

Kien Pham Van; Thu Ha Do Thi; Thu Hoai Ha Le

Article

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*Corresponding author: Van Kien Pham, Department of Science and Technology, Ho Chi Minh City University of Economics and Finance, HCM City, Vietnam
E-mail: kienpv@uef.edu.vn

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Usama Awan, Industrial Engineering and Management, Lappeenranta University of Applied Sciences, LUT University, Finland

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MARKETING | RESEARCH ARTICLE

A study on the COVID-19 awareness affecting the consumer perceived benefits of online shopping in Vietnam

Van Kien Pham^{1*}, Thu Ha Do Thi² and Thu Hoai Ha Le³

Abstract: The Covid-19 outbreak has turned out an opportunity for a recent noticeable increase in online shopping in Vietnam. Hence, this paper aims to discover how online shoppers react to their purchasing behaviour during Covid-19 time in terms of perceived benefits perspective. Based on the collected data from 427 Vietnamese online respondents during the social distancing period due to Covid-19, the research analyses the role of Covid-19 as a moderator variable in the relationship between benefits perception of the consumer and their online shopping activity. The result shows Covid-19 plays a moderating role in consumer's awareness of utilities, which encourages shoppers towards Online shopping. However, the affection of society could be a reason that consumers become more hesitant to shop online. In the meanwhile, awareness of the Covid-19 pandemic and marketing policies do not impact on online shopping significantly during the Covid-19 pandemic which is a conflict with previous researches. These findings can contribute to understanding consumer behaviour comprehensively, help companies deal with similar situation as well as recommendations for the government to support businesses effectively in the future.

ABOUT THE AUTHORS

Dr. Van Kien Pham is a famous researcher in Vietnam. His articles were published at various well-known journals in the world such as *Journal of Testing and Evaluation*, *Pacific Journal of Marketing and Logistics*, *Sustainability*, *International Business Research*, etc.

Ms. Thu Ha Do Thi graduated MSc. Logistics and Supply Chain Management from the University of Portsmouth, UK. Some of her papers were presented at the international conference "PICMET" and published in some international journals such as the *International Journal of Supply Chain Management (IJSCM)*, *Journal of Consumer Behaviour*, etc.

Ms. Thu Hoai Ha Le researches currently focus on strategic management, strategic entrepreneurship, entrepreneurship, innovation in organizations, knowledge dynamics, and knowledge management. Ms. Hoai graduated from Norwich Business School (University of East Anglia, UK) for MSc. In Business Management.

PUBLIC INTEREST STATEMENT

The authors would like to state that the study is available for many kinds of readers including businesses, students, scholars, etc. The results showed that the Covid-19 epidemic had a significant influence on the online shopping behaviour of Vietnamese customers. Therefore, this article partly assists businesses in understanding the impact of the disease on customers' online shopping behaviour from which to prepare a timely response in the future. In addition, based on our study readers can have a better understanding about customer behaviour towards online shopping in Vietnam during the Covid-19 epidemic.

Subjects: Marketing Research; Sales; Consumer Behaviour; Internet / Digital Marketing / e-Marketing

Keywords: consumer behaviour; online shopping; Covid-19; benefits perception

1. Introduction

It should be clearly stated that Online shopping is growing as a popular modern channel for Vietnamese consumers in recent years, fuelled by high internet penetration. Vietnamese now are spending more time online and are also shopping more online. Among consumers using the internet, up to 98% of consumers have purchased their commodities through online platforms (Nielsen, 2018). The average online time of Vietnamese internet users is 48 hours per week which means about 6.5 hours every day. Thus, with connection to the internet, e-commerce and online shopping is growing strongly in Vietnam. Almost 50% of respondents of a recent survey by Nielson Vietnam said that they were “using“ or ”ready to use“ e-commerce platforms, utilities such as home delivery to FMCG products (Hawley & Huynh, 2020). Market research firm ComScore also explored that the number of consumer access to retail websites in Vietnam reached 71% of all Internet users surveyed (Ngọc, 2019). The recent growth of online shopping has been explained by various studies. According to previous researches, online shopping behaviour is not only influenced by the demographic characteristics of customers such as age, gender, and occupation, etc. (Baubonienė & Gulevičiūtė, 2015; Fang et al., 2016; Ganesan-Lim et al., 2008; Yan & Dai, 2009), but also perceived benefit factors (Häubel & Trifts, 2000; Katawetawaraks & Wang, 2011; Lee et al., 2011; Masoud, 2013; Yan & Dai, 2009; Zhang et al., 2014). In 2020, Vietnamese businesses have been facing challenges, like many other countries, caused by Covid-19, which is an epidemic that spreads quickly through normal human-to-human contact and occurred in Vietnam around the end of 2019 (Hawley & Huynh, 2020). As a result, COVID-19 impacts not only general behaviors but shopping and out-of-home consumption. Vietnamese consumers start recognizing the benefits of online shopping, especially during the pandemic period. According to a Neilson’s survey on how Covid-19 has impacted on Vietnamese consumers, 25% of respondents said that they have increased their online shopping and have reduced their out-of-home consumption occasions (Neilson, 2020). The Vietnamese government has also taken strong solutions to prevent the disease, including social isolation, encouraging online shopping to prevent crowds and social exposure. How does this affect online shopping habits, and how does consumer behaviour change during and after the disease outbreak? The research also aims to explore whether it is only temporary behavioural change because of the benefits of online shopping during the Covid-19 pandemic or it is a real chance for many businesses to be more aggressive with their digital strategies after the Covid-19 epidemic is under control.

There are many research papers analysed the online shopping behaviour of consumers. However, most of the previous studies were carried out before the spread of Covid-19, it is still a question of how this pandemic may impact consumer behaviour towards online shopping. Furthermore, the authors also aim to conduct this research to explore the situation on the specific context of Vietnam. Based on this issue, the authors add the Covid-19 variable into the research model as a moderator variable to consider the impact of this variable on online consumer behaviour in Vietnam. In order to achieve the research purpose, the authors design this article into five parts including literature review, problem identification, methodology, empirical study, and concluding remarks. Some implications would be suggested to both online sellers in setting suitable business strategies to adapt to the change of customers as well as to support the government in setting suitable policies in the new context.

2. Literature review and hypotheses

2.1. Online shopping (OS)

Online shopping has been studied in many researches such as Li and Feng (2011), Senecal et al. (2005), and Baubonienė and Gulevičiūtė (2015). Most of the authors agree that OS has to satisfy the

requirements of customers based on their past search history as well as previous experience. OS has relied on consumers' culture, attitude, risks, and trust while most of the companies mostly researched about customers' education, income, reviews to meet their increasing demand for purchasing a product online. There are many research papers analysed buying behaviour in general and online shopping in specific. Most of the variables affecting OS in this study are built consistently based on the previous researches as well as the gap and limitations. The online shopping behaviour of consumers could be affected by various factors, other than internet access. According to previous researches, online shopping behaviour is not only influenced by the demographic characteristics of customers such as age, gender, and occupation, etc. (Baubonienė & Gulevičiūtė, 2015; Fang et al., 2016; Ganesan-Lim et al., 2008; Yan & Dai, 2009), but also by two groups of factors, which are customer's perception of risk factors and benefit factors (Häubl & Trifts, 2000; Katawetawaraks & Wang, 2011; Lee et al., 2011; Masoud, 2013; Yan & Dai, 2009; Zhang et al., 2014). In this study, the research will focus on the group of perceived benefit factors affecting the online shopping behaviour of Vietnamese consumers, especially during the Covid-19 outbreak.

As to research carried out by Nielsen during March 2020, when Covid-19 occurred, there are more than 50% of customers who reduced their frequency of visiting physical stores, 80% reduced their occasions of out-of-home consumption and 39% bought more frequently from online shopping channels. The type of goods being searched and purchased has changed drastically since the appearance of Covid-19, mostly about hygiene goods (76%), travel plans (63%, though 22% of it was canceled), home-cooking and home-eating which are also more often consumed (63%). One of the noticeable issues is that around 64% of Vietnamese are prepared to keep maintaining their new habits which are using food delivery or purchasing goods online even after the pandemic (Hawley & Huynh, 2020).

There is a fact that Vietnamese adjusted their behaviour even before restaurant closures and changing significantly after the Covid-19 outbreak in which 62% would eat at home more post-pandemic and 83% reduced eating or drinking away from home. Especially, there is 93% of Vietnamese would like a 5 G phone and 67% believe in virtual shopping prospects in the future and approximately 50% are interested in purchasing intelligent speakers or artificial Intelligent assistants. After Covid-19 happened, the categories of online purchasing products are changing gradually in the towards of concerning health more than before. The percentage of online shopping is also increasing compared to traditional shopping types.

This research would investigate how differently Covid-19 plays a moderating role in each type of perceived benefit towards Vietnamese consumer's online shopping behaviour. These variables would be discussed and developed in section 2.2. The awareness of the Covid-19 outbreak could be relatively proposed as a moderator to present for psychological, emotional, involuntary subjective norms, informal communication, which are factors related to demand, perception, attitudes, and core service value. The development of the Covid-19 variable will be detailed in section 2.3.

2.2. Perceived benefits

Some good aspects that online shopping brings to consumers have been mentioned by many previous studies. Hence, the experience of customers when using the Internet to shop is believed to be impacted by the different benefits that customers could perceive because those benefits have not been completely reflected in their experience of traditional purchasing (Forsythe et al., 2006). This article inherits and develops 5 variables about received benefits from a number of previous studies, including Awareness of Utility, Awareness Easy to Use, Awareness of Marketing Policy, Awareness of Price and Cost, and Affection of Society.

2.2.1. Awareness of Utility (AU)

Lee et al. (2011) reckoned that AU affects the intention of online shopping in a positive way. AU in shopping online was measured by several elements relevant to the effectiveness of time, the

service of delivery and taking away, and the reduction in direct interaction. When purchasing products online, consumers would not be tired of participating in traffic, looking for a parking lot, and waiting for the payment, therefore, people who are hesitant in social interaction would prefer to choose to shop everything on the internet (Katawetawaraks & Wang, 2011). Ever since the SARS outbreak many years ago, it has been observed that home delivery services, as well as restaurants tending to discourage customers from eating on the spot, have been forced to be supplied and implemented because of the awareness of spreading disease (Senecal et al., 2005).

Therefore, it could be said that the situation of the Covid-19 epidemic is considerably similar to that of SARS, but the level of danger is much higher, so this study further addressed people's awareness of wearing masks to measure of the AU variable. Accordingly, Hypothesis 1 is brought out as follows:

H1. *There is a correlation between AU and OS intention of Vietnamese shoppers in the context of COVID-19 pandemic*

2.2.2. Awareness Easy to Use (EU)

The convenience of online purchase, or in other words, the ease of use of online shopping services, which has a positive effect on customers' intention in selecting this mode of shopping, has been concluded in many previous studies (Bhatti et al., 2018; Katawetawaraks & Wang, 2011; Lee et al., 2011; Yan & Dai, 2009). The awareness of perceived ease of use was explained by Fang et al. (2016) that the comprehensive serving capabilities of electronic services would help increase the value of the service as well as bring more benefits to consumers. Besides, expert shoppers who can use modern technology proficiently would feel easier to purchase everything on the internet and they might tend to opt for more online shopping (Baubonienė & Gulevičiūtė, 2015). The convenience and ease of online shopping are also related to the issue of exchanging goods as well as the ability to access advice from employees in the selection process, which Yan mentioned as a risky aspect of experiencing e-shopping, compared to the traditional form (Yan & Dai, 2009).

Based on the above aspects, this study proposes Hypothesis 2 as below:

H2. *There is a correlation between EU and OS intention of Vietnamese shoppers in the context of COVID-19 pandemic*

2.2.3. Awareness of Marketing Policy (MP)

The marketing strategy, as well as the marketing policy of an online store on a website, could attract users if it is presented and operated in an easy way to approach (Katawetawaraks & Wang, 2011). Because consumers may be embarrassed when making an online purchase due to the lack of professional assistance from the employees or lack of social interaction with the sellers, so the consulting staffs play an important role in supporting the experience of online shoppers (Katawetawaraks & Wang, 2011). In Vietnam, many businesses, especially e-commerce sites, indeed put diversified promotions into service to encourage customers to shop online during the COVID-19 pandemic, such as Shopee, Tiki, Lazada (Vân, 2020). In addition, this study also wants to emphasize further marketing policies related to supporting customers to return goods in particular, as well as the after-purchase care policy in general during the COVID-19 outbreak, so this issue was referred to by the authors during the measurement survey.

Based on issues about marketing policies in the new context of the pandemic, Hypothesis 3 is brought out as below:

H3. *There is a correlation between MP and OS intention of Vietnamese shoppers in the context of COVID-19 pandemic*

2.2.4. Awareness of Price and Cost (PC)

The price of products and the costs arising from buying products online are also factors affecting customers' buying intentions because they are fully able to compare prices between many other products as well as between many different sites to make the final decision (Katawetawaraks & Wang, 2011). Yan and Dai (2009) supposed that customers would decide whether to buy the product or not depending on the price while Baubonienė and Gulevičiūtė (2015) argued that it is the costs incurred by the purchase of a product from the internet that influence the consumer experience. Besides, this study also put forward some other costs related to shopping online which could influence the experience of consumers, such as costs of installing applications or software to use the e-shopping service, or costs of paying for the internet service while processing the payment of purchases. Accordingly, Hypothesis 4 is built as follows:

H4. *There is a correlation between PC and OS intention of Vietnamese shoppers in the context of COVID-19 pandemic*

2.2.5. Affection of Society (AS)

Information from the community and society is considered to impact consumers' intention to choose to shop online, especially feedback or complaints from people who have purchased products before (Lee et al., 2011; Zhang et al., 2014). Hence, how social influence during the Covid-19 pandemic causing consumers to respond to online shopping services, would be analysed through Hypothesis 5 as follows:

H5. *There is a correlation between AS and OS intention of Vietnamese shoppers in the context of COVID-19 pandemic*

2.3. Moderator variable: Awareness of COVID-19 (AC)

Since the World Health Organization (WHO) proclaimed Covid-19 as a global pandemic and asked for collaborative efforts from all around the world (WHO, 2020), many countries have had drastic policies to try to prevent the spread of this disease. Especially when some of the Government's directives on social distance or social lockdown are issued, all social activities must be changed to adapt to this difficult context. This leads to people's views and perceptions about the disease that would directly affect their daily routines and activities, which consist of shopping activities. Therefore, this study concentrates on the influence of the Covid-19 pandemic and considers the Awareness of Covid-19 as the moderator variable which could indicate the change in consumer behaviour about online shopping.

Awareness of the market situation of people in many countries when the pandemic happens has become very wobbly, making traditional shopping activities become chaotic. Typical cases happened in Hungary when the consumers became panic in shopping (András & Tamás, 2020), same situations also took place in Australia, the USA, and the UK (Bekiempis, 2020; Carmody, 2020; Wilson, 2020).

In fact, people's awareness of the pandemic depends largely on how the Government publishes information and controls society. In Vietnam, thanks to the quick response of the Government right from the beginning of the disease outbreak in China, along with the issuance of two Directives No.15/CT-TTg and No.16/CT-TTg requiring the whole country to implement social distance (MOH, 2020a, 2020b), most Vietnamese are equipped a high alert and awareness of the spread of this disease.

People are gradually becoming aware that they need to stay home instead of going somewhere outside, minimize their needs related to social interaction such as having meals at restaurants or using entertainment services, stop using public transport, reduce going to the office and the workplace, and stop traveling abroad (Baker et al., 2020; Lewis & Garbett, 2020; Retail

Economics, 2020). As long as having a solution to help people is not too stressed and worried, everyone will be ready to implement (Zhou et al., 2007).

According to the research about shopping on Amazon in Italy, the awareness of this disease outbreak has shifted the tendency of people to online shopping due to the fact that the sales of Amazon increased sturdily during the time of social distancing and state-official closures (MacDonald, 2020). Because of this, it could be said that online shopping is an optimal alternative during this epidemic crisis because it helps customers maintain product consumption while helping to prevent risks of spreading the virus (Forster & Tang, 2005).

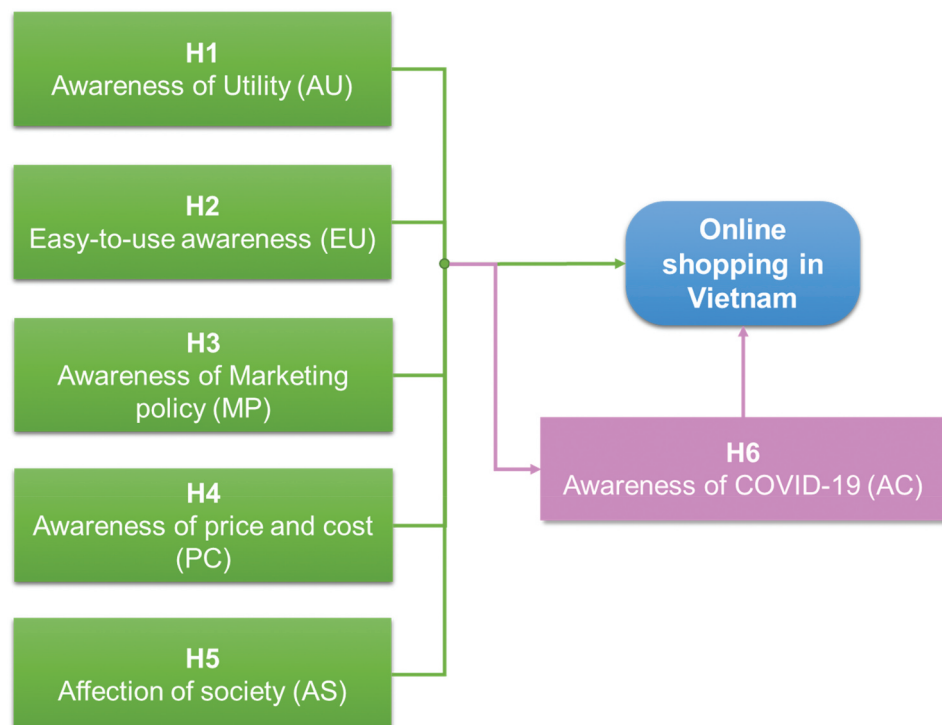
This is the reason that the authors propose the variable of Awareness of Covid-19 to the model and investigate how this variable affects the switch of customer behaviour in online shopping, with Hypothesis 6 build as below:

H6: *There is moderation of AC on OS of Vietnamese shoppers in the context of Covid-19 pandemic*

2.4. Research model

Based on gaps in previous studies on the impact of the Covid-19 epidemic on consumers' intent to buy online, particularly Vietnamese consumers, this research assumes that the 5 elements about Perceived benefits analysed above could be altered due to the impact of this disease. From that, the authors propose a research model showing the correlations of 5 benefit variables on the intention of online shopping along with the moderation of the variable of Covid-19 awareness, as shown in Figure 1.

Figure 1. The model of Perceived benefits in shopping online during Covid-19 in Vietnam.



3. Methodology

3.1. Sampling method

To test the proposed hypotheses, in this study, the sample could represent the population with a given confidence level of 95% based on the Yates method (Box et al., 1978). The authors selected a sufficient number of samples to investigate the overall population (Smith et al., 2016). According to Picodi's report in 2019, over 33% of the population, or about 40 million people in Vietnam have made a purchase online (Picodi, 2019). Thus, the authors performed the size calculation according to the formula $n = N/(1 + N \cdot e^2)$. Where the sample size is "n"; the population is "N"; and "e" is a significant level at 0.05 (5%) and 0.1 (10%). Thus, the minimum sample that the research needs to perform is at least 400 samples.

3.2. Data collection

We used the probability sampling method by systematic random sampling technique (Sarstedt et al., 2018). The authors designed the research survey based on the items established in the literature review section. As a result, the survey includes a various group of questions including informational questions, questions for measuring independent variables, moderator variable, and the dependent variable using the Likert's scale 5 (1 equal to completely disagree and 5 is equivalent to completely agree, respectively). There are also some open questions for customers to give their opinions to make online shopping better. The survey was originally designed in Vietnamese and spent a week to obtain the consults from experts. Then, we conducted the pilot test with 50 respondents and adopted the Cronbach's Alpha analysis to ensure the reliabilities of question items before conducting a formal survey. The official survey was conducted using the google form tool and sent directly to the participants. Eventually, the study collected 472 valid samples.

3.3. Data analysis techniques

Firstly, the study used Cronbach's Alpha coefficient of each variable to test the scale's reliability. As suggested, when Cronbach's Alpha is greater than 0.70 will present good reliability, and items of a variable have a total correlation coefficient being bigger than 0.30, we can conclude the variable is reliable to use for the deep analysis (Nunnally & Bernstein, 1994).

Secondly, we utilized the explanatory factor analysis (EFA) with the purpose to check the trustworthiness of each structure and thereby establish representative variables. To pass the EFA test, the P-value in Bartlett's test is required not to exceed 5%. The KMO coefficient must be 0.5 or higher. It is trustworthiness when each item in the same construct has the factor loading greater than 0.5. The Eigenvalue of a factor that is higher than 1 will be selected and the total variance extracted of all selected variables must reach more than 50%. If the study satisfies the mentioned conditions, we conclude that the EFA model is appropriate (J. F. J. Hair et al., 2009; Norušis, 1995). Thirdly, the authors use the SEM approach to inspect the research hypotheses, including the CFA analysis.

3.4. Sample characteristics

Based on information gathered from the survey summarized in Table 1, more than 70% of people surveyed are female and the age of survey participants is mainly from 19 to 35 (accounting for nearly 80%). Most of them are students or staff working at organizations, with an educational background from university to above and their average income is spread evenly across all levels. The survey fairly evenly approached people living in both downtown and suburban, with the difference being approximately 19%. However, it can be seen that although the survey respondents are from families with more than 2 members, almost participants' frequency of online shopping is from 1 to 2 times per week or less show that their online shopping frequency is not too high.

Table 1. Summary of respondents' information

Control variable	Categories	Frequency	%	Control variable	Categories	Frequency	%
Gender	Male	127	26.9	Age	< 18	22	4.70
	Female	343	72.7		19-35	365	77.3
Living area	Downtown	282	59.7	36-55	85	18.0	
	Suburban	190	40.3	> 55	0	0.00	
Family size	Single	66	14.0	Very often	13	2.80	
	2-4 members	286	60.6	Regularly	62	13.1	
	> 4 members	120	25.4	Normally	153	32.4	
				Rarely	96	20.3	
Education	High school	52	11.0	Very not often	148	31.4	
	University	305	64.6	< 5 million VND	176	37.3	
	Postgraduate	115	24.4	5-10 million VND	117	24.8	
Occupation	Student	182	36.8	10-20 million VND	103	21.8	
	Office Staff	167	35.4	> 20 million VND	76	16.1	
	Worker	10	2.1				
	Housewife	11	2.3				
	Business	47	10.0				
	others	55	11.7				

Table 2. Summary of the reliability and validity test

Factor	Number of items	Cumulative explained variance (%)	Factor loading	KMO	Eigen-values	Bartlett's Test (sig.)	Cronbach's alpha	Item-total correlation
AU	5	56.20	0.63-0.81	0.798	2.812	0.00	0.79	0.48-0.67
EU	5	73.04	0.79-0.90	0.888	3.652	0.00	0.91	0.68-0.83
MP	5	62.06	0.74-0.83	0.811	3.103	0.00	0.85	0.60-0.71
PC	4	59.60	0.71-0.82	0.731	2.384	0.00	0.87	0.50-0.63
AS	4	75.78	0.78-0.91	0.827	3.031	0.00	0.89	0.65-0.82
CI	3	70.92	0.83-0.86	0.831	3.131	0.00	0.79	0.63-0.66
OS	6	65.27	0.77-0.84	0.872	3.916	0.00	0.89	0.67-0.75

3.5. The reliability and validity test

The reliability test is presented in Table 2. As a result, all variables have Cronbach's Alpha coefficient index ranged between 0.70 and 0.91, and the correlation of the items in the same variable is larger than 0.30. It means that all variables used in the research model are reliable. The KMO coefficients are over 0.50 and Bartlett's test has sig. value at 0.000. The structure suspected only one factor that has Eigenvalue being greater than 1 and this factor explained over 50%. In addition, all items have a factor loading index bigger than 0.50. Thus, according to J. F. J. Hair et al. (2009) and Nguyen and Chang (2017), the validity and reliability of the construct are good. Therefore, the reliability of all variables is acceptable and can be used for in-depth analysis.

3.6. Empirical results

3.6.1. The confirmatory factor analysis (CFA)

According to DeCoster (1998), the confirmatory factor analysis is the first step to check the overall fit of the model in order to eliminate unnecessary items and correlating similar items. In a confirmatory factor process, although there is no expected relationship between variables, all of the variables in the model are co-varied, hence, all of the proposed variables should be included. Moreover, using AMOS 20 software could demonstrate the relationship between the items and their respective latent variables in the measurement model in the CFA process. The CFA results stated that Chi-square/Degrees of freedom (χ^2/df) ratio was $3.252 < 5$ as a statistical method for evaluating models (Chin & Todd, 1995) with a chi-square probability value greater than .05 indicates acceptable model fit (Table 3). Moreover, the fit indexes can describe and evaluate the residuals that result from fitting a model to the data. The IFI (Incremental-Fit Index) = 0.926 and the NFI (Normed-Fit Index) = 0.896 which complied with the criteria suggested by Baumgartner and Homburg in 1996 ($>.80$). Regarding Brown (2006), the model fits well when the comparative fit index (CFI) should be equal to or greater than .90. In this study, the CFI was .903 which meet that criteria well. Furthermore, the root means the square error of approximation (RMSEA) satisfy the suggested criteria of J. F. Hair et al. (1998) (less than or equal to .08) to support the adequate fit. As a result, the RMSEA was .069 ($<.08$). In other words, the result of the CFA states a great model.

3.6.2. Convergent validity

It exists significantly convergent validity if the factor loadings of the measurement items for each latent variable > 0.5 means (J. F. Hair et al., 1998). The results from Table 4 show a high degree of reliability for factor loading each variable to its variable group with values greater than 0.5. Thus, CFA modelling is adopted and the structural model can be used in the next sections.

3.6.3. The structural equation model analysis (SEM)

3.6.3.1. Model fit. After analysing CFA and confirming that each construct of the research model has strong reliability, this paper moves to the next step of using a structural model. As discussed in the methodology section, the overall good-of-fit and determine the relationships among variables should use SEM to test the model. Table 5 shows indexes that confirm the suitability of the model to meet all requirements, specifically $CMIN/DF = 3.185 < 5$; $CFI = 0.909 > 0.9$; $IFI = 0.91 > 0.9$; $RFI = 0.848 > 0.8$; $RMSEA = 0.068 < 0.08$, so the SEM model has an error within the acceptable range. These figures support the result of a very good fit between the conceptual model and the empirical model in this research. Thus, the SEM model has errors within the acceptable range and can be used to get to the final result.

Table 3. Model fit of CFA

Index	CMIN/DF	NFI	IFI	CFI	RMSEA
Value	3.252	0.896	0.926	0.925	0.069
Standard	< 5	> 0.8	> 0.9	>0.9	< 0.08

Table 4. Regression Weights

Factor loading			Estimate
AU1	<—	AU.	.534
AU2	<—	AU.	.724
AU3	<—	AU.	.717
AU4	<—	AU.	.593
AU5	<—	AU.	.774
EU1	<—	EU.	.760
EU2	<—	EU.	.874
EU3	<—	EU.	.862
EU4	<—	EU.	.808
EU5	<—	EU.	.771
MP1	<—	MP.	.693
MP2	<—	MP.	.785
MP3	<—	MP.	.687
MP4	<—	MP.	.676
MP5	<—	MP.	.777
AC1	<—	AC.	.785
AC2	<—	AC.	.823
AC3	<—	AC.	.866
AC4	<—	AC.	.908
AS1	<—	AS.	.885
AS2	<—	AS.	.890
AS3	<—	AS.	.836
AS4	<—	AS.	.689

Table 5. The model fit of SEM

Index	CMIN/DF	NFI	IFI	CFI	RMSEA
Value	3.185	0.874	0.910	0.909	0.068
Standard	< 5	> 0.8	> 0.9	>0.9	< 0.08

Table 6. The result summary

Effects	Estimate	S.E.	C.R.	P	Result		
AC.	<—	AU.	.516	.135	3.820	***	Supported
AC.	<—	EU.	-.067	.104	-.649	.516	Rejected
AC.	<—	MP.	.104	.102	1.017	.309	Rejected
AC.	<—	AS.	.275	.059	4.643	***	Supported
OS	<—	AU.	.124	.094	1.320	.187	Rejected
OS	<—	EU.	.279	.074	3.796	***	Supported
OS	<—	MP.	.057	.071	.799	.425	Rejected
OS	<—	AC	.153	.044	3.464	***	Supported
OS	<—	AS.	.285	.044	6.485	***	Supported

3.6.3.2. *The results of SEM analysis.* Based on the results summarised in Table 6, we have four main findings as follows:

Result 1: The AC does not have an intermediate role or regulate the impact of the EU on the OS because the EU only has a significant direct impact on the OS (BETA = 0.279). In other words, the awareness of Covid-19 does not change the perception of ease of use in online shopping.

Result 2: The AU has a significant impact on the AC (BETA = 0.516). AC has a significant impact on OS (BETA = 0.153). AU has no significant effect on the OS. This result shows that the AU does not affect on its own to OS, but through the intermediate variable AC (awareness of Covid-19). Or AC is the intermediate variable in the impact of AU (awareness of utilities of online shopping) on OS. It is clear that online shoppers have felt the usefulness of online shopping through awareness of Covid-19 pandemic in this period.

Result 3: The AC does not have an intermediate role or regulate the effect of MP on the OS because MP has no direct significant impact on the OS. In other words, marketing policy has no impact on online shopping during the Covid-19 pandemic.

Result 4: The AS has a significant impact on the AC (BETA = 0.275). The AC has a significant impact on the OS variable (BETA = 0.153). The AS has a significant impact on OS variable (BETA = 0.285). There is a regulatory role of AC variable in the impact of AS on OS, but it is regulated in a decreasing direction ($0.285 - 0.153 = 0.132$). In other words, the influence of society through awareness of Covid-19 has reduced the online shopping decision, but this decrease is still “positive”.

4. Conclusion and implication

4.1. Conclusion on the results

The study focuses on how the online shopping intentions of Vietnamese consumers have changed during the Covid-19 epidemic based on related benefits, at the same time measures the effect of the Covid-19 moderator variable on their online shopping behaviour. The hypotheses are formulated based on references from previous studies with the aim of helping businesses better understand the impact of Covid-19 on Vietnamese consumption habits in order to obtain the preparation in such a way that is more proactive in the future.

According to the results shown in the research equation, the determinants used are valid and reliable, and the model structure is also considered appropriate. The findings show that there is a significant change in the perception of the benefits of online shopping for consumers during the Covid-19 epidemic. As been shown in the result, Covid-19 takes a moderating role on consumers' awareness of utilities, encouraging shoppers towards OS, while the affection of society could be the reason which hesitates customers in using OS. Conversely, awareness of Covid-19 does not affect the benefits that marketing policies bring to consumers during the pandemic, which is a conflict with other previous researches.

Since the end of 2019, the emergence of the Covid-19 epidemic has resulted in an increase in the number of studies related to the healthcare sector (Raude et al., 2019), however, research on business has not been promoted. The analysis of the effects of the Covid-19 epidemic has largely been done in the US, Germany and Italy (MacDonald, 2020), so this study contributes a different perspective on this disease in Vietnam. Moreover, there has been prior research that has applied trust as a moderator element to measure its influence on online shopping decisions (Zhang et al., 2014). Hence, the contribution of this article is the consideration of Covid-19 as a moderator variable to test its impact on Vietnamese consumers' perception of online shopping benefits, whereas other studies with the same research objective did not apply any moderator variable, or if so, it was not the Covid-19 variable as in this article (Fang et al., 2016; Nimako & Winneba, 2012).

The results showed that the Covid-19 epidemic had a significant influence on the online shopping behaviour of Vietnamese customers. Therefore, it can be seen that the research objective of this article has been achieved and it partly assists businesses in understanding the impact of the disease on customers' online shopping behaviour from which to prepare a timely response in the future.

4.2. Implications

Though the perceived benefits impacting online shopping has some inherent results with previous studies, this could be explored better in the future. Based on the findings, the emergence of the epidemic did not change consumer perceptions of companies' marketing policies, suggesting that customers were not becoming easier to buy online just because the epidemic happened. Therefore, even during the epidemic, businesses still need to focus on promoting marketing strategies to stimulate consumer shopping needs by providing more purchasing options, especially more policies helping customers get products without much interaction.

True to reality, the affection of society is an important factor affecting the shopping decisions of consumers in Vietnam. People tend to ask for the opinion and reviews of their relatives or to consult previous buyers before deciding to buy something. It can be seen that the information Vietnamese consumers receive from others, whether through any form and means, has a significant influence on the buying decision of them. However, the influence of information from society on consumers' online shopping intentions seems to have weakened as the epidemic struck. This means that, although customers may have recorded negative information about the product, in the context of a dangerous disease, they seem to have to accept spending on online shopping even though uncertainty feeling still exists. Thus, businesses selling online should give their customers chances to make a review, comment, or rate on products they have purchased through the website and application, or create a platform for customers to interact with sellers as well as other buyers so they have more information resources to support their buying experience. To do this, businesses and regulators need to be more professional, change faster, grasp technology trends to better meet the needs of consumers not only during but also post-epidemic.

Besides, the perception of the utility of shopping online does not seem to affect a consumer's buying intent much until the epidemic appears. Only when awareness of Covid-19's existence takes place, Vietnamese shoppers realize how useful online shopping is. Along with that, shoppers' perception of how easy it is to shop online also influences their intention to use this form, whether or not an epidemic occurs. This shows that, although the epidemic may cause customers to switch to buying more online, businesses should not neglect to improve and upgrade the interface to use their online platforms. This upgrade should aim to be easy to understand, easy to operate, and convenient to use for customers, while still clearly demonstrate the values and quality of the product. In particular, the process of return, exchange or refund should also be focused and designed in a simple way to enhance the experience of online shopping for consumers.

4.3. Limitations and future research

The existence of a problem that has not been fully exploited is inevitable in research, and this article is not an exception. The first is that the moderator variable selected in this article only revolves around the emerging issue of 2020, which is the Covid-19 epidemic, so other potential moderator variables have been temporarily ignored, typically is the variable of trust that Zhang et al. (2014) mentioned previously. Second, while there exists a strong effect of age and gender on online shopping decisions, this article does not focus on these factors but focused much on the effects of the epidemic. Finally, the scope of the survey in this study is only in one country Vietnam. This facilitates follow-up studies to expand surveys across countries to compare differences in online shopping intentions of different economies and cultures.

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Author details

Van Kien Pham¹

E-mail: kienpv@uef.edu.vn

ORCID ID: <http://orcid.org/0000-0003-0438-5684>

Thu Ha Do Thi²

E-mail: hadtt@uef.edu.vn

ORCID ID: <http://orcid.org/0000-0003-0864-4874>

Thu Hoai Ha Le³

E-mail: hoaihl@uef.edu.vn

¹ Department of Science and Technology, Ho Chi Minh City University of Economics and Finance, 141 - 145 Dien Bien Phu, Ward 15, Binh Thanh District, HCM City, Vietnam.

² Faculty of Economics, Ho Chi Minh City University of Economics and Finance, HCM City, Vietnam.

³ Project Design Education Center, Ho Chi Minh City University of Economics and Finance, HCM City, Vietnam.

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