

A Comparative Study on Consumer Attitude and Intention toward Online Food Purchasing in Korea and Vietnam: The Moderating Effect of Nationality*

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Abstract

Purpose – This paper empirically analyzed the determinants of the online food market in Korea and Vietnam as representatives of the developed market and emerging market. The online food market can be regarded as having a high potential value. This study aims to suggest the appropriate implications for each developed market and emerging market by empirically comparing and analyzing customers' online food purchase determinants in the growth change of the online food market.

Design/methodology – The empirical model of this study was established with the motif of the TAM+Trust model suggested by Nguyen et al.'s (2019) existing theoretical framework. Davis's (1989) TAM model was adopted to establish a framework related to the determinants that consumers would accept, for the online food purchasing method. Then, the trust variable is added to the framework which is regarded as an important effector especially in food related researches. In this study's comparative analysis, the multi-group structural equation modeling analysis was implemented.

Findings – The main finding of this study can be summarized as that the moderating effect of nationality is significant. This means that there is an obvious difference between the developed online food market and the emerging online food market. In addition, as the growth of the online market changes, the significant determinants of consumers' attitudes and purchase intentions are somewhat different. However, the usefulness of online food purchasing methods and the trust of websites were analyzed as significant factors.

Originality/value – Although the potential of the online food market is abundant, studies on the determinants of customer's attitude and purchase intention are insufficient. Moreover, comparative studies between countries have not been conducted in existing studies. Therefore, the research value of this paper can be explained in that it has suggested implications for the continued growth of the online food market.

Keywords: Comparative Empirical Study, Online Food Purchasing, Technology Acceptance Model, Trust, Attitude, Purchase Intention, Vietnam, Korea

JEL Classifications: L81, M31, O57

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1. Introduction

Online markets around the world continue to grow, providing a variety of forms, service promotions, and various products. In recent years, not only Business-to-Business (B2B) and Business-to-Consumer (B2C) formats but also Online-to-Offline (O2O) format and cross-border e-commerce formats have increased rapidly (Kim and Lee, 2016). In addition, the global health crisis such as COVID-19 pandemic has had a positive effect on the growth of the e-commerce market. Especially for the online food market, the pandemic is said to have played a role as a catalyst for growth. In other words, based on the development of fast internet, its convenience and ease of use, the online market — including the online food market— is continuously expanding.

Korea's online market is regarded as one of the most highly developed markets. The Korean online market continues to persuade offline customers online by providing various services and functions based on high-speed Internet technology. In particular, Korean consumers' interest in the food online market is growing. According to KREI reports of a food consumption behavior survey from 2019, it was analyzed that 44.6% of the survey participants had experience of purchasing food online. Compared to the results of the 2016 survey, which showed findings that 29% had experience doing so, these results can be interpreted as demonstrating an amazing growth of the Korean online food market. Kim (2019) suggested that the main consumer of the online food market was from a single-person household and under 30. It is also suggested that the main purchasing items were processed foods or Home Meal Replacement(HMR) foods. Besides, the purchase rate of fresh foods was also increasing. Furthermore, as more companies provide convenience services, such as "early morning delivery" of Market Kurly and "rocket delivery" of Coupang, the proportion of online food purchases is expected to increase in the Korean online market.

Meanwhile, Vietnam's online market can also be regarded as a notable market with rapid growth. According to EVBN (2018), Vietnam's e-commerce technology is improving, and the environment of the online market is constantly developing. As a result, Vietnam's online market continues to grow with an average annual growth rate of 9%. In particular, Ipsos (2020) suggested that the size of Vietnam's online food market was analyzed to be about 318 million dollars in 2019, and as of 2020, the growth of the online food market has been showing an average annual growth of 8%. The main consumers in the Vietnam online food market were women in their 20s and 30s. However, unlike Korean consumers, the promotion provided by the online food market is the biggest motivation to purchase for Vietnamese consumers, rather than the reason for the convenient service and product diversity provided by the online food sellers. In addition, it was found that the reliability of online food products was rather low, and service and security issues also need to be improved. Nevertheless, as new services, such as "shopping through mobile apps," begin to be provided, products and services in the Vietnamese online food market are expected to diversify. Accordingly, competition to enter the market is expected to become fierce. In this regard, Vietnam's market can be regarded as a representative emerging market.

Korea and Vietnam are evaluated as similar in terms of their economic growth, and their online food markets are showing continuous growth. However, unlike the Korean online food market, which has achieved highly developed, the Vietnamese online food market is just in the growing stage, so the needs of customers from both countries for the online food market may be different. On this point, this paper aims to empirically compare and analyze the Korean and Vietnamese online food markets using them as the representative developed and emerging markets in the online food field. Especially, we would like to revisit Nguyen et

al.'s (2019) research to compare and analyze those markets. Therefore, the research hypothesis in this study was established with the motif of the TAM+Trust model suggested by Nguyen et al.'s (2019) previous research, which has already been verified as meaningful in the Vietnamese online food market. In this study, after empirically analyzing the current status of the two markets in an integrated model, the multi-group structural equation modeling analysis was additionally implemented for comparative analysis between the two countries, in which this study secured the difference from previous research.

Accordingly, the main purpose of this study is to empirically analyze the difference between Korea, as a developed online food market, and Vietnam, as an emerging online food market. By verifying the differences in customer demand according to growth change, this study suggests appropriate implications for each market for the continuous growth of the online food market. In particular, in the current COVID-19 situation, since the potential of the online food market is highly evaluated, the result of this study will be able to deliver appropriate implications to more accurately resolve consumers' purchasing determinants in the online food market.

2. Research Background

2.1. Literature Review about Online Food Purchase

The researches on the online market include a wide range of studies using e-commerce. Among them, the online food market is receiving hot attention from researches as a market that is rapidly growing in recent years.

Research on online food purchasing methods has begun to increase as the e-commerce market became active in the 2000s (Park, 2018). As the services provided by e-commerce companies have diversified, the types of foods sold online have also diversified. These developments and improvements in the online food market's environment have attracted academic interest in online food purchasing.

Liang and Lim (2011) studied the determinants of consumer behavior of purchasing specialty food in the online market based on the food-related lifestyle concept. Bauerová and Klepek (2018) studied consumers' behavioral determinants of grocery shopping based on a technology adoption model. In Nguyen et al.'s (2019) study, as a representative of the emerging online market, the customer's determinants of online food purchasing in Vietnam's online food market have been studied. As such, research on the online food market is mostly focused on the determinants of consumers' purchasing behavior, although the research model or concept based on this is different.

However, comparative studies across countries on the online food market are notably lacking. In effect, each country's online market situation, technological environment, growth status, service and product quality are all different. But, studies on these market differences have not been sufficiently conducted. When comparing the online food market status of Vietnam and Korea, while the online food market in Vietnam has just shown growth, the Korean food market's current state is in where the supply structure and services are diversified according to the type of food (Chung et al., 2020). It can be assumed that, in the online food market, the quality of services required by customers can vary and factors affecting purchase decisions are also different depending on the stage of growth of the market.

Therefore, this study intends to conduct an empirical analysis with a focus on the study of verifying whether the customer's determinants of purchasing decisions change according to these national market differences.

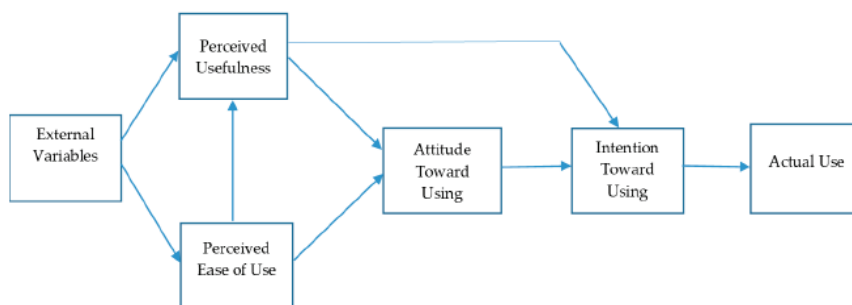
2.2. Research Model and Hypothesis

2.2.1. Technology Acceptance Model

To achieve the purpose of this study, first, based on a literature review, the research model and hypotheses were established for the determinants of online food purchases. In many previous studies, the research model mainly used to construct the purchasing determinants of customers is Davis et al.'s (1989) Technology Acceptance Model (Kurnia and Chien, 2003; Bauerová and Klepek, 2018).

The technology acceptance model has already been verified in various previous studies. Moreover, as various variables have been added to identify the determinants of consumers related to the adoption of new technologies, the more advanced UTAUT model is more applied recently (Soh et al., 2020; Izzati, 2020).

Fig. 1. Technology Acceptance Model



Source: Davis, F. D., P. B. Richard and P. R. Warshaw (1989).

However, in this study, we'd focused on the comparison study between Vietnamese online food market and Korean online food market. The Korean online food market has entered a growth transition, but the Vietnamese online food market is still evaluated as a market that needs further development.

Therefore, in this paper, to understand the current status of the emerging market, and to conduct more fundamental comparative study between emerging and advanced markets, it is determined that the application of a more traditional research model is appropriate. (Akroush et al. 2020) So, the TAM model is applied for empirical analysis.

Those previous studies that applied the TAM model to online food purchasing research began with the assumption that customers' use of online food purchasing methods can be understood as the acceptance of information and communication technology (Gefen et al., 2003). As in the previous study, this study also applied the variables of the TAM model to construct the determinants of online food purchase, perceived ease of use and perceived usefulness, and the customer's attitude and purchase intention variables toward online food purchasing.

The effect from perceived ease of use on perceived usefulness and the effect from attitude to purchasing intention are a significant relationship traditionally shown in previous studies that applied Davis' TAM model (Davis et al., 1989). Therefore, the traditional relationship between perceived ease of use and perceived usefulness was constructed as a hypothesis 1 and 5.

The perceived ease of use and the perceived usefulness were found to have significant

effects on customer's attitude even in the online market, according to Childers et al. (2001). Also, in Gefen et al. (2003), the perceived usefulness was verified to effect significantly on customer's purchasing intention in online market. With this reference, hypothesis 2, 3 and 4 were established.

Consequently, hypotheses 1 to 5 were established as below.

H1: Perceived Ease of Use positively affects Perceived Usefulness.

H2: Perceived Ease of Use positively affects Attitude towards Online Food Purchasing.

H3: Perceived Usefulness positively affects Attitude towards Online Food Purchasing.

H4: Perceived Usefulness positively affects Intention towards Online Food Purchasing.

H5: Attitude towards Online Food Purchasing positively affects Intention towards Online Food Purchasing.

2.2.2. Trust and Online Food Purchase

In this study, as the variable affecting consumer attitude and purchase intention for online food purchase, the trust variable for web sites was additionally applied in addition to perceived usefulness and perceived ease of use variables, which is established based on the research model by Nguyen et al. (2019).

In fact, the trust variable has been treated as an important variable that has a significant effect on customers' decision-making in the online market in a number of previous studies. Gefen et al. (2003) suggested an integrated model of trust variable and technology acceptance model in online shopping. According to Gefen et al. (2003), trust is essential for any business, but especially in the e-commerce market, since sellers and buyers conduct transactions with risk, a mutual trust relationship is particularly required. In several previous studies, the trust variable has been defined operationally in various ways; but in this Trust+TAM model, trust has been defined as "having a special belief about the e-vendor". The trust variable was suggested as a variable having a significant effect on the perceived usefulness variable and the Intended use variable.

However, in many other studies, although the trust variable has been treated as a meaningful variable, the composition of the causal relationships between the trust variable and other variables are somewhat different. Nguyen et al. (2019) argued that, through consideration of literature reviews, the trust variable has a generally significant relationship with the attitude variables. In Chen and Lee (2008) and Celik and Yilmaz (2011), the relationship between trust and attitude was verified to be significant. In particular, in Ha and Stoel (2009) and Jarvenpaa et al. (2000), trust was analyzed as a variable that has a significant effect as a predictor of consumer attitudes and purchase intentions.

In this study, the degree of trust in the information provided by a website is expected to play a greater role in determining consumer attitudes and purchase intentions, especially in online food purchases. In this way, based on the consideration of literature review, the hypotheses H6 and H7 for trust were set as follows. The trust variable in this study was defined as the degree of trust in a Website — a means of providing food information and services to consumers.

H6: Trust of Website positively affects Attitude towards Online Food Purchasing.

H7: Trust of Website positively affects Intention towards Online Food Purchasing.

2.2.3. Moderating Effect of Nationality

Comparative studies on consumer's attitude and purchase intention determinants can be found in various prior studies. In Castaneda et al.(2007) and Pappas et al.(2014), the moderating effect of consumers' online shopping experience was empirically verified, and in Vahdat et al.(2020), the gender and age of customers were applied as moderate variables. However, previous researches in which comparative studies on customer determinants conducted by applying the country variable as a moderating variable are remarkably insufficient, especially for the online market.

Depending on the national environment, the online market also has different conditions, and it can be a good moderate variable to examine changes in customer requirements as the online market grows. Therefore, we try to empirically verify the moderating effect of the nationality variable by applying the multi-group SEM analysis method. Especially, as an emerging market, the Vietnamese online food market is showing rapid growth in recent years, and the development trend of the Vietnamese market economy is evaluated to be quite similar to the growth of the Korean market. In this respect, this paper is mainly aimed at comparative analysis between the two countries, and the hypothesis 8 was established.

H8: The Customer's Nationality experiences moderating the effect of Perceived Usefulness, Perceived Ease of Use and Trust of Website on Attitude and Intention towards Online Food Purchasing.

So far, summarizing the research hypotheses and variables' operational definition of this study, presented on the basis of the literature review, can be confirmed in Fig. 2 and Table 1.

Fig. 2. Research Model

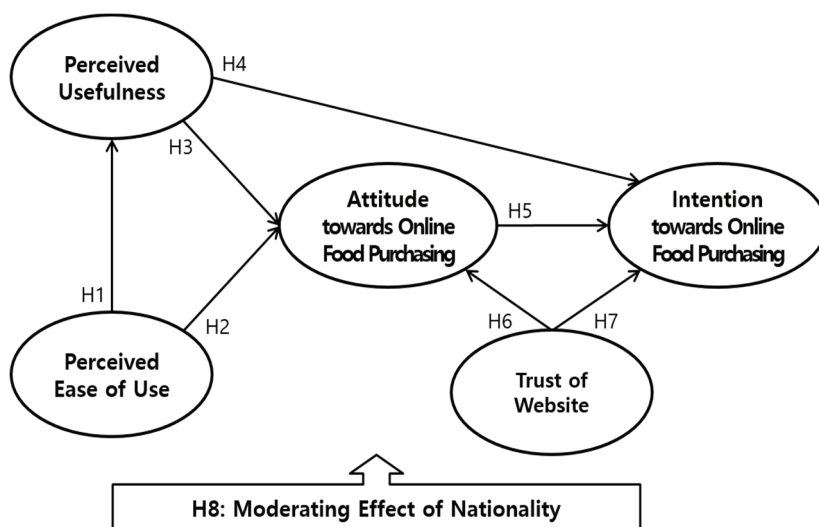


Table 1-1. Definition of Variables

Constructs	Definition	Reference
Trust of Website	Degree of trust in online websites	Gefen et al.(2003), Chen and Lee(2008), Nguyen et al.(2019)
Perceived Ease of Use	Perception level of the ease of purchasing food online	Davis et al.(1989), Venkatesh and Davis(2000), Childers et al.(2001), Kurnia and Chien(2003), Bauerová and Klepek(2018), Nguyen et al.(2019)
Perceived Usefulness	Perception level of the usefulness of online food purchasing methods	
Attitude toward Online Food Purchasing	Personal thoughts and attitudes on online food purchasing methods	Davis et al.(1989), Kurnia and Chien(2003), Lim and Ting(2012), Bauerová and Klepek(2018), Nguyen et al.(2019)
Intention toward Online Food Purchasing	Intention or willingness to purchase food online	

3. Research Methodology

3.1. Questionnaire and Measures

To achieve the purpose of this study, a series of surveys was conducted for customers who had experience in purchasing food online. The questionnaire items were constructed based on the literature review. Each construct was measured by three items and the multiple-item method was used, which measures each item using a five-point Likert scale. The questionnaire items are shown in Table 1.

Table 1-2. Variables and Measures

Constructs	Measures
Trust of Website	TRU1: Online food in websites in reliable TRU2: I believe in the food information that websites provide TRU3: Food purchasing conditions in websites are clear
Perceived Usefulness	PU1: Online food shopping enables me to save my time PU2: Using websites makes it easier to do my food shopping PU3: Online food shopping provides me comparative choice
Perceived Ease of Use	PEOU1: Learning to use online food shopping is easy PEOU2: I find it easy to become skillful at shopping food online PEOU3: It is easy to order food online
Attitude toward Online Food Purchasing	ATT1: Food purchasing through websites is a good idea ATT2: Food purchasing through websites is a wise idea ATT3: I think it is a trend to buy food online
Intention toward Online Food Purchasing	INT1: I intend to use websites for food purchasing shortly INT2: I predict to use websites for food purchasing regularly INT3: I'll recommend food purchasing through websites

3.2. Data Collection and Methodology

Considering the cross-cultural methodological problem, the survey was conducted twice in Korea and Vietnam with versions translated into the languages of each country. The questionnaire was prepared using the Likert 5-point scale and the survey was conducted through M company, a professional survey and data collecting company, in two countries for about a month in July 2019.

The respondents were randomly selected and limited to those who had experience purchasing food online. In Korea, 348 responses were received with a response rate of about 40%, and in Vietnam, 319 responses were received with a response rate of approximately 30%. After self-refining, finally, 305 responses of Korean and 296 responses of Vietnamese were used in the analysis.

As seen in Table 2, the respondents from Korea and Vietnam showed significantly different rates in each field. In Korea, male and female respondents have even been found to purchase food online, while in Vietnam, the main respondents were female, accounting for 69.6%. With respect to age, most Korean respondents were distributed at the age of 30s, but those in their 20s and 40s were relatively evenly distributed. But, in Vietnam, the major respondents were distributed at the age of 20s, accounting for 59.46%. Therefore, considering the respondents' age, education level, and occupation, it can be inferred that in Korea, social workers in their 30s are the main customers of the online food market. On the other hand, in Vietnam, the main customers are students of their 20s and office workers of their 30s.

In empirical analysis, the structural equation modeling analysis was applied and the AMOS 24.0 program was used. To verify the moderation effect of the two countries groups, the multi-group analysis using the AMOS program was used. Therefore, first, the difference between the unconstrained model and the constrained model of the two countries was verified. Then, by reviewing the path value between the models of two countries, the comparison analysis was conducted.

Table 2. Demographic Characteristics

Demographic Composition		Full ($n=601$)		Korea ($n=305$)		Vietnam ($n=296$)	
		No.	%	No.	%	No.	%
Gender	Male	240	39.9	150	49.2	90	30.4
	Female	361	60.1	155	50.8	206	69.6
Age(years)	18-29	260	43.26	84	27.54	176	59.46
	30-39	214	35.61	121	39.67	93	31.42
	40-49	97	16.14	74	24.26	23	7.77
	50+	30	4.99	26	8.52	4	1.35
Education level	High school and below	83	13.81	60	19.67	23	7.77
	Bachelor and below	388	64.56	209	68.52	179	60.47
	Master and above	130	21.63	36	11.80	94	31.76
Occupation	Students	179	29.78	48	15.74	131	44.26
	Professionals/Officers	345	57.40	195	63.93	150	80.68
	Self-employed	24	3.99	16	5.25	8	2.70
	Housewife	27	4.49	25	8.20	2	0.68
	Others	26	4.33	21	6.89	5	1.69
Experience in internet usage	< 5 years	32	5.32	1	0.33	31	10.47
	5-10 years	146	24.29	24	7.87	122	41.22
	10-15 years	178	29.62	50	16.39	128	43.24
	> 15 years	245	40.77	230	75.41	15	5.07

4. Result of Analysis

4.1. Exploratory Factor Analysis

The research model of this study is a newly constructed model that combines the existing TAM model and the trust variable. Accordingly, to secure the validity of constructs, after conducting the exploratory factor analysis using the SPSS 24.0 program, the discriminant validity was evaluated based on the square roots of AVE.

First, the KMO analysis result and the factor load of each item were checked to determine whether they were loaded properly in the proper construct. As a result of KMO analysis, the data were found to be suitable for the study (KMO=0.890, $p=0.000$). All items were analyzed to have correct loading for each factor with a loading value of 0.5 or higher. The eigenvalues were also found to meet the initial eigenvalue 1 reference value. In addition, through the cumulative variance of 73.786%, each factor converged appropriately and it appears that the validity of each factor was secured. Second, Cronbach's α was applied as a criterion for confirming the internal consistency of the constructs. Nunnally (1978) suggested that when the α value is 0.7 or more, it can be determined that the reliability of the factor is appropriate. As seen in Table 3, all of the factors were analyzed to have an α coefficient value of 0.7 or higher, showing high reliability. Third, the correlation coefficient values were checked, as shown in Table 4. The coefficient value of PU(Perceived Usefulness) and PEOU(Perceived Ease of Use) appeared to be the highest (0.627). This means that the correlation between the two factors is high, and it should be taken into account when interpreting the results. However, based on the results of discriminant validity analysis using the square roots of AVE, the correlation analysis results seem to be accepted. According to Fornell and Lacker (1981), comparing the correlation coefficient value and the square roots of AVE, if the square roots of AVE value are higher, it can be determined that the discriminant validity of the construct is secured.

Table 3. Exploratory factor analysis

Constructs and Items		Factor Loads					Cronbach's α
Perceived	PEOU2	.828	.196	.172	.108	.126	.856
Ease of Use	PEOU1	.787	.147	.247	.142	.219	
	PEOU3	.780	.079	.155	.134	.318	
Attitude towards	ATT2	.099	.849	.160	.171	.145	.822
Online Food	ATT1	.154	.819	.192	.212	.169	
Purchasing	ATT3	.180	.734	.182	-.019	.200	
Intention towards	INT2	.208	.120	.840	.229	.132	.869
Online Food	INT3	.129	.298	.791	.213	.135	
Purchasing	INT1	.280	.207	.758	.220	.173	
Trust of	TRU2	.044	.015	.218	.851	.087	.760
Website	TRU1	.063	.130	.201	.817	.032	
	TRU3	.231	.172	.105	.695	.044	
Perceived	PU3	.118	.152	.196	.070	.817	.728
Usefulness	PU2	.408	.226	.073	.026	.693	
	PU1	.385	.257	.143	.098	.561	
Eigen-Value		2.505	2.330	2.279	2.160	1.794	-
Variance(%)		16.701	15.533	15.195	14.399	11.959	
Cumulative(%)		16.701	32.233	47.428	61.827	73.786	

Notes: All values are represented at significance level of $p < 0.05$.

Table 4. Correlation analysis and discriminants validity

Constructs	Classification		Correlations Coefficients and Square roots of AVEs				
	Mean	SD	1	2	3	4	5
PU	4.15	.72	.736				
PEOU	4.26	.75	.627	.855			
TRU	3.17	.69	.260	.342	.782		
ATT	3.83	.78	.516	.423	.330	.817	
INT	3.68	.94	.466	.508	.498	.500	.818

Notes: 1. All values are represented at significance level of $p < 0.05$.

2. Bold numbers are square roots of AVEs. The rest is correlations.

3. PU=Perceived Usefulness, PEOU=Perceived Ease Of Use, TRU=Trust of Website, ATT=Attitude towards Online Food Purchasing, INT=Intention towards Online Food Purchasing.

4.2. Confirmatory Factor Analysis

Although the validity and reliability of constructs were secured through exploratory factor analysis, to figure out the feasibility of the measurement model, the confirmatory factor analysis (CFA) was conducted using the AMOS 24.0 program. The results of the CFA analysis are presented in Table 5.

Table 5. Confirmatory factor analysis

Constructs and Items		SL	SE	t	SMC	CR	AVE
Perceived Usefulness	PU1	.704	1	1	.496	.779	.542
	PU2	.769	.065	15.680	.592		
	PU3	.612	.066	13.050	.375		
Perceived Ease of Use	PEOU1	.841	.048	22.219	.708	.890	.731
	PEOU2	.785	.048	20.622	.616		
	PEOU3	.821	1	1	.674		
Trust of Website	TRU1	.787	.084	13.378	.619	.823	.612
	TRU2	.805	.086	13.430	.647		
	TRU3	.601	1	1	.361		
Attitude towards Online Food Purchasing	ATT1	.886	.071	16.663	.785	.855	.667
	ATT2	.839	.072	16.408	.705		
	ATT3	.643	1	1	.414		
Intention towards Online Food Purchasing	INT1	.840	1	1	.706	.858	.669
	INT2	.840	.049	23.263	.706		
	INT3	.815	.044	22.473	.665		

Model Fit $\chi^2/df=2.530(p=.000)$, RMR=0.038(<0.05), RMSEA=0.050(<0.08), GFI=0.959(>0.9), AGFI=0.939(>0.8), CFI=0.972(>0.9), IFI=0.972(>0.9), TLI=0.963(>0.9)

Notes: All values are represented at significance level of $p < 0.001$.

First, when checking the standard loading value of each item of construct, it can be found that every value is properly loaded in the construct with values exceeding 0.5. In addition, it can be seen through the check on the t value that the load values are significant at the level of $\pm 1.96(p < 0.05)$.

Second, Hair et al.(2010) suggested that the construct's convergent validity can be confirmed by checking its CR and AVE. As seen in Table 5, the CR values of all constructs were found to have a value higher than the criterion of 0.7. The results of AVE value were also found to be acceptable under the criterion of 0.5.

In the last step before hypothesis verification, the model fit of the measurement model was checked. In structural equation modeling(SEM), the measurement model must fit well into the data, which can be evaluated by the goodness-of-fit index —which is commonly applied in social science research. In this study, root mean square error of approximation (RMSEA, <0.08), root mean square residual (RMR, <0.05), goodness of fit index (GFI, >0.9), adjusted goodness of fit index (AGFI, >0.8), comparative fit index (CFI, >0.9), incremental fit index (IFI, >0.9) and tucker-lewis index (TLI, >0.9) were applied as a reference index for evaluating the model fitness.

Likewise, the results can be seen in Table 5. The RMSEA value was 0.05, which was lower than the reference value, and the RMR (= 0.038) was also analyzed to be lower than the criterion. In addition, according to the results of other incremental fit index, all the values exceed 0.9 as the reference. Therefore, this measurement model was accepted as suitable for hypothesis verification.

4.3. Results for Structural Equation Modeling

To verify the hypotheses 1 to 7, structural equation modeling analysis was applied using AMOS 24.0, and the data samples from both Korea and Vietnam were applied totally. The reason is primarily to compare the analysis results of Korea and Vietnam's online market with those of previous studies. The summarized results of the SEM analysis can be seen in Table 6 and Fig. 3.

Table 6. Results for structural equation analysis

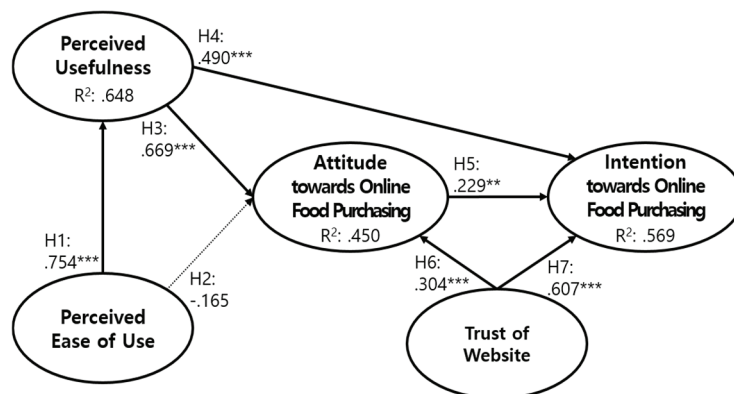
Path	SL	SE	CR	p	Results
H1 : PEOU -> PU	.805	.052	14.559	.000***	Supported
H2 : PEOU -> ATT	-.179	.093	-1.766	.077	Rejected
H3 : PU -> ATT	.681	.111	6.024	.000***	Supported
H4 : PU -> INT	.375	.072	6.785	.000***	Supported
H5 : ATT -> INT	.172	.072	3.198	.001**	Supported
H6 : TRU -> ATT	.270	.056	5.392	.000***	Supported
H7 : TRU -> INT	.407	.074	8.236	.000***	Supported
Model Fit	$\chi^2/df=2.530(p=.000)$, RMR=0.038(<0.05), RMSEA=0.050(<0.08), GFI=0.959(>0.9), AGFI=0.939(>0.8), CFI=0.972(>0.9), IFI=0.972(>0.9), TLI=0.963(>0.9)				

Notes: 1. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

2. PU=Perceived Usefulness, PEOU=Perceived Ease Of Use, TRU=Trust of Website, ATT=Attitude towards Online Food Purchasing, INT=Intention towards Online Food Purchasing.

First, the model fit of the research model was confirmed to check whether the results of path analysis can be acceptable. As seen in Table 6, when applying the criterion commonly used in social science research, all the results appeared as higher than the recommended level (RMSEA=0.050, RMR=0.038, GFI=0.959, AGFI=0.939, CFI=0.972, IFI=0.972, TLI=0.963). As all these model fit results explained that those are adequate between the empirical data and the structural model, the paths of the model were analyzed for hypothesis verification.

Fig. 3. Structural equation model with path coefficients



Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The results of SEM analysis demonstrated that perceived ease of use in purchasing food online effects significantly on perceived usefulness of purchasing food online ($\beta = 0.805$, $p = 0.000$), which means that H1 is supported. However, perceived ease of use does not have a significant effect on the attitude toward online food purchasing. Thus, H2 is rejected. This result is analyzed to be largely different from the results of previous studies (Wang and Somogyi, 2018; Bauerova and Klepek, 2018).

We'd like to explain that this result can be considered as the differentiation or the character of the Korean and the Vietnamese online food markets, which have grown rapidly and diversified in terms of services. In terms of consumers who are already familiar with online food purchasing, the easy way of purchasing food online is not a significant factor that directly affects consumers' attitudes, but rather a positive effect on the consumers' attitudes through perceiving its usefulness. In other words, PU can be the key mediator in this structural model.

The results showed that H1, H3 and H4 are supported. In addition, H6 and H7 were found as significant. This means that the consumer's reliability or trust degree on the online websites has a positive and significant effect on both the attitude toward the online food purchasing method ($\beta = 0.270$, $p = 0.000$) and the intention to purchase food online ($\beta = 0.407$, $p = 0.000$).

When comparing the difference in the path values of H6 and H7, the β value of H7 was found to be higher than that of H6. It can be understood that the customer's trust degree can have more significant and more direct effect on customer's intention to purchase food online. The results of this study suggests that trust should be considered as a significant factor, especially in research on the food industry.

4.4. Results for Multi-group SEM Analysis

The main purpose of this study is to compare the customer's determinants and online food market status in Korea and Vietnam. To achieve this purpose, multi-group structural equation modeling analysis was applied using AMOS 24.0. The difference between models is to be verified with the nationality variable as the moderating variable. The results are shown in Table 7, Table 8 and Fig. 4.

First, Byrne (2009) suggested that, in multi-group SEM analysis, the invariance of measurement weights and structural weights must be checked by comparing them with the

unrestricted model. Because the invariance of measurement is considered highly important, if the invariance is not confirmed, the result of path comparison would be unverifiable. The summarized results of the invariance comparison are shown in Table 7. When comparing the invariance results with the unrestricted model, the model fit value of χ^2/df , RMSEA and CFI can be found to getting finer. In addition, in terms of the p-value of two models (Measurement invariance $p = 0.112$, Structural invariance $p=0.000$), it can be understood that there is an obvious structural difference between models of the two countries.

Table 7. Comparison analysis result

Model	χ^2	df	RMSEA	CFI	p -Value
Unrestricted Model	336.660	164	0.042	0.960	-
Measurement Weights	375.225	174	0.041	0.959	0.112
Structural Weights	409.024	181	0.046	0.948	0.000

As the difference of two structural models of Vietnam and Korea was proved, as the next step, the path analysis was made. The summarized results are shown in Table 8 and Fig. 4. In this study, the path of each hypothesis was first confirmed. Second, the difference in the β values of the two paths was checked. Third, the significance of the difference between the two paths was tested by analyzing the χ^2 difference and its p-value. Then, the comparison results of the path analysis were found.

First, the H2 about the path from the perceived ease of use to attitude was rejected in both the Korean customer's research model and Vietnam customer's research models. This result appeared to be the same as that found in structural equation modeling analysis performed with integrated samples from Korea and Vietnam.

In H8-1 and H8-5, it was analyzed that the difference of the path values in the two models was not significant (χ^2 difference = 3.806, $p=0.051$). This means that the more customers perceive ease of use with purchasing food online, the more they perceive that purchasing food online is useful way in both Korea and Vietnam (H1). In addition, customer's attitude toward online food purchasing method effected on the customer's intention toward purchasing food online significantly (H5). This finding is largely similar to that of previous studies (Wang and Somogyi, 2018; Bauerova and Klepek, 2018; Liang and Lim, 2011; Kim and Woo, 2016).

However, in H8-3 (χ^2 difference = 12.901, $p=0.000$), H8-4 (χ^2 difference = 4.313, $p=0.038$), H6 (χ^2 difference = 4.956, $p=0.026$) and H7 (χ^2 difference = 10.793, $p=0.001$), the differences in path values between the two models was found as significant.

Although both β values of H8-3 in Korea and Vietnam were found as significant, the difference in the two paths was found to be significant. When comparing the β values, the Vietnamese model's β was larger than that in the Korean's model. However, when comparing the results of H8-4, in the Vietnam model, the β value was found as not significant. But, in Korean model, the path result was significant. Therefore, it can be understood that the perceived usefulness factor significantly effects on customer attitudes and purchase intentions for Korean customers. But, for Vietnam customers, the perceived usefulness factor effects only significantly on the customer's attitude.

The H8-6 and H8-7 are about the effect of trust in website on the customer's attitude and intention to purchase food online. In Korea, the customer's trust in a website effect significantly on the attitude toward the purchasing food online. But the trust does not have significant effect on the customer's purchasing intention. However, in Vietnam, the trust had significant effect on both attitude and intention toward purchasing food online. The β value of H8-7 is higher than that of H8-6.

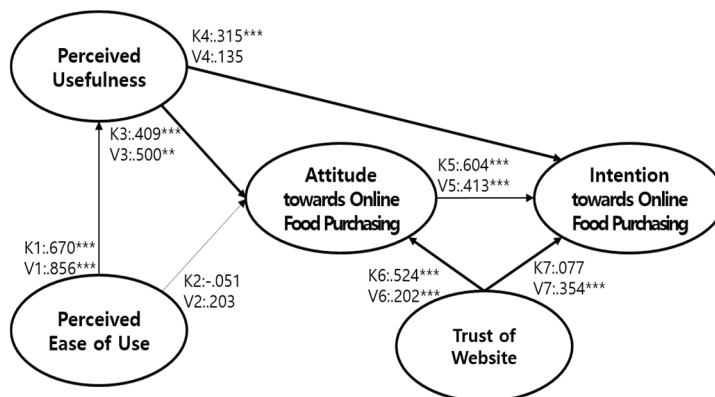
Table 8. Results for multi-group analysis (H8)

Path	Korea		Vietnam		X ² Difference	P	Results
	β	SE	β	SE			
H8-1 : PEOU -> PU	.686***	.082	.828***	.080	3.806	.051	K=V
H8-2 : PEOU -> ATT	-.048	.089	.203	.154	13.033	.000	Rejected
H8-3 : PU -> ATT	.371***	.105	.537**	.164	12.901	.000***	K<V
H8-4 : PU -> INT	.354***	.078	.171	.109	4.313	.038*	K>V
H8-5 : ATT -> INT	.748***	.132	.486***	.109	.593	.441	K=V
H8-6 : TRU -> ATT	.517***	.095	.280***	.081	4.956	.026*	K>V
H8-7 : TRU -> INT	.095	.089	.577***	.111	10.793	.001**	K<V

Notes: 1. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

2. PU=Perceived Usefulness, PEOU=Perceived Ease Of Use, TRU=Trust of Website, ATT=Attitude towards Online Food Purchasing, INT=Intention towards Online Food Purchasing.

Fig. 4. Structural equation model with path coefficients



Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5. Discussion and Conclusion

5.1. Summary of the Research

Numerous studies have been conducted by empirically verifying consumer behavioral determinants in online shopping. In addition, research applying the TAM is continuing steadily. In addition, there is a trend of continuing research to which more advanced technology acceptance models such as UTAUT are applied. The methodology and research direction of this study were carried out similarly to previous studies, but different implications were suggested as a result of empirical analysis. This is because it was analyzed that the direct determinants for the customer's online food purchasing appeared differently depending on the country. In other words, the empirical analysis results of this paper suggest that even in the online food market, customers' purchasing determinants differ according to the growth stage of the market. In this respect, the meaning of this paper can be found.

In prior studies, related to online shopping using the technology acceptance model, it was

analyzed that the hypotheses regarding the effect of perceived usefulness variable and perceived ease of use variable on consumer attitudes were generally adopted. However, as a result of the empirical analysis performed on the integrated model in this study, it was found that hypothesis 2 about the effect of perceived ease of use on consumer attitude was rejected. In fact, in some previous studies, it was found that the PEOU variable had a somewhat less effect on the ATT variable, compared with the effect of PU variable on ATT variable (Chen et al., 2018). This explanation was also described in Davis et al.(1989), where the technology acceptance model was first presented.

Practically, the online shopping markets in Korea and Vietnam are making continuous and rapid development. Naturally, Korean and Vietnamese customers can only easily get used to this shopping method. Therefore, especially in the study of the online market showing such rapid growth, it is speculated that the ease of use in online shopping method has no longer a significant variable with a big effect.

In addition, nationality does have a moderate effect of perceived usefulness and trust of website on attitude toward online food purchasing and intention toward online food purchasing in Korean and Vietnamese models. In other words, the factors that had a significant effect on the customer's attitude and purchasing intention appeared differently in the models of the two countries.

In Korea, of course, perceived usefulness also has a significant effect, trust of website has the largest effect on the customer's attitude. Choi(2015) suggested that attitude is a key mediator that conveys the effect of trust of a website on purchasing intention (Chung et al., 2020).

On the other hand, in the Vietnamese model, the customer's attitude works as a mediator between perceived usefulness and customer's intention to purchase food online (Nguyen et al., 2019). In addition, for Vietnamese customers, trust in a website is a very significant factor, that can affect customer's attitude and purchasing intention (Loketkrawee and Bhatiasavi, 2018).

Although the results of the two models have similarities, the slight difference in path analysis can be interpreted as showing the difference between the emerging and developing markets in the online food market. In both markets, usefulness and trust of the website can be seen as significant variables for customer attitude and purchase intention. In other words, in order to grow and expand the online food market, companies need to expand useful functions of the online food market system and provide reliable information through a website. However, as the factors affecting consumer attitudes and purchase intentions in online food purchases appear differently depending on the growth level of the market, online food providers need to devise different strategies for their online food market.

5.2. Implication and Limitation

In conclusion, the Korean and Vietnamese online food markets have similarities in that they are continuously experiencing rapid growth. However, compared to the Korean online market, the Vietnamese online food market is still in need of further development. Reflecting this situation, as shown in the empirical analysis results of the customer's purchasing determinants, it was analyzed that the degree of influence of the variables effecting on the consumer's attitude and purchasing intention appeared somewhat different.

Obviously, in both markets, the usefulness of online food shopping and the trust of websites appeared to be significant variables for consumer attitudes and purchase intentions. However, in Vietnam's online food market, which has not yet received sufficient trust from consumers, the trust of the website is analyzed as a more significant variable. Suppliers' efforts

to improve the website, that is, to increase confidence in the information provided by the website, and to increase the reliability of products they supply, will positively change consumers' attitudes toward the website and directly lead to an increase in consumer purchase intentions.

On the other hand, in the Korean online market—which has entered a stabilizing period in its growth and has achieved technological advancement—various construction of services, and diversified supply chains—when improved measures to expand the usefulness of the online food purchase method are applied, it will be possible to bring more direct and positive results to the purchase intention of consumers. In addition, the Korean online food market is a highly developed and customized service system. It is revolutionizing food distribution services such as early morning delivery, same-day delivery, and single item delivery. This advanced online food market distribution environment and marketing system will provide an opportunity for global market development through the online channel.

In other words, it is necessary to recognize this as an opportunity to expand the market to the overseas online food market based on the high usefulness and reliability of online food provision and distribution services of Korean online food market system. In particular, Korea is currently seeking an appropriate strategy for market expansion as part of the New Southern Policy. Therefore, in developing the New Southern market, the result of this study of that the Korean online food market satisfies the needs of customers well on the basis of excellent usefulness and reliability suggests that it is very timely to consider the adoption of e-trade and e-commerce in taking advantage of the 'New Southern Policy' of Korean government.

This paper is meaningful in that it has empirically verified the difference in the effect of customers' purchasing determinants in the online food market of two countries with different environments. However, some limitations of this study can be pointed out as follows. In prior research regarding online shopping market, various variables are considered as the purchasing determinants of customers, but in this study, various determinants were not applied, as we focused on comparing and verifying the influence of key variables. Moreover, it is difficult to interpret the characteristics of the emerging and developed online food markets only with the results of verifying and comparing the degree of effect of the usefulness variable and the trust variable. Therefore, in order to more accurately analyze the difference in the market environment and customer needs, as a future research project, we would like to suggest the application of more diverse variables as the determinants effecting on customer's attitude and purchase intention. The application of the UTAUT model described above may be an example. Then, it is considered that more practical implications will be presented to participants in the online food market, if the customer's purchasing determinants for each growth stage of the online food market are analyzed in detail.

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