Predictors of the Likelihood of Continuous Usage of Online Shopping Post-COVID-19

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Abstract

Government's response to the COVID-19 outbreak resulting in imposed socialdistancing measures, lockdowns and closing of economies triggered the acceleration of e-commerce growth globally. Driven by necessity consumers shifted from traditional to online shopping, but the main question of interest to practitioners and researchers is: Will this changed behaviour last post-COVID-19? We aim in this study to respond and contribute to the insufficient understanding of the factors that can predict the likelihood of continuous usage of online shopping post-COVID-19. To achieve this goal, we use survey data from 2.082 respondents, collected in North Macedonia during the period of social distancing measures (November 2020). We explore the associated predictors of the likelihood of online shopping continuity behaviour post-COVID-19, employing binary logit regression. We found that age, data protection and conventional motives are not significant predictors while gender, employment status, online shopping frequency, online shopping experience, payment security and commencement of online triggered by COVID-19 showed as statistically significant predictors of the likelihood of continuous online shopping post-COVID-19.

Keywords: e-commerce; binary logit regression; pandemic crisis; developing countries; North Macedonia

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Introduction

growth usina progressive of information and communication technologies over the past two decades has enabled shoppers with more flexibility through the emergence of online shopping (Andreev et al., 2010). The growth and innovations in computer-aided technology made online shopping become a widespread choice, not just in developed countries, but also in most developing countries (Khare, 2016). Online shopping in the past few decades triggered a revolution in many businesses' marketing strategies, as consumers have grown accustomed to online purchasing and the doorstep delivery of products from anywhere in the world (Bucko et al., 2018; Mohammad et al., 2018).

The coronavirus disease that appeared in 2019 in Wuhan, a highly infectious disease caused by a new coronavirus (SARS-CoV-2) rapidly escalated into a pandemic, officially named COVID-19 (Shereen et al., 2020). To combat the public health emergency of

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international concern at different degrees like wearing masks, working from home, social distancing, and lockdowns to prevent physical interactions between individuals, a series of interventions and recommendations to the governments have been issued (World Health Organization 2020; Manh et al., 2021). The use of digital technology to perform daily activities and online shopping has been accelerating worldwide in the context of mobility restrictions imposed by governments (Barnes et al., 2020; Lopez et al., 2021). Consumer behaviour worldwide was severely disrupted due to the restrictive lockdown rules and social-distancing practices (Sheth 2020a). COVID-19 made a push in shifting buyer behaviour from brick-and-mortar to the digital space. Sheth (2020b) examines opportunities and problems in information management brought about by the COVID-19 pandemic. COVID-19 has suddenly changed our life; from normal to new normal, movement to no movement, and social behaviour to social distance (Nueangnong et al., 2020). All these restrictive measures, but also the fear of the people of the infection, gave a push to the acceleration of digitalization and e-commerce growth. If gaining digital skills and changing the habits of the population were happening slowly over the years, suddenly when there was no other choice, there was a forced change in behaviour and consumer habits. In such circumstances, online shopping was no longer a choice, but rather a necessity and online shopping was part of these forced changes in habits and consumer behaviour.

Even though consumers have cut spending during the pandemic, they were open to digital offerings and the demand has shifted to "online" (Bitter 2020). COVID-19 was exceptionally challenging for businesses worldwide and brought to the fore the special role e-commerce can play in this crisis and beyond (UNCTAD 2020). ACI Worldwide that the purchase volume reports of e-commerce for June 2020 increased by 31%, compared to the same month in 2019 (ACI Worldwide 2020). A range of factors, objective and subjective, influences shopper behaviour (Farag, 2007), and the pandemic was one such factor. The pandemic emergency influenced not only the attitude of people toward health but also their buying behaviour. Digital adoption will continue to be crucial as retailers adapt to consumer preferences shaped and transformed by the pandemic (Bornos-Paciorek and Papież, 2020). Tapping into the potential of the cloud is all about speed, security, flexibility, and savings. This shift in demand for digital offerings and spending online was often a necessity rather than an alternative choice, and the main question to be answered is whether it will stay. Will the changed behaviour in favour of online shopping remain after the pandemic is over?

At the end of 2020, E-commerce Europe reached out to E-commerce Europe's national E-commerce Association members to conduct a new survey on the impact of COVID-19 on e-commerce in the context of the second lockdown in Europe. The survey counts 19 contributions¹, highlighting the COVID-19 situation in different European countries (Ecommerce Europe, 2021). The expectation of all respondents for the development of the e-commerce sector in 2021 is positive, with 11 respondents feeling "very confident" and 8 "rather confident" about the sector's growth in

¹ Contributions received from the following countries: Austria (AT), Belgium (BE), Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Finland (FI), France (FR), Germany (DE), Greece (GR), Italy (IT), Ireland (IE), Netherlands (NL), Portugal (PT), Norway (NO), Poland (PL), Romania (RO), Spain (ES), Sweden (SE), Switzerland. (CH).

the upcoming year. Respondents expect that a substantial part of the e-commerce sector growth will be retained due to the changes in consumer behaviour and increased public trust. Even though there are some concerns among respondents about the growth of the sector after the end of the COVID-19 restrictions, the majority estimate definitive growth in the online sale of products in 2021, and possible growth in services, such as travel, taking into consideration there is some relief of the current measures. Overall, respondents note that the COVID-19 pandemic has accelerated the digitalisation of businesses in Europe and will result in continuous growth for the e-commerce sector, driven by businesses and consumers alike. E-commerce has turned into a lifeline for many traditional brick-andmortar stores during the pandemic and has also proven resilient by meeting consumers' increased demand and ensuring the provision of essential goods and services. To find out e-commerce customer retention after COVID-19 in Finland, Statista (2020) surveyed 1051 respondents in the period April to May 2020. 73 percent of Finnish online customers that shop online due to the coronavirus (COVID-19) outbreak, stated that they will continue shopping online after the crisis. According to the survey results, customer retention rates were the highest among those who bought clothes (88%), games and entertainment (84%), and recreational goods (79%). In the same survey, over half of the respondents in Finland said that they have started shopping for new products and services online during the coronavirus (COVID-19) pandemic. Deloitte (2020) used data from the Danish E-commerce Association (FDIH) collected from its 600 members in the three weeks following the Danish lockdown. Their findings confirm that the international Predictors of the Likelihood of Continuous Usage of Online Shopping Post-COVID-19

trends and COVID-19 will permanently reshape e-commerce as we know it, separating winners from the rest.

Even though motivating the first adoption is a necessity for success, continuous use is vital for long-term sustainability and profitability (Bhattacherjee, 2001). Nabavi et al. (2016) define continuous usage as a decision by the consumer to continue using certain information technology already utilized by him/her. The continuous use is more substantial than the initial use, where the acquisition cost of a new consumer may be up to five times higher than retaining an existing consumer (Yuan et al., 2019).

The results of the survey performed on about three thousand and seven hundred consumers in nine developing and advanced countries (Brazil, China, Italy, the Republic of Korea, Germany, the Russian Federation, South Africa, Turkey, and Switzerland), revealed that more than 50% of the survey's online participants now do shopping frequently (Netcomm Suisse Observatory and UNCTAD, 2020). Therefore, expectations are that COVID-19 will permanently normalize the usage of online shopping. This could also assist in developing proper strategies aimed at increasing the use of online shopping (Al-Hattami, 2021).

The literature that emerged during the COVID-19 outbreak mostly is exploring changing attitudes in shopping behaviour triggered by COVID-19. Consumer behaviour and marketing activities have also changed significantly during the COVID-19 emergency (Beaunoyer et al., 2020; Zhao and Bacao, 2020; Mason et al., 2021; Alhaimer, 2021; Sharma et al., 2020; Nguyen et al., 2021). Koch et al., (2020) investigate shopping motivations that drive online purchase behaviour during the COVID-19 pandemic in Germany.

Grashuis et al., (2020) investigate the grocery shopping preferences during COVID-19 in the United States, Mirhoseini et al., (2021) in Canada and Ben Hassen et al., (2020) food behaviour and consumption in Qatar. Gao et al. (2020) investigate the impact of COVID-19 on e-commerce adoption in China and Pham et al., (2020) investigate COVID-19 awareness affecting consumer purchasing benefits of online shopping in Vietnam. Neger et al., (2020) research factors affecting consumers' internet shopping behaviour during the pandemic in Bangladesh.

The literature concentrated on the factors that determine the intention to continuance usage of online shopping is scarce and only a few authors explored this topic, but not in COVID-19 circumstances (Al Maghrabi et al., 2011; Bölen and Özen, 2020; Chopdar and Sivakumar, 2019; Mohamed et al., 2014; Shang and Wu, 2017). Recently Al-Hattami (2021) published a study on online shopping focusing on continuance intention determinants for using online shopping under COVID-19 in India and Akar (2021) influence of customers' pandemic concerns on their purchase intentions and purchasing behaviours in Turkey.

To the best of our knowledge, there has been no research considering the factors associated with the continuity in online shopping after the pandemic and the restrictive measures are over in a Balkan developing country. Based on the abovementioned gaps, we aim to investigate a specific research question in this study: What factors affect the likelihood of continuous usage of online shopping post-COVID-19?

This study will extend the literature in the field of online shopping research in two respects. First, it is one of the first studies providing empirical insights with a large survey of online shoppers in a developing Balkan country over the social distancing period in place due to the outbreak of COVID-19. Second, it identifies the factors associated with the likelihood of customers' intention to continue online purchasing after the COVID-19 period, using logistic regression. Special attention for distinguishing factors contributing to shopping online is given to sociodemographics: age, gender or employment status; frequency of online shopping; trust; COVID-19 emergency motivation for online shopping and online shopping motivation and experience.

The findings will be useful to online retailers, policymakers and other relevant stakeholders, with respect to addressing the fallout from the pandemic and potential challenges resulting from the growth of online shopping. To increase their online sales, they must understand what factors contribute to consumer intention to continue using online shopping and can assist to boost consumer retention.

We continue this paper with a conceptual framework and Hypothesis development of the predictors regarding continuous use of online shopping after COVID-19 is over. Section 3 describes the development of online shopping in North Macedonia. Section 4 comprises data collection and the methods used before we present and discuss the main findings in Section 5. We discuss the regression analysis findings in Section 6 and finally, we offer conclusions, implications, and limitations in Section 7.

Conceptual framework and hypothesis development

Sociodemographic

Studies that have examined sociodemographics to characterize people engaging in online shopping are with mixed

and inconsistent results (Chang et al., 2005; Zhou et al., 2007). Both in terms of user number as well as daily usage there is a potential for higher internet penetration of male online users and Mandavia (2019) concludes that there is a huge gender disparity with almost twice the male internet users as female internet users. In addition, it is found that there is a significant difference between men and women in online information search, with women having a stronger need for tactile cues in product evaluation than men (Citrin et al., 2003; Yoo-Kyoung and Bailey 2008). Gender influence on online shopping decisions has been a subject of focus with regard to the acceptance of new technology (Venkatesh et al., 2003). Sun and Zhang (2006) acknowledged that the e-shopping behaviour of a consumer is determined by the relative attitude of two gender groups. Zhou et al. (2007) suggest three explanations for gender differences in online shopping. First, women's shopping orientation is different from that of men. Second, the types and characteristics of products that are available online seem to favour males (Van Slyke et al., 2002). Finally, women prefer and enjoy physical evaluation of products such as seeing and feeling the product before they buy it (Cho 2004; Dittmar et al., 2004). Garbarino and Strahilevitz (2004) observed that females perceive a higher risk in online purchasing than males while performing internet shopping. It is found that satisfaction level towards online shopping experience varies among men and women (Doolin et al., 2005; Kim and Kim, 2004). Researchers have reported that females are more recreational-oriented and are more motivated by social affiliations, while males are more convenience-oriented and careless about face-to-face contact (Swaminathan et al., 1999). Thus, the lack of face-to-face Predictors of the Likelihood of Continuous Usage of Online Shopping Post-COVID-19

communication or social interaction offered by online shopping may deter more women than men from shopping online (Dittmar et al., 2004).

Some researchers found that women are shopping online at a higher frequency (Ding and Lu, 2017; Shi et al., 2019; Hjorthol et al., 2009; Maat and Konings 2018) and tend to spend more time on shopping at home (Loo and Wang, 2017). Several studies, however, show conflicting findings, with males having a greater likelihood of online shopping (Crocco et al., 2013; Farag et al., 2005). Some authors do not find significant associations with gender in online shopping behaviour (Lee et al., 2015) and in particular when it comes to shopping for books (Zhen et al., 2016; Hjorthol et al., 2009).

The literature regarding the effect of age on the attitude of the consumer towards internet shopping offers controversial arguments. There are some researchers that detected a positive relationship (Bhatnagar et al., 2000; Doolin et al., 2005; Liebermann and Stashevsky, 2009). However, most of the authors have detected a negative relationship (Joines et al. 2003; Swinyard and Smith, 2003). Gong et al., (2013) have found a negative relationship between the age of the consumer and online shopping intention. Age has a negative effect on e-shopping behaviour (Ding and Lu 2017; Crocco et al., 2013; Loo and Wang, 2017; Farag et al., 2005; Maat and Konings, 2018). In addition, younger customers are shopping online more often than older (Shi et al., 2019; Hjorthol et al., 2009; Farag et al., 2006). Soopramanien and Robertson (2007) demonstrated the influence of consumers' sociodemographic characteristics on the adoption and usage of online shopping and found that age and gender were not significant predictors,

while Rohm and Swaminathan (2004) did not detect a relationship. Researchers have opined that age, income and gender are key factors that influence online shopping behaviour (Al-Maghrabi and Denis, 2011; Cho and Jialin, 2008; Hasan, 2010). Also, demographic variables such as age, gender, and employment status play a facilitating role because they influence consumer perception and consumer behaviour that drives them towards online shopping (Kim et al., 2008; Laforet and Li, 2005; Sabbir Rahman, 2012).

In view of the above-discussed literature, we propose the following hypotheses to be tested, namely:

- H1: Gender affects the likelihood of continuity of online shopping post-COVID-19.
- H2: Age negatively affects the likelihood of continuity of online shopping post-COVID-19.
- H3: Employment status positively affects the likelihood of continuity of online shopping post-COVID-19.

Frequency

The researchers have investigated the growth of online shopping through an increase in the frequency of online shopping. Mokhtarian et al. (2009) suggested a number of ways to measure online shopping behaviours listing frequency as one of them. They use the increase in frequency to represent the growth of e-shopping. Nguyen et al. (2021) provide empirical insights into changes in the frequency of online shopping for various product types over the social distancing period, due to the outbreak of COVID-19. Their study identifies the factors associated with higher frequencies of purchasing certain product categories online and the effects of COVID-19 (i.e., fear of disease, a decrease in income, and increased working from home) on the frequency of e-shopping. Based on these studies we hypothesized that:

H4: Customers that are shopping online more frequently are more likely to continue use of online shopping post-COVID-19.

Trust

Trust in online shopping has been determined as a critical factor in related literature and can be addressed towards payment security and data protection. Gefen et al., (2003) define trust as an expectation that others will not act opportunistically by taking benefit of a situation. Lack of trust is a barrier to adopt or continue using Internetbased services (Koç et al., 2016; Lin et al., 2020). Trust is a crucial factor for the Internet environment to successfully operate, particularly when it comes to money (Alalwan et al., 2018; Vatanasombut et al., 2008). Consumers' concerns about payment security have been recognized as an obstacle to the growth of Internet shopping. Kwon and Lee (2003) found security concerns are negatively related to Internet purchases. Literature assumes that customers/consumers who trust Internet-based services are likely to continue to use those services (Ahmed and Ali, 2017; Groß, 2016; Lin et al., 2020; Vatanasombut et al., 2008; Zhao et al., 2019; Zhou, 2013). Trust will have an impact not only on the consumers' intention to continue using Internet services but also on other factors like satisfaction (Al-Hattami et al., 2021; Bölen and Özen, 2020; S. K. Sharma and Sharma, 2019b; Yoon, 2002). Several researchers have employed trust as a factor that affects online shopping (Teo et al., 2008). Duta and Bhat (2016) explore the effect of store characteristics and interpersonal trust

on the formation of attitudes and intentions to purchase from online stores in the context of online social media marketing. Lian and Lin (2007) identified security concerns as a significant factor in shopping behaviour. Results of Eastlick et al. (2006) showed that the strongest relationships leading to online purchase intent are those between trust in and commitment toward an e-retailer and between firm reputation and trust.

Aseri (2021) refers to elements that have the potential to inflict serious harm on a user's privacy leading to compromised data security and as a consequence, consumers are uncertain about trusting online shopping. Lallmahamood (2008) defines personal information privacy as the ability of the individual to personally control information about one's self. Suki et al. (2001) stated that consumers give their detailed personal information to retailers but they remain concerned about the possibility that retailers may violate their privacy when they collect this information. These concerns are acute for online customers because they realise the extent of the information, which is susceptible to exploitation. In addition, retailers can collect information by placing cookies on visitors' hard drives (Weitz, 2005). Suki et al., (2001) found that privacy concerns are related with: "the unauthorized use of credit card numbers": "their database may be sold to others"; "personal information may be shared with other businesses without their consent": "Internet sellers may overcharge from ones"; "misuse of their personal information by Internet sellers" and "product purchased through Internet may be delivered to another person". Another view about privacy is that consumers are willing to provide some personal information based on an assessment of risks and benefits and believe that shopping Predictors of the Likelihood of Continuous Usage of Online Shopping Post-COVID-19

online will not compromise their privacies (Vijayasarathy, 2004). We acknowledged prior literature and propose the following hypotheses:

- H5: Payment security in online shopping positively affects the likelihood of continuity of online shopping post-COVID-19.
- H6: Data protection in online shopping positively affects the likelihood of continuity of online shopping post-COVID-19.

Covod-19 emergency as a motive for first online shopping

With the occurrence and spread of the COVID-19 pandemic, lockdowns and peoples' concerns of disease infection, purchasing attitudes and intentions have changed (Akar, 2021). The spread of the COVID-19 virus made customers perceive online shopping as an easy way to stay away from physical stores and places and avoid crowds thus decreasing the possibility of virus infection (Ozturk, 2020). This was the motivation for many individuals to do their first online shopping. We want to investigate if these first-time online shoppers will continue to use this channel after the pandemic crisis is over and hypothesize that:

H7: COVID-19 motivation for first-time online shopping positively affects the likelihood of continuity of online shopping post-COVID-19.

Online shopping motivation and experience

Consumers purchase from web stores because of certain benefits (namely convenience, cost-saving, time-saving, availability of products, prompt customer support, discounts on special occasions and enjoyment) associated with it as compared

to traditional shopping stores (Margherio, 1998). It is important to know more about what motivates and drives them to do online shopping. Researchers have focused on exploring customers' online shopping experience in order to identify how to convince customers to visit an online shop and more importantly to make a purchase (Ho and Bodoff, 2014; Pappas et al., 2016; Xu et al., 2011). Shopping motivations are a critical factor and important determinants of online buying behavior. Ganesh et al. (2010) discuss different customers' motivations and depending on how they combine with each other it can lead to a different behavior of individuals. Motivations can be various for different customers like: lower price, product promotions including gifts, online shopping convenience, stimulation from the interaction, perceived value, information availability (Close and Kukar-Kinney, 2010; Ganesh et al., 2010; To et al. 2007). Customers assume that prices online will be lower than in retail stores. Customers' expectations are that they have to receive greater bargains from sellers in their online sites versus their retail stores in order to continue increasing their online orders (Craver, 2006).

There are authors that categorized the online customers based on their motivations, as they express different behaviours and may belong to different categories (Lim and Cham, 2015; Rohm and Swaminathan, 2004). There are complex interrelationships among online shopping motivations, motivators vary across customers and not all customers have the same types of motivations. In their research, Loo and Wang (2017) found positive attitudes like noveltv-seeking. time-consciousness. cost-consciousness and toward internet purchasing a statistically significant increase the time people spend on online shopping, but | likelihood of repetition and we hypothesize:

on the other hand that shopping enjoyment has a significantly negative association with e-shopping behaviour from home. Apart from everyday low pricing particularly relative to the retail stores of the sellers, consumers in their increased interest in doing online shopping are also expect free shipping of their products purchased (Hajewski, 2006). Despite the widespread belief that Internet shoppers are primarily motivated by convenience, Brown et al. (2003) show empirically that consumers' fundamental shopping orientations have no significant impact on their proclivity to purchase products online purchase intention, but factors that are more likely to influence include product type, prior purchase, and, to a lesser extent, gender. Javawardhena et al. (2007) contradict the pervasive view that Internet consumers are principally motivated by convenience, and find that aspects that do have a significant effect on purchase intention are prior purchase and gender.

Aseri (2021) states that if online purchasing experience proves to be trustworthy, customers are likely to repeat the same. The possibility of purchasing an item online is directly proportional to one's experience. Elliott and Speck (2005) discussed that 'touches' on the overall online shopping site experience in a way relates to the overall customer experience in online shopping. Specifically, the authors argued that the following factors influenced the consumer motivation to complete their online shopping transactions: ease of use of online shopping site, product information availability, trust in the brand and the online shopping site, customer support, and experienced entertainment. The motives and online shopping experience are important factors of customers' perception and

- H8: Conventional motives for online shopping affect the likelihood of continuity of online shopping post-COVID-19.
- H9: Positive online shopping experience of online shopping positively affects the likelihood of continuity of online shopping post-COVID-19.

E-commerce development in North Macedonia

The adoption of information and technology, which communication represents a precondition for e-commerce development, is widespread, but globally not equally distributed. Besides internet broadband connection, the use of payment cards and delivery coverage are crucial for the e-commerce chain. Starting in 2015, UNCTAD measures a country's e-commerce readiness with the so-called E-commerce B2C Index taking into account 4 parameters: internet penetration, postal delivery coverage, payment card penetration and secure internet servers (UNCTAD, 2015). The B2C index is calculated for 152 countries globally showing the readiness of countries for e-commerce development. The Republic of North Macedonia in 2020 ranked 52nd out of 152 countries (UNCTAD 2020). Figure 1 shows the ranking of the B2C readiness index for the European countries and North Macedonia is on the bottom with only few countries behind.

The speed of development of e-commerce in North Macedonia is not satisfactory and lags behind compared to developing countries in Europe. Figure 2 presents the growth of Predictors of the Likelihood of Continuous Usage of Online Shopping Post-COVID-19

internet use as a percentage of individuals 16-74, and the percentage of internet users that performed online shopping in the period 2010-2020. There is significant development in the past years compared to 2010, but the scale of this development is not good enough.

Even though internet use in 2020 amounts to 84% of individuals with 40 percentage of them shopping online, the level is unsatisfactory compared to European countries. Figure 3 presents the internet use as a percentage of individuals aged 16-74 in European countries. North Macedonia is not ranked poorly in this indicator that is taken into consideration to assess the e-commerce readiness of a country.

On the other hand, the level of online shopping is increased but still with 40% of the internet users doing online purchases, North Macedonia is at the bottom of the chart in comparison to the other European countries (Figure 4).

Figures 5 and 6 present the frequency of online purchases as a percentage of individuals who purchased online in the last 3 months and Macedonians are at the bottommost or 72% of e-shoppers place online orders 1-2 times in three months. Like the European e-shopper, Macedonians buy online mostly clothes including sports clothing, then sports goods and cosmetics, furniture etc. The presentation of the behaviour of Macedonian e-shoppers in terms of how frequent and what they buy online is important to be compared with the results of the survey to confirm the similarities.







Figure 1. UNCTAD B2C e-commerce index for Europe, 2020 Source: UNCTAD (2020)

Figure 2. Internet use as a percentage of individuals aged 16-74 and online purchase as a percentage of internet users in North Macedonia in the period 2010-2020 Source: Eurostat (2020)







Figure 4. Online purchase in the last 12 months as a percentage of individuals who used internet within the last year - 2020 Source: Eurostat (2020)



Figure 5. Frequency of online purchases in the last 3 months as a percentage of individuals who purchased online in the last 3 months Source: Eurostat (2020)



Figure 6. Online purchases (3 months) as a percentage of individuals who purchased online in the last 3 months by categories Source: Eurostat (2020)

Due to the methodology of data collection, the Eurostat data does not reflect the growth of e-commerce due to the COVID-19 pandemic emergency. National statistical offices collect the data via a survey in the first 3 months of the year for the current year and the first case in North Macedonia was detected in March followed by government restrictions and lockdown. We present data about the transactions made with payment cards collected by the National Bank of the Republic of North Macedonia (NBRNM) through an electronic application by all participants in the payment statistics such as: banks, electronic money issuers, legal entities, micropayments intermediaries and other payment service providers and payment system operators that are included in the payment system. To assess the impact driven by the measures taken to prevent the spread of COVID-19, a comparison of the value of processed online transactions per quarter in 2020 and the year before was made. Figure 7 shows that there is a larger increase in the total value of online transactions in the second (29.8%), third (26.3%), and most in the fourth quarter of 2020 compared to the same period in 2019 when the increase is 68.8%.





Data and methodology

Questionnaire and data collection

The research is based on an existing questionnaire surveyed by the Macedonian E-commerce Association for the purpose of the E-commerce Analysis Report "Analysis of the progress of e-commerce 2017-2019 and the impact of COVID-19 on the development of e-commerce in 2020" (Angelovska and Angelovska, 2020). The survey used a purposive non-probability sampling method and was distributed to online customers who made online purchases at least once. For greater coverage and a larger sample of respondents, the questionnaire was distributed through several channels simultaneously to users over 18 years of age.

Namely, on October 21, 2020, the questionnaire was first published on social media in the form of sponsored announcements on the profiles of the Macedonian Ecommerce Association, while on October 22, 2020, it was sent to 1,665 subscribers to the mailing list

of the Macedonian Ecommerce Association. On October 24, 2020, the questionnaire was shared with a Facebook group called "MKStartups", which has 2.100 members, while on October 26, 2020, it was shared with three selected Facebook groups -"Creative Exchange", "Federal Committee of Developers of Republic of Macedonia " and" Federal Committee of Freelancers of Macedonia", which altogether have 23,100 members. On October 26, 2020, a web banner was placed on several Macedonian web portals: it.mk, www.bankarstvo.mk and www.popularno.mk and on a popular local deal and marketplace platform, www.grouper. mk with a link to the questionnaire that invited visitors to fill in the survey. In addition, during October 27-29, 2020 e-mails were sent by the Macedonian E-commerce Association to other organizations with whom the Association has established cooperation (Startup Macedonia, USAID's Business Ecosystem Development Project. Macedonian Association of Information Technology -MASIT, Chamber of

Crafts, CEED - Women in Adria and AmCham, and to the educational providers - Brainster, Galaxy, SEDC and M6) asking them to share the survey with their members. On October 29, 2020, a dedicated email was sent to Fashion Group (a popular fashion clothes retailer) asking them to share the survey with their customers from their database, however, no data has been obtained regarding how many customers the survey has been sent to. On October 30, 2020, a tailored e-mail was sent by Grouper.mk (Macedonian popular marketplace) to 36,217 registered users in their database, of which 5,453 members opened the e-mail and 1,518 clicks were made on the image and the button leading to the guestionnaire. During the entire period of responses collection from October 21 to November 11, 2020 sponsored ads were promoted on social media (Facebook and Instagram) by the Macedonian Ecommerce Association.

The questionnaire was created using Google Forms, and to increase the response rate, 30 gifts were offered on random bases to respondents. The gifts that aimed at boosting the response rate were communicated on the design elements with CTA (call-to-action) i.e. web banners and other elements placed in the emails. The questionnaire was anonymous, while the respondents that wanted to participate for gifts optionally were asked to enter their contact details. On November 11, 2020, the day of closing the survey for responses, 2802 answers were collected.

The online consumer questionnaire consists of 35 questions divided in more sections. The questionnaire uses several types of questions - open-ended, one-time questions, multiple-choice questions, answermatrix questions and ranking questions. The questions are derived from previous studies Predictors of the Likelihood of Continuous Usage of Online Shopping Post-COVID-19

and are modified according to the needs and the special conditions of COVID-19 online shopping by the Macedonian E-commerce Association. For the purpose of our study besides the section for demographics, including age, gender, and participant's employment status, we use the sections consisting of questions asking about how often you shop online; personal and payment data protection concerns; the impact of COVID-19 on decision to buy online and two sets of constructs about conventional motives for online shopping and online shopping experience. Finally, we use as a dependent variable answers to the question: Will vou continue to shop post-COVID-19?

Measures

The survey uses established measure for the independent constructs whenever possible. The measures used in the survey for the included demographic questions are age in years grouped in 5 categories (18-24; 25-34; 35-44; 45-54 and 55-65), gender (female and male). Employment status is measured by a dichotomies variable: employed, not employed, and the decision to start online shopping during the COVID-19 (Yes, No) and to continue online shopping post-COVID-19 (Yes with same quantity, Yes with increase quantity, Yes with decreased quantity, Don't know and Not at all). Frequency of online shopping and categories of products and services the respondents buy online are based on Eurostat measures.

The variable measurement of assessment of the constructs of motives for online shopping and shopping online experience in the research model were measured based on five-point Likert-scales ranging from 1 to 5 where 1-not at all, 2-to a small extent, 3-to

a moderate extent, 4-to a large extent, 5-very much.

Data analysis

To analyse the survey data, we primarily use descriptive statistics to present the characteristics of the respondents and their online shopping behaviour. We employ Confirmatory factor analysis (CFA) to test convergent and discriminant validity of the scales used to measure the constructs of conventional motives and online shopping experience. CFA is a commonly used method in the later phases and investigates construct validity when the underlying structure has been established on prior empirical and theoretical grounds. All items need to have loadings, above 0.50 on the intended factors and all the constructs had to have a Cronbach's alpha value equal to or greater than 0.50, thus supporting both convergent and discriminant validity of the scales.

Second, we employ logistic regression to find the predictive influence of the independent variables on intention of continuous usage of online shopping after COVID-19 period. Logistic regression is used to predict a categorical (usually dichotomous) in our research binary variable from a set of predictor variables. We tend to explore the relative influence of independent variables on intention to use online shopping when the pandemic is over. The binary logit regression generates predicted probabilities of a case being in the category labelled 1 and predicts the logit, that is, the natural log of the odds of having declared intention to continue usage of online shopping post-COVID-19. That is,

$$\ln(ODDS) = \ln\left(\frac{\hat{\gamma}}{1-\hat{\gamma}}\right) = a + bX \tag{1}$$

where $\hat{\gamma}$ is the predicted probability of the event which is coded with 1 (continuous use

of online shopping) rather than with 0 (not using online shopping), $1-\hat{\gamma}$ is the predicted probability of the other decision, and X is our predictor variable.

Results

Demographics and COVID-19 online shopping behaviour

Respondents of this study are Internet users in North Macedonia who have had at least one online shopping experience. The survey collected 2.802 valid responses. Table 1 presents the distribution of respondents based on demographic characteristics: gender, age and employment status and COVID-19 online behaviour. Among the respondents, there were 1.682 females (60%) and 1.120 (40%) males. The majority of the respondents (35.4%) were in the 25-34 age category, followed by 26.4% aged 35-44 years, 16.1% aged 18-24, 16.1% aged 45-54 and 5.6% aged 55-65. Most of the respondents are employed (77.2%). The frequency of online shopping of the respondents is mostly monthly (39.5%), followed by weekly (35.8%) and quarterly (22.4%). Only 1.3% of the respondents shop online on a daily basis and 1% on a yearly bases. The majority of respondents (81.5%) were practicing online shopping before COVID-19. 18.5% are new online shoppers that started shopping online after the onset of the pandemic circumstances. 37.4% of the respondents who were practicing online shopping before COVID-19. increased the volume of shopping online during the pandemic. 76.3% of the respondents answered that they will continue to do online shopping with the same dynamics post-COVID-19, while 8.2% answered that they will continue with increased volume. 7.1% of the respondents will continue with lower volume, while 8.1% are not sure (don't know) and 0.4% answered

Variables	Category	Frequency %	N=2802
Age	18-24	18-24 16.5	
	25-34	35.4	993
	35-44	26.4	739
	45-54	16.1	451
	55-65	5.6	156
Gender	Male	40.0	1120
	Female	60.0	1682
Employment Status	Working	77.2	2162
	Not working	22.8	640
Frequency of e-shopping	Daily	1.3	37
	Weekly	35.8	1003
	Monthly	39.5	1107
	Quarterly	22.4	628
	Yearly	1.0	27
Data protection	YES	49,2	1379
	NO	50.8	1423
Payment security	YES	80.9	2266
	NO	19.1	536
Started online shopping during COVID-19	YES	18.5	517
	NO	81.5	2285
Increase Volume	YES	37.4	1047
	NO	62.6	1755
Continue inline shopping after COVID-19	Yes, same volume	76.3	2137
	Yes, increased volume	8.2	229
	Yes, decreased volume	7.1	198
	l don't know	8.1	227
	NO	11	0.4

Table 1. Descriptive statistics of demographics and COVID-19 online behaviour

Source: Author's calculations

they will not shop online after COVID-19. For the purpose of this study, this variable is transformed into a dichotomous variable being 1 continuity with the same volume or more, and the rest being 0.

Table 1. Descriptive statistics of demographicsand COVID-19 online behaviour

Respondents' online expenditure

Macedonian e-shoppers, like European ones, mostly buy clothes and sports equipment online. During the COVID crisis, this category remained the most shopped category online although with slightly reduced dynamics.



Figure 8. Online shopping before and during the COVID-19 by categories of products Source: Authors' calculations

Before COVID-19, 60% of respondents said they purchased clothes and sports equipment, and 57% after the onset of the crisis. The categories of hotel and other accommodation, event tickets, other travel arrangements certainly have a significant decline as a result of COVID-19. There is also a decline in the online shopping of electronic equipment and computer hardware. The largest increase in online shopping is noted in 'food or products for everyday use'. Before COVID-19 18% of respondents were shopping food and products for everyday use while 24% during COVID-19. Also under the influence of COVID-19 respondents increased online use and the ordering of telecommunication services, learning materials, medicine, film and music (Figure 8).

Motives and online shopping experience- CFA

We employ Confirmatory factor analysis to test convergent and discriminant validity of the scales used to measure the conventional motives and online shopping experience. Table 3 displays descriptive statistics: mean and standard deviation. All items had substantial loadings (above 0.50) on the intended factors and all the constructs had a Cronbach's alpha value equal to or greater than 0.70, thus supporting both convergent and discriminant validity of the scales. Online shoppers are mostly motivated by lower price (4.02) and free delivery (3.99). Online shoppers are most satisfied with the quality of products (3.73) and overall online experience

Variables	Category	Frequency %	N=2802	
Age	18-24	16.5	463	
	25-34	35.4	993	
	35-44	26.4	739	
	45-54	16.1	451	
	55-65	5.6	156	
Gender	Male	40.0	1120	
	Female	60.0	1682	
Employment Status	Working	77.2	2162	
	Not working	22.8	640	
Frequency of e-shopping	Daily	1.3	37	
	Weekly	35.8	1003	
	Monthly	39.5	1107	
	Quarterly	22.4	628	
	Yearly	1.0	27	
Data protection	YES	49,2	1379	
	NO	50.8	1423	
Payment security	YES	80.9	2266	
	NO	19.1	536	
Started online shopping during COVID-19	YES	18.5	517	
	NO	81.5	2285	
Increase Volume	YES	37.4	1047	
	NO	62.6	1755	
Continue inline shopping after COVID-19	Yes, same volume	76.3	2137	
	Yes, increased volume	8.2	229	
	Yes, decreased volume	7.1	198	
	l don't know	8.1	227	
	NO	11	0.4	

Table 2. Descriptive statistics of demographics and COVID-19 online behaviour

Source: Author's calculations

(3.58). Online shoppers are least satisfied with Online tracking ability (2.82).

Table 1. Descriptive statistics of demographicsand COVID-19 online behaviour

Results of logit regression

To find out the likelihood of the respondents to continue making online purchases after COVID-19, respondents were asked to indicate their intention to shop with the same volume, increased volume, decreased or not at all. For the purpose of this research we

Step	Chi-square	df	Sig.	
1	12.837	8	.118	

Table 3. Hosmer and Lemeshow Test of goodness-of-fit of the binary logit regression analysis

observed		predicted		
		0	1	correct %
Post-COVID-19 continuity	0	17	419	3.9
	1	13	2353	99.5
	overall percentage			81.6

 Table 4. Classification Table of the binary logistic regression analysis

Note: The cut value is ,500

classify respondents into two groups namely continuers that will shop online with the same or increased volume post-COVID-19 (1) and non-continuers that will shop with decreased volume or not at all (0).

To assess whether the nine-predictor variables significantly predict the criterion variable, we performed binary logit regression. The criterion variable is dichotomous (willing to continue shopping with the same or greater volume or not willing to shop online after COVID-19 is over) and the other predictor variables in the study are: Gender, Age, Working status, Frequency of online shopping, Payment security, Data protection, COVID-19 decision, Motives, Online shopping experience. In general, the model fit was satisfactory as demonstrated by the test of Hosmer-Lemeshow. The goodness-of-fit tests indicate the appropriateness of the model, how well it fits with the actual outcomes, where the insignificance of the chi2-value is an indicator of goodness-of-fit (p>0.05 indicates that the model fits the data well) (Table 3).The predictive accuracy of the model can be presented in a classification table, where the predicted outcome (1/0) is compared to the actual outcome (1/0). The hit ratio in the classification table shows that the performed model (Table 4) (Dahlstrom et al., 2009) correctly predicted 81.6% of the outcomes.

In the binary logistic regression, the predicted dependent variable online shopper who will continue shopping after COVID-19 is a function of the probability that a particular respondent will be in one of the categories: continuer vs non-continuer after COVID-19 (for example, the probability that the respondent will be a continuer, with given set of scores on the predictor variables). The statistical significance of individual predictors is tested using the Wald chi-square statistic. Those predictors whose p-values are smaller than 0.05 are statistically significant. Table 6 presents the regression coefficient (B), the Wald statistics, sig level odds ratio (Exp (B)) for each predictor. The WALD test reports that factors: Age, Data protection and Motives are not significant predictors of post-COVID-19 online shopping continuance. The results of the analyses highlight that 6 of the hypotheses are supported. Demographic factors, gender and working status do matter and are statistically significant predictors (p < 0.01) of continuing online shopping after COVID-19 while age is

not a statistically significant predictor of online shopping continuity. Hypotheses 1 and 3, are supported. More specifically, gender is a predictor and male consumers are more likely to continue online shopping post-COVID-19 (hp.1). Of course, the probability for online shopping continuity is higher for employed online shoppers (hp.3). Frequency of online shopping (hp.4) and payment security (hp.5) are statistically significant predictors of online shopping continuity. We find data protection statistically insignificant in affecting the likelihood of continued online shopping by Macedonians post-COVID-19 (hp. 6).

Although most predictors are significant at the .01 level, most of the odds ratios are bellow or close to 1, indicating small effect size. A statistically significant variable and with large odds ratio is the decision to start online shopping during COVID-19. The respondents that started online shopping during COVID-19 crisis are 2.54 times more likely to purchase things online after COVID-19 (hp.7). Online shopping experience is also statistically significant and online shoppers that are more satisfied have 1.4 times more likelihood to Predictors of the Likelihood of Continuous Usage of Online Shopping Post-COVID-19

continue with online shopping after COVID-19 is over (hp.9).

Discussion

The results of logit regression of the demographic characteristics indicate that male respondents are more likely to continue practising online shopping post-COVID-19 than female ones (H1, β = -0.566, p < 0.01). Although prior research studies are with mixed results, our findings are in line with Alhaimer (2021); Crocco et al. (2013) and Farag et al. (2005) that males have a greater likelihood of online shopping. Although females are over-presented in our survey, according to Eurostat's data, males use the Internet more frequently in North Macedonia. Our findings demonstrated that age is also negatively correlated with the likelihood of continuous usage of online shopping post-COVID-19, but the results are statistically insignificant (H2, β = -0.054, p > 0.1). Although there are mixed findings, most of the researchers found a negative relationship of age in online shopping behavior and intention (Joines et al., 2003; Swinyard and Smith, 2003; Gong et al.,

	В	S.E.	Wald	df	Sig.	Exp(B)
Gender	-0.386	0.129	8.915	1	0.003	0.68
Age	-0.054	0.054	1.005	1	0.316	0.947
Working status	-0.451	0.135	11.177	1	0.001	0.637
Frequency of online shopping	-0.385	0.068	32.024	1	0	0.68
Payment security	-0.377	0.13	8.43	1	0.004	0.686
Data protection	0.132	0.114	1.356	1	0.244	1.142
COVID-19 decision	0.932	0.12	60.696	1	0	2.54
Motives	-0.039	0.069	0.323	1	0.57	0.962
Online shopping experience	0.328	0.078	17.516	1	0	1.389
Constant	1.901	0.556	11.68	1	0.001	6.69

Table 5. Results of Binary logistic regression

Source: Author's calculations

2013; Ding and Lu,, 2017; Crocco at al., 2013; Loo and Wang, 2017; Farag et al., 2005; Maat and Konings, 2018; Shi et al., 2019; Hjorthol et al., 2009; Farag et al., 2006; Alhaimer, 2021). Our hypothesis that employed respondents are more likely to continue online shopping post-COVID-19 is confirmed (H3, β = -0.451, p < 0.01). We found that online shopping frequency is a statistically significant predictor of continuance usage of online shopping (H4, β = -0.385, p < 0.001), as Nguyen at al. (2021) confirmed that an increase in frequency means growth in online shopping. We address trust as a critical factor for online shopping by testing the hypothesis about payment security and data protection (H5, β = -0.377, p < 0.01; H6, $\beta = 0.132$, p > 0.1).

found that Macedonian We online shoppers are concerned when it comes to payments and payment security is found to be a statistically significant predictor for post-COVID-19 online shopping (Alalwan et al., 2018; Vatanasombut et al., 2008). Many authors refer to data security as an obstacle in online shopping (Lallmahamood, 2008; Suki et al., 2001; Aseri, 2021), but Macedonian online shoppers did not express concerns regarding their data. Data protection is not a significant predictor of post-COVID-19 online shopping. During the pandemic restrictions, social distancing and lockdowns many consumers were 'pushed' to make their first online purchase. Our research includes a hypothesis to be tested referring to respondents' answers if they commenced online shopping under COVID-19 circumstances. People do not question the level of ease relevant to online shopping but do their best to avoid the virus or avoid being penalized by the government for ignoring the lockdown rules (Alhaimer, 2021). Macedonians that made their first online purchase during the pandemic are very likely to continue practicing online shopping post-COVID-19 (H7, β = 0.932, p < 0.001). Data survey results for conventional motives for online shopping like unique products, lower prices, fast delivery, free delivery and gifts showed that Macedonians are mostly motivated by lower prices (assessed with 4.2 in a scale up to 5) (Carver, 2006). Nevertheless, we found these motives as a factor in the pandemic circumstances as not significant predictors of the likelihood of continuous post-COVID-19 usage of online purchases (H8, β = -0.039, p > 0.1). As Aseri (2021) states that online shopping experience is a predictor of the likelihood to be repeated, our research confirmed this statement. The respondents that assessed their online shopping experience higher are more likely to continue online shopping post-COVID-19. The hypothesis that a positive online shopping experience positively affects the likelihood of online shopping continuity post-COVID-19 is confirmed statistically significantly (H8, β = 0.328, p < 0.001).

Conclusions, implications and study limitations, and future research directions

In response to the lack of knowledge regarding predictors of the likelihood of customers' online purchase continuity in the context of the exceptional circumstances imposed by the COVID-19 pandemic, but focusing on post-pandemic behaviour in this study, we present the findings from the empirical research as a contribution to fill this gap. We explore an existing online survey of online shoppers in North Macedonia conducted by the Macedonian E-commerce Association during the period of social distancing in November 2020. We hypothesize nine predictors: gender, age,

employment status, frequency of online shopping, payment security, data protection, the decision to make a first online purchase during the COVID-19 emergency, motives and online shopping experience to affect the likelihood of continuity of post-COVID-19 online purchasing. Seven of the predictors that we hypothesized affect the likelihood of post-COVID-19 online shopping continuity and are found to be statistically significant factors that researchers and stakeholders involved in this industry should consider in order to keep the trend of growth boosted by the pandemic after the economy returns to 'normal' and all measures and restrictions are removed. Analysis of socio-demographical characteristics such as gender has shown that males are more likely to shop online post-COVID-19. Age is negatively correlated with online shopping but our results showed that it is not a statistically significant predictor of post-COVID-19 online shopping continuity. Our results further showed that employed people are likely to continue post-COVID-19 online shopping confirmed with significance. The frequency of online shopping is also an a significant predictor of post-COVID-19 online shopping continuity. Respondents who commenced online shopping to avoid the virus or were forced by the lockdown restrictions are more likely to continue shopping post-COVID-19, hence the decision to start online shopping triggered by COVID-19 is a significant predictor of the continuity of post-COVID-19 online shopping. Further, we focus this research on the roles of motives and shopping experience as predictors of post-COVID-19 online shopping continuity and found that positive shopping experience is a statistically significant predictor of the likelihood of continuity. These findings convey that all involved participants and stakeholders

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in the e-commerce industry should focus on improving the shopping experience, meaning offering quality and variety of products, improving their e-system, and delivery time. The respondents that are more satisfied i.e. have a positive online shopping experience have 1.4 times more likelihood to continue online shopping after COVID-19 is over. In addition, it is important that the respondents that commenced their e-commerce journey and started online shopping during the COVID-19 crisis are 2.54 times more likely to purchase things online after the crisis is over.

We address geographical constraints, as the research is applied to users of online shopping in North Macedonia, and accordingly its results might not be generalizable to other different systems, users, cultures, and countries. Therefore, we find it interesting for future research to pay attention to different types of systems, users, cultures, and countries. We encourage future research to extend the set of predictors of customers' continuous usage of post-COVID-19 online shopping, adding delivery, product categories etc.

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