

Exploring the Factors Which Impact the Customers' Online Purchase Intentions

Isidora Albijanić¹, Milica Milošević¹, Milica Maričić¹, Veljko Jeremić¹

¹ University of Belgrade, Faculty of organizational sciences,
Jove Ilića 154, Belgrade, Serbia

isidoraalbijanic9@gmail.com; milica.milosevic.m04@gmail.com; milica.maricic@fon.bg.ac.rs;
veljko.jeremic@fon.bg.ac.rs

Abstract - The e-market and e-commerce are growing rapidly year by year. Additionally, the coronavirus epidemic greatly affected the expansion of e-commerce among consumers during 2020 and 2021. Considering market growth, the number of stores in this market is also growing. As a result, the sector is becoming highly competitive and the stakeholders are eager to better understand the consumers' behaviour, their decision making process and the motives which lead to online purchase. This paper lies upon the belief that the existing models for measuring the factors that influence customer's decision to make a purchase through e-commerce can be further improved by including new constructs. Accordingly, a new conceptual model which explores the factors that influence decision to purchase products and services through e-commerce is proposed. The validity of the model was tested based on the data collected through online survey. The results indicate that the model is upheld by the data and that the most important aspects are assortment size, seller recognition, free delivery, and website functionality.

Keywords: e-commerce, purchase intention, structural equation modelling, conceptual model

1. Introduction

The e-market and e-commerce are growing rapidly year by year. The coronavirus epidemic greatly affected the expansion of e-commerce among consumers during 2020 and 2021. Based on the reports, in 2020, over two billion people bought goods or services online [1]. Due to the restrictions imposed by governments in order to control the spread of coronavirus, millions of customers found the alternative to brick and mortar shopping in digital channels. However, it is expected that e-commerce market will continue to grow in post-pandemic period since COVID-19 could be seen as a catalyst rather than a direct cause of huge e-commerce market growth [2]. Since the e-commerce has become present in consumers' daily life, especially during the COVID-19 pandemic, optimization of online shops has a crucial role in providing the experience that potential buyers expect. Since adequate customer experience leads to purchase decision, companies should ensure that clients get what they need in a way they prefer [3].

When it comes to e-commerce in Serbia, according to Statistical Office of the Republic of Serbia, there is a constant growth of the percent of the population that buys products or services online. For instance, in 2011 only 18.1% of population bought at least one product through e-commerce any time in the past, while that number rose to 57.0% in 2019 [4]. When the data for 2020 becomes available, it would be of interest to analyse the change of this percentage and the level of influence of the COVID-19 pandemic on the growth in the usage of e-commerce channels. According to Statistical Office's yearbook, 84.4% of the companies in Serbia had a website in 2020, while in 2019 27.9% of the companies sold their products or services on Internet [4]. As reported by Statista, share of the revenues obtained through e-commerce is 9% of total revenues of companies in Serbia [5].

In spite of year to year growth, e-commerce in Serbia has not reached European average yet - there is still a large percentage of population that does not buy products on Internet. Some of the key reasons could be lack of information on the buying process, a fear of data breach and lack of information on security mechanisms [6].

Having that in mind, the subject of this paper is identification and quantification of factors that impact customer's decision to buy a product or a service through e-commerce in Serbia. This study is based on the assumption that existing models could be upgraded by including additional constructs and modifying the current ones. In accordance with that assumption, a new conceptual model for determining significant factors has been created.

The main purpose of the study is to discover the list of factors which make influence on the customer's readiness to shop online and to create a conceptual model for an evaluation as well. In order to evaluate the proposed model, an online

survey was conducted while the survey answers were analysed using structural equation modelling as a multivariate technique.

Main hypothesis of the research can be defined as: *Existing conceptual models for analyzing decision to purchase a product online could be upgraded by modifying proposed constructs, where a model validation could be quantified using structural equations.*

The paper is organized in the following way. The introduction part briefly describes importance of this topic, subject and purpose of the study, and the main hypothesis. Second section provides a literature review on e-commerce trends in Serbia and worldwide. Third section presents the proposed conceptual model, its hypotheses, the method used for model validation and different models for determining factors that impact on the decision to buy a product through e-commerce. Fourth section includes the description of the conducted survey, the sample characteristics and the study results, while fifth section gives a brief summary on the most important findings and conclusions, future study directions and practical implications of this research, with the explanation of research limitations and challenges.

2. Literature Review

Based on the literature review, one can conclude that there are numerous studies in this field.

For instance, Palvia [7] analysed how a combination of customer satisfaction, perceived value, loyalty, and word-of-mouth recommendation impact the intention to buy a product online. The author found that when a customer uses a company's website, it leads to a certain level of customer's satisfaction and a perception of the proposed value, which both effect customer loyalty and positive word-of-mouth referrals. He also discovered a weak connection between customer satisfaction and loyalty and positive relationship between loyalty and word-of-mouth referrals. Besides that, perceived value significantly influenced loyalty and consequently had a long-term effect.

Hong and Cho [8] posed following questions in their research: "firstly, how the factors of trustworthiness impact customer trust, secondly, can trust be transferred from an intermediary to a community of sellers, and finally, how does trust in an intermediary and a community influence customer's loyalty and intention to buy products online". They concluded that the factors of trustworthiness, benevolence and integrity make a significant influence on consumer trust in e-commerce. Their results also suggest that trust in an intermediary impacts loyalty and purchase decision; while on the other hand, loyalty and purchase decision are not affected by trust in a community of sellers.

Dhingra, Gupta and Bhatt [9] used website design, its reliability, responsiveness, personalization and customer trust to describe a website quality, and then observed the relationship between website quality and customer satisfaction and customer satisfaction and purchase decision. Their results show that only customer trust influenced website quality. Additionally, findings suggest that there is a positive relationship between website quality and customer satisfaction and customer satisfaction and purchase decision as well.

It is interesting to mention the research by Ghiffarin, Priyandari and Liquiddanu [10], who focused on e-commerce in small and medium enterprises using an extended marketing mix model where elements are: products, price, distribution, promotion, people, processes and virtual environment. Authors observed two indicators – level of importance and level of performance in SMEs. Their findings show that the highest gap between level of importance and performance was present in the information about the shipping costs, followed by the impermanent dynamics of commodity price variations.

When it comes to studies conducted in Serbia, one can state that the number of relevant studies is minor. For instance, Ivanović and Antonijević [11] observed the role of online shopping during the COVID-19 pandemic, aiming to identify whether coronavirus led to changes in customer behaviour. The results of the study which included 408 respondents showed that there is a significant association between shopping online before and after the appearance of the infection. Moreover, three predominant motivational factors for purchasing online during the pandemic were saving time, reducing health risk and the fact that many stores were working only online.

Kaurin and Bošković [12] examined the impact of various aspects of online shopping on customer satisfaction in Serbia. Their conceptual model included five aspects: website quality, information availability, security, privacy and reliability. Survey results demonstrated customer's dissatisfaction with online shopping services, whereby a level of satisfaction depends on the customer's age and does not depend on the customer's gender.

Stefanska, Knežević and Stojković [13] explored customer's purchase orientation in Poland, Croatia and Serbia. Findings of the study showed that there were significant differences between these countries – the online purchase orientation was the strongest among Croatian smartphone shoppers and the weakest among Serbian shoppers.

The presented literature review indicates that the exploration of factors that impact the purchase decision using online services is a prominent field of study, that numerous factors have been identified and that such researches in Serbia are needed.

3. Proposed conceptual model

This study focuses on the purchase intention on the e-commerce market due to its direct influence on the rise of profitability and competitiveness. The underlying question is which aspects encourage customers to buy a product or a service online. Based on the literature review [2, 9, 13], factors that could potentially be significant for online purchase intention are:

1. Free delivery – it refers to the fact that customers do not have additional costs associated with delivery. This factor could positively influence the purchase intention.
2. Expected delivery time – it relates to the expected delivery time communicated by the seller. Short delivery time is assumed to make a positive impact on the decision to shop online.
3. Delivery service – it refers to information about a specific delivery service company responsible for the delivery. It is expected that customer's opinion on the delivery service company influences the online purchase intention.
4. Price – it concerns the price of ordered product or service. It is presumed that the lower the price is, the stronger the purchase intention will be.
5. Website functionality – it refers to the website characteristics such as responsiveness, page loads time, and number of steps needed to find the product. It is assumed that inadequate functionality prevents customer from purchasing online.
6. Ease of ordering– it relates to the number of steps and the amount of data needed to successfully finish the buying process. It is hypothesised that smaller number of steps leads to a higher e-commerce shopping motivation.
7. Payment methods – it refers to the dispoible payment methods on the e-commerce channel. It is assumed that if a preferred payment method is missing, a customer will stop shopping.
8. Assortment size – it concerns the Internet shop size and the number of different products dispoible in the catalogue. It is expected that higher number of dispoible products positively influences their purchase intentions.
9. Seller recognition – it refers to the fact whether a customer recognizes a seller's brand or not. It is presumed that customers are more likely to buy products from sellers they already know.
10. Loyalty programs – it relates to the benefits of being a loyalty member, such as gift cards and vouchers. This factor could positively impact on the purchase decision.
11. Change in customer behaviour caused by COVID-19 – it is evident that the pandemic provoqued an increase of the e-commerce market. The question is to what extent the pandemic motivated customers to choose online shopping instead of traditional shopping.

In order to evaluate the proposed model, an online survey was conducted. Survey results were analysed using structural equation modelling (SEM). SEM analysis is a multivariate technique that provides a quantitative test of a conceptual model proposed by a researcher. Precisely, various models that hypothesise how sets of variables define constructs and how these constructs are connected can be tested using this technique. The objective of the SEM is “to identify the degree to which the proposed model is supported by the sample data“ [14].

The motivation for applying SEM analysis in this research lies in the fact that this technique was widely used in previous studies focused on determining factors that influence online shopping decision. In one of the studies, the authors observed the impact of customer's knowledge and trust on e-commerce shopping activities and tested hypotheses using SEM analysis [15]. Another group of researchers [16] analysed convenience risk, product risk and perceived risk influence on online purchasing decision in Pakistan, whereby SEM was applied to evaluate the model. In a study by Tarhini and his colleagues [17], the adoption of online shopping in the United Kingdom was analysed based on trust, product variety and product guarantee with the application of SEM.

The model we here propose is a hierarchical latent variable model [18]. Namely, each of the eleven constructs is comprised of particular statements, while the outcome variable Online purchase decision is comprised of the eleven latent constructs.

4. Results

4.1. Conducted research

In order to evaluate the model, an online survey was conducted in August 2021 using Google Forms while the statistical analysis was performed in SPSS 25 and AMOS 22. The questionnaire consisted of questions related to three areas: demography, online customer shopping habits and eleven previously mentioned constructs. First section of the questionnaire included questions on general demographic characteristics such as gender, age, residence, education, family income. Second section of the survey was dedicated for the respondents who stated that they do purchase products or services online. Some of the questions from this group were, for instance, online shopping frequency, preferred online shops and preferred payment methods. Third part of the survey included questions on the proposed constructs, whereby most of them were measured using a four-point Likert scale.

4.2. Sample characteristics

Total number of respondents who participated in the survey was 295 – majority of them were females (72.2%) while their average age was 25.98 years. Belgrade is the residence place for the most of respondents (67.3%), followed by Central Serbia and Western Serbia (14.6%). The rest reside in other regions of Serbia. When it comes to education, 53.9% of participants have a bachelor degree or higher level of education, while 46.1% of respondents finished high school. Apropos of household incomes, 36.3% stated that their total household income was less than 800 euros, 46.8% claimed to have income higher than 800 euros, while 16.9% did not want to answer the question. We can conclude that our sample covered younger, student population, who come from families with high income.

Almost all respondents stated that they purchased a product online at least once (93.6%). The respondents who never purchased a product or a service online were removed from further analysis and observations.

The next two questions aimed at analysing the respondents' online consumer frequency and habits. Almost half of the respondents stated that they shop online several times a month (43.1%), while only 4.3% of the respondents purchase online ones in a year or less. When it comes to the online shopping channel that they used 89.0% used the store's online shop, 49.0% used Instagram, 44% used online shopping apps (AliExpress, Amazon, Zara app,...). Regarding the preferred payment methods, a large part of participants prefers to pay after the delivery (60.7%), while the number of those who pay online with their debit cards is 36%. The respondents also expressed high levels of trust in online payment process, as they stated that they always or almost always have trust in the online payment process (82.5%). We can conclude that the survey participants are experienced in online shopping on several channels and that they have trust in online shopping.

4.2. Model verification using SEM analysis

The first step in the SEM analysis is to explore the internal validity of the items within the defined latent variables. To do so, most commonly, the Cronbach's alpha is used [19]. The obtained results are shown in the Table 1:

Table 1. Obtained Cronbach's alpha per model construct

Construct	Number of items	(Cronbach alpha)
Free delivery	3	0.627
Expected delivery time	3	0.436
Delivery service	3	0.753
Price	3	0.741
Website functionality	3	0.712
Ease of ordering	3	0.744
Payment methods	3	0.175
Assortment size	3	0.723
Seller recognition	3	0.730
Loyalty programs	3	0.709
Change in customer behaviour caused by COVID-19	3	0.901

The construct reliability of Delivery service, Price, Website Functionality, Ease of ordering, Assortment size, Seller recognition, Loyalty programs and Change in customer behaviour caused by COVID-19 exceed 0.7, hence they are within the commonly accepted range [15]. However, reliability of Expected delivery time and Payment methods are significantly below 0.7 which implies that these constructs should not be included in the model as such. As the authors' found these items of interest for the model, several statements from these constructs were separately included in the model. When it comes to Free delivery, reliability value can be considered as marginally acceptable since it is shown that Cronbach alpha is sensitive to sample size and the number of items included in the construct [20].

In the next step the SEM analysis was employed. The quality of the initial model was: $\chi^2=780.411$, $p<0.01$, TLI=0.788, CFI=0.819, and RMSEA=0.064. These values indicate that the model can be modified and enhanced. To upgrade model quality, we firstly excluded several individual statements ("I compare different websites and the choose the one with the lowest product price" and ,secondly, statements "I don't mind the delivery length period" and "If the list of dispoible payment methods doesn't include cash, I won't purchase the product") due to their statistical insignificance ($p>0.05$). Additionally, we used modification indices in the modification process.

The value of χ^2 test for the final model was statistically significant ($\chi^2=479.55$, $p<0.01$). Since the chi-square is sensitive to sample size, the conclusion on model fit should be reinforced with the examination of other indicators [21], such as Root mean square error of approximation (RMSEA), Comparative Fit Index (CFI) and Tucker-Lewis index (TLI). Their values in the final model are: TLI=0.828, CFI=0.906, and RMSEA=0.051. Considering the model quality metrics, one can conclude that the model quality is marginally acceptable as TLI and CFI are close or above 0.9 and the RMSEA is close or below the 0.05 threshold. Therefore, the model results could be interpreted in detail. The assessment of the final model is given in Table 2 in which we provide the values of the unstandardised regression coefficients, critical ratios (C.R), and the p-values. When creating a latent variable of higher order, the regression coefficient of one latent variable within must be fixed to 1. In our case that was the regression coefficient of Ease of ordering. As the regression coefficient is fixed, it is automatically statistically significant and the C.R. and p-value are not available.

Table 2. Assessment of the final model

Construct	Unstandardised coefficient	C.R.	p-value
Assortment size	1.155	3.688	<0.001
Ease of ordering	1.000		
Website functionality	1.366	5.374	<0.001
Impact of COVID-19	1.158	3.269	0.001
Delivery service company	0.611	2.326	0.020
Free delivery	1.284	3.615	<0.001
Seller recognition	0.884	3.403	<0.001
Loyalty programs	0.997	3.284	0.001
If the list of dispoible payment methods doesn't include cash, I won't purchase the product	1.378	3.860	<0.001
I don't mind the price if I like the product	1.513	4.042	<0.001
Shorter delivery time influences my choice of online seller	0.956	3.230	0.001

The obtained unstandardised regression coefficients range from 0.611 (Delivery service company) to 1.513 (Statement on the aspect of price). All coefficients are positive, which implies that with the increase of the importance of the aspect or construct, the purchase intention becomes stronger. For instance, the improvement of Ease of ordering or website functionality positively influences customer's intention to buy a product from the specific online seller. All the remaining regression coefficients can be interpreted in the same manner.

Based on the obtained results a summary of hypotheses acceptance or rejection is provided in Table 4.

Table 3. Empirical study results summary

Hypothesis	Acceptance/Rejection
H ₁ Free delivery ⁺ → Purchase decision	Accepted
H ₂ Expected delivery time ⁺ → Purchase decision	Construct not included in the final model
H ₃ Delivery service ⁺ → Purchase decision	Accepted

H ₄ Price ⁺ → Purchase decision	Construct not included in the final model
H ₅ Website functionality ⁺ → Purchase decision	Accepted
H ₆ Ease of ordering ⁺ → Purchase decision	Accepted
H ₇ Payment methods ⁺ → Purchase decision	Construct not included in the final model
H ₈ Assortment size ⁺ → Purchase decision	Accepted
H ₉ Seller recognition ⁺ → Purchase decision	Accepted
H ₁₀ Loyalty programs ⁺ → Purchase decision	Accepted
H ₁₁ Impact of COVID-19 ⁺ → Purchase decision	Accepted

4. Conclusion

Having in mind previously presented results of the empirical study, one can conclude that free delivery, customer's perception on delivery service company, website functionality, ease of ordering, existence of loyalty programs, wide assortment, recognizable seller's brand and change in customer behaviour caused by coronavirus pandemic significantly and positively influence online purchase intention. Although certain hypotheses could not be accepted or rejected due to insufficient reliability of corresponding constructs, the general hypothesis (existing conceptual models could be upgraded by modifying the list of included constructs) can be considered as approved. Overall, the results clearly indicate that the consumers take into account many aspects when purchasing online, whereas method of payment is the most important one. Therefore, online sales managers should focus on price, methods of payment available, and website functionality.

Study results are aligned with the study by Bucko, Kakalejčík and Ferencová [3], who concluded that price, shipping costs and special offers (analysed as a group of factors) are among the most important factors when purchasing a product online. Furthermore, they also concluded that reviews about the seller and the number of social media followers, which are the aspects of seller's brand recognition, significantly influence customer's behaviour. In regard to assortment size, the results are in line with the findings of Simová [22], where it is shown that both experienced and less experienced online shoppers appreciate wide product assortment. On the other hand, when it comes to website functionality, findings of this research differ from the conclusion of Javadi and his colleagues [23], who evidenced the insignificance of user-friendly website on online shopping.

Study results should be interpreted in the light of its limitations. Namely, the findings cannot be generalized to the Serbian population due to small sample size. Moreover, sample profile is limiting due to the predominance of female respondents, which does not correspond to the actual gender distribution in Serbian population [4].

Besides the increase of the sample size and the improvement of sample profile, one of proposed directions for the future research is to more closely analyse the construct Change of customer's behaviour caused by pandemic. It is believed that the pandemic could have significant impact on e-commerce market. Another interesting direction of the research could be towards conducting a similar survey in the region and do a comparative studies so as to observe the similarities and differences in the consumer behaviour.

The value of the study is in the fact that the number of papers focused on exploring the factors which influence customer's online purchase intentions in Serbia is limited. The authors believe that this research could be of help for decision-makers in companies since it provides an insight into customer's perspective on e-commerce, which is directly associated with company's profitability. In addition to that, these findings could serve as a foundation for related academic research.

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