level that indicates internal consistency for scale is meet with requirement for measurement model.

Next, this study evaluated construct validity for validating the degree to which inferences can legitimately be made from the operationalizations in study to the theoretical constructs on which those operationalizations were based. The values of construct reliability are higher than 0.6 for five constructs of brand equity, culture, social, quality and customer intention. Therefore, all five latent constructs are addressed the extent of empirical measure effectively to the theoretical domain to which it is related.

Then, average variance extracted (AVE) is a measure of the amount of variance that is captured by a construct in relation to the amount of variance due to measurement error. Table 4 shows value of average variance (AVE) extracted for five latent constructs are over than requirement level. Referring to brand equity, the average percentage of variation explained by items in a construct is 92.2 percentages. The exogenous latent variable of culture factor indicates average percentage variation explained by items is 91.5 percentages. Next, social endogenous factor shows average percentage of variation explained by the items is 92.8 percentages that shows all items is sufficient to measure construct. The quality factor has average 91.5 percentages of variation that explained by related items. Meanwhile, the customer intention for endogenous latent construct has 91.5 percentages of variation that constructed by related items.

As conclusion, the confirmatory factor analysis shows measurement model has good internal reliability with all value of Cronbach alpha is larger than 0.5 for four exogenous latent constructs and one endogenous latent construct. Next, the measurement model in Figure 3 has meet requirement level of construct reliability with value of construct reliability are larger than 0.6. Then, measurement model also indicates good model structural for all latent constructs with value of average variance extracted meet the specified value of 0.5.

Next, this study performed discriminant validity to test measurement model validity. The discriminant validity is divergent validity tests whether concepts or measurements that are not supposed to be related are actually unrelated. The discriminant validity assessment has the goal to ensure that a reflective construct has the strongest relationships with its own indicators. Table 5 shows discriminant validity for measurement model in Figure 3. The diagonal values (in bold) are the square root of average variance extracted (AVE) while other values are the correlation between respective constructs. The discriminant validity for measurement model was achieved because all diagonal value in bold higher than values in row and columns. Therefore, measurement model in Figure 3 indicates that a reflective construct has the strongest relationships with its own indicators.

Table 4: Confirmatory factor analysis for four exogeneous latent constructs and one endogenous latent construct

Construct	Item	Factor Loading	Cronbach Alpha Requirement: above 0.7	Construct Reliability (CR) Requirement: above 0.6	Average Variance Extracted (AVE) Requirement: above 0.5
Brand equity (X1)	x101	0.99	0.974	0.973	0.922
	x107	0.95			
	x108	0.94			
Culture (X2)	x202	0.94	0.969	0.970	0.915
	x207	0.96			
	x209	0.97			
Social (X3)	x302	0.96	0.972	0.975	0.928
	x306	0.96			
	x308	0.97			
Quality (X4)	x401	0.95	0.972	0.970	0.915
	x402	0.95			
	x404	0.97			

Customer Intention (Y1)	y101	0.95	0.969	0.970	0.915
	y102	0.96			
	y110	0.96			

Table 5: Discriminant Validity

Construct	Brand equity (X1)	Culture (X2)	Social (X3)	Quality (X4)	Customer Intention (Y1)
Brand equity (X1)	**0.960**				
Culture (X2)	0.310	**0.957**			
Social (X3)	0.370	0.391	**0.963**		
Quality (X4)	0.407	0.282	0.442	**0.957**	
Customer Intention (Y1)	0.610	0.598	0.687	0.580	**0.957**

Next, this study evaluated normality distribution for each of items that involved in measurement model. Figure 3 shows the assessment of normality for data in measurement model. The two elements for assessing normality of data distribution are skewness and kurtosis characteristic. The first element is skewness character that reflect normality assessment for every item with value should be between -1.0 to 1.0 to indicate normal distribution. Table 6 shows minimum value is -0.164 and maximum value is 0.142. Therefore, these values indicate items that involved in measurement model is follow normal distribution.

Next, the second element for assessing normal distribution is kurtosis characteristics. The kurtosis is a statistical measure used to describe the degree to which scores cluster in the tails or the peak of a frequency distribution. The values for asymmetry and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution. Table 6 shows minimum value of kurtosis is -0.545 and maximum value of kurtosis is 0.213. These values indicate all items in measurement model contributes to a normal distribution of data.

In multivariate analysis, another parameter need to be focus is normality for multivariate distribution. In this study, the assessment of multivariate normality is assessing by look into multivariate kurtosis. The requirement value of multivariate kurtosis for normal distribution of measurement model with minimum three construct should be lower than 50.0 to indicates normality data distribution. Table 6 shows multivariate kurtosis value is 39.001 that is less than required level. Therefore, this concludes the distribution of multivariate in measurement model is follow normal distribution.

Table 6: Multivariate normality evaluation

Variable	min	max	skewness	Critical ratio	kurtosis	Critical ratio
x101	3	9	0.142	1.006	-0.418	-1.48
x107	3	9	0.115	0.813	-0.531	-1.878
x108	3	8	0.038	0.271	-0.348	-1.231
x202	2	9	0.016	0.114	-0.522	-1.845
x207	2	9	-0.160	-1.129	-0.204	-0.721
x209	2	9	0.092	0.651	-0.28	-0.989
x302	3	10	-0.164	-1.163	-0.525	-1.855
x306	3	10	0.101	0.713	-0.239	-0.846
x308	3	9	-0.002	-0.013	-0.535	-1.893

x401	4	10	0.126	0.889	-0.284	-1.003
x402	3	10	-0.055	-0.391	-0.248	-0.876
x404	3	10	-0.09	-0.636	-0.341	-1.204
y101	4	10	0.074	0.521	-0.545	-1.925
y102	4	10	-0.042	-0.296	-0.105	-0.37
y110	4	10	-0.03	-0.209	0.213	0.753
Multivariate					**39.001**	**14.956**

4.2 Causal path of structural equation modelling

In this section, this study elaborated the causal relationship using structural equation modelling. In the same time, this study discussed hypothesis testing for each of causal relationship for structural equation modelling. This study performed unstandardized and standardized analysis to calculate relationship coefficients, factor loading, relationship strength, error variance and variance in measurement error.

Figure 4 shows standardized regression model using structural equation modelling. Referring to structural equation modelling, the fitness indexes were calculated to show adequacy of fitness for data with regression modelling. Table 7 shows the model fitness of path analysis for structural equation modelling.

There are three types of model fit indices. The absolute fit is represented by Root Mean Square of Error Approximation (RMSEA) and Goodness of Fit Index (GFI). The value of RMSEA is 0.029 and GFI is 0.959, both of this fitness index is achieved required level. Therefore, the measurement model shows good fit between the hypothesized model and the observed covariance matrix. The incremental fit is represented by four types of index namely Adjusted Goodness of Fit (AGFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI) and Normed Fit Index (NFI). The value AGFI is 0.938, CFI is 0.997, TLI is 0.996 and NFI is 0.985. The value for incremental index are meet with requirement level of model fitness. The incremental fit index shows the fit in question is better compared to the independence model. The parsimonious model fitness index is represented using ratio of chi-square value over degree-of-freedom. The parsimonious index is set adjustments to penalize models that are less parsimonious, so that simpler theoretical processes are favored over more complex ones. The more complex the model, the lower the fit index. Table 3 shows parsimonious is 1.247 that meet requirement level for model fitness.

Table 7: The Model fitness indexes for path analysis of structural equation modelling

Name of category	**Name of index**	**value**	**Acceptance level**	**Comments**
1. Absolute fit	RMSEA	0.029	RMSEA< 0.080	The required level is achieved
	GFI	0.959	GFI > 0.900	The required level is achieved
2. Incremental fit	AGFI	0.938	AGFI > 0.900	The required level is achieved
	CFI	0.997	CFI > 0.900	The required level is achieved
	TLI	0.996	TLI > 0.900	The required level is achieved
	NFI	0.985	NFI > 0.900	The required level is

				achieved
3.Parsimonious fit	Chi-square/degree-of-freedom	1.247	Chi square/ df < 5.0	The required level is achieved

The path analysis of structural equation modelling in Figure 5 need to be analyzed statistically for causal relationship. Table 8 shows standardized regression weights for causal path in structural equation modelling. The multiple regression analysis for customer intention to visit destination of halal eco-tourism can be represented using Equation (5).

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e \quad \ldots\ldots (5)$$

In Equation (5), the parameters are described as follow:

Y : Endogenous latent construct namely customer intention to visit destination of halal eco-tourism

β_0 : Intercept value of regression analysis

X_1 : First exogeneous latent construct namely brand equity

β_1 : Regression weight for brand equity factor

X_2 : Second exogeneous latent construct namely culture

β_2 : Regression weight for culture factor

X_3 : Third exogeneous latent construct namely social

β_3 : Regression weight for social factor

X_4 : Fourth exogeneous latent construct namely quality

β_4 : Regression weight for quality factor

Table 8 indicates standardized regression weights for causal path. From Table 8, the regression equation can be expressed as Equation (6).

$$Y = \beta_0 + 0.294 X_1 + 0.304 X_2 + 0.366 X_3 + 0.213 X_4 + e \quad \ldots\ldots (6)$$

Equation (6) indicates when exogenous latent construct of brand equity is increased by one standard deviation, the endogenous latent construct increases by 0.294 standard deviation. Next, regression analysis in Equation (2) shows when exogenous latent construct increases by one standard deviation, the customer intention increases by 0.304 standard deviation. Then, increments in one standard deviation of social factor contributes to increments of endogenous variables for 0.366 standard deviations. In addition, when quality of destination is increase by one standard deviation, customer intention also increases by 0.213 standard deviations.

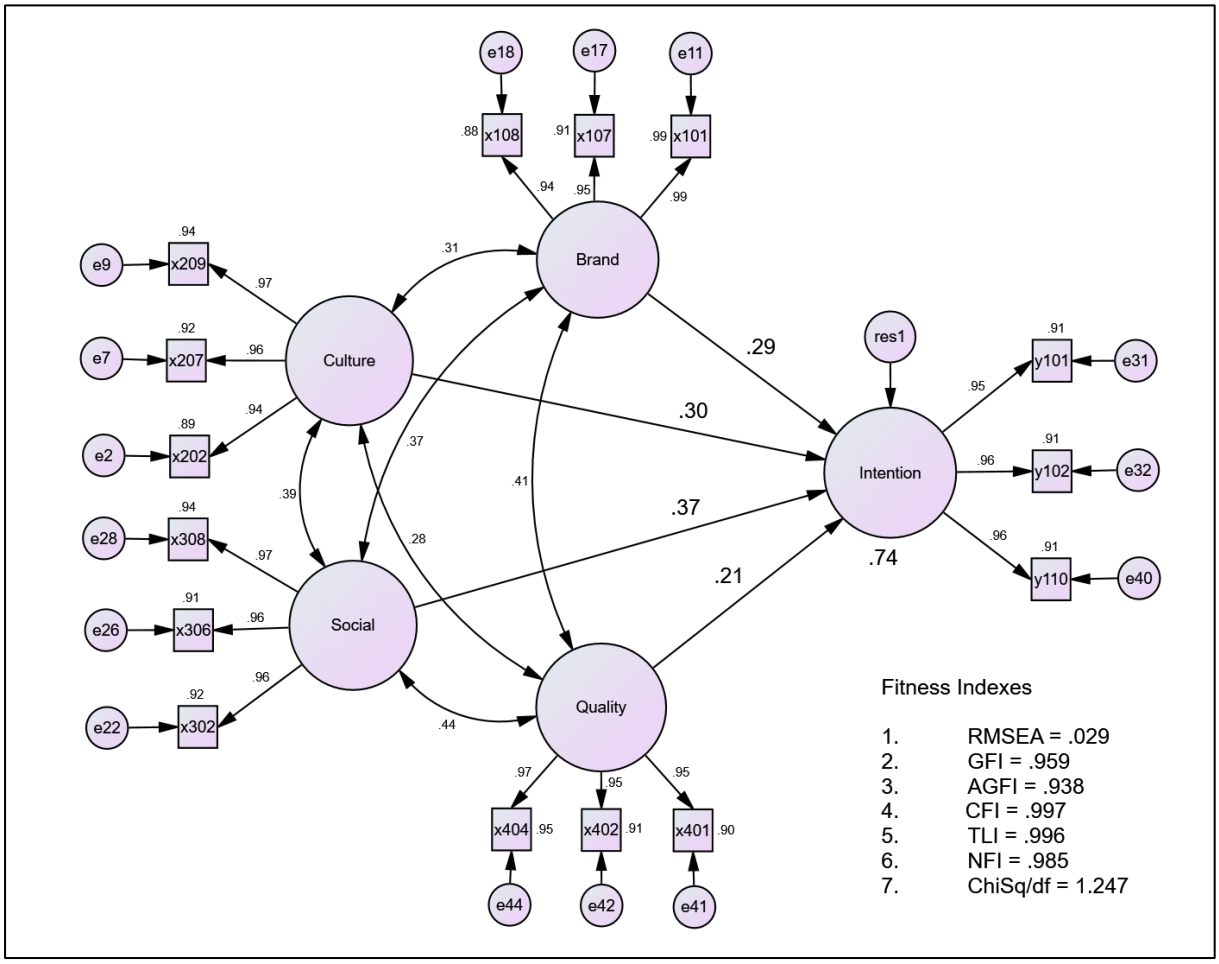

Figure 5. Standardized regression model using structural equation modelling.

Table 8: Standardized regression weights for causal path

Path (From)	Direction	Path (To)	Standardized beta estimate (regression coefficient)
Brand	→	Customer Intention	0.294
Culture	→	Customer Intention	0.304
Social	→	Customer Intention	0.366
Quality	→	Customer Intention	0.213

Next, this study evaluated the squared multiple correlation of regressors to the endogenous latent construct. R-squared value is a statistical measure that represents the proportion of the variance for a dependent variable that is explained by independent variables of a regression model. Figure 4 shows exogenous predictors explain 74 percentage of variance for endogenous latent construct namely customer intention to visit destination of halal eco-tourism.

Then, this study checked multicollinearity among exogenous latent constructs. Table 9 shows the strength of correlation relationship between exogenous latent constructs. Table 9 indicates correlation coefficient among exogenous latent constructs are lower than 0.5. Therefore, all four-exogenous latent construct are free from severe multicollinearity problem. The multicollinearity problem is not significant among all exogenous latent constructs in structural equation modelling of Figure 4.

Table 9: Coefficient for correlational path between exogenous latent construct

Path (From)	Direction	Path (To)	Correlation coefficient	Multicollinearity
Brand	↔	Culture	0.310	Not significant
Brand	↔	Social	0.370	Not significant
Brand	↔	Quality	0.407	Not significant
Culture	↔	Social	0.391	Not significant
Culture	↔	Quality	0.282	Not significant
Social	↔	Quality	0.442	Not significant

4.3 Hypothesis testing for causal effect using unstandardized structural equation modelling

The framework for structural equation modelling involving four hypotheses as shown in Table 10. Hypothesis testing is the use of statistics to determine the probability that a given hypothesis is true. The process of hypothesis testing consists of four steps as below:

(i) Formulate the null hypothesis H_0 and the alternative hypothesis H_a.

(ii) Identify a test statistic that can be used to assess the truth of the null hypothesis.

(iii) Compute the p-value, which is the probability that a test statistic at least as significant as the one observed would be obtained assuming that the null hypothesis were true. The smaller the p-value, the stronger the evidence against the null hypothesis.

(iv) Compare the p-value to an acceptable significance value alpha, α . If $p \le \alpha$, that the observed effect is statistically significant, the null hypothesis is ruled out, and the alternative hypothesis is valid.

Table 10: Hypothesis statement for causal path in structural equation modelling

Hypothesis	Hypothesis Statement
H_1	The brand equity has a significant and positive effect on the customer intention to visit destination of halal eco-tourism
H_2	The culture has a significant and positive effect on the customer intention to visit destination of halal eco-tourism
H_3	The social has a significant and positive effect on the customer intention to visit destination of halal eco-tourism
H_4	The quality has a significant and positive effect on the customer intention to visit destination of halal eco-tourism

In evaluating the hypothesis testing in this study, unstandardized regression weight analysis need to performed. Figure 5 shows unstandardized regression weight for causal path in structural equation modelling. The value of actual beta is shown in Table 11. The hypothesis testing for this study were carried using t-test. A t-test is a type of inferential statistic used to determine if there is a significant difference between the means of two groups. The t-test is one of many tests used for the purpose of hypothesis testing in statistics.

Table 11 indicates the regression weight for brand equity to customer intention is 0.306. The actual beta indicates when brand equity increases by one unit, customer intention increases by 0.306 unit. Standard error for brand equity is 0.039 with critical ratio is 7.917. The regression weight for brand equity in prediction of customer intention is significantly different from zero at 0.001 level of two-tailed test. It is concluded that the brand equity has a significant and positive effect on the customer intention to visit destination of halal eco-tourism.

Next, the second exogenous latent construct is culture. The regression weight of culture is 0.274. This value indicates increment of one unit in culture creates increment in

customer intention for 0.274 unit. Standard error for culture factor is 0.033 with critical ratio is 8.229. The regression weight for culture factor in prediction of customer intention is significantly different from zero at 0.001 level of two-tailed test. It is concluded that the culture factor has a significant and positive effect on the customer intention to visit destination of halal eco-tourism.

Then, the third exogenous latent construct is social factor. The regression weight of social factor is 0.319. This value indicates increment of one unit in social factor creates increment in customer intention for 0.319 unit. Standard error for social factor is 0.034 with critical ratio is 9.251. The regression weight for social factor in prediction of customer intention is significantly different from zero at 0.001 level of two-tailed test. It is concluded that the social factor has a significant and positive effect on the customer intention to visit destination of halal eco-tourism.

Then, the fourth exogenous latent construct is quality factor. The regression weight of quality factor is 0.208. This value indicates increment of one unit in quality factor creates increment in customer intention for 0.208 unit. Standard error for social factor is 0.038 with critical ratio is 5.533. The regression weight for quality factor in prediction of customer intention is significantly different from zero at 0.001 level of two-tailed test. It is concluded that the quality factor has a significant and positive effect on the customer intention to visit destination of halal eco-tourism.

Figure 6 shows error variance for residual of endogenous latent construct is 0.40. Error variance usually indicates how much random fluctuation is expected within scores and often forms part of the denominator of test statistics, such as the F ratio in an analysis of variance. Error variance is the element of variability in a score that is produced by extraneous factors. The error variance for structural modelling in this study is in acceptable range to consider the model is accurate.

Table 11: Hypothesis testing using unstandardized regression weights

Endogenous construct	Direction of relationship	Exogenous construct	The actual beta value	Standard error (S.E.)	Critical ratio (C.R.)	Probability value (p-value)
Customer Intention	←	Brand Equity	0.306	0.039	7.917	***
Customer Intention	←	Culture	0.274	0.033	8.229	***
Customer Intention	←	Social	0.319	0.034	9.251	***
Customer Intention	←	Quality	0.208	0.038	5.533	***

*** indicate a highly significant with p-value less than 0.001 ($p < 0.001$)

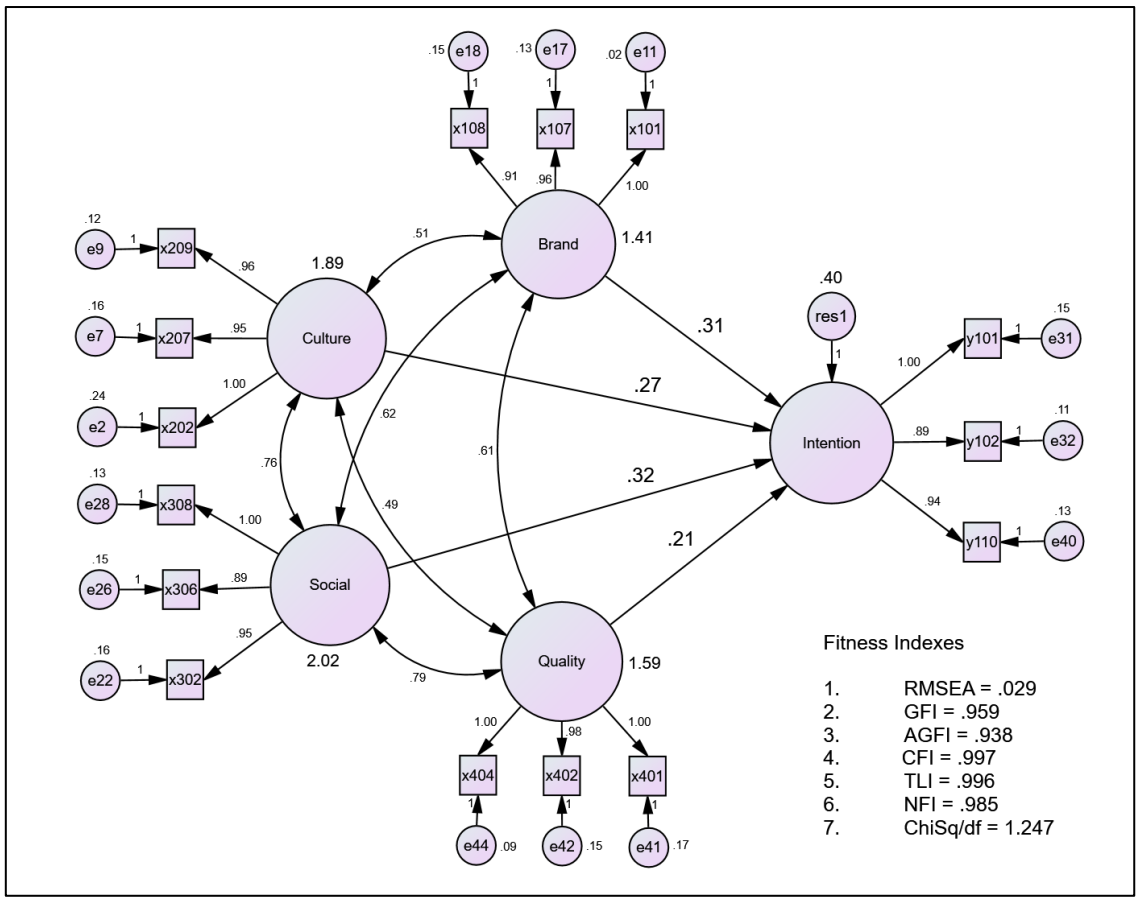

Figure 6. Unstandardized regression model for measuring actual regression weight and error variance.

Next, this study evaluated the standardized residual covariance for each of items in structural equation modelling. The standardized residual covariance calculate difference between sample covariance and model-implied covariance. Residual covariance indicates the discrepancies between the proposed and estimated models. In addition, residual covariance evaluates whether or not those discrepancies are significant. A significant standardized residual covariance is one with an absolute value greater than 2.00. Significant residual covariances significantly decrease developed model fit. Table 12 shows standardized residual covariance for structural modelling in Figure 5. Table 5 shows all value of standardized residual covariance is less than 2.00. Therefore, the model is accurate with residual covariance is not significant. It is implying the difference between sample covariance and model in structural equation modelling is not significant. The model developed in Figure 5 is reliable from perspective of residual covariance.

Table 12: The standardized residual covariance

	x404	x402	x401	y110	y102	y101	x308	x306	x302	x108	x107	x101	x209	x207	x202
x404	0.000														
x402	0.003	0.000													
x401	-0.007	0.006	0.000												
y110	-0.059	-0.267	-0.04	0.000											
y102	0.039	-0.132	0.078	0.043	0.000										
y101	0.181	-0.065	0.189	0.01	-0.055	0.000									
x308	0.002	0.268	0.215	0.186	0.002	-0.146	0.000								
x306	-0.264	0.214	0.053	-0.017	-0.078	-0.413	0.009	0.000							
x302	-0.315	0.12	-0.009	0.263	0.029	0.103	-0.009	0.001	0.000						
x108	0.226	-0.367	0.248	-0.124	0.356	0.951	0.569	-0.01	0.504	0.000					
x107	-0.053	-0.387	0.06	-0.162	0.037	0.602	0.22	-0.34	0.086	-0.041	0.000				
x101	0.057	-0.309	0.263	-0.442	-0.091	0.394	0.191	-0.408	0.006	0.002	0.002	0.000			
x209	-0.076	0.076	0.587	-0.405	0.107	0.227	0.028	-0.427	-0.141	0.318	-0.148	-0.129	0.000		
x207	-0.472	-0.136	0.105	-0.386	0.116	-0.016	0.313	-0.193	0.183	0.081	-0.433	-0.472	0.005	0.000	
x202	-0.091	0.24	0.219	-0.163	0.329	0.391	0.283	-0.29	0.263	1.139	0.771	0.718	-0.003	-0.005	0.000

5. CONCLUSION

The objective of this study is to evaluate strength of relationship of four exogenous latent constructs (brand equity, culture, social and quality) to one endogenous latent construct (customer intention to visit destination of halal eco-tourism). The main findings for this study are described as follow:

a. Confirmatory factor analysis for all five latent constructs are evaluated using three types of model fit indices. After deleting seven items for each of construct, the three types of model fit indices are meet the requirement level. Three model fit indices are absolute fit, incremental fit and parsimonious fit. The absolute model fit index is represented by Root Mean Square of Error Approximation (RMSEA) with value of 0.029 that is less than 0.080. Therefore, the implied structural equation modelling is meet with requirement of absolute fit. Next, incremental model fit index is represented by Comparative Fit Index (CFI) with value of 0.997 that is larger than required level 0.900. Therefor, structural equation modelling in this study is indicates good fit of the data and the hypothesized model. Next, the parsimonious model fit for structural equation modelling is using Chi-squared divided by degree-of-freedom (Chi-square/df). The value of parsimonious model fit index is 1.247 that is less than required level 5.000. Therefore, parsimonious fit meets the required level of goodness-of-fit for the model to the number of estimated coefficients required to achieve good model fit. The basic objective of parsimonious fit is to diagnose whether model fit is achieved by over fitting data with too many coefficients. Model developed in this study achieved all of three main model fit indices to indicates the structural equation modelling is reliable and robust.

b. The path analysis for analyze the relationship between four exogenous latent constructs and one endogenous latent construct is illustrated in equation below:

$$Y = \beta_0 + 0.294X_1 + 0.304X_2 + 0.366X_3 + 0.213X_4 + e$$

…… (7)

Equation (7) indicates when exogenous latent construct of brand equity is increased by one standard deviation, the endogenous latent construct increases by 0.294 standard deviation. Next, regression analysis in Equation (3) shows when exogenous latent construct increases by one standard deviation, the customer intention increases by 0.304 standard deviation. Then, increments in one standard deviation of social factor contributes to increments of endogenous variables for 0.366 standard deviations. In addition, when quality of destination is increase by one standard deviation, customer intention also increases by 0.213 standard deviations.

c. Next, this study evaluated hypothesis testing for each of exogenous latent construct to endogenous latent construct. First hypothesis testing indicates the brand equity has a significant and positive effect on the customer intention to visit destination of halal eco-tourism. The unstandardized regression weight for brand equity factor is 0.306 with p-value of less than 0.001. Then, second hypothesis testing shows the culture factor has a significant and positive effect on the customer intention to visit destination of halal eco-tourism. The unstandardized regression weight for culture factor is 0.274 with p-value of less than 0.001. Next, the third hypothesis testing indicates social factor has a significant and positive effect on the customer intention to visit destination of halal eco-tourism. The unstandardized regression weight for social factor is 0.319 with p-value of less than 0. 001.Finally, the fourth hypothesis concluded that the quality factor has a significant and positive effect on the customer

intention to visit destination of halal eco-tourism. The unstandardized regression weight for quality factor is 0.319 with p-value of less than 0.001

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