



Publisher homepage: www.universepg.com, ISSN: 2663-7820 (Online) & 2663-7812 (Print)

<https://doi.org/10.34104/cjbis.023.081091>

Canadian Journal of Business and Information Studies

Journal homepage: <http://www.universepg.com/journal/cjbis>

Canadian Journal of
**Business and
Information Studies**



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The Impact of Covid-19 (Coronavirus) on Consumers' Behavior towards E-commerce

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Received Date: 5 May 2023

Accepted Date: 6 July 2023

Published Date: 13 July 2023

ABSTRACT

The Covid-19 pandemic has disrupted people's usual lifestyles, and this infectious disease has had a significant and pervasive impact on all facets of human existence. This study investigates how consumers' shopping behaviors have been influenced by the pandemic and how they are utilizing e-commerce to adapt and cope with the challenging circumstances caused by the Covid-19 situation. A conceptual framework and hypotheses have been developed based on the analysis of existing literature and several uniform methods to fulfill the research objectives. The study conducted several statistical analyses, like Confirmatory Factor Analysis (CFA), Cronbach's alpha (CA), composite reliability (CR), average variance extracted (AVE), heterotrait-monotrait (HTMT) ratio, and regression analysis. The result indicates that the pandemic situation influences consumers to use e-commerce to avoid unfavorable situations. As a result, economic benefits have been optimized due to the adoption of e-commerce during the pandemic situation.

Keywords: E-Commerce, Online shopping, Consumer behavior, Pandemic, Covid-19, and Coronavirus.

INTRODUCTION:

The Covid-19 pandemic has had a widespread impact on various facets of human existence, encompassing personal and professional lives, health considerations, shopping behaviors, businesses, and even the allocation of daily time by the customers (Salam *et al.*, 2022). It has caused the significant changes in almost every aspect of societies around the globe. From daily lifestyle to daily commercial activities, the pandemic left no aspect of society untouched. With its sudden and highly spreading nature has made a disruptive influence on various industries around the world. Among those industries, the world saw a profound transformation in the e-commerce sector. As almost all the countries around the world imposed lockdowns and limited human movements, people mostly relied on the online platform of businesses for purchasing their necessary things. This transformation in this sector has re-

shaped the landscape of e-commerce businesses and consumers' purchasing behavior.

Furthermore, it has resulted in substantial changes in online commerce that will have an impact on individuals, organizations, communities, and nations (Salam *et al.*, 2021). The necessity of e-commerce in the daily routines of numerous consumers is undeniable, as evidenced by the remarkable surge in both purchase frequency and expenditure in recent years. Several researches have shown that, during the Covid-19 pandemic situation, online shopping through F-Commerce and e-commerce has increased and this pandemic is somehow redesigning shoppers' shopping behavior (Koirala *et al.*, 2021). (Luo *et al.*, 2023) conducted a research in California and they have found that, the COVID-19 pandemic has expedited the expansion of e-commerce and brought about changes in shopping behaviors, consequently

influencing the number of trips made and the distance traveled by vehicles. Several studies have been conducted based on the COVID-19 situation and its impact on e-commerce in various aspects (Borges *et al.*, 2023; Gao *et al.*, 2023; Han *et al.*, 2022; Pejić Bach, 2021). However, most of the previous research mostly focused on the situation of developed countries where the infrastructure for conducting e-commerce activities is well developed. But in the case of developing countries where the required infrastructure of online businesses are not well developed and people find it difficult to conduct transactions through e-commerce, consumers may not fully rely on e-commerce for purchasing their necessary things. There could be many issues like internet access, smartphones, computers, and payment gateways which may disrupt consumers' behavioral intention to make transactions through e-commerce. Moreover, people may not fully trust the quality of products offered in the e-commerce businesses. From this perspective, this study aims to examine the impact of Covid-19 pandemic on consumers' behavior towards e-commerce considering the situation of a developing country. This leads to the research question: how does Covid-19 pandemic affect consumers' behavior toward e-commerce leading to economic benefit?

To address the research question, this study aims to explore the consumer's behavioral trends and patterns during a pandemic period. Moreover, the study plans to explore the consumer's shopping habits during the pandemic situation and how consumers are using e-commerce to adapt and endure such traumatic life events as the Covid-19 situation. More specifically, the study aims to discover how pandemic fear, consumers buying behavior, and intention to use e-commerce influence one another. It will also make a diagnosis of how this correlation affects economic benefits during such an environmentally imposed epidemic situation.

Literature Review and Hypothesis Development

Intention to Use

Intention means how individuals or consumers are approaching subjective values or norms, behavior (consumers might be optimistic or pessimistic), and perceived behavioral control (Ajzen, 1991; Armitage & Conner, 2001; Godin & Kok, 1996). Intention refers to consumers' perception of a specific matter, which denotes the customer's appraisal of the

prospect or perceived chance of performing a given behavior. According to (McEachan *et al.*, 2016) intention is considered a motivational factor that stimulates consumers to be involved in a certain and specific behavior. However, the Intention is widely being used to measure consumers' behavioral perception through a wide range of buying behavior, including traditional shopping and sustainable consumption, as well as social commerce and E-commerce (Aitken *et al.*, 2020a; Hajli, 2013). In this study, intention to use measures customers perceptions and the behavioral approaches towards E-commerce during Covid-19 pandemic situation. Although there could be many drawbacks and difficulties in making transactions through e-commerce in developing countries, limited movements and lockdowns somehow force people to stay at home and choose e-commerce for purchasing their required things. This purchasing intention of people could increase the economic benefit and affect the behavior of people. This leads to:

H1. Intention to use has a positive influence on economic benefit.

H6. Intention to use has a positive influence on perceived behavioral control.

Pandemic Fear

A pandemic is a proliferation of a malady that attacked a huge number of people and ensued in a wide range of territory. (Intermountain Healthcare Organization, 2020) identifies a pandemic as an epidemic that spreads over several parts of the world. According to (World Health Organization, 2010) if any new malady diffused globally is identified as a pandemic and at the same time the human body contains a lack of immunity to resist the disease. (The United Nations, 2020) announces that the Covid-19 pandemic is the most destructive disaster in the world during the last century. Worldwide, as of 13 March 2021, almost 118,754,336 people were affected by the coronavirus and 2,634,370 people died (World Health Organization, 2021). People's angst had been amplified by COVID-19 pandemic situation and its effects on shopper's buying trends (Leung *et al.*, 2021). Pandemic fear is the fear of customers about getting infected by the disease and this concern turns into a remarkable matter to know how pandemic fear affects customer's buying behavior (Khan & Huremović, 2019; Tran, 2021). The literature review shows that shoppers' buying trends and behavior could be changed because of the

negative influence of an explicit affair (Solomon & Kumar, 2020). Because of the Covid-19 pandemic, fear of buyer’s panic buying has increased and shopping trends have changed (Mehta *et al.*, 2020). Based on this literature it is quoted that a buyer’s pandemic fear means being anxious about the pandemic situation which impacts the E-commerce buyer’s buying behavior. This leads to:

H2. Pandemic fear has a positive influence on economic benefits.

H4. Pandemic fear has a positive influence on the intention to use.

H5. Pandemic fear has a positive influence on perceived behavioral control.

Perceived Behavioral Control

Perceived behavioral control is derived from multiple sources, such as an individual’s competence in performing a behavior and their capacity to effectively manage factors that either hinder or support that behavior (Ajzen, 2002a). The perceived control an individual has over a behavior can be determined by both external and internal factors (Kidwell & Jewell, 2003). The theory of planned behavior, which includes the constructs such as perceived behavioral control, attitude, subjective norms, and behavioral intention, is a deep-rooted

framework that has been utilized to understand changes in behavior across a variety of domains such as information technology, health, and environmentalism, along with others (Ho *et al.*, 2020, 2022). So, this behavioral control of people may influence the economic benefits of e-commerce businesses. This leads to:

H3. Perceived behavioral control has a positive influence on economic benefit.

Economic Benefit

Economic Benefit refers to any benefit or advantage that can be deliberate or articulated in economic and pecuniary terms. Previous literature shows that the economic driver has a significant influence on consumer’s decision also several literature shows that that economic factors can have both favorable and unfavorable impacts on consumers’ decision-making processes (Bock *et al.*, 2005; Dabbous & Tarhini, 2019; Kankanhalli *et al.*, 2005). Subsequent studies have discovered that economic benefits have a greater influence than other factors such as attitude and trust (Hamari *et al.*, 2016; Möhlmann, 2015). Based on the literature and hypothesized relationship, this study develops the following research model (Fig. 1).

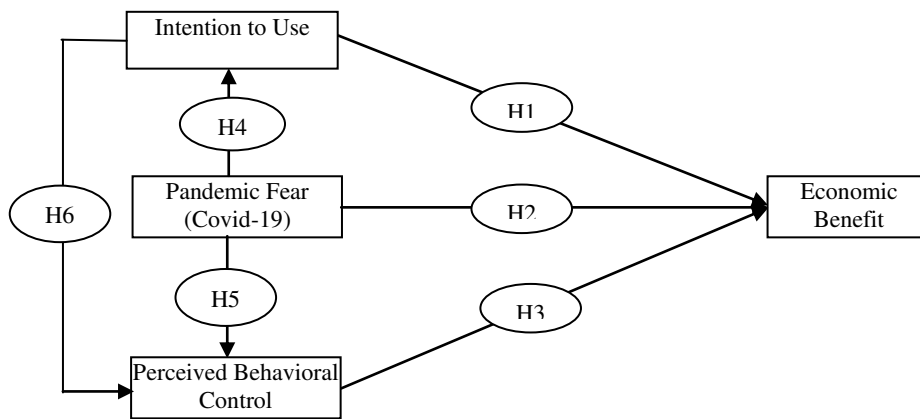


Fig. 1: Research Model.

METHODOLOGY:

Instrument Development

We develop a survey instrument using pre-existing items. The items were adjusted for the context of this

study. The following table (Table 1) shows the corresponding items of each construct.

Table 1: The corresponding items of each construct.

Constructs	Items		Sources
Pandemic Fear (Covid-19)	PF1	I am afraid of facing the Covid-19 (Coronavirus) pandemic.	(Chatterjee <i>et al.</i> , 2019; Kogan & Edelman, 2004; Tran, 2021)
	PF2	I feel safe to stay at home during the Covid-19 (Coronavirus) pandemic.	

	PF3	I am scared of facing the Covid-19 (Coronavirus) pandemic.	
Perceived Behavioral Control	PBC1	I intend to use e-commerce platforms very likely during the Covid-19 pandemic.	(Ajzen, 2002b; Busalim <i>et al.</i> , 2021; Yzer, 2012a; Ajzen, 2002a; Busalim <i>et al.</i> , 2020; Yzer, 2012b)
	PBC2	I have enough confidence that using e-commerce might be completely within my control.	
	PBC3	I am sure that I would be able to use e-commerce to purchase products and services during the Covid-19 pandemic.	
	PBC4	I assure that I have enough knowledge and resources to use e-commerce easily.	
Intention to Use	IU1	I would like to use e-commerce to fulfill my shopping needs during the Covid-19 pandemic.	(Aitken <i>et al.</i> , 2020a; Salem & Nor, 2020a; Wang <i>et al.</i> , 2006a; Aitken <i>et al.</i> , 2020b; Salem & Nor, 2020b; Wang <i>et al.</i> , 2006b)
	IU2	I will make an effort to use e-commerce next time when I get the opportunity.	
	IU3	I intend to enhance my use of e-commerce volume in the future if possible (post-pandemic).	
Economic Benefit	EB1	Buying goods and services from e-commerce, I can improve my economic condition during the Covid-19 pandemic.	(Bock <i>et al.</i> , 2005; Dabbous & Tarhini, 2019; Kim <i>et al.</i> , 2007)
	EB2	Buying goods and services from e-commerce, I can save money during the Covid-19 pandemic.	
	EB3	Buying goods and services from e-commerce is comparatively cheaper than other options during the Covid-19 pandemic.	

Pre-test and pilot study

The study conducted a pre-test among 6 doctoral students and two professors in the field of information systems for making the measurement items more understandable and meaningful. Based on the suggestions and feedback from the pre-test phase, the study modified the measurement items and prepared the final questionnaire. A final structured questionnaire was produced primarily in English and then translated into the Bangla (the respondents' native language). The questionnaire was also back translated into English from Bangla to examine whether the intended meaning of the questionnaire remains the same or not. We got the similar meaning through translation and back translation. This was done in order to convey the intended meaning of the questions to the respondents. The questionnaire was divided into two sections: section A, which contained demographic information on the respondents, and section B, which contained measurement items. The study uses a 5-point Likert scale (1 being strongly disagree and 5 being strongly agreed) for measuring the various items in the questionnaire. The study conducted a pilot study among a small sample size (20 respondents) that is similar to the actual respondents we UniversePG | www.universepg.com

are going to employ for full study. They made some corrections to the measurement items based on the pilot study and finally prepared a questionnaire for the final study.

Sampling and Data Collection

The data collection process took place in Dhaka City, the capital of Bangladesh, for 5 weeks (between the October 2021 and the November 2021). People essentially continue to migrate to Dhaka, the most favored city in the nation, in order to find work which makes the city diverse in terms of culture, standard of living, money, technological prowess, education, and occupation. Dhaka has been chosen as the sampling location for our study due to the chance to collect a range of responses and experiences from users belonging to the different sections of the country. People who have experience using at least one of the e-commerce platforms during the Covid pandemic are chosen as our population. Although people who have not used e-commerce platforms but intended to use them is influenced by others or by the positive perception regarding e-commerce sites are also taken into consideration as our study population. According to (Roscoe, 1975), the sample size for multivariate research should be at

least ten times as large as the number of measurement items of the study. However, 197 data in total were gathered for further statistical analysis.

Data Analysis

The study removed 33 unengaged data from a total of 197 respondents and rest of the 164 data was given input into SPSS for analyzing demographic data, validating the measurement model using Cronbach's Alpha (CA), Composite Reliability (CR), Average Variance Extracted (AVE), and Heterotrait-Monotrait ratio and consequently for testing the hypothesized relationships among constructs using regression analysis.

RESULTS:

Demographic Data Analysis

Table 2: Demographic Analysis.

Categorical Variables	Description	Categories	Frequency	Percentage (%)
Gender	Gender of the participant	Female	63	38%
		Male	101	62%
Age	Age of the participant	<20	7	4%
		20-35	100	61%
		36-50	35	21%
		51-65	14	9%
		>65	8	5%
Education	Educational qualification of the participant	College or below	31	19%
		Graduation	90	55%
		Masters	33	20%
		MPhil/PhD	10	6%
Living area	Current living area of the participant	Capital City	63	38%
		Divisional City	42	26%
		District City	36	22%
		Others (rural areas)	23	14%
Employment Status	Present employment Status of the participant	Student	47	29%
		Service holder	53	32%
		Business	30	18%
		Retired	6	4%
		Others	28	17%
Monthly Income	Gross amount earned by the participant (Monthly)	<30000	46	28%
		30000-45000	42	26%
		46000-60000	41	25%
		61000-75000	20	12%
		>75000	15	9%
Purchasing Types	Types of products or service purchase mostly by the participant	Groceries and Daily Needs	16	10%
		Apparel and Fashion	45	27%
		Readymade Food	31	19%
		Electronic Appliance	28	17%
		Health and Beauty Care	18	11%
	Others	26	16%	

From the respondents' demographic data, presented in **Table 2**, it can be seen that most of the participants are male (62%). Among the respondents' maximum e-commerce users are from the 20–35-year age group (61%) indicating the impulse of youth in using e-commerce platforms. Maximum numbers of respondents are respectively at graduation, and college or below level justifying the age group's preference for e-commerce platforms. People using or intended to use e-commerce sites are essentially city dwellers. Then again, users are respectively maximum service holders (32%), students (29%), and Business persons (18%) indicating that hustle and bustle of professional and personal life are the main reasons behind choosing e-commerce sites anytime especially amid pandemic like covid 19.

Moreover, people with stable monthly income prefer e-commerce sites for shopping. Mix responses were found while asking the purposes of using the e-commerce sites. They replied with the use of e-commerce sites for groceries and daily needs (10%), apparel and fashion (27%), readymade food (19%), electronic appliances (17%), and health and beauty care (11%). All the demographic data justifies the usage of e-commerce platforms for easy, convenient, and reliable advantages.

Measurement Validation

In order to analyze the measurement model, the study examined confirmatory factor analysis, internal reliability, convergent validity, and discriminant validity. According to (Hair *et al.*, 1998), the standard cutoff for the factor loadings is 0.60. The following table (Table 3) shows that all constructs'

items have factor loading greater than 0.60. For assessing the constructs' internal reliability, the Cronbach's alpha (CA) value and composite reliability (CR) were taken into consideration. A value of 0.70 for CA and CR is regarded as satisfactory (Hair *et al.*, 2006). Additionally, item loadings and average variance extracted (AVE), where a value of not less than 0.50 can be accepted, were taken into consideration for evaluating the convergent validity (Hair *et al.*, 2014). Table 3 shows the values of the loadings CA, CR, and AVE. All of the CA and CR values are higher than 0.70, showing the constructs have a high level of internal reliability. Additionally, all of the values for AVE were greater than their suggested values. Consequently, the model met the convergent validity.

Table 3: Factor Loadings, Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE).

Constructs	Items	Factor Loadings	CA	CR	AVE
Pandemic Fear (Covid-19)	PF1	.812	.847	.860	.672
	PF2	.846			
	PF3	.800			
Perceived Behavioral Control	PBC1	.759	.853	.886	.661
	PBC2	.807			
	PBC3	.882			
	PBC4	.800			
Intention to Use	IU1	.870	.918	.871	.693
	IU2	.826			
	IU3	.800			
Economic Benefit	EB1	.779	.828	.847	.649
	EB2	.774			
	EB3	.861			

The Heterotrait-Monotrait ratio of correlations (HTMT) criteria, where the acceptable value is less than 0.90 (Henseler *et al.*, 2015), was used to test

discriminant validity. Since none of the values are greater than 0.90, presented in Table 4, the model also satisfies the criteria for discriminant validity.

Table 4: Heterotrait-Monotrait ratio (HTMT).

	PF	PBC	IU	EB
Pandemic Fear (PF)				
Perceived Behavioral Control (PBC)	0.349			
Intention to Use (IU)	0.800	0.385		
Economic Benefit (EB)	0.476	0.347	0.582	

Hypothesis Testing

Based on the regression analysis data represented in Table 5, it can be observed that the p values are significant (less than 0.05) respectively for hypothesized relationships PF and IU, IU and PBC, and UniversePG | www.universepg.com

IU and the EB. Therefore, we have to accept the hypothesized relationship H1, H4, and H6. On the contrary, hypothesized relationships H2, H3, and H5 are rejected. It means pandemic fear has a positive influence on the intention of using e-commerce

platforms for shopping. On the other hand, intention of using e-commerce is found positively influencing

both the perceived behavioral control and the economic benefit.

Table 5: Regression Analysis.

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
IU - EB	0.232	0.942	0.074	-0.377	-0.086	-3.149	163	0.002
PF - EB	0.002	1.038	0.081	0.162	0.158	0.025	163	0.980
PBC - EB	0.002	1.138	0.089	0.174	0.177	0.017	163	0.986
PF - IU	0.230	0.547	0.043	0.145	0.314	5.376	163	0.001
PF - PBC	-0.004	1.067	0.083	-0.168	0.161	-0.042	163	0.966
IU - PBC	0.233	1.033	0.081	-0.393	-0.074	-2.890	163	0.004

DISCUSSION:

This study covers the contemporary and practical implication-based domains, exclusively in the naturally enforced pandemic situation like Coronavirus (Covid-19). Because of the pandemic, almost all the countries went into lockdown and limited the movements of people. These restrictions made people sit in their house and relied more on online versions of making transactions and purchasing. Customers were dependent on e-commerce for purchasing their necessary things from the daily requirements to some luxury items. There were many factors which were forcing customers to rely on e-commerce including intention to use, pandemic fear, and perceived behavioral control. Because of this reliance on e-commerce, economic benefits were increasing. This study investigated the issue of the impact of Covid-19 on consumers’ behavior towards e-commerce. The study also examined how consumers’ behavior leads to economic benefits. The study hypothesized six relationships based on the extant literature. Among those six, three of them turned out to be statistically significant. The study finds that H1 which is intended to use has a positive influence on economic benefit is statistically significant. The reason behind this relationship is that consumers’ behavioral intentions lead them to make purchases through e-commerce and increasing their purchase also increases economic benefits. As pandemic made the worldwide economy slower, increasing transactions and purchasing through e-commerce creates a shift to the increased economic benefits.

The study also finds that H4 which is pandemic fear has a positive influence on the intention to use is statistically significant. The reason for this signi- UniversePG | www.universepg.com

ficant relationship is that because of pandemic fear customers were bound to stay inside of their residence and used e-commerce sites for purchasing their daily necessities. Moreover, because of lockdown in countries, the intention of customers to use ecommerce sites has increased (Uddin, 2021).

Furthermore, the findings of the study shows that H6 which is the intention to use has a positive influence on perceived behavioral control is statistically significant. This is because consumers’ behavior towards e-commerce usage mostly depends on the intention of the consumers to make purchases through e-commerce sites. Even if there is no situation like a pandemic, consumers’ intention to use e-commerce sites for making purchases will influence the behavior of the consumers. However, although the study did not find significant relationships for H2, H3, path coefficient shows that the relationships are supported in the right direction of hypotheses. H5 has a negative path coefficient and it’s not statistically significant.

Implication

The study concentrated on the impact of Covid-19 on consumers’ behavior towards e-commerce and found several of the hypothesized relationships statistically significant. Theoretically, the study contributes several insights. First, the finding of this study adds a significant portion of knowledge into the literature of consumers’ behavior and the e-commerce. Second, the findings of this study show that consumers’ usage of e-commerce significantly affects economic benefits. So, this study will draw further scholarly attention in the field e-commerce and how it affects economic benefits. Third, the study will provide an insight of how a specific

incident like pandemic causes people to shift their way of doing things.

The study also provides the several practical implications. First, it will be beneficial for stakeholders from the non-academic, especially for the E-commerce industry and entrepreneurs. Second, it will be helpful for government strategy and policy-makers, e-commerce associations, and e-commerce regulating authorities to get substantial comprehension.

Limitation and future research direction

The study has several limitations. First, the study is conducted using a sample size of only 164 respondents. Although the sample size is enough based on the number of the constructs and some researchers recommendations, in future researchers could think of increasing the number of sample sizes. Second, the study is conducted in a developing country where infrastructure required for e-commerce is not well established. So, in the future, researchers could think of the conducting study involving both developed and developing countries. Third, the data collection period considered in this study is five weeks which can be increased to observe more rigorous scenarios.

In the future, researchers could think of increasing the data collection period. In future, researchers may consider investigating trend of buying behavior of consumers using e-commerce sites or online sites. Furthermore, researchers could incorporate some other constructs to examine the impact of economic benefits.

CONCLUSION:

In addition to its significant economic effects, the Covid-19 pandemic has also affected various other dimensions of human activity, including social, ecological, political, and behavioral aspects. Drawing upon the findings of the analysis and subsequent discussion, pandemic fear has a strong and positive influence on intention to use, which accelerates economic benefits. That means the pandemic situation influences consumers to use e-commerce to avoid any unfavorable situations. As a result, economic benefits have been optimized due to the adoption of e-commerce during the pandemic situation. Also, intention to use has a strong and positive correlation with the perceived behavioral control of the consumer.

ACKNOWLEDGEMENT:

We would like to convey our gratitude and the appreciation to our advisers, teammates, and well-wishers who supported us in various ways.

CONFLICTS OF INTEREST:

The author declares no conflict of interest.

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Citation: Rahman MT., and Salam MA. (2023). The impact of Covid-19 (Coronavirus) on consumers' behavior towards e-commerce, *Can. J. Bus. Inf. Stud.*, **5**(4), 81-91.

<https://doi.org/10.34104/cjbis.023.081091> 