Structural Equation Modeling (SEM) of Consumer Preferences for Wooden Furniture (Home and Office)

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Consumer preferences were examined with respect to the decision-making process to purchase home and office furniture in Iran. A conceptual model was proposed based on the theoretical framework from literature. The data was obtained from interviews with customers who were buying wooden furniture. The main data collection tool in this study was a questionnaire. The results were processed using structural equation modelling (SEM) in SmartPLS software. SEM is a multivariate method that combines multiple regression and factor analysis aspects. PLS-SEM has been increasingly developed in various fields in recent years, due to its usability in nonnormal data, small sample sizes, and the use of formative indicators. The findings revealed a significant relationship between all research factors and consumer preferences of home and office furniture, although the model quality assessment showed that safety and environment (0.576=strong effect), salesperson's characteristics (0.197=medium effect), corporate responsibility factors (0.058=weak effect), internal factors (0.029=weak effect), and product characteristic (0.023=weak effect) had the highest impact. These independent variables accounted for 93.8% of the changes of the dependent variable of consumer preferences.

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INTRODUCTION

The global trade of wooden furniture has grown significantly in recent years, rising from $42 billion in 1997 to over $97 billion in 2007 and approximately $135 billion in 2016. However, this global trade did not increase from 2016 to 2017 due to Brexit (the UK's exit from the EU) and the recent restrictive policies of the United States (US) as the world's largest importer of wooden furniture, such as the adoption of new tariffs on imported products from China and the EU. A major part of the international furniture trade occurred from 2010 to 2016 from countries such as China, Italy, Poland, and Vietnam, to developed countries such as the US, Germany, England, France, and Canada. The global furniture consumption rose to $345 billion in 2007, $364 billion in 2008, and $396 billion by 2016. It is predicted that this consumption will increase at an annual rate of approximately 2.7% (Tracogona *et al.* 2013; Panels & Furniture Asia 2017).

Furniture manufacturing is one of Iran's oldest businesses. Most manufacturers are tiny businesses that handcraft their products. However, there are no precise and reliable data on the amount of wooden furniture that is imported and exported in Iran. There were more than 50,000 furniture businesses in Iran in 2007, which comprised 13.9% of the country's businesses. Approximately 1,000 enterprises had more than 10 employees, and 12 furniture makers employed more than 100 workers. The value of the furniture industry in Iran was $1.2 billion in 2007, and approximately 4 million m^3 of wood raw materials were used. Wood furniture imports increased 800% between 2000 and 2007. The increase in furniture imports was attributed to decreased production and lower quality of domestic furniture, which were due to a lack of qualified raw materials. The declined harvesting of Iran's forests and problems with importing raw materials also induced this problem (Arian *et al.* 2007). In recent years, the establishment of wooden furniture companies has grown significantly in Iran, and several markets such as great malls have been created for buying of domestic customers and neighboring countries. However, there is no precise and reliable data on the production, import, and export volumes of wooden furniture.

Consumer behavior is an individual's psychological component that causes the difference in buying services and goods. Consumer behavior is based on numerous factors that are important for marketing management teams in businesses or organizations that deal directly to consumers (Barmola and Srivastava 2010). The analysis of consumer behavior utilizes behavior principles, obtained experimentally, to understand human economic usage (Foxall 2001). If organizations want to manage their relationships with their customers, they cannot establish and continue similar relationships with all their customers. Rather, organizations must establish particular relationships with each of their customers by carefully studying their behaviours, needs, and expectations (Niraj *et al.* 2008). Consumer perceived value (CPV) is a primary aspect in marketing. Consumer perceived value is the preference and assessment of consumers for a product's attributes, attribute performances, and consequences from consumption that facilitate consumer purposes in different conditions (Huang *et al.* 2019). Consumer perceived value is an important index for the prediction of consumer loyalty, satisfaction, and purchase purposes (Chiu *et al.* 2014; Konuk 2018; El-adly 2019). Value guides the preferences of the consumer, and it has a crucial role in the prediction of customer behavior and intention to repurchase goods (Lee *et al.* 2009). Fiol *et al.* (2009) stated that CPV is positively related with customer loyalty and satisfaction. Understanding that creating perceived value for customers in turn leads to their loyalty is a central issue in contemporary marketing, because it establishes a relationship between the marketing performance and the financial performance of the company. Therefore, CPV has been the focus of marketing consultants and researchers over the last two decades. The goal of DPV is to propose different methods to measure customer value following the expansion of each of the aforementioned areas. In all these methods, it is generally agreed that CPV results in customer loyalty. This CPV stems from the trade-off between the received benefits and losses. The CPV is not limited to the functional aspects presented but includes both the cognitive and functional aspects that affect brand image (Cretu and Brodie 2007). The consumer purchase process is defined as a sequence of phases that begins with the identification of a need and ends with a post-purchase assessment (Solomon 2002; Blackwell *et al.* 2006). Suominen (2005) classified the purchase process into five phases that do not consist of post-purchase evaluation: activation, configuring, browsing, purchasing, and deciding. Consumers pass these phases at different speeds based on some personal characteristics, situational factors, and the product category (Zaharia 2005).

Consumers recognize they are going to make a purchase and then pass some steps to finish the process (Solomon 2002). These steps include: 1- problem recognition, 2- information search, 3- evaluation of the alternatives, and 4- the product choice. Customer preferences are based on customer's understanding of a product value, and preferences are the outcome of evaluating the advantages and sacrifices related to a product's use and acquisition (Zeithaml 1988). These advantages and sacrifices can include emotional, functional, financial, social, or non-monetary attributes (Sheth *et al.* 1991), such as pre- and post-sales service, product functionally, quality, design, brand, credit availability, *etc.* The objective of this work was to evaluate the consumer preferences in the decision-making process to purchase home and office furniture at three different markets in the city of Tehran, Capital of Iran. For this purpose, the structural equations method was applied to analyse the relevant data by using SmartPLS software. SEM is a set of statistical techniques used to measure and analyze the relationships of observed and latent variables. Similar but more powerful than regression analyses, it examines linear causal relationships between variables.

The authors hope that the results may improve the quality of services and enhance furniture consumers' satisfaction.

Literature Review

Numerous works have demonstrated factors that affect consumer preferences for wooden products. Brandt and Shook (2005) conducted a comprehensive review of attribute research in forest products and found that product attributes affect consumer preferences for wood products. Nyrud *et al.* (2008) stated that consumer choice of a wood product is affected by some salient product attributes and less by their demographic background factors. Cai and Aguilar (2013) used conjoint analysis to explore the effects of product price, product origin, and wood product companies' corporate social responsibility (CSR) levels on the dining table purchasing preferences of Chinese and US consumers. Sample consumers from China and the US indicated that higher supplier CSR (*i.e.* sustainability) ratings created higher preferences for solid wood products and higher stated consumer preferences compared to composite wood products. A study in Malaysia investigated the factors that affected innovation and development of the domestic furniture industry. The results showed that attention to customers and their tastes and opinions can be an important factor in the establishment of new factories in the furniture industry in that country (Ng and Kanagasundaram 2011, 2012). Another study that investigated customer preferences when buying customized household furniture found that the most important factor affecting furniture purchase was the product price, such that 50% of customers considered it to be the most important factor in buying furniture (Lihra *et al.* 2012). Niavarani *et al.* (2017) studied the factors that affect the customers' choice of office furniture using the analytic hierarchy process (AHP) method and concluded that unlike home furniture, for which elegance is the most important factor, quality, process, and design, economic features, and after-sales service are crucial customer demands in the selection of wooden office furniture. The authors also noted that office furniture manufacturers need to pay particular attention to product warranty and change to enter new export markets to be selected by consumers. Wan *et al.* (2014) conducted a survey on consumers' environmental awareness of children's furniture in Shanghai and Shenzhen in China. The survey found that 83% of consumers selected solid wood as the main raw material for children's furniture. The authors believed that non-poisonous, natural, and scentless material that hold environmental certification and verification of legitimate origin of wood are five main attributes of eco-friendly furniture. Eco-friendly children's

furniture is related to consumers' health and sustainability. Moreover, higher education subjects had superior knowledge and awareness of sustainable lifestyle and environmental protection, and higher income subjects were less sensitive to price and highly aware of sustainable lifestyle purchases. Chinese consumers have low brand awareness, and their price expectations on solid wood furniture are below current market levels, although environmental awareness is a primary concern among them. Toppinen *et al.* (2013) assessed the perceived social and environmental sustainability of wood products at home retail centers, selling building materials in the Finnish market. The participants may be segmented according to their perceptions on product level environmental and social sustainability. The most socially and environmentally conscious group can be profiled by older age, gender (female), and summer cottage ownership.

Furthermore, enhancing the sustainability information content, environmental education, awareness campaigns, and using greenness as a complementary product attribute may attract larger groups of consumers. A four-dimensional structure for consumer value related to responsible and sustainable wooden products includes consumer activity, information and product origin, product quality, and image (Holopainen *et al.* 2014).

EXPERIMENTAL

A survey examined the dimensionality of consumer preferences for home and office furniture in Iran from April to September of 2019. For this purpose, some furniture retail stores and furniture malls in the three furniture markets of Tehran, namely Yaft Abad, Delavaran, and Hassan Abad Square were selected to meet the consumer target group. Face-to-face exit surveys were conducted with consumers as they left stores. Tehran was chosen because it is the capital of Iran and a top target market for products such as furniture because of its heavy concentration of middle and high class consumers. In addition, consumers from other cities of Iran usually travel to Tehran to buy such products. The main data collection tool in this study was a questionnaire that consisted of two parts. The first part was comprised of the respondents' individual characteristics, while the second part dealt with questions that assessed the purchasing preferences of consumers for home and office furniture. The Likert-type scale was used to measure the constructs in the questionnaire on a 1 to 5 scale in conjunction with the stratified random sampling technique. The response rate was 57.4%. Cochran's formula was used to find the sample size, and Cronbach's alpha test measured the reliability of the data. The face validity and the content validity of the test were examined, and confirmatory factor analysis was used to analyze the internal structure of the questionnaire and identify the constituents of any construct or latent variable. Moreover, the structural equation method in SmartPLS software was used to analyze the collected data. The PLS was chosen and carried out by SmartPLS, since it has less strict assumptions for variables' distribution and error terms. The PLS can work with formative and reflective measurement models (Boccia and Sarnacchiaro 2014).

Structural equation modeling (SEM) is a multivariate method that combines multiple regression and factor analysis aspects to simultaneously measure some interrelated dependence relationships (Siddiqui and Sharma 2010). The SEM method is a new statistical tool and one of the most powerful methods of multivariate analysis. As a statistical model, SEM analyzes the relationships between latent and manifest (observed) variables (Lei and Wu 2007). One of the advantages of the PLS method is

the lack of need for normalization of sample distribution and applicability with nominal, ordained, and interval variables (Afthanorhan 2013). To determine the factors that affect consumer preferences for the home and office furniture industry, the available sources and effective factors were studied to examine consumer preferences in Iran's furniture industry. The preferences considered for this study were external factors (EF), product characteristics (PCh), sales characteristic (Sch), safety and environmental characteristics (ECh), and internal factors (IF). Seventeen sub-factors were defined and are presented in Table 4. The model presented by Wan *et al.* (2014) as the basic research model was used to formulate the initial proposed model through a review of the sources and modifications to the original model. After a conceptual framework for the research was developed, the goals, questions, and hypotheses within this framework were examined.

RESULTS AND DISCUSSION

The demographic characteristics of the participants are shown in Table 1. The reliability was estimated by four different methods, the composite reliability (CR), the rho_A, the average variance extracted (AVE), and Cronbach's α. According to Hair *et al.* (2014), reliability values are acceptable at a level of 0.7. As seen in Table 2, all the constructs had values above the 0.7 threshold. All the variables in Table 2 were adequate, and reliable and statistically significant values were under the umbrella of composite reliability. Yap *et al.* (2012) stated that the average variance extracted is the point that displays fact or sustenance for the convergent validity. Hair *et al.* (2014) described that the AVE value is acceptable at a level of 0.5. The AVE is minimum standard and higher values show strong validity of the constructs. In this study, all the factors had AVE values greater than 0.5, which indicated strong convergent validity.

Table 1. Demographic Characteristics of the Respondents

Demographic Features Range/Classifications		Number of Respondents	Percentage
Gender	Male	81	81%
	Female	19	19%
Education	High school diploma	12	12%
	Associate's degree	23	23%
	Bachelor's degree	52	52%
	Master's degree or higher	13	13%
Age (years)	< 25	12	12%
	25 to 35	22	22%
	35 to 45	26	26%
	45 to 55	19	19%
	>55	21	21%
Annual Income (Rials)	< 300 million	75	75%
	300 to 600 million	22	22%
	>600 million	3	3%

The Kaiser-Meyer-Olkin (KMO) measure of sample adequacy and Bartlett's test of sphericity were used to check the appropriateness of factor analysis for the data. Bartlett's test is applied to test the hypothesis that the population correlation matrix is an identity matrix. In this case, the variables were not correlated in the population. The KMO test is a statistical measure of the proportion of variance among variables that might have common variance (Siddiqui and Sharma 2010). Table 3 shows that the

KMO statistic was very high (0.901) and Bartlett's test of sphericity was significant (sig = 0.000), which showed that the data was adequate for factor analysis. the Orthogonal analysis was used since factor analysis is a method to decrease numerous variables into fewer numbers and achieve a limited number of variables for the prediction purposes, and each factor was assumed to be independent (not correlated) of the other factors.

Table 2. Reliability Analysis

Components	Cronbach's α	rho A	CR	AVE
External Factors (EF)	0.999	0.994	0.995	0.990
Product Characteristics (PCh)	0.954	0.972	0.962	0.810
Salesperson's Characteristics (SCh)	0.905	0.909	0.954	0.913
Safety and Environmental Characteristics (ECh)	0.873	0.880	0.922	0.799
Internal Factors (IF)	-0.975	0.978	0.982	0.930
Consumer Preferences (CP)	1.000	1.000	1.000	1.000

Table 3. Results of the KMO and Bartlett's Tests

KMO Measure of Sampling Adequacy.	0.901	
Bartlett's Test of Sphericity	Approx. Chi-square	3460.362
	Df.	153
	Sig.	0.000

Table 4. Orthogonal Factor Analysis of the Confirmed Sub-Factors

Row	Sub-factors
1	Social responsibility
2	Culture
3	Good product quality
4	Product design
5	The reasonable price of the product
6	Superficial characteristics
7	Product brand
8	Product customization
9	Quality of after-sales services
10	Salesperson's behaviour towards the buyer
11	Natural raw material
12	Environmentally friendly
13	Non-toxic
14	Attitudes
15	Income
16	Education
17	Domestic or foreign furniture selection

Based on the results obtained from the literature review and the factor analysis, the final research model to analyze the consumer preferences of home and office wooden furniture in Iran is displayed in Fig. 1.

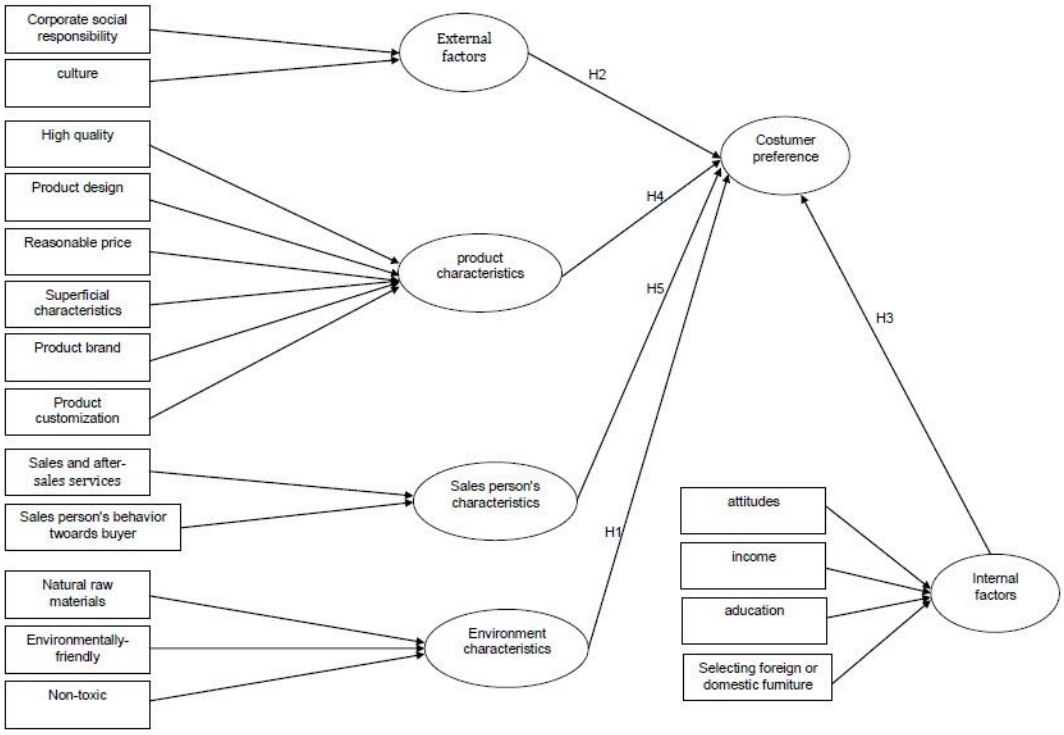

Fig. 1. Modified conceptual model displaying the influence factors of the consumer preferences with hypotheses

The hypotheses to depict the determinants of customer preferences are formulated as follows:

H_1: Safety and environmental characteristics have a significant relationship with consumer preferences.
H_2: External factors have a significant relationship with consumer preferences.
H_3: Internal factors have a significant relationship with consumer preferences.
H_4: Product characteristics have a significant relationship with consumer preferences.
H_5: Salesperson's characteristics have a significant relationship with consumer preferences.

Measurement Model

To test the quality of the measurement model, confirmatory factor analysis can be used (Teo 2011). Confirmatory factor analysis can indicate how measured variables show the constructs or be used to examine the theory of measurement (Hair *et al.* 2006). A measurement model to describe the indicator variables-based latent constructs is employed by the researcher to develop the cause-and-effect hypotheses (Gerpott *et al.* 2001).

The inner model is the part of the model in a SEM analysis that explains the correlations among the latent variables that form the model. The outer model describes the relationships among the latent variables and their dimensions. The association between factors is depicted in the inner model, and factor loading values of every

variable is given in the outer model. Figure 2 shows the effects of each of the variables of the external factors, product characteristics, salesperson's characteristics, safety and environmental characteristics, and internal factors on the preferences of home and office furniture buyers. This figure also shows the factor loadings that were imposed on each item to define their corresponding latent variable. The factor loadings of each variable are homogeneous, and the items that measure the latent traits are in consistent with the theoretical foundation and factor structure since the values of factor loadings are more than 0.5. The appropriateness of the measurement model shows that the items are reliable indices of the hypothesized constructs, which allows for tests of the structural relationships (Teo 2011).

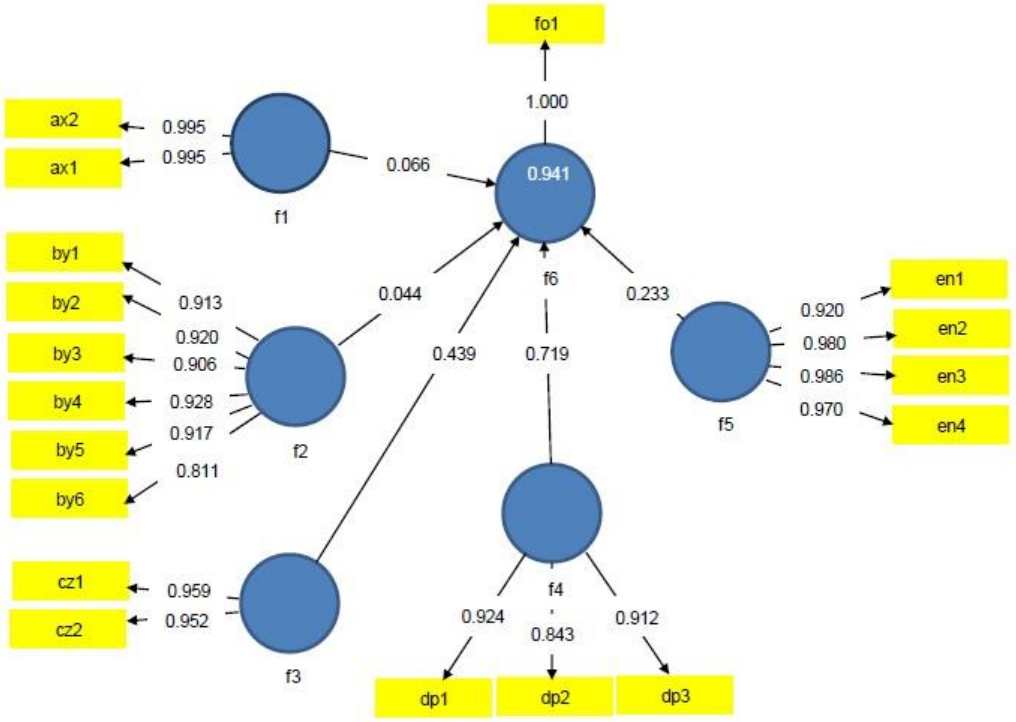

Fig. 2. The measurement model diagram in the standard estimation mode.

Reliability Tests

Table 5 shows Cronbach's α coefficient, the composite reliability, and the AVE of every construct. The reliability was tested by composite reliability and Cronbach's α. Value's greater than 0.7 showed decent construct reliability. The AVE tests the discriminant validity and should be greater than 0.5. All items met the requirements based on the findings. The measurement values for all the constructs were higher than 0.70, so all of them had adequate reliability or internal consistency.

Table 5. Discriminant Validity and Reliability of the Conceptual Model

Constructs	Cronbach's α	CR	AVE
EF	0.99	0.995	0.99
PCh	0.95	0.962	0.81
SCh	0.905	0.954	0.913
ECh	0.873	0.922	0.799
IF	0.975	0.982	0.93
CP	1	1	1

Validity Tests

Validity shows how much an item is associated with other items in line with theoretical hypotheses regarding the variables measured (Campbell and Fiske 1959). These tests include convergent and divergent validity tests. Convergent validity shows how a scale is associated and theoretically predicted to correlate with other scales. The loadings were checked to see whether the items that measure the same construct highly relate among themselves. Discriminant validity shows how much the operationalization is not associated with other operationalization that should not be theoretically correlated with. The discriminant validity was evaluated by examining whether the items strongly loaded on their intended construct compared to other constructs. In addition, any items with factor loadings lower than 0.35 were not intended for further analysis since it did not examine a specific construct (Hair *et al.* 2006). Convergent validity checks whether the indices measure the constructs. High loadings on a factor show that, on some point, they converge (Hair *et al.* 2006). Accordingly, all factor loadings should be significant, and standardized loadings should be 0.5 or greater or ideally at least 0.7. Every construct's convergent validity was tested by the composite reliability and the AVE (Lim *et al.* 2006).

The results showed that the first and second conditions were satisfied, and only two items had factor loadings less than 0.7, which was negligible with respect to its closeness to 0.7. Therefore, the first and second conditions of convergent validity were met, and the third condition was checked. The AVE for the research variables was greater than 0.5 and the convergent validity was confirmed by this method. The divergent validity included the cross-loadings test, the Fornell and Larcker tests, and comparing the AVE with the CR. The CR should be greater than the AVE. The condition of "being larger" was met for all the research variables, so the divergent validity condition was examined. According to the cross tables or transverse loads, the factor load assigned to most of the items of the latent variables was at least 0.1 higher load than the other non-corresponding variables, so this divergent validity condition was met. The second condition of divergent validity was calculated using the Fornell and Larcker (1981) tests. The discriminant validity can be tested by comparing the AVE and the related inter construct squared correlation measures. The square roots of the AVE values of all constructs must be more than the correlations of the inter construct, indicating the constructs' discriminant validity. Hence, the measurement model showed acceptable construct validity.

The Hypotheses Results

Based on the results, the research hypotheses were investigated and displayed in Table 6. For this purpose, the path coefficient was calculated. The path coefficient demonstrates the intensity of the correlation between the explanatory and explained variables. H_1 was supported by set of data (PC=0.719, *p*-value< 0.05), which mean that safety and environmental characteristics were associated with the consumer preference with a 95% confidence interval. External factors were significant determinants of consumer preference with a 95% confidence interval (PC=0.066, *p*-value< 0.05). In other words, the relationship between the external factors and the consumer preferences was significant. H_3 was confirmed by set of data (PC=0.233, *p*-value< 0.05) which showed that it was significant with a 95% confidence interval and there was a significant relationship between the internal factors and the consumer preferences. For H_4, (PC=0.233, *p*-value> 0.05), the hypothesis was not confirmed and there was no significant relationship between the product characteristics and the consumer preferences. A salesperson's characteristics were determinant of the consumer

preferences (PC=0.43, *p*-value< 0.05), so it was significant with a 95% confidence interval and the hypothesis was confirmed. In other words, a salesperson's characteristics and the consumer preferences are significantly related.

Table 6. Results of the Hypotheses Testing

Hypotheses	Hypothesized Path	Pc	*t*-value	p-value	Results
H1:	ECh→CP	0.719[a]	6	0	Accepted
H2:	EF→CP	0.066	2.28	0.023	Accepted
H3:	IF→CP	0.233	2.16	0.024	Accepted
H4:	PCh→CP	0.044	0.37	0.709	Rejected
H5:	SCh→CP	0.43	3.09	0.002	Accepted
Note: Pc = Path coefficient					

Structural Model Quality Test: R^2

The R^2 value expresses how the partial least square regression model predicts the data set and expresses the goodness of fit model. The R^2 value should be greater than 0.3 (Ahmad *et al.* 2019). In this study, the R^2 value of the independent variables of internal factors, salesperson's characteristics, product characteristics, safety and environment, and external factors was 93.8%. This value was greater than the set standard value, which showed a goodness of model fit.

Effect Size or F^2

The effect size, on a numeric scale, estimates the relationship strength between two variables. Cohen's f^2 method estimates the effect size when methods such as analysis of variance (ANOVA) and multiple regressions are used. According to this indicator, safety and environment (0.576=strong effect), salesperson's characteristics (0.197=medium effect), corporate responsibility factors (0.058=weak effect), internal factors (0.029=weak effect), and product characteristics (0.023=poor effect) have the greatest influence on consumer preferences.

Discussion

Other researchers have studied the factors such as corporate responsibility and environmental characteristics in the preferences of wooden furniture customers and obtained similar results. For example, Ng and Kanagasundaram (2011; 2012) studied the factors that affect the innovation and development of the Malaysian furniture industry and concluded that attention to the preferences and opinions of customers could be one of the major factors that affect the development of the furniture industry. Their findings indicated a significant direct correlation between corporate responsibility, safety and environmental characteristics, internal factors, salesperson's characteristics, and home and office consumer preferences. Social responsibility has a significant relationship with consumer preferences in the decision-making process to purchase the product (home and office furniture) at a 95% confidence level.

The impact of different social groups in a society and their understanding of environmental issues and the concept of sustainable development play an important role in consumer preferences, especially in developed countries. Toppinen *et al.* (2013) in the Finish market indicated that the participants may be segmented according to their understandings on product level social and environmental sustainability. The greatest socially and environmentally conscious group can be classified by older age, gender (female), and summer cottage ownership. Chan (2001) concluded that part of consumer

purchase behaviour is affected by cultural aspects. It is also consistent with the finding of Lee (2008), who found the effect of social groups to be one of the factors that influence consumer purchasing behavior. This shows that the formation of environmentally friendly groups leads to the influence of people on each other and greater promotion of green purchase behavior. This aligns with the research of Wan *et al.* (2014), which found that more Chinese consumers consider the environmental quality of children's furniture.

Paying attention to these factors in the preferences of wooden furniture customers makes the need to revise some existing regulations and develop new standards more and more necessary. For example, Chinese authorities have considered some initiatives and carried out a standard in August 2012 to approve the improved safety and high quality of products to enhance the healthy development of the children's furniture. Cai and Aguilar (2013) indicated that Chinese and US subjects mostly chose products from companies with a higher corporate social responsibility (CSR) rating in comparison to an unknown one. However, in the US, higher education levels of respondents, in terms of demographics, corresponded with greater preferences for products from companies with the highest CSR rating. Perceived social and environmental sustainability of wood products is a two-dimensional construct (Toppinen *et al.* 2013) that includes a general social and environmental sustainability dimension and a certain (product safety related) sustainability dimension.

Product characteristics are another very important factor in consumer preferences, which has also been considered by other researchers. The consumers in the wood product markets are very sensitive to product feature issues that may directly affect personal well-being or health. Lihra and Graf (2007) found that quality, price, style, dimension, and comfort are the main product characteristics that consumers evaluate. Customization is not a main benefit.

Another important factor is the Salesperson's characteristics, including the after-sales service, which has been mentioned by other researchers. Niavarani *et al.* (2017) found that after-sales service is an important demand of customers in the selection of wooden office furniture. These customers also mentioned that office furniture manufacturers need to pay particular attention to product warranty and changeability in order to enter new export markets and be selected by consumers. Given that a salesperson's characteristics have greater effects on customer purchase preferences and consumers pay greater attention to this category, the sales experience, after-sales services, and how the seller treats the buyer affect the customer's purchase decision. Rejection of the hypothesis of product characteristics with consumer preferences means that product characteristics, such as quality, design, price, appearance, brand, and customization are less effective, so consumers pay less attention to product characteristics in the process of purchasing home and office furniture.

CONCLUSIONS

1. The authors introduced a structural equation modeling (SEM) technique of the factors that are effective on consumer preferences. SEM is a multivariate method which combines multiple regression and factor analysis aspects.
2. Since the values of factor loadings are more than 0.5 in the Fig. 2, the items for measuring the latent traits have an acceptable compatibility with the factor structure and theoretical foundations.

3. The path coefficients showed in the Table 6 demonstrated the intensity of the correlation between the explanatory and explained variables.
4. The all explanatory variables with the exception of the product characteristics had significant relationship with the explained variable (consumer preferences).
5. Quality of the structural model was tested via the R^2 and f^2 values. The R^2 value was 93.8% and greater than the critical value, which indicated a goodness of model fit. The f^2 values (effect size) of the variables showed that the safety and environment and product characteristics had the greatest and least influence on the consumer preferences respectively.
6. The results of the research hypotheses test revealed that the safety and environmental characteristics, the external and internal factors, and salesperson's characteristics were significantly related to the consumer preferences, whereas product characteristics did not have a significant relationship to the consumer preferences. Based on the effect size test to determine the relationship more accurately, it can be stated that, the safety and environment, salesperson's characteristics, corporate responsibility factors, internal factors and product characteristics have the greatest influence on consumer preferences.

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