

Article

Consumers Behavior Determinants on Online Local Market Platforms in COVID-19 Pandemic—A Probit Qualitative Analysis

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Abstract: During the COVID-19 pandemic, the economy was strongly affected by the restrictions imposed by the authorities to prevent the spread of the virus, and local online platforms and e-commerce experienced an accelerated rate of growth. Small producers had no chance of staying on the market if they did not choose to reorient their business to the online environment. The purpose of this study is to highlight the determinants of consumer behavior on online market platforms, as well as the barriers that affect the intention to shop online. By conducting a qualitative survey and applying a probit OLS binary choice model, the analysis was centered on several variables with expected important impact on quick and flexible response/adaptation to new market profile, such as the age of the respondents, the level of income, the trend of online purchasing of different categories of goods, and the propensity towards online payment. The results underlined the importance perceived by the respondents of local producers, especially by people with a high level of education. At the same time, the role of the age variable as a determinant of consumer behavior before, during, and after the removal of the restrictions of the COVID-19 pandemic is highlighted.

Keywords: COVID-19 pandemic; e-commerce; consumer behavior; youth consumption; economic growth; probit OLS

MSC: 62H20



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1. Introduction

Nowadays, the online environment is a reality that transforms the way individuals and society create and channel all resources from an economic, social, behavioral, and even political point of view. The digital age is reshaping the process of creation, production, distribution, and revenue within companies, regardless of their size and economic field. The online platforms for communication and e-commerce profoundly transformed the companies' marketing strategies and facilitated them to adapt to new trends in the digitalization process.

A simple screening of the Web of science database shows that the topic of the online marketing platform was a highly debated issue among specialists in the last decade with an increased interest after 2016. From a total of almost 4600 papers (WoS database screening on the topic of online marketing platform, accessed on 28 August 2022) published on online marketing platforms after 2011, 44% were between 2016 and 2019, 17% in 2020, and 22% in 2021. On "social media channels" the research interest is similar, but with some different sub-topics. An associated search extremely limits the number of papers published to just a few. It is well-known that social media can help identify, understand, and address clients' needs for goods and services and even since 2015 "38% of organizations across a wide

range of industries plan spent more than 20% of their total advertising budgets on social media channels in 2015" [1]. Although initially social media channels were used to interact with others and to promote ideas, to enforce opinions, and to shape issues' approach in different life domains, now their role has diversified. They became usual, among others to sell and advertise businesses as a whole or just specific products/services, to update the demand and supply of the niche markets, etc., and push to improve the digital literacy of the users, both producers, and clients. This means that social media channels also represent an important pillar for e-commerce businesses' development. Bizzi [2] shows that social media channels sway consumers and argue on a set of nine practical recommendations for organizations to deal with online consumers behavior changes. Dorfleitner and Scheckenbach [3] discusses the different impact of social platforms on consumer behavior and on overconfidence trading activity and performance, considering that social platforms are amongst the major innovations in online trading. In the absence of total freedom of the classic trade (based on fixed points of sale, with physical contact between the seller or intermediary and the final driver) generated by the COVID-19 crisis, the sale of products to local economic agents, usually small entrepreneurs are affected. To re-establish the links between the potential consumers and the offer of products and services of the producers, the involvement of some stakeholders/facilitators represented a feasible and useful option both for sustaining the local business environment and for ensuring the continuity of consumption of products and services. They facilitated the online transfer of transactions and, implicitly, contributed to the diversification of the role of social platforms. In the post-pandemic, the business model can continue in a hybrid system and, implicitly, the role of information services on e-commerce platforms, and of the computer formalization of supply and demand [4], in which the involvement of facilitator stakeholders is maintained. The motivation for the usefulness of their involvement is given by the extremely diversified profile of consumers and their degree of digital and financial inclusion, but also by the growing trend of online transactions of individuals, including people aged 55–74 (from approx. 1/2 before the pandemic (2019) to almost 60% in 2021) [5].

If for some small and medium enterprises, before the pandemic, online transactions were a form of selling their products, even if not very developed, for small local farmers things were different. They depended heavily on selling in the classic system, with loyal customers, mostly unfamiliar with the option of online commerce, and the restrictions imposed by the pandemic were a real challenge, considerably affecting the trading activity. As a result, in many communities, consumption of local products has dropped significantly.

We find that the literature of the past two decades focused on studying the effects of online stores on the productivity and competitiveness of big companies [6–8], but there is a lack of similar research for small businesses and local suppliers, and the existing gaps are significant [9,10]. The digital transformation and migration of local producers to online trading platforms for their products and services have been accelerated by the pandemic. Thus, before the COVID-19 pandemic, consumers acquired local goods directly from local farmers (e.g., farmer's markets) and via intermediaries such as restaurants, groceries, or supermarkets, after the rapid changes shocked local and regional food systems supply chains.

Thus, a huge challenge arises, residing both on the availability of a digital solution and the skills to exploit it. Studies [11,12] show that young people are the most active in online shopping and that older people do not have the same level of digital readiness, making them less concerned about online commerce. So, during the pandemic, there was a strong and asymmetrical market segmentation: young people, who had digital skills and a credit card, turned to online shopping, while older ones remained stuck in the classic trading system, adapting to the new conditions of the traditional market. The reasons behind the decision to continue shopping on the traditional market are the lack of digital skills, of confidence in the security of online transactions, and in the quality of procurement services through intermediaries [5,13,14].

The social platforms' openness to the online trade of small local producers through innovative communication and trading tools was a viable alternative in the pandemic, but the limitations were due to a lack of information, support, and experts' assistance to facilitate the relocation of online trade. A social actor with the necessary skills and with good communication facilities and channels in the community is the university, with training programs for economists. In this study, we aimed to identify the role of the socio-economic factors that influence the consumer's decision to buy from local suppliers using online platforms in the context of the COVID-19 pandemic and the use of e-payment tools, by highlighting the behavior of young people during and post-pandemic.

The paper is structured as follows: in Section 2 we present the research hypothesis and describe our sample data and the econometric model; Section 3 is dedicated to the results obtained after the application of the probit econometric model; and in Section 4 the discussions are presented, as well as the limits of the research and the future research directions.

2. Materials and Methods

2.1. Materials

Since the advent of the internet, researchers have predicted changes in sales, especially in the relationship between the consumer and the marketer [15–17]. Consumers are now able to create content and gain access to information related to different customs, traditions, products, and other elements that can be marketed, and thus influencing their purchasing decisions [18].

Over the last decade, many companies moved their business into the online environment as many advantages arose, such as financial (lower staff and administrative costs) or social advantages (wider market potential, more diversified consumers, work, flexible schedule; remote working; etc.). Nowadays, through digital transformation, companies can improve their productivity and competitiveness in the market [19,20], and can operate in a hybrid model, both online and classical. In this regard, companies need a digital readiness model, which includes a technology roadmap useful for managers that benefit from key digital technologies [21–23].

The importance of the online platform is supported by locals, especially by those with a higher level of education (Figure 1), who are aware of the importance of supporting the local economy [24] and are familiar with the online environment and e-payment instruments [25,26]. As the latest available Eurostat data show [5] in every EU Member State, without exception, highly educated people tend to buy more using the internet and online platforms.

Considering all previously mentioned, we assume that the level of education of the respondents would have an influence on their own perception regarding the usefulness of such online sales platform to local economic development. Thus, arises one of our research hypotheses:

Hypothesis 1 (H1). *The education level of the respondents positively influences their perception of the usefulness of an online marketplace for local economic development.*

Official Eurostat data [5] show a significant increase in online shopping, both in terms of frequency and total value, as well as the percentage of individuals, over the last 10 years, but the increase is even more evident during the COVID-19 pandemic (Appendix A). The highest increase in the number of online purchases among the member states of the European Union (EU) has Romania, where the number of online shoppers has almost doubled, from 23% since the beginning of the pandemic to 38% in 2021, according to available data [5]. Among the most popular online purchases of goods or services in the EU [5] are clothes and accessories (69%), food delivery (31%), furniture (29%), and goods produced by local producers (28%).

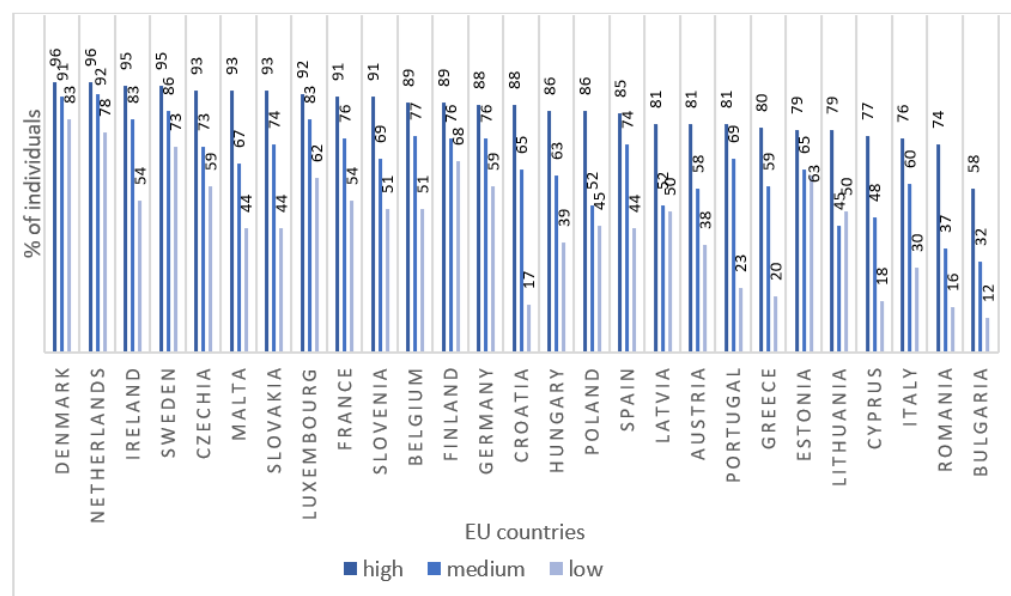


Figure 1. Internet purchases by individuals in EU countries by education level in 2021, % of individuals. (Source: Data retrieved from Eurostat database, accessed on April 2022); ISCED 2011-Classification for educational level.

Studies show that young generations are quite different from older ones, in terms of the use of knowledge and information technology [11,12,27–32], also being called “as “born digital” [27,33]. Digital skills allow them to use various digital solutions frequently and easily. At the same time, there is evidence [34] that age is one of the factors influencing adaptive consumer behavior not only during the pandemic but also after it. Further on, we developed two hypotheses that take into consideration the age of the respondents:

Hypothesis 2 (H2). *Before, during, and after the COVID-19 pandemic, age group significantly influence online shopping decision.*

Hypothesis 3 (H3). *Beyond COVID-19 pandemic, e-payment is still a preferred method of payment when online shopping.*

As previously mentioned, several studies show that online shopping is a decision influenced by age and digital knowledge, but also by the income level of the users. Studies [35–39] and Eurostat data (Appendix B) show that low-income families and individuals are considered “non-banking” and less likely to use online payment technologies and tools for a number of reasons (Appendix C): they are not financially educated enough to have digital tools to assist them in paying for online shopping or do not trust online shopping (consider that a product purchased online may be of questionable quality, or that the product will not be delivered to the destination even though the money will be paid).

According to these findings, we built a hypothesis to test the online consumers’ behavior regarding the payment option of our respondents:

Hypothesis 4 (H4). *Income level has a positive impact on online payments for local products before, during, and after the pandemic.*

2.2. Data

Due to the COVID-19 pandemic, the development of an integrated online sales platform for local suppliers became a useful tool to properly respond to the current market needs as this pandemic strongly hit local producers [40–42]. National authorities started to make considerable efforts in this matter, by developing many national strategies, but

still lack entrepreneurial teaching and learning in tertiary education [43]. Thus, using the concept of a quadruple helix, which has integrated civil society (innovation users and consumers, nonprofit organizations) as a driven force for innovation, a platform was created at the UMPHST University of Targu Mures which aims increasing local resilience through closing academia on local communities and business environment, but also with public authorities and community. The university thus becomes a promoter of initiatives that support the development of the local economy through the University to Business (U2B) model. U2B is a concept that relies on the principles of HEInnovate—a self-assessment tool for universities, developed by the OECD and the European Commission—which relies on all HEInnovate eight dimensions [44].

Through this online platform, consumption boosting of local products is encouraged, by creating an online marketplace where local producers can sell their goods and services. Following the success of the high number of registered producers on the platform and the recorded sales, we designed a questionnaire that was applied starting in February 2022, both among the users of the online marketplace within UMPHST university and among the users of other digital tools and platforms, regardless of their age group, education, or income level. We applied the questionnaire via electronic channels, such as marketplace place platforms and marketplace social media pages. From the total responses we validated 205 questionnaires for February–April 2022, which is still open to respondents. The platform still receives responses as future research will focus on comparing the results obtained post-COVID-19 pandemic.

Our sample is formed of a total of 205 respondents, which can be identified by age groups (we used 5 intervals to define the age group, as follows: between 16 and 25; between 26 and 35, between 36 and 45, between 46 and 55 and between 56 and 65 or above), by the level of education (we used 5 intervals to define education: first interval: lower secondary education; second interval: post-secondary education; third interval: upper secondary education; fourth interval: bachelor's or equivalent; fifth interval: master's/doctorate or equivalent) or by the level of income (we used 5 intervals to define the level of income: (first interval: 300–400 euro/month; second interval: 400–600 euro/month; third interval: 600–800 euro/month; forth interval: 800–1000 euro/month; fifth interval > 1000 euro/month). From the collected responses, we selected several binary and categorial variables which are defined and described in Appendix D in order to conduct our research and respond to the hypothesis. Also, Appendix E provides the descriptive statistics of the data.

From Figure 2 we observed that the predominant respondents were aged between 16 and 45 years (76% of the total respondents), followed by respondents aged between 45 and 55 (20%), while 4% of the respondents age was over 56 years. Most of the respondents (32%) declare that their monthly income is more than 5000 RON (1000 euros), followed by respondents (25%) with monthly income between 3000 and 5000 RON (800–1000 euros) and by respondents with income ranging between 1500 and 2000 RON (300–400 euros). We noticed that most respondents from the age group 16–25 declare a low monthly income, as they are still students without full or part-time jobs, while most respondents aged more than 36 declare that their income is over the national average income (more than 3000 RON, the equivalent of 600 euros).

Figure 3 illustrates the respondents' characteristics regarding online shopping frequency, familiarity with the term “online store” as well as the ease of internet and platform browsing and using. As shown (light blue bar in Figure 3), the less rated is the frequency of online shopping, with an average between 2.15 and 2.86, depending on age group. With a scaled answer between 1 and 5 (1 means no online shopping and 5 means more than once a month), our results show that the respondents, on average, use to shop online once a month or less than once a month. Also, from the same figure (blue bars), we note that respondents aged between 16 and 45 years old are more familiar with the term of online store, find it easier to use online sale platforms, and are willing to shop online more frequently.

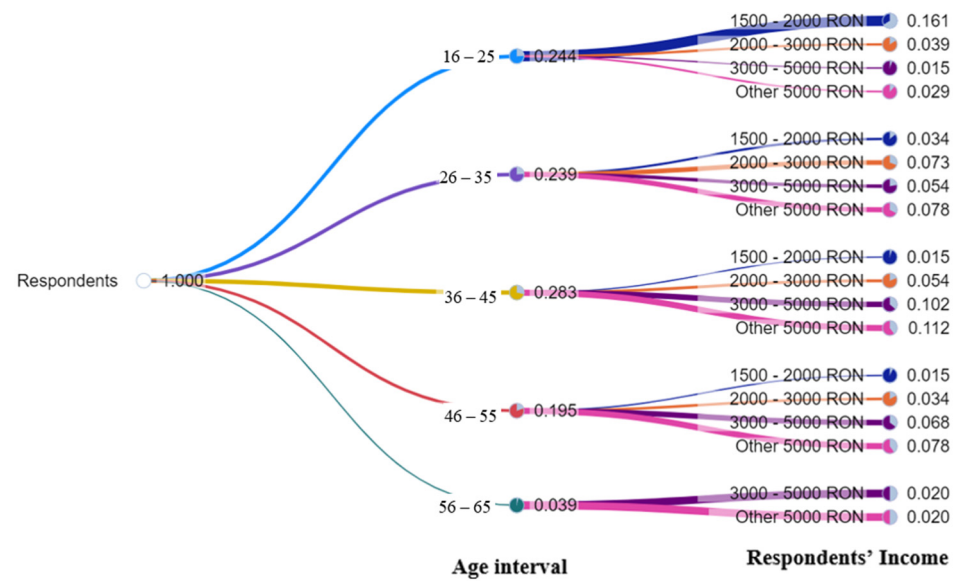


Figure 2. Social profile of the respondents (Source: Own projection according to the answers of the applied questionnaire).

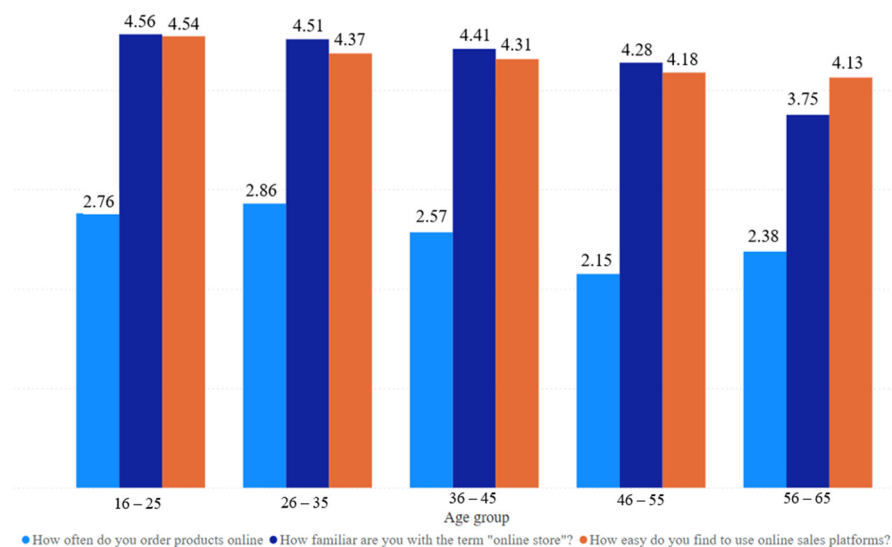


Figure 3. The frequency of online shopping by age groups (Source: Data according to the answers of the applied questionnaire).

2.3. Methods

A qualitative data analysis is further conducted due to the dichotomous nature of the consumer. We applied a probit binary choice model to test the research hypotheses as such models are used when analyzing consumer characteristics associated with their purchasing decisions for certain product categories [44].

The model can be generally written as:

$$y_i = x_i' \cdot \beta_i + \epsilon_i \quad (1)$$

where:

- $y_i = 1$ if yes or 0 if no;
- β_i = the regression coefficients;
- x_i' = the independent variable (binary or categorical variable transpose matrix);
- ϵ_i = the model errors, $\epsilon_i \sim N(0, 1)$, with the assumption of normal distribution.

In the probit model we redefine our dependent variables y_i according to [45,46], Equation (2a):

$$y_i^* = \Phi(x_i' \cdot \beta_i + \epsilon_i), \Phi^{-1}(y_i^*) = x_i' \cdot \beta_i + \epsilon_i \quad (2a)$$

where Φ , and Φ^{-1} are Cumulative Distribution Function CDF and inverse CDF for normal distribution $f(x)$ (2b)

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} \cdot e^{-\frac{1}{2}\left(\frac{x-\bar{x}}{s}\right)^2} \quad (2b)$$

where $\bar{x}$ is the mean of the sample S and s the standard deviation of sample.

After estimation, we can back out probabilities using the standard normal distribution such as Equations (3) and (4):

$$\Pr(y_i = 1|x_i') = \Phi(x_i' \cdot \beta_i + \epsilon_i) \quad (3)$$

$$\Pr(y_i = 0|x_i') = 1 - \Phi(x_i' \cdot \beta_i + \epsilon_i) \quad (4)$$

For estimation we use Maximum Likelihood Estimation (MLE) where we suppose that $\{y_i, x_i'\}$, $i = \overline{1, n}$ have n independent values, where x_i' is a transpose matrix with $k \times 1$ independent inputs and β $k \times 1$ coefficients. Because the observations are independent and identically distributed, then the likelihood Equations (5a,b):

$$\text{when } y_i = 1 \text{ then } \mathcal{L}(\beta_i; y_i, x_i) = \Phi(x_i' \cdot \beta_i) \quad (5a)$$

$$\text{else if } y_i = 0 \text{ we have } \mathcal{L}(\beta_i; y_i, x_i) = 1 - \Phi(x_i' \cdot \beta_i) \quad (5b)$$

Then the entire sample, or the joint likelihood, will be equal to the product of the likelihoods Equation (6):

$$\mathcal{L}(\beta_i; y_i, x_i) = \prod_{i=1}^n \left(\Phi(x_i' \cdot \beta_i)^{y_i} (1 - \Phi(x_i' \cdot \beta_i))^{1-y_i} \right) \quad (6)$$

With the joint log-likelihood function Equation (7)

$$\ln[\mathcal{L}(\beta_i; y_i, x_i)] = \sum_{i=1}^n [y_i \ln \Phi(x_i' \cdot \beta_i) + (1 - y_i) \ln(1 - \Phi(x_i' \cdot \beta_i))] \quad (7)$$

where the $\hat{\beta}$ estimators with maximize the function in Equation (7) is normal, consistent (if it converges in probability to the true value), and efficient (that estimates the quantity of interest in some “best possible” manner) if $E[x_i x_i']$ is nonsingular ($\det[E[x_i x_i']] \neq 0$).

The function $\ln[\mathcal{L}(\beta_i; y_i, x_i)]$ is globally concave in β and standard numerical algorithms for optimization will converge rapidly to the unique maximum for it given by convergence in distribution (8):

$$\sqrt{n} (\hat{\beta}_i - \beta_i) \xrightarrow{d} \mathcal{N}(0, \Omega^{-1}) \quad (8)$$

where

$$\Omega = E \left[\frac{\Psi^2(x_i' \cdot \beta_i)}{\Phi(x_i' \cdot \beta_i)(1 - \Phi(x_i' \cdot \beta_i))} x_i x_i' \right]$$

Ψ is the Probability Distribution Function for normal distribution $f(\cdot)$.

The general form of the model is then computed using the variables obtained after processing the survey results, as presented in Table 1. Variables included in the econometric analysis are defined and described in Appendix D.

Table 1. Model description.

Model	Model Representation
Model 1	$ecdev = \beta_0 + serv \cdot \beta_1 + prod \cdot \beta_2 + locprod \cdot \beta_3 + freq \cdot \beta_4 + before_covid \cdot \beta_5 + during_covid \cdot \beta_6 + after_covid \cdot \beta_7 + age \cdot \beta_8 + income \cdot \beta_9 + edu \cdot \beta_{10} + \epsilon_i$
Model 2	$locprod = \beta_0 + before_covid \cdot \beta_1 + during_covid \cdot \beta_2 + after_covid \cdot \beta_3 + edu \cdot \beta_4 + age \cdot \beta_5 + income \cdot \beta_6 + \epsilon_i$
Model 3	$before_covid = \beta_0 + edu \cdot \beta_1 + income \cdot \beta_2 + age \cdot \beta_3 + \epsilon_i$
Model 4	$during_covid = \beta_0 + edu \cdot \beta_1 + income \cdot \beta_2 + age \cdot \beta_3 + \epsilon_i$
Model 5	$after_covid = \beta_0 + edu \cdot \beta_1 + income \cdot \beta_2 + age \cdot \beta_3 + \epsilon_i$
Model 6	$e_pay = \beta_0 + prod \cdot \beta_1 + serv \cdot \beta_2 + before_covid \cdot \beta_3 + during_covid \cdot \beta_4 + after_covid \cdot \beta_5 + edu \cdot \beta_6 + income \cdot \beta_7 + age \cdot \beta_8 + \epsilon_i$

3. Results

In order to test the proposed hypotheses, the data was processed using EViews and included in several probit models. The results of the econometric analysis are presented in Table 2.

Table 2. Model results (Source: Own calculation and projection).

Models	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Dependent/Independent	ecdev	locprod	before_covid	during_covid	after_covid	epay
locprod	0.3809 *	-	-	-	-	-
prod	1.0116 *	-	-	-	-	0.2109
serv	0.9950 **	-	-	-	-	0.4338 *
freq	0.7956 **	-	-	-	-	-
before_covid	0.4119 *	-0.4855 *	-	-	-	0.2851
during_covid	0.6359 *	0.1928 **	-	-	-	0.4567 **
after_covid	0.3460	0.0329	-	-	-	0.2184
edu	0.5371 **	0.4075 **	0.1808 *	0.4843 **	0.0703	0.3772 *
age	-0.0530	-0.0355	-0.0243 **	-0.3798 **	-1.1126 **	0.1204
income	0.0793	0.2447 **	0.1505	-0.0735	-0.0023	-0.1521
intercept	-3.2974 **	-2.7284 **	0.1536	0.4267	2.9904 **	-1.7339 *
LR Statistic	0.0000	<0.0001	0.0201	<0.0001	0.0000	<0.0001
Log likelihood	-112.3131	-110.7736	-119.0166	-89.2113	-76.9808	-69.2906
Observations	205	205	205	205	205	205

Note: ** Significant at 0.01 and * Significant at 0.05.

In the analysis of respondents' perception of an online marketing platform's contribution to the development of the local economy we included variables such as: the existence of local producers on the platform, the existence of products and services offered by local suppliers, the tendency to buy online before, during and after the pandemic, the frequency of purchase during the pandemic. We used the age, education, and income level of the respondents as control variables.

According to the results of Model 1, the respondents consider that the existence of products and services offered by local suppliers on an online marketing platform contributed to economic development before the COVID-19 pandemic broke out. The same trend is observed during the COVID-19 pandemic. These results are positively and significantly influenced only by the level of education of the respondents. So, regardless of the age or income level of the respondents, local products/services trading on an online platform is considered beneficial the local economic development.

When analyzing the contribution of the existence of local producers in e-commerce to the local economic development before, during, and after the pandemic, we included the control variables (Model 2). Thus, we note that respondents do not consider that the

existence of local producers on online trading platforms has positively contributed to the local economic development before the pandemic started. This result can be explained by the fact that local producers sell their products/services at a higher price than importers, which makes the respondents consider the significant positive contribution to the local economy the entities that charge lower prices, most of which are imported [47]. However, this perception changed during the COVID-19 pandemic, when respondents believe that local suppliers made a significant positive contribution to the development of the local economy (Model 2). This is probably because imports declined during the pandemic, due to restrictions on reducing the spread of the virus. Local producers have managed to replace the low stock of products and services due to the global health crisis, thus becoming a reliable alternative for consumers. Analyzing the period after the COVID-19 pandemic (Model 2), the results are not statistically significant. Respondents considered that local producers will again be discouraged by large producers, returning to the old selling model (face-to-face, in local markets) created before the pandemic, even though many customers are likely to continue to buy (online) local products/services, thus maintaining a positive but insignificant contribution to the local economy development. The results in Model 2 are significant considering both the level of education of the respondents and the level of income declared.

With the onset of the COVID-19 pandemic, several measures were taken to prevent the spread of the virus, and online activities were encouraged, including e-commerce and e-payment. Thus, it is important to analyze the online purchase and payment decision based on the social profile of the respondents, as well as the products/services purchased.

Thus, we analyzed the influence of respondents' profile on the online shopping trend before, during, and after the COVID-19 pandemic to validate the results. Before the pandemic broke out, we noticed that the level of education and age are determining factors in online shopping (Model 3). The higher the level of education and the lower the age, the higher the tendency to purchase products and/or services online. This result highlights that young people, regardless of income level, are more likely to buy products and services online than older people. Contrary to expectations, we note that this trend continues during the COVID-19 pandemic (Model 4), and young people remain the ones who buy online. However, this result can be explained by the low level of digital skills recorded among older people in Romania, which is well below the EU average [48]. According to the results obtained, the elderly, in general, seek help from young people for online shopping. After the pandemic, however, we note that only age contributes significantly to the decision to buy online (Model 5), which confirms that respondents, after the end of the pandemic, desire to return to the routine created before the pandemic, regardless of education level and declared income.

Next, in Model 6, we analyzed the main factors that influenced the electronic payment decision. The results show that respondents, regardless of age and income level, prefer to engage in electronic payments when purchasing services. On the contrary, when online shopping for products, the method of payment is mostly preferred as cash, or on delivery. This is a generally expected result, as the low level of digital skills and financial inclusion of the Romanian population, as well as the limited confidence in distance trade relations (Appendix C), lead respondents to choose a secure payment method—the physical one, in cash, both from the point of view of the confidentiality of personal banking data and from the point of view of the correct delivery of the ordered products.

Model 6 shows that the COVID-19 pandemic has helped increase the number of online payments, thus observing a positive impact of the COVID-19 pandemic on online payments. The results show that, after the pandemic, the respondents would continue to make online payments, but the end of the pandemic will not significantly impact online payment decisions. The stated results are significant considering the level of education of the respondents.

4. Discussion

In our paper, we tested four hypotheses to meet our research goals.

To test the first hypothesis, we built Model 1 in Table 2 and found that indeed, most of the respondents think that online marketing platforms stimulate both the local economy and local suppliers' sales, in terms of goods and services. Unexpectedly, the age group of the respondents or the level of income did not significantly influence the results obtained from Model 1. However, as predicted, the level of education positively influences the opinion on the usefulness of an online marketplace for local economic development. These findings are supported by other studies [49,50], according to which the level of education is an important factor in terms of the attitude of users of online platforms on emphasizing the impact of an online marketplace for the development of the local economy and small local producers. Therefore, we accept H1.

Forward, we analyzed the youth online consumption model in and out of the pandemic context. To test our second hypothesis, we built three models (models 3–5 in Table 2) which comprise the decision of online shopping in three different moments: before (model 3), during (model 4) and after (model 5) COVID-19 pandemic. As the results of these models show, the age group of the respondents influences the decision of online shopping at any moment. Our results show that the decision of online shopping increases with the decrease in age group, thus H2 is accepted. In this context, we can emphasize the importance of young people in the development of online markets. Therefore, regardless of the time analyzed (before or after the pandemic), young people tend to secure their needs for goods and services, turning to online markets. The trend of young people's orientation toward online markets and platforms is on the rise, and the mobility restrictions imposed during the pandemic only contributed to its acceleration, with results similar to those of Gao [51].

Next, to test our last two hypotheses, we designed model 6. We identified that online payment preference is not influenced either by age or income, but rather by the respondents' preference for buying specific products/services. As noted in Model 6 (Table 2), the online payment method is preferred when buying services rather than products. Thus, we reject H3 and H4.

5. Conclusions

The COVID-19 virus has changed the world at a rapid pace, starting from a health problem and easily turning into an international economic crisis, which is still a concern worldwide and according to some studies will have more severe consequences than the global financial crisis in 2008–2009 [52]. In an era of the development of information technologies and consumer behavior, accentuated by the measures imposed by the authorities due to the pandemic situation, the impact of online markets and platforms on economic development has increased significantly [53]. In this sense, young people have become an important driver of e-commerce. Based on a questionnaire applied among users of a social platform in Romania and those who use e-tools as a payment method for online purchase activities, this research seeks to highlight the impact of COVID-19 on the change in consumer behavior, especially to the young ones. The results of the research underline the important role of young people in order to develop e-commerce, both before, during, and after the relaxation of the restrictions imposed by the authorities.

Another element that requires special attention is the level of education of users of online market platforms, which is important in defining consumer behavior. The higher their level of education, the more those consumers tend to use online shopping tools and platforms. This is also reflected in the fact that people with a high level of education consider that the development of online platforms, especially those on which local producers are found, contributes to local and implicitly national economic growth.

Although the results obtained from the econometric analysis by applying the probit model are promising and aligned with other literature findings, some limitations of the research can still be identified, such as subjectivism of the respondents, a small number of control variables or observations, and also geographical limitations.

The research highlighted:

- the adaptability potential of consumers to the unforeseen restrictions targeted by the pandemic period;
- although young age groups are prone to more easily use digitalization facilities, whether it is about online purchases and payment but also as elements of a post-pandemic consumption access model, they have exercised a process of contagion, by facilitating the use of the Internet for the purchase of goods and services;
- the option of activating the social collaboration presented in the study, namely the collaboration between the academic environment and the business environment to facilitate online sales and payments and the promotion of small local producers proved viable for the development of local trade, the higher price of their products/services being compensated by the quality and originality of the offer—ecological products from small and medium-sized households, original products that promote and preserve local consumption traditions, etc.
- the support of small local producers staying online post-pandemic can be constituted by revitalizing the local economy through: (a) hybrid trade (return to sales in markets and small shops) but also the continuation of online sales; (b) increasing the visibility of local producers and geographical expansion of sales (including at the international level); (c) preserving the local cultural heritage—traditional products, etc.); (d) complementarity in diversifying the local business environment by, for example, promoting local tourism for the consumption of traditional products—development of guesthouses with traditional culinary offerings, etc.;
- developing networks of small producers with the support of local authorities and increasing digital and financial inclusion for residents

Since the main limitation of the research was represented by the short period of time in which the qualitative research took place, we propose, as future research, to resume the research on a larger sample of respondents and to highlight the post-pandemic changes, but also to identify good practices that preserve the gains offered by digitization commercial of the business. It will also analyze the dynamics of the change in the position of the local authority, but also of the academic profession, regarding the resilient and sustainable development strategy of the community.

Also, this article may have as future research directions the exceeding of the regional and national boundaries of analysis. At the same time, new gender perspectives can be included in the analysis of the collected answers.

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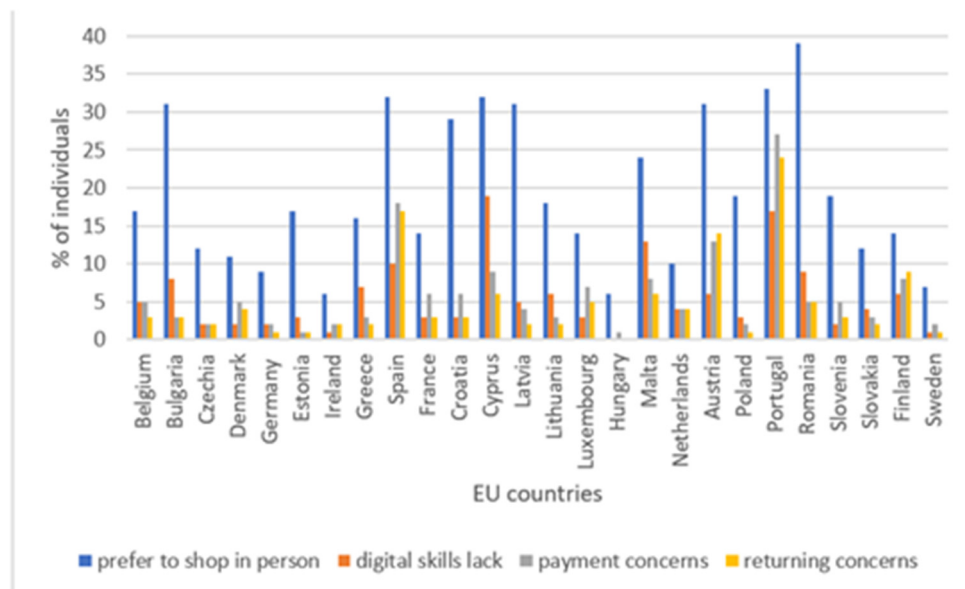
**Appendix A. Internet Purchases by Individuals in EU Countries in 2010–2021,
Percentage of Individuals (Source: Data Retrieved from Eurostat Database, Accessed
in August 2022)**

Countries	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
European Union—27 countries (from 2020)	36	39	41	43	46	49	51	54	56	60	65	66
European Union—28 countries (2013–2020)	40	42	44	47	50	53	55	57	60	63	-	-
Belgium	38	43	45	48	54	55	57	60	61	66	73	75
Bulgaria	5	7	9	12	17	18	17	18	21	22	31	33
Czechia	27	30	33	36	43	45	47	56	59	64	72	75
Denmark	68	70	73	77	78	79	82	80	84	84	89	91
Germany	60	64	65	69	70	73	74	75	77	79	83	76
Estonia	17	20	23	23	49	59	56	58	61	68	68	70
Ireland	36	43	46	46	50	51	59	53	59	67	74	87
Greece	12	18	20	25	26	32	31	32	36	39	46	54
Spain	24	27	30	32	37	42	44	50	53	58	63	67
France	54	53	57	59	62	65	66	67	67	70	:	76
Croatia	14	17	23	26	28	31	33	29	35	45	55	57
Italy	15	15	17	20	22	26	29	32	36	38	44	:
Cyprus	18	21	21	25	27	23	29	32	32	39	47	54
Latvia	17	20	27	32	34	38	44	46	45	47	56	62
Lithuania	11	16	20	26	26	32	33	38	43	48	54	60
Luxembourg	60	65	68	70	74	78	78	80	72	72	79	81
Hungary	18	22	25	29	33	36	39	39	41	49	60	66
Malta	38	45	44	46	47	51	49	53	55	58	63	65
Netherlands	67	69	65	69	71	71	74	79	80	81	87	89
Austria	42	44	48	54	53	58	58	62	60	62	66	63
Poland	29	30	30	32	34	37	42	45	48	54	61	61
Portugal	15	18	22	25	26	31	31	34	37	39	45	52
Romania	4	6	5	8	10	11	12	16	20	23	38	38
Slovenia	27	31	34	36	37	39	40	46	51	56	63	71
Slovakia	33	37	45	44	48	50	56	59	59	60	62	75
Finland	59	62	65	65	68	69	67	71	70	73	76	79
Sweden	66	71	74	73	75	71	76	81	78	82	84	87
Iceland	45	49	54	56	66	:	:	76	75	80	83	85
Norway	71	73	76	73	77	76	78	77	79	82	85	92
Switzerland	:	:	:	:	67	:	:	77	:	80	:	83
United Kingdom	67	71	73	77	79	81	83	82	83	87	90	:

Appendix B. Internet Purchases by Income Level in EU Countries in 2020, % of Individuals (Source: Data Retrieved from Eurostat Database, Accessed in August 2022)

EU Countries	First Quartile Group	Second Quartile Group	Third Quartile Group	Fourth Quartile Group
Belgium	45	56	70	87
Bulgaria	7	21	32	48
Czechia	41	60	77	85
Denmark	80	82	90	96
Germany	66	78	85	92
Estonia	39	61	75	86
Ireland	72	76	88	90
Greece	26	37	50	66
Spain	42	57	70	85
France	:	:	:	:
Croatia	41	62	75	88
Italy	:	:	:	:
Cyprus	25	36	54	59
Latvia	35	52	58	70
Lithuania	27	46	66	79
Luxembourg	70	79	93	90
Hungary	32	49	62	75
Malta	:	:	:	:
Netherlands	76	83	91	93
Austria	56	63	67	75
Poland	43	57	65	70
Portugal	19	33	48	65
Romania	19	26	41	50
Slovenia	41	52	71	83
Slovakia	60	50	67	74
Finland	70	70	80	88
Sweden	65	81	89	95

Appendix C. Perceived Barriers Regarding Internet Purchases by EU Countries in 2021, % of Individuals (Source: Data Retrieved from Eurostat Database, Accessed in August 2022)



Appendix D. Variable Description (Source: Own Projection)

Variable Acronym	Variable Description	Measure Unit	Observations
prod	Expresses the tendency of online purchasing of any kind of products	Binary (1 if yes, 0 elsewhere)	Reflect the favorite products when online shopping as part of the online consumer behavior
serv	Expresses the tendency of online purchasing of services	Binary (1 if yes, 0 elsewhere)	
freq	Expresses how often the respondent shop online during COVID-19	5 Intervals (1: never; 2: once a year; 3: 3–5 times a year; 4: once a month; 5: more than once a month)	Reflect the frequency of online shopping as part of the online consumer behavior
e-pay	Expresses the propensity towards online payment when online shopping	Binary (1 if online, 0 if cash)	Reflect the favorite payment method as part of the online consumer behavior
ecdev	Expresses the opinion of the respondent regarding online sales platforms as a competitive environment for local economy development	Binary (1 if yes, 0 elsewhere)	Reflects the respondents' opinion towards a regional online marketplace as an engine for regional economic development
locprod	Expresses the opinion of the respondent regarding local producers as contributors to local economic development	Binary (1 if yes, 0 elsewhere)	Reflects the respondents' opinion towards a regional online marketplace as an engine for regional economic development
Before COVID-19	Expresses the online shopping decision before the COVID-19 pandemic	Binary (1 if yes, 0 elsewhere)	Reflets the period of reference
During COVID-19	Expresses the online shopping decision during the COVID-19 pandemic	Binary (1 if yes, 0 elsewhere)	

Variable Acronym	Variable Description	Measure Unit	Observations
After COVID-19	Expresses the online shopping decision after the COVID-19 pandemic	Binary (1 if yes, 0 elsewhere)	Reflets the social profile of the respondents
age	The age group of the respondent	5 Intervals (1: 16–25 years; 2: 25–35 years; 3: 36–45 years; 4: 46–55 years; 5: >55 years)	
income	The monthly average income of the respondent	5 Intervals (1: 300–400 euro; 2: 400–600 euro; 3: 600–800 euro; 4: 800–1000 euro; 5: >1000 euro)	
edu	The level of education of the respondent	5 Intervals (1: lower secondary education; 2: post-secondary education; 3: upper secondary education; 4: bachelor's or equivalent; 5: master's/doctorate or equivalent)	

Appendix E. Variable Statistical Description (Source: Own Projection)

	Age	Income	Edu	Freq	Locprod	Ecdev
Mean	2.5463	2.6683	3.4829	4.3463	0.3171	0.4878
Standard Error	0.0817	0.0800	0.0593	0.0619	0.0326	0.0350
Median	3.0000	3.0000	3.0000	5.0000	0.0000	0.0000
Standard Deviation	1.1691	1.1450	0.8494	0.8867	0.4665	0.5011
Minimum	1	1	2	1	0	0
Maximum	5	4	5	5	1	1
Sum	522	547	714	891	65	100
Count	205	205	205	205	205	205
	prod	serv	e-pay	after_COVID-19	during_COVID-19	before_COVID-19
Mean	0.9122	0.0244	0.8439	0.5659	0.7951	0.7073
Standard Error	0.0198	0.0108	0.0254	0.0347	0.0283	0.0319
Median	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000
Standard Deviation	0.2837	0.1546	0.3638	0.4969	0.4046	0.4561
Minimum	0	0	0	0	0	0
Maximum	1	1	1	1	1	1
Sum	187	5	173	116	163	145
Count	205	205	205	205	205	205

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