



Original article

Willingness to pay for Halal transportation cost: The Stimulus-organism-response model[☆]

A. H. NGAH^a, HD KIM^b, R.M.HANAFIAH^c, N. H. M. SALLEH^d, J. JEEVAN^e, N.M. ASRI^f.

^a Faculty of Business, Economy and Social Development, Universiti Malaysia Terengganu, Malaysia, hafaz.ngah@umt.edu.my, Corresponding Author

^b College of Future Convergence, Suncheon National University, Korea, hdkim@scnu.ac.kr

^c Department of Maritime Management, Universiti Malaysia Terengganu, Malaysia, rudiah@umt.edu.my,

^d Department of Maritime Management, Universiti Malaysia Terengganu, Malaysia, haqimin@umt.edu.my,

^e Department of Maritime Management, Universiti Malaysia Terengganu, Malaysia, jagan@umt.edu.my

^f Top Fast Logistics Sdn Bhd, bhhasri@gmail.com

Abstract

Halal transportations will ensure that the Halal status of the products will be preserved. Halal certification is believed to increase the operation cost for the transport providers, which reflect the price paid by customers who choose to buy products transported by Halal transportation. Hence, it is worthwhile to investigate the willingness of Muslim consumers to pay extra for the Halal transportation cost. The study aims to identify factors influencing Muslim consumers' attitude towards their willingness to pay for Halal transportation. Using the stimulus-organism-response model, attitude which represents the organism factor will be treated as a mediator for variables representing the stimulus factors and the variable for the response. On the other hand, the study will also

examine the effect of knowledge as a moderating factor. The data was collected from Muslim consumers in Kuala Lumpur. Applying the purposive sampling method with a self-administered survey, 202 respondents agreed to participate in the study. The findings revealed that awareness and perceived behavioural control are a stimulus towards attitude, and attitude is a significant organism on willingness to pay. The study also found that attitude mediates the relationship between awareness and perceived behavioural control towards the willingness to pay for Halal transportation. Additionally, the knowledge has a moderating effect of the relationship between attitude and the willingness to pay. The findings of the study are not only beneficial for the Muslim community in Malaysia, but also the Muslims around the world.

Keywords: SOR, Willingness to pay, Halal transportation

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 Peer review under responsibility of Korea Advanced Institute for International Association of e-Navigation and Ocean Economy

<https://doi.org/10.52820/j.enavi.2019.12.011>

1. Introduction

A Halal supply chain is created solely to fulfil the demand from the Halal industry (Ngah, Zainuddin, & Thurasamy, 2017, p.162). It is observed that the rapid growth of Halal industry around the globe has encouraged many non-Halal manufacturers, either for foods, pharmaceuticals, cosmetics, and other areas of businesses, to become Halal-certified companies to remain competitive in the industry. As a major source of rules and regulations for the Muslims, i.e. followers of Islam, The Holy Quran has specifically described that Muslims should only consume Halal products as well as avoid doubtful and haram sources. This particular religious principle has caused Halal products to take a significant position in the global market.

Nowadays, Halal certification is of considerable importance and there are several bodies around the world that can provide the certification which is mostly led by The Department of Islamic Development Malaysia (JAKIM). The Halal certification procedure will thoroughly inspect the food preparation processes, ingredients, and others aspects to ensure that the entire operation of food production is in accordance with the Islamic dietary law (Hamdan, Issa, Abu, & Jusoff, 2013, p.55). Nevertheless, it should be emphasised that the certification process will require a huge investment (Fathi, Zailani, Iranmanesh, & Kanapathy, 2016, p.466), resulting in higher prices for Halal services (Zailani, Iranmanesh, Aziz, & Kanapathy, 2017; Asri & Ngah, 2018, p.839).

Halal transportation services are also crucial in preserving the quality of Halal products (Ngah & Thurasamy, 2018, p.205). Besides, applying a totally Halal supply chain process is the only way to guarantee the quality of Halal products at the point of consumption (Ngah, Zainuddin, Thurasamy, 2014, p.389). Aligned with the Halal Development Corporation (HDC) (2010), Khan, Najmi, Ahmed, and Aman (2019) have also claimed that not only should the manufacturing process of Halal products abide by the Shariah, but the logistics such as transportation activities should also be Shariah-compliant. Nonetheless, the price increase will have a

considerable negative influence on the willingness to pay for the Halal logistics activities (Iranmanesh, Mirzaei, Parvin Hosseini, & Zailani, 2019). Due to the limited literature in relation to the willingness to pay for Halal services (Fathi et al., 2016 p.466; Iranmanesh et al., 2019; Khan et al., 2019), the present study seeks to address the gap by identifying the factors that influence the Muslims' attitude and their willingness to pay for Halal transportation cost. Through the incorporation of attitude as a mediator and knowledge as a moderator, this research will be beneficial to both the academicians and main players in the Halal industry itself.

Most Halal-related studies have focused on the consumer intention to purchase Halal products (Lada, Harvey Tanakinjal, & Amin, 2009), fundamental of Halal logistics (Tieman, 2013; Omar & Jaafar, 2011), adoption of Halal logistics (Haleem, Imran Khan, Khan, & Ngah Ngah, 2018), implementation of Halal transportation and warehousing (Ngah, Zainuddin, & Thurasamy, 2015; Ngah, Zainuddin, & Thurasamy, 2014a; Ngah et al., 2014), and also Halal integrity (Ali, Tan, Makhbul, & Ngah, 2016). At the individual level, the majority of studies pertaining to Halal industry have either employed the theory of reason action (TRA) or theory of planned behaviour (TPB). Furthermore, the stimulus-organism-response (SOR) theory has been utilised in these studies to understand the willingness to pay for Halal transportation cost among Muslims. Hence, this study intends to identify the effect of awareness and perceived behavioural control (which represent the stimulus) on the attitude (which represents the organism). Additionally, the study also aims to identify the influence of attitude on the willingness to pay, which acts as a response factor for the study. This study further introduces knowledge as a moderating factor to enhance the predictive power of the research model. Not only does this study enrich the existing literature of the Halal industry, but it also provides a more comprehensive understanding of the Halal logistics operations as a whole.

2. Literature Review

The SOR theory was first introduced by Mehrabian and Russell (1974) and it has been widely applied in research to predict consumer behaviour, especially in marketing and management of information system studies. The model of this theory encompasses three stages in total. Stimulus is represented by two variables, namely awareness and perceived behavioural control that will lead to organism, which is represented by attitude, and lastly, response which is represented by WTP. The flexibility of the SOR theory which enables the selection of any variables to be studied provides a greater range of variables that can be incorporated in the study. In conclusion, there are three stages within the model and they are linked logically to be a stimulus, organism, and response factor. It can be deduced that the model fulfils its requirements to be tested in the research.

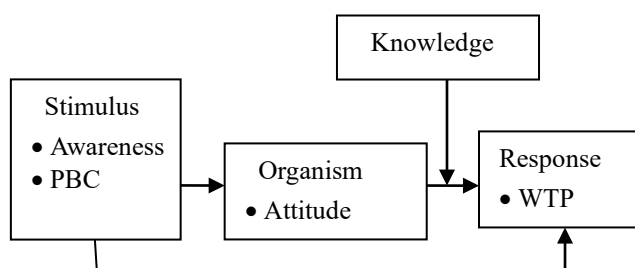


Figure 1: Theoretical Framework
(Source; Authors)

2.1 Willingness to pay (WTP)

Willingness to pay (WTP) in this research is defined as the monetary value that customers are willing to spend in order to mobilise the Halal transportation services. WTP has been previously addressed as an economic term, price-related, or the maximum amount that the users are willing to sacrifice for the goods and services (Jedidi & Zhang, 2003). WTP is a powerful behaviour as it is a realisation of the actual potential behaviour under certain circumstances (Rivis, Sheeran, & Armitage, 2006, p.485). In contrast to intention, it should be noted that not all intentions will be

translated into actual behaviour. Accordingly, instead of intention, WTP is chosen as the exogenous variable of this study. Moreover, Muslim consumers will do their best in order to preserve the Halal quality although it might maybe costly for them (Kamaruddin, Ibrahım, & Shabudin, 2018, p.90).

2.2. Awareness

Awareness can be described as knowledge and understanding of certain issues (Randolp, 2003). In terms of technological adoption, awareness is what is known about the services, but the full information about the services is still lacking (Rogers, 2003). As far as this study is concerned, awareness of the availability of Halal transportation services and the significance of Halal transportation for Halal products will be considered.

Past research has found a positive relationship between awareness and attitude. Furthermore, it has been argued that there will be no changes in the

demand for Halal logistics services if there is a low level of awareness about its' importance in preserving the Halal quality (Alqudsi, 2014). Since it has been proven that awareness can affect consumers' perception and attitude, many firms have employed consumer awareness as one of the essential elements to enhance the consumers' attitudes (Foroudi, 2019). According to Aziz and Chok (2013), awareness has a positive relationship with Muslims' attitudes toward purchasing Halal products. Other research have also confirmed that awareness has a positive influence on attitude (Foroudi, Melewar, & Gupta, 2014; Foroudi, 2019, p.4). Hence, in correlation with the existing literature, the following hypothesis is postulated:

H1: Awareness has a positive relationship with attitude.

2.3. Perceived Behavioural Control (PBC)

Perceived Behavioural Control (PBC) is derived from the classical theory of planned behaviour (TPB) developed by Ajzen (1991). As an extension of the theory of reason action, PBC can be defined as the ease or hardship to execute certain behaviours (Ajzen, 1991). PBC has been identified as a crucial determinant of the attitudes of purchasing Halal products (Alam & Sayuti, 2011, p.15). Moreover, a positive relationship between PBC and the attitudes of hiring persons with disabilities has also been discovered (Magdalene, Ramayah, & Amin, 2015, p.20). Based on this discussion, the second hypothesis of this research is formulated as follows:

H2: PBC is positively related to attitude.

2.4. Attitude

Attitude is a vital variable in determining an individual's behavioural intention and it represents an individual's positive or negative perception towards certain behaviours (Ajzen, 1991). Most studies of Halal issues which measure individual behaviours have also integrated the element of attitude in their research framework.

Research has found that attitude has a positive relationship with the WTP in reducing noise pollution in road transportation (Sánchez, López-Mosquera, Lera-López, & Faulin, 2018, p.150). In terms of the Halal context, it has been discovered that attitude has a positive influence on the Muslims' willingness to pay for certified Halal food products (Iranmanesh et al., 2019). Hence, the next hypothesis is proposed below:

H3: Attitude has a positive influence on WTP for Halal transportation.

2.5. Mediation

The SOR theory has already indicated that the organism, which is represented by an attitude in this study, acts as a mediating factor between the stimulus (Awareness and PBC) and the response (WTP). Hence, the increase in awareness and PBC will be reflected in the positive attitude and will

increase the WTP among Muslim consumers. Based on these considerations, two hypotheses are further proposed:

H4: Attitude mediates the relationship between awareness and WTP for Halal transportation.

H5: Attitude mediates the relationship between PBC and WTP for Halal transportation.

2.6. Moderation

The existence of the moderator variable which is caused by an inconsistency in the literature between predictor and criterion variables demonstrates the model complexity for social sciences. While Sánchez et al. (2018) have found that attitude has a positive relationship with the WTP, Ahmed et al. (2018) argued that attitude was not a significant factor towards WTP. By utilising knowledge as a predictor variable in examining the behavioural intention to purchase Halal products, the study believes that knowledge could be a moderator for the relationship between attitude and WTP. Accordingly, willingness to pay is related to the cognitive elements (Rivis et al., 2006) as well as the knowledge. In this case, knowledge can be defined as the expertise or skills gained through experience within a certain subject area (Che Ahmat, Radzi, Zahari Mohamad, salehuddin Muhammad Muhammad, Aziz, & Ahmad, 2011). Since both variables are related to the cognitive elements, this study strongly believes that knowledge could be a moderator for the relationship between attitude and the willingness to pay for Halal transportation.

It has also been found that knowledge has a positive influence on consumer behaviour, which will enhance the positive relationship between attitude and WTP. Accordingly, the last hypothesis is derived as follows:

H6: The positive relationship between attitude and WTP will be stronger when the knowledge is high.

3. Methodology

The data was collected from January to March 2018 from individuals who visited a popular shopping mall in Kuala Lumpur and Putrajaya. These two areas were purposely selected as the residents come from all over Malaysia. Hence, it is expected that they can represent the Malaysian population. In order to preserve the quality of the data, it has been confirmed that all potential respondents participated in this study on their own accord.

Since the total population was unidentified and the study aimed to examine the theoretical effect, the non-probability sampling method was also permitted (Hulland, Baumgartner, & Smith, 2017; Hafaz Ngah, Thurasamy, Aziz, Ali, & Khan, 2019, p.4) Thus, the application of a purposive sampling method and a self-administrated questionnaire involved 202 individuals out of the initial 300 people being approached. To ensure the representativeness of this research, the data was collected by the enumerators during both weekdays and weekends. Based on G*power 3.1 software, at 80% power, and medium effect size, power of analysis indicated that the study required a minimum of 77 respondents to explain the relationship between variables in the research model. It should be mentioned that all items that were used to measure the constructs were adopted and adapted from previous research. The items included those for attitude and perceived behavioural control (Venkatesh, Brown, & Hoehle, 2012), awareness (Ngah, 2016), knowledge (Abd Rahman, Asrarhaghi, & Ab Rahman, 2015), and WTP (Fathi et al., 2016).

4. Analysis and Findings

The data was processed using Statistical Packages for Social Sciences (SPSS) 22.0 and SmartPLS 3.2.8 (Ringle, Wende, & Becker, 2015) The SPSS 22.0 was particularly used to code and save data, and the SmartPLS

Software was employed to test the hypothesis of the study. Due to the exploratory nature of this study, the Smart PLS is considered as the better software to fulfil the research objective in predicting and explaining the target construct (Hair, Risher, Sarstedt, & Ringle, 2018). The majority of the respondents were female between 18 to 25 years old with a monthly income of less than RM 1,500.

4.1. Measurement model

Based on the suggestion made by previous literature, the two steps approach was adopted in order to test the research hypothesis. The reliability and validity of the items were confirmed by the first step through the confirmation of the convergent validity and discriminant validity. The convergent validity will be confirmed once loading and average variance extracted (AVE) values surpass the threshold value of 0.5 and the composite reliability is higher than 0.7 (Hair et al., 2018; Ngah, Ramayah, Ali, & Khan, 2019). As illustrated in Table 2, the loading values are in the range of 0.659 – 0.944, AVE in between 0.585 – 0.854, and the composite reliability 0.843 – 0.946, which have fulfilled the requirements proposed by Hair et al., (2018). These results suggest that convergent validity is not a problem for the present study.

Table 1: Convergent validity

Construct	Item	Loading	CR	AVE
Attitude	att1	0.921	0.946	0.815
	att2	0.891		
	att3	0.910		
	att4	0.889		
Awareness	aws1	0.853	0.843	0.646
	aws2	0.880		
	aws3	0.659		
Knowledge	knw1	0.824	0.875	0.585
	knw2	0.797		
	knw3	0.689		
	knw4	0.698		

	knw5	0.807		
Perceived	pbcl	0.857	0.897	0.686
Behavioural	pbcl	0.843		
Control	pbcl	0.812		
	pbcl	0.800		
Willingness	wtp1	0.912	0.946	0.854
To Pay	wtp2	0.944		
	wtp3	0.915		

Discriminant validity was the second step being conducted to ensure that the constructs truly differed from other constructs. It has been argued that the discriminant validity is established if the value of the Heterotrait-Monotrait ratio (HTMT) is lower than 0.9 (Franke & Sarstedt, 2018). The result for the HTMT is illustrated in Table 3, confirming the establishment of discriminant validity as all HTMT values are lower than 0.9.

4.2. Structural model.

Before the structural model is assessed, it is vital to ensure that there no issue of the collinearity in the structural model. The variance inflation factor (VIF) that is less than 3.3 (Diamantopoulus & Sigauw, 2006, p.278) indicates that the collinearity is not a severe issue in the study. Hence, since all of the VIF values for this study are lower than 3.3, it can be deduced that the study can proceed with the hypothesis testing. The result of the collinearity test is presented in Table 3.

Table 2: Discriminant Validity

Construct	1	2	3	4
Att 1)				
Awareness 2)	0.487			
Knowledge 3)	0.374	0.292		
PBC 4)	0.668	0.459	0.315	
WTP 5)	0.557	0.263	0.365	0.566

Table 3: Collinearity

Construct	Att	WTP
Att		1.133
Knowledge		1.133
PBC	1.141	
Awareness	1.141	

A bootstrapping procedure with 1000 resamples was employed to test the hypothesis of the study. Out of six hypotheses being tested, three showed a direct effect, two with an indirect effect, and one with a moderating effect. In addition, all hypotheses were supported. Awareness and PBC were found to have a positive relationship with the attitude (Aware → ATT : β = 0.213, t=3.573: P< 0.001, LL = 0.108, UL = 0.304), and (PBC → ATT : β = 0.525, t=7.396: P < 0.001, LL = 0.393, UL = 0.627). Attitude was also discovered to have a positive influence on the WTP (ATT → WTP: β = 0.451, t = 4.967: P < 0.001, LL = 0.2988, UL = 0.587).

Table 4: hypothesis testing for direct effect

H'sis	Beta	T Value	P Value	LL	UL	Result
H1	0.213	3.573	0.001	0.108	0.304	Support
H2	0.525	7.396	0.001	0.393	0.627	Support
H3	0.451	4.967	0.001	0.298	0.587	Support

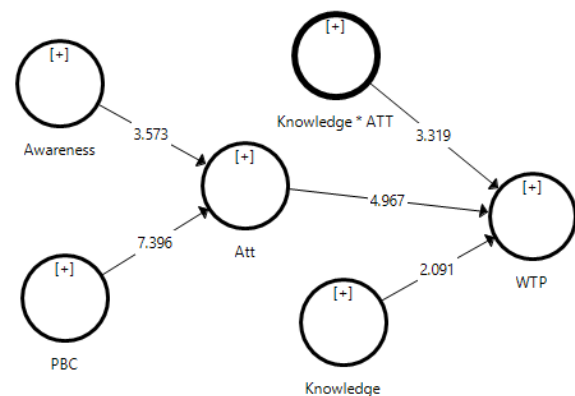


Figure 2: Structural Model

the report of the coefficient of determination (R²), the effect size (f²), and the predictive

relevance (Q^2) of exogenous variables on the endogenous variable is presented in Table 5. The R^2 value is 0.369 for WTP, and 0.400 for attitude, suggesting that awareness and PBC made up 40% of the variance in the attitude. Meanwhile, attitude, knowledge, and the moderation effect have explained 36.9% of the WTP for Halal transportation. The Q^2 for the attitude is 0.302, and 0.286 for WTP which is higher than 0 (Hair et al., 2017), implying that all exogenous variables have a predictive ability towards their endogenous variables. While awareness appears to have a small effect, the PBC is recorded to have a large effect on attitude. In contrast, attitude has a medium effect on WTP.

Table 5: R2, Q2 and f2 Analysis

Construct	R2	Q2	f2	Decision
WTP	0.369	0.286		
Att	0.400	0.302	0.285	Medium
PBC			0.402	Large
Awareness			0.066	Small

The results for the mediation analysis are shown in Table 6. Attitude is found to have a mediation effect between the awareness and WTP (Aware → ATT → WTP: $\beta = 0.525$, $t=7.396$: $P < 0.001$, $LL = 0.393$, $UL = 0.627$), as well as in the relationship between PBC and WTP (PBC → ATT → WTP : $\beta = 0.525$, $t=7.396$: $P < 0.001$, $LL = 0.393$, $UL = 0.627$). Thus, the hypotheses H4 and H5 are supported

Table 6: hypothesis testing for indirect effect

H'sis	Beta	T Value	P Value	LL	UL	Result
H4	0.096	3.447	0.001	0.052	0.160	Support
H5	0.237	3.458	0.001	0.120	0.378	Support

Lastly, for the moderation analysis, hypothesis H6 is supported such that knowledge has been found to have a moderation effect on the relationship between attitude and WTP (ATT*

Knowledge → WTP: $\beta = 0.235$, $t=3.319$: $P < 0.001$, $LL = 0.117$, $UL = 0.335$). The results of the moderation analysis are further illustrated in Table 7. The findings have revealed that the positive relationship between attitude and WTP will become stronger when the knowledge is high. As presented in Dawson's plot in Figure 3, the line with high knowledge label has a steeper gradient in comparison to that of low knowledge. This relationship further implies that once an individual has a higher knowledge of Halal, their WTP also increases due to their understanding of the significance of Halal for the Muslims. Accordingly, the results have further confirmed that knowledge has a moderating effect on the relationship between attitude and WTP for Halal transportation

Table 7: hypothesis testing for moderation effect

H'sis	Beta	T Value	P Values	LL	UL	Result
H6	0.235	3.319	0.001	0.117	0.335	Support

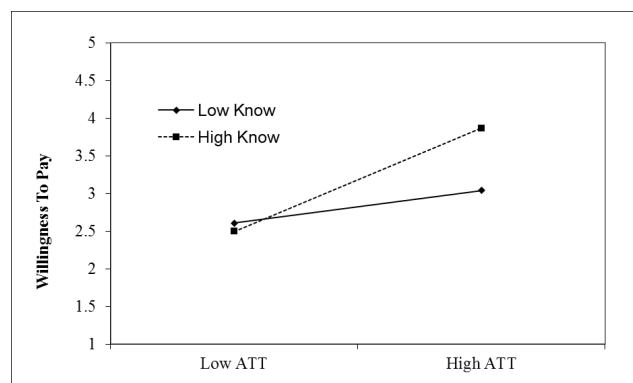


Figure 3. Interaction plot for knowledge as a Moderator

5. Discussion

The study has corroborated the capability of the SOR in explaining the factors which influence the Muslims' attitude and their WTP for Halal transportation. The findings have revealed that PBC has a substantial effect on attitude, meanwhile,

awareness only has a small effect. indicating that PBC has a greater influence on attitude compared to awareness. Contrastingly, attitude has a medium effect on the WTP of Muslim consumers. This result further denotes the importance of attitude on the WTP.

The results have also demonstrated that awareness is positively linked to the Muslims' attitude. The finding correlates with that of previous research conducted by Aziz and Chok (2013), Foroudi et al. (2014), and Foroudi (2019). Hence, it is deduced that the awareness about the Halal transportation services among Muslim consumers will consequently influence their attitudes; the higher the awareness, the greater the effect. The study has also found that PBC is a significant predictor of attitude, supporting the previous research performed by Magdalene et al. (2015). Hence, it indicates that the ease or difficulty to do certain things have a positive relationship with attitudes. Therefore, Halal transportation providers must ensure that it is easy to acquire their services in order to maintain the positive attitude among Muslim consumers.

With regard to the last hypothesis, this study has discovered that attitude has a positive relationship with the WTP. This particular finding correlates with that of the previous studies conducted by Sánchez et al. (2018) and Iranmanesh et al. (2019). This result also confirms that the WTP will increase once Muslim consumers have a positive attitude towards Halal transportation services. Hence, the parties which are involved in the industry should promote and increase the Muslims' understanding of the importance of Halal transportation services in preserving the Halal quality in order to increase their WTP.

For the mediation analysis, the result has depicted that attitude mediates the relationship between awareness and WTP, as well as for the relationship between PBC and WTP. Accordingly, in correlation with past research, this study has also confirmed the capability of attitude as an intermediary variable, supporting the SOR model. As noted in the SOR model, organism (O) factor will mediate the

relationship between stimuli (S) and response (R); awareness and PBC are represented within the model, representing the stimuli factors. Hence, this finding further reinforces the result of previous studies indicating that attitude acts as a mediator to predict behavioural intention for the individual.

With regard to the moderation analysis, knowledge has been found to have a moderation effect on the relationship between attitude and WTP. It has also been argued that knowledge has a significant relationship with the purchase intention of Halal products (Salehuddin & Zahari, 2018). Hence, it is deduced that a high level of knowledge will strengthen the relationship between attitude and the WTP.

6.0. Conclusion

Based on these results, it is expected that this study will contribute both theoretically and practically. In terms of the theoretical aspect, the study enriches the literature pertaining to the issue of WTP, especially in the application of the SOR model. This impact is crucial as the majority of studies which have examined the individual behaviour relies on the TRA and also the TPB. Furthermore, the WTP for Halal transportation has not been extensively investigated since most research has primarily focused on the intention to purchase Halal products.

Through the incorporation of awareness and the PBC in the SOR model in the Halal studies, this research has also confirmed the flexibility of the SOR model in adopting any variables in the formation of the SOR model. Hence, the capability of the SOR model in explaining individual behaviour in Halal studies is also demonstrated.

With regard to managerial implications, the study has shown that awareness and PBC should be included in order to increase the positive attitude of Muslim consumers. Halal transportation providers must enhance the Muslim consumers' awareness about their services and they must also ensure that their services are easy to be used. The Halal transportation providers and the government agencies

related to this industry, such as HDC and JAKIM, should cooperate towards improving the awareness and knowledge of Muslim consumers by organising relevant seminars or talks. Instead of simply relying on the annual events such as the Malaysian International Halal Showcase or Halal Festival, emphasis should also be directed to the community level. Not only will such activities increase the awareness of Muslim consumers, but they will also improve the knowledge and positive attitudes towards Halal transportation. With a better understanding of this issue, despite the slight increase in the cost of Halal transportation, Muslim consumers must be willing to pay in order to ensure the purity of Halal products is preserved.

Future research is recommended to explore other factors such as religiosity, image, or other meaningful behaviours which affect the WTP for Halal transportation. Moreover, the impact of certification on Halal logistics providers should also be studied. This step is crucial in examining whether the increasing demand for Halal products gives a positive impact on the Halal logistics service providers.

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