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Impact of business-to-consumer e-commerce to Vietnam's GDP

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Abstract

Business-to-consumer e-commerce plays an important role in the development of the national economy that maintains the steady flow of the distribution of products and services to consumers. The development of business-to-consumer e-commerce also helps to complete logistics activities and enhance the competitive value of the companies. This study analyzes the situation of business-to-consumer e-commerce

in Vietnam in the period 2009 - 2020 as well as the effect on the GDP through the regression analysis. The results have demonstrated the continuous and rapid development of business-to-consumer e-commerce which has a positive influence on GDP growth in Vietnam in the period 2009-2021.

Keywords: Business-to-consumer e-commerce, GDP

1. Introduction

At present, the development of an economy depends not only on natural resources and labor, but also on the development of the country's information technology foundation. E-commerce is a testament to the advancement of digital exchange that contributes to the development of the digital economy of any country (Mahajan and Agarwal, 2015) ^[22]. E-commerce has opened an era of the exchange of information and data that changes the nature and operation of companies, especially the retail industry (Moagar-Poladian, Dumitrescu, and Tanase, 2017) ^[26]. Vietnam is one of the countries with fast and strong economic growth in Asia. Over the years, the government has always provided policies to encourage and support companies to apply information technology to production and management activities. In Decision No. 645/QĐ-TTg issued on May 15, 2020 by the Prime Minister, by 2025 the government has set the goal to make business-to-consumer e-commerce to become a key force in the development of the digital economy. This will promote the expansion of the global market towards making Vietnam become a country with a developed e-commerce market in the group of three leading countries in Southeast Asia.

Business-to-consumer e-commerce is still a potential market for domestic and foreign organizations when Vietnamese consumers are gradually accessing electronic equipment in purchasing products and services, especially essential products such as food and fashion. Therefore, the organizations in the online retail industry need to take advantage of their strength to increase the production value of their businesses, thereby increasing the national economy Maruyama and Trung, 2012) ^[25]. The objective of this paper is to clarify the impact of business-to-consumer e-commerce on the growth of GDP by analyzing the regression of the independent variable of business-to-consumer e-commerce and the dependent variable of GDP. The research paper will be presented in five sections including introduction, literature review, methodology, results and discussion, and conclusion.

2. Literature review

There is not currently the general concept for e-commerce. Depending on the field of operation, e-commerce will have certain concepts. In the trading and marketing view, nature of e-commerce is the application of enhanced information technology to the transaction or exchanging for goods and services (Hayashi, 1996) ^[13]. The business transactions are implemented by the combination of mobile applications, the internet, and global networks, known as world wide web, (Coburn, 1995) ^[7]. E-commerce involves activities which can be a part or the whole process of transaction (Benesko, 1994) ^[4]. The scale of the transaction is usually among business partners, individuals, and individuals with organizations. This is the process of purchasing for products, services and information through the internet connected electronic equipment (Chan and Swatman, 1999) ^[6]. Under the supply chain view, Becker, Farris, and Osborn (1998) ^[3] has shown that the activities of e-commerce are related to forming the mechanism for the flows of goods, information, communication between the companies and their customers such as suppliers, wholesalers, retailers, and final customers.

The organizations which are from the origin point to the end point of the value chain can implement the transactions beyond the border through the global network which requires the developed information system foundation (Wigand, 1997) ^[48]. The purpose of e-commerce is to meet the requirement for quick response of the customers to improve the quality of goods, service, and delivery (Kalakota & Robinson, 1999) ^[16]. E-commerce is the trend of globalization that help the companies improve the productivity, approach new customers, connect globally, and share knowledge among organizations towards gaining the competitive advantage (Zhu & Thatcher, 2010) ^[53]. Under the management view, e-commerce is a part of e-business which includes activities of internal and external electronic activities of the company on a global scale while e-commerce involves only the organization's supporting activities on the electronic exchange market (Kunešová & Eger, 2017) ^[18]. The e-business is not only focusing on the transaction of products and services, but also including other management activities of the company which are implemented based on the electronic platform such as human resource management, accountancy, marketing, manufacturing, warehouse management, inventory management, and customer relationship management (Graaf & Muurling, 2005) ^[12]. E-commerce mainly includes activities of exchanging for the goods and services with the domestic and foreign customers that is implemented based on the global scale information system while electronic business involves the deployment of information technology to the business process within a company (Maruyama & Trung, 2012) ^[25].

The function of e-commerce is gradually changing the perception of businesses in transactions, especially cross-border transactions (Mou, Zhu, & Benyouce, 2020) ^[27]. The research of Yugang, Renhong, & Yong-Jae (2021) ^[51] has also shown that the cross-border e-commerce trade has the positive relation with the international logistics. Legal issues related to e-commerce activities such as e-commerce laws in low GDP countries are often incomplete and clear (APEC, 1999) ^[2]. This also makes the organizations to get the difficulties in building the e-commerce infrastructure for business activities serving. Wang (1999) ^[46] also mentions a similar content in which the legal basis related to e-commerce needs to be adjusted in a timely manner. E-commerce is a product of the knowledge economy that is invented based on the desire to connect and share the global data platform (Tang & Wang, 2020) ^[33]. The global countries are always promoting the development of digital applications based on e-commerce platforms that will help the companies give the solutions quickly and comprehensively to improve the production efficiency towards development of the national economy (Ho & Liang, 2011) ^[14]. The e-commerce market is expanding with new models that match the current operating situation of the economy and society (Pantelimon, Georgescu & Posedaru, 2020) ^[29]. Thereby, the global supply chains are also gradually changing towards a more modern direction with the support of digitization and information technology (Fraumeni, 2001) ^[11].

Based on customer characteristics and transactional nature, e-commerce can commonly include types of models such as business to business, business to consumer, consumer to consumer, Consumer to business, business to government, government to business, and government to consumer (Mahajan & Agarwal, 2015) ^[22]. Business-to-business (B2B) is a type of e-commerce where the transaction of products and

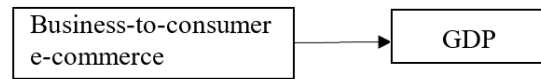
services is within the scope of enterprises (Woon, Shafaghi, Woollaston, & Lui, 2010) ^[49]. Business-to-consumer (B2C) is model which the companies will provide their products or services directly to the final customers or the consumers (Moagar-Poladian, Dumitrescu & Tanase, 2017) ^[26]. Consumer-to-consumer (C2C) is the business model which creates the platform for consumers to trade together (Faraoni et al., 2019) ^[10]. Consumer-to-business (C2B) is opposite of the Business-to-business (B2B) model which allows the consumers to sell their products or services to the companies (Wang et al., 2016) ^[47]. This is normally a model of blogs and forums where the consumers can share their experience of using the products and services (Mahajan and Agarwal, 2015) ^[22], thereby participating in company's research and development (R&D) activities (Jiechang, 2020) ^[15]. Business-to-government (B2G) is similar to B2B model. In this type, the customers who exchange for the products or services, normally public procurement, are the government's organizations (Lyandau & Umnova, 2021) ^[21]. Online reverse auction is a common activity for this model (Özbilgin and Imamoglu, 2011) ^[28]. The products and services are used for reverse auction including raw materials, machines, office equipment, construction, accounting, and network security. Government-to-business (G2B) model is launched to help the companies implement the online administrative procedures to save the time and money that includes activities such as business registration, payment of corporate income tax and value added tax, and customs declaration (Kwok, 2014) ^[19]. Government-to-consumers (G2C) model is similar to G2B model which through the government website, the consumers can pay their income tax, and utility bills including electricity, water, and internet (Donata & Vaida, 2009) ^[9]. The business-to-consumer e-commerce is one of models which is used popular. According to Kunešová and Eger (2017) ^[18] the country's GDP is affected by the intensity of Business-to-consumer e-commerce usage which is strongly correlated with the economic growth. Typically, this model works under two kinds including click-and-mortar and dot-com. Click-and-mortar is a kind of Business-to-consumer e-commerce that combines physical and web-based business (Lai & Yi-Rung, 2006) ^[20]. Dot-com is other kind which most of the core activities is implemented on the website (Scheider, 2015) ^[31]. The development of these kinds of this model has a positive influence on the development of the economy, especially in the digital era. Business-to-consumer e-commerce provides the consumers with convenience and comfort in online shopping anytime and anywhere (Faraoni, Rialti, Zollo, & Pellicelli, 2019) ^[10] that help them save the searching cost (Rialti, Zollo, Laudano and Ciappei, 2018) ^[30]. During Business-to-consumer e-commerce transactions, the consumers can access the product information easily to be able to make the comparisons on product characteristics, quality, and price. They do not need to interact directly with the business owners for the products and services information. All purchasing activities are made on the company's website. This leads to purchasing decisions which are based on the individual consumer's opinion and perception (Campbell, Wells, & Valacich, 2009) ^[5]. In the purchasing decision process, the consumers are always concerned about both the effectiveness and efficiency of Business-to-consumer e-commerce systems (Mangiaracina, Perego, Seghezzi, & Tumino, 2019) ^[24]. Efficiency is related to the low buying cost while effectiveness includes the issues such as transaction security, quick delivery, on time delivery

(Mangiaracina, Perego, Seghezzi, & Tumino, 2019) [24], good support services, and easy-to-use website (Singh, 2002) [32]. Therefore, the business-to-consumer e-commerce websites are currently developing in the direction of meeting the requirements of consumers. However, there are still problems related to the business-to-consumer e-commerce development. The easily accessible information has reduced customer loyalty as they have alternatives to low-priced products, especially low-brand products (Ahn, Ryu, and Han, 2007) [1] and (Kim, Jin, and Swinney, 2009) [17]. In addition, other problem of the business-to-consumer e-commerce is related to transaction security whose small and medium-sized websites has a low level of safety (Zhao, Truell, Alexander, and Woosley, 2011) [52].

3. Methodology

This research paper will present the growth rate of business-to-consumer e-commerce and Vietnam's GDP in the latest 10 years from 2009-2019. Data of business-to-consumer e-commerce revenue and GDP of Viet Nam are collected from reports including Vietnam e-commerce white book, and World Bank reports. Based on these data, the regression analysis will be performed to evaluate the relationship between business-to-consumer e-commerce and GDP. The

author wants to determine the hypothesis of the positive impact of the independent variable of business-to-consumer e-commerce revenue on the dependent variable of the GDP in Vietnam.



Hypothesis: Business-to-consumer e-commerce has positive impact to GDP.

4. The research results and discussion.

4.1 Viet Nam's business-to-consumer e-commerce growth.

Vietnam is one of the emerging countries in e-commerce that still has great potential for development for domestic and foreign businesses. Viet Nam business-to-consumer e-commerce revenue in the period from 2009 to 2020 has always maintained an impressive growth rate. Revenue in 2009 was only 140 million USD. Over 11 years, revenue in 2020 reached 16.8 billion USD which increased about 120 times.

Table 1: Business-to-consumer e-commerce revenue and growth of Viet Nam from 2009-2020 in billion USD (Source: Vietnam E-Commerce and Digital Economy Agency, 2009 - 2020)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Business-to-consumer e-commerce revenue	0.14	0.20	0.3	0.7	2.2	2.97	4.07	5	6.2	8.06	11.5	16.8
Business-to-consumer e-commerce growth	35%	40%	51%	133%	214%	35%	37%	23%	24%	30%	43%	46%

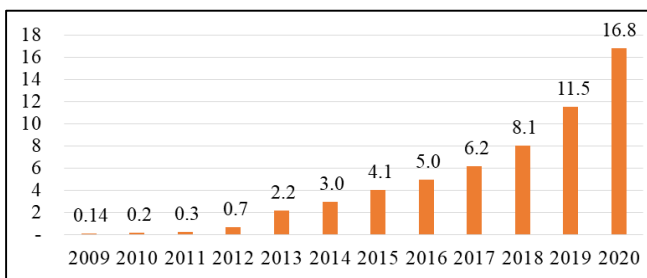


Fig 1: Viet Nam business-to-consumer e-commerce revenue in billion USD (Source: Vietnam E-Commerce and Digital Economy Agency, 2009 - 2020)

The average growth rate of business-to-consumer e-commerce was about 60% in 2009-2020. The strongest growth period was from 2011-2013, in which the peak reached 214% in 2013. In the following years, the Vietnamese market still maintained an increase of 25%-40%.

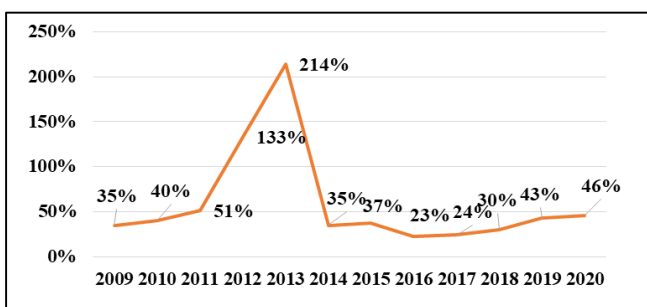


Fig 2: Viet Nam business-to-consumer e-commerce growth rate (Source: Vietnam E-Commerce and Digital Economy Agency, 2009 - 2020)

4.2 The issues in business-to-consumer e-commerce

The issues which the Vietnamese consumers consider when making shopping online include website design (easy-to-use), security of information and transaction, customer service, transportation and delivery, and other factors (White book, 2020). The consumers show the highest interest in the ease of use of the website and ordering method that is up to 87% of survey respondents expressed this concern.

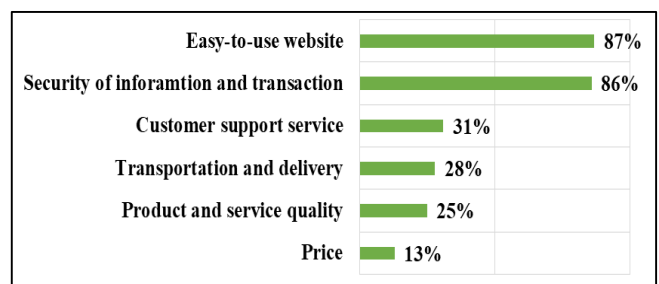


Fig 3: Business-to-consumer e-commerce issues are concerned in 2020 (Source: Vietnam E-Commerce and Digital Economy Agency, 2020)

Another important issue that consumers also show interest in is security of information and transaction. This issue accounted for 86% of the answers from survey participants. Other concerns answered by survey respondents including customer support service accounted for 31% of respondents, transportation and delivery accounted for 28% of respondents, product and service quality accounted for 25% of respondents, and product and service price accounted for 13% of respondents.

4.3 Contribution of business-to-consumer e-commerce to GDP

Vietnam's GDP in the period from 2009 to 2020 still maintained a continuous growth. GDP in 2020 reached 271.1 billion USD which are 2.5 times as much as the year 2009 with 106 billion USD (World Bank, 2020). Vietnam's GDP growth rate was not stable. In the period of 2009 - 2011 the growth increased continuously that gained the highest growth rate of 17% in 2011. After this period, GDP growth rate

decreased continuously from 2012 - 2015 that the lowest was 4% in 2015. In the next three years from 2016 - 2018, Vietnam's GDP growth rate increased continuously, corresponding to 6%, 9%, and 10%. However, in the last two years, the growth rate has slowed down that was only 4% in 2020. Vietnam's growth rate in 2021 is forecast to be in the range of 3-5% when the economy is being adversely affected by the Covid-19 epidemic.

Table 2: Viet Nam GDP and growth rate from 2009-2020 in billion USD (Source: World Bank, 2021)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
GDP	106	116	136	156	171	186	193	205	224	245	262	271
GDP growth	8%	9%	17%	15%	10%	9%	4%	6%	9%	10%	7%	3%

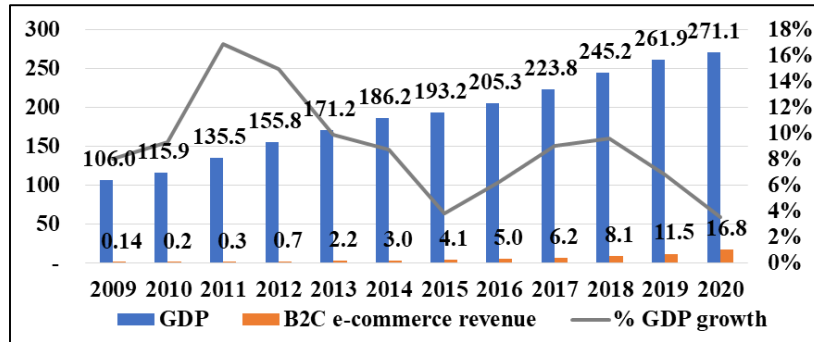


Fig 4: GDP of Viet Nam from 2009 to 2020 in billion USD (Source: World Bank, 2021)

Table 3: Ratio of business-to-consumer e-commerce revenue and GDP

Ratio of business-to-consumer e-commerce revenue and GDP												
2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
0.13%	0.17%	0.22%	0.45%	1.28%	1.60%	2.11%	2.44%	2.77%	3.29%	4.39%	6.20%	

In 2020, business-to-consumer e-commerce revenue contributed \$16.8 billion to Vietnam's GDP. The gap between GDP and business-to-consumer e-commerce revenue has narrowed in 11 years. Year of 2009 was the emerging era of e-commerce in Vietnam where revenue of business-to-consumer segment contributed only \$140 million to \$106 billion in GDP. At that time, business-to-consumer e-commerce revenue only accounted for 0.13% of GDP. The continued growth of business-to-consumer e-commerce has increased the percentage of revenue contributing to GDP. From only 0.13% in 2009, business-to-consumer e-commerce revenue has reached 6.2% of GDP of the country in 2020. This was the period when business-to-consumer e-commerce had the highest contribution. However, the highest growth rate of business-to-consumer e-commerce contribution to the GDP was in 2013 when the growth rate of business-to-consumer e-commerce reached 214%.

Figure 5 shows that the ratio line between business-to-consumer e-commerce revenue and GDP in the period 2009-2020 is on a downward trend, which demonstrates the high speed of growth of business-to-consumer e-commerce. Over the years, the online shopping channel has increased the contribution to the development of the Viet Nam economy. Vietnamese consumers are gradually changing the trend in their shopping method when the shopping means are showing their superiority. Although the contribution of business-to-consumer e-commerce is not high, it shows the adaptation and development of online retail businesses. With the forecast that the growth rate will be even higher and faster in the coming years, Vietnam will become one of the countries with high e-commerce revenue in the region and in Asia. In addition, Vietnam's accession to international associations such as WTO, CPTPP, and EVFTA will help business-to-consumer e-commerce activities be able to expand worldwide, which will be a great opportunity for multinational retailers to invest in this country.

4.4 Regression analysis

Regression analysis between business-to-consumer e-commerce revenue and Vietnam's GDP is performed from data for the period 2009-2020. The results are shown below.

Table 4

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.918 ^a	.842	.826	22.90957

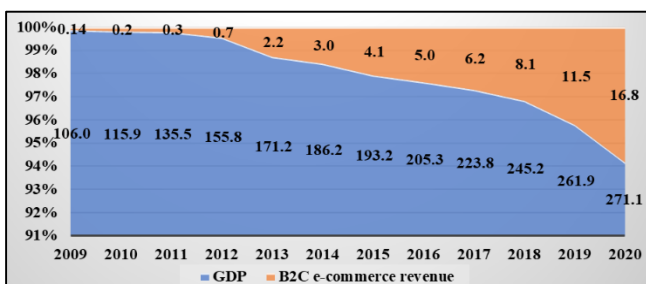


Figure 5: Percentage contribution of business-to-consumer e-commerce revenue to GDP

Adjusted R Square is 0.842 which means that the independent variable can explain 84.2% to the dependent variable. In other words, the change in business-to-consumer e-commerce will

have a proportion of 84.2% to affect the change in GDP in Vietnam.

Table 5

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27980.125	1	27980.125	53.311	.000 ^b
	Residual	5248.484	10	524.848		
	Total	33228.609	11			

The test $F = 53.3$ and $p < 0.05$ shows that the null hypothesis is rejected, and the regression model fits the data set.

Table 6

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	141.764	9.276		15.282	.000
	VAR00001	9.786	1.340	.918	7.301	.000

Standardized Coefficients 0.918 and $p < 0.05$ show that the independent variable has statistical significance and can explain the dependent variable. Business-to-consumer e-commerce revenue will have an impact of 0.918 on GDP. In other words, the change of business-to-consumer e-commerce revenue will change Vietnam's GDP by 0.918. Therefore, the growth of business-to-consumer e-commerce will positively affect the development of the Viet Nam economy.

5. Conclusion

Vietnam is a country with great potential for e-commerce development, in which the business-to-consumer segment is one of the major online transaction markets with an average annual growth rate of over 25%. Revenue from business-to-consumer e-commerce has contributed an important value to the development of Vietnam's economy that accounts for 6.1% of GDP in 2020. The results of the regression analysis have shown that the Vietnam's economic development cannot lack the contribution of online retail activities. From there, the companies can make the adjustments to satisfy the issues that consumers are interested in when shopping online, including the easy-to-use design of sales websites, the safety of personal information and transactions, customer support service, delivery, the quality and price of products and services. The managers need to pay attention to the visual design of the website and the safety of the system because these two issues account for more than 85% of the respondents' opinions.

Implications:

The results of the regression analysis have shown the positive role of business-to-consumer e-commerce on GDP. This is the basis for the government to support e-retail businesses to develop in order to develop the national economy. For e-retail businesses, they should focus on factors that are likely to affect their operations including the easy-to-use design of sales websites, the safety of personal information and transactions, customer support service, delivery, the quality and price of products and services.

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