

# PREFERRED FORMS OF ONLINE SHOPPING BY THE YOUTH GENERATION

Michal Pšurný<sup>1</sup>, Irena Antošová<sup>1</sup>, Jana Stávková<sup>1</sup>

<sup>1</sup>Mendel University in Brno, Czech Republic



EUROPEAN JOURNAL  
OF BUSINESS SCIENCE  
AND TECHNOLOGY

Volume 8 Issue 1

ISSN 2694-7161

www.ejobsat.com

## ABSTRACT

The aim of the paper is to determine the preferred forms of online shopping and preferred device for online shopping for different product categories by the youth consumers. The research showed that the smartphone plays not only an important role in the consumer behaviour of youth consumers, but they also frequently shop using this device. The paper also identifies the situational and demographic factors affecting online shopping based on which consumer segments were created. Cluster analysis using the  $K$ -means algorithm formed consumer segments in the online market in the Czech Republic. Four segments were defined – economically decisive from a city, emotively decisive, rationally thinking from a town, economically active. The results can be purposefully used in creating recommendations for e-shops and for their marketing management.

## KEY WORDS

forms of shopping, online shopping, shopping frequency, young consumers, online consumer segmentation

## JEL CODES

D12, M31, O35

## 1 INTRODUCTION

Shopping and its form is the fourth part of the shopping behaviour process (after the identification of the problem, searching for information, assessing alternatives), which leads to satisfying human needs. It is, therefore, an essential part of consumer behaviour as a whole and this is the way it needs to be

approached. The importance of the Internet in the purchasing process is constantly growing. More and more consumers are shopping on the Internet. This trend has been accelerated by the Covid-19 pandemic when consumers were forced to stay at home, shops were closed and consumers had to look for new ways of buying.

As a society, it is material and technical resources, and climatic conditions develop lifestyle, the hierarchy of moral and ethical values changes so that new factors influence consumers in the process of satisfying needs. Young people grew up with new technologies and the internet has been, is, and will be a part of their daily lives. Their needs and shopping behaviour are different from older people who did not grow up with the Internet. Young people also represent great purchasing power in the future. Therefore, it is necessary to understand their shopping behaviour so that online stores can adapt their marketing strategies.

New e-shops are also emerging and existing businesses are moving to the Internet. It is important not only for new businesses but

also for existing entrepreneurs operating on the Internet to adapt their marketing strategies to these people – their behaviour, needs and responses to marketing communications.

The aim of the submitted paper is to determine the preferred forms of online shopping and the use of devices for online shopping for different product categories. The paper also identifies the situational and demographic factors affecting online shopping based on which consumer segments are created in the online market in the Czech Republic. The results obtained using appropriate methods of data processing from questionnaire construction of the created online shopper segments can be purposefully used to create recommendations for e-shops and for their marketing management.

## 2 LITERATURE REVIEW

---

Consumer behaviour relates to the consumption of material and immaterial goods. The economic concept of consumer behaviour is based on the premise that it is the outcome of the consumer's rational thinking, with the knowledge that most decisions are made during uncertainty (Varian, 2010). Post-Keynesians claim that the consumer does not have perfect and adequate information, and moreover, limited abilities to use this information, whereas neoclassical economists are of the opinion that the consumer is well-informed and works with uncertainty as with a risk. The marketing concept of consumer behaviour respects both attitudes that intertwine and complement each other and the outcome is its complex concept. A series of factors enter decision-making from cultural to economic, demographic, psychological and others that are well elaborated theoretically (Kotler, 2001). The significance of these factors over the course of time gains in differing intensity. What is relatively significant is the influence of income which is considered one of the decisive factors for satisfying needs according to Gour (2018).

New factors enter the decision-making of the consumer. For example, a series of investigations was engaged in the influence of the

method of payment on the volume of consumer expenses, i.e. on the satisfaction of their needs. The conclusion of this research focused on the fact that a card payment leads to more frequent decisions to buy and to greater expenses. On the other hand, consumers have a strong aversion to debts, above all to credit card ones. Thus, if credit cards can encourage spending, their excessive use is something that consumers try to avoid (Wilcox et al., 2011).

In his study, Ouanphilalay (2017) investigated the impact of loans on total household consumption. The results point to the fact that the total consumption of households that borrow money tends to be higher than the consumption of households without credit or loans. However, it was shown that looking at consumption by items (food items and “non-food” items) only formally provided credit has a positive effect on food consumption. As Carlson et al. (2015) explain, this is credit provided by a bank. Apart from the credit, there are also informal loans (friends, family, etc.) and semi-formal (above all institutions specialising in micro-financing) and it is interest-free informal loans and semi-formal loans that have a negative impact on food consumption. In the case of non-food item consumption, the effect

of all stated types of loans was rated as positive and statistically significant.

Online shopping is increasingly popular and this method is used by a growing number of consumers (Sabou et al., 2017; Karthikeyan, 2016). At the European level, differences exist in individual countries in online shopping which came about particularly as a consequence of the differently attained level of economic growth. So that the consumer can shop online, he needs access to a device to allow him to do this (computer, tablet, mobile phone etc.) and certain knowledge of how to use this device (Sabou et al., 2017). Král and Fedorko's study (2021) shows that from 2011–2019 there was a significant increase in the share of online shopping for goods and services among internet users in the V4 countries.

The Covid-19 pandemic contributed to a large extent to a change in the approach to interest in online shopping (Pollák et al., 2022; Eger et al., 2021; Gu et al., 2021; Di Crosta et al., 2021; Pantano et al., 2020; Donthu and Gustafsson, 2020). As a consequence of the pandemic, the number of consumers shopping online increased. The restriction to the movement of people in public and limited access to brick and mortar stores, limited range or lack of goods to brick and mortar stores or also health reasons contributed to this (Král and Fedorko, 2021).

The Eger et al. study (2021) conducted in September 2020 in the Czech Republic showed that health concerns during the Covid-19 pandemic or economic worries are leading to changes not just in the amount, content, but also in the forms of consumer behaviour. The study even showed that the greater the fear the greater the change in shopping behaviour. The study of Eger et al. (2021) and the study of Gu et al. (2021) show that the percentage of impulsive shopping decreased whereas the percentage of planned shopping increased.

The Kopřivová and Bauerová study (2021), engaged in the consumer behaviour of Millennials in the Czech market, identified the characteristics that determine the Millennials segment – four psychographic (ecology, lifestyle, traditionality and sociability) and four behavioural

characteristics (using a mobile phone, method of shopping, attitudes to marketing communication tools and use of marketing communication tools). Online shopping is more popular among younger people (Karthikeyan, 2016), therefore online shopping websites should develop a strategy that addresses the problems of younger generation online consumers.

People that avoid online shopping do so, among other things, because of worry about online theft and think that online shopping websites are unreliable (Karthikeyan, 2016).

The study by Pollák et al. (2022) has found that during the first wave of the pandemic, the number of interactions on Facebook of the biggest Czech e-shops increased. The dominant part of the interactions moved to the working week. This indicates that people are being more active online during the period of the pandemic in a standard working week than in the period before the pandemic. These interactions have moved from brick and mortar stores to the virtual environment of the internet. As a consequence of pandemic lockdowns, consumer behaviour has to a certain extent maintained the characteristics of the pre-pandemic period, only it has moved to the internet.

So far, there are not many studies that have examined reviews and registrations in e-shops. According to research Pollák and Dorčák (2015) conducted in Slovakia (634 respondents) showed, “good reviews” are important for more than 70% of online shoppers. Providing a sufficient amount of “relevant product information” is a decisive factor in choosing an e-shop for more than 60% of respondents. In both categories, we can also see an increase compared to the reference survey of 2009 by more than 15%. From this study is also obvious that the price is important for 80% of respondents.

The Huang et al. study (2021) dealt with the registration with the website at the beginning of their shopping journey (ex-ante) and after the shopping journey (ex-post). The results showed that customers who had the opportunity to ex-ante register, on average, they 58.08% relatively more likely to register and they are 10.89% relatively more likely to make a purchase, place a 16.76% relatively greater number of orders.

Cluster analysis has been used in various studies of online shoppers (Jayawardhena et al., 2007; Aljukhadar and Senecal, 2011; Ladhari et al., 2019; Akar, 2021; Kondo and Okubo, 2022). Jayawardhena et al. (2007) identified segments based on distinct purchase orientations. Aljukhadar and Senecal (2011) segmented online consumers more generally through the internet use patterns – internet use, internet experience, psychological characteristics, and user

experience. Ladhari et al. (2019) segmented women from Generation Y who made purchases on the fashion retailer’s website. Research of Kondo and Okubo (2022) segmented consumers of multi-channel purchases by product category and overall products. Study of Akar (2021) analyzed pandemic-related concerns on customers’ purchase intentions their role in customer segmentation.

3 METHODOLOGY AND DATA

Secondary data on the share of individuals that shopped online in the last year were used (source Eurostat) for the characteristics of the online shopping market, above its size.

The data of the price comparison websites Czech e-commerce (2021) and Heureka Group (2021) were used for the characteristics of using the price comparison of goods sold online. Information was also used from these sources about the categories of products most sold online. These data were taken into account in the choice of categories of products used in questionnaire construction.

For the primary data collection, structured questionnaire was constructed and was distributed in two-time stages (May 2021, December 2021). In total 351 respondents representing the young generation, most often aged 19 to 26 (mean = 20.5; SD = 6.27) completed the questionnaire. More detailed characteristics of the research sample can be found in Tab. 1.

Questions were related to their online shopping behaviour. For example, How often do you shop online using which devices? What method of shopping do you prefer for a given product category? State the extent of agreement with the following statements about online shopping. This was mostly about matrix questions based on the Likert agreement scale. These matrix questions had more choices of answers, so the sums of the answers given in the contingency tables in the results do not correspond to the number of respondents. The questionnaire also contained selected demographic data of respondents – apart from age, gender, economic

activity, and size of the municipality in which they live. The questionnaire was constructed and extended using the Umbrella app (see <https://umbrella.mendelu.cz/>).

Tab. 1: Characteristics of the research sample ( $n = 351$ )

Specification	Absolute Number	Percentage
<i>Gender</i>		
Men	182	51.85
Women	169	48.15
<i>Education</i>		
Primary	4	1.14
Lower secondary	23	6.55
Secondary	281	80.06
Post-secondary non tertiary	7	1.99
University degree	36	10.26
<i>Economic activity</i>		
Employed (<40 h/week)	33	9.40
Employed (>40 h/week)	62	17.66
Unemployed	3	0.85
Student	232	66.10
Business	20	5.70
Handicap	1	0.28
<i>Size of municipality</i>		
Less than 2000	95	27.07
2000–19999	101	28.77
20000–99999	66	18.80
More than 99999	89	25.36

Frequency tables were constructed between Shopping Frequency and Preferred Devices used for shopping and between the Product Type and Preferred Form of Shopping.

In order to determine possible dependence between Shopping Frequency using smartphones and Shopping Frequency using laptops, the  $\chi^2$  test of independence was applied where the null hypothesis assumes the independence of analysed variables. These two devices are the two most often used devices for online shopping. The significance level is  $\alpha = 0.05$  (Balakrishnan, 2010).

Due to the ordinal nature of the data Spearman and Gamma correlation coefficients were calculated to determine the strength of the dependence. Responses from respondents who answered in the case of a smartphone or laptop – I have none (laptop:  $n = 16$ ; smartphone:  $n = 1$ ), I have not shopped as yet (laptop:  $n = 13$ ; smartphone:  $n = 25$ ) were deleted. Therefore, a total of 296 responses remained for this analysis.

The application of the cluster analysis determines the segments of consumers who shop online. The selected variables used as the cluster criteria are: Registration in the e-shop so they do not have to fill in their personal data again; Registration in the e-shop for an expected benefit (discount); Access to the e-shop using the app; Preferred access to the e-shop from the web browser; Reading reviews before making a purchase; Discount as motivation to shop; Effect of advertising on the opinion of a product; Effect of emotions on the purchase; Search for the given product with the lowest price on the internet; Active use of goods price comparison websites. Also demographic variables: Gender; Economic activity; Size of residence. Out of a total of 351 respondents, only 328 finally entered the cluster analysis. Responses from respondents who did not answer key questions to creating the segments were deleted.

## 4 RESULTS

As the results of the research of many authors show and the situation observed on the market in the last 10 years, there has been a high increase in internet sales (Fig. 1). When analysing the intensity of the use of the internet for the purchase of goods and services, the data of Czech e-commerce (2021) must be considered

The purpose of the cluster analysis is to sort the data objects (in this case the consumer) into several clusters (in this case segments), when the rule is that the objects inside the cluster are as similar as possible and with the objects from the other clusters that are as different as possible. The individual objects are gradually connected to the smaller clusters that are connected to the bigger clusters of objects with common attributes (Greene, 2018).

The applied cluster algorithm is the  $K$ -means algorithm suitable for data files containing hundreds of objects and bigger. The cluster procedure then follows. Initial clusters are created and a centroid, i.e. vector of mean values of individual variables, is created for each cluster. The objects are then classified in the cluster whose centroid comes closest to their values (Greene, 2018).

The  $K$ -means algorithm minimises the following functions (Greene, 2018):

$$f_{KP} = \sum_{h=1}^k \sum_{i=1}^n u_{ih} \|x_i - \bar{x}_h\|^2, \quad (1)$$

where the elements  $u_{ih} \in \{0, 1\}$  identify if the  $i$  object is (value 1) or is not (value 0) classified in the  $h$  cluster, and  $\bar{x}_h$  is the vector of the mean values of the  $h$  cluster. At the same time, the following must be met:

$$\begin{aligned} \sum_{h=1}^k u_{ih} &= 1 \quad \text{for } i = 1, 2, \dots, n, \quad \text{and} \\ \sum_{i=1}^n u_{ih} &> 0 \quad \text{for } h = 1, 2, \dots, k. \end{aligned} \quad (2)$$

The statistical analyses are carried out in IBM SPSS Statistics software.

which informs that in the Czech Republic the share of internet users over the age of 16 is 78.5% (55% have access to the internet from a mobile device). 49% of purchases in 2019 were made on desktops (desk computers, laptops), 47% from mobile devices, and 4% from tablets.

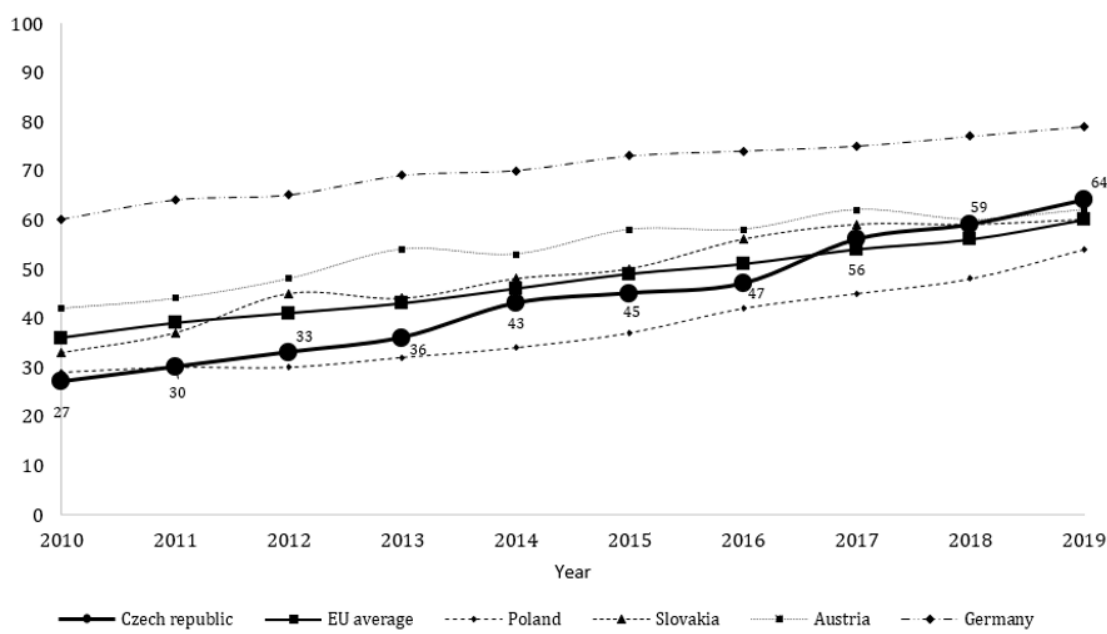


Fig. 1: Percentage of individuals that purchased goods or services online in the given year in the selected countries. Source: Eurostat, 2021.

As shown in Fig. 1, the percentage of individuals in the population of countries that purchased goods or services online is growing. In 2010, this percentage of individuals that purchased goods or services online was lower than in all countries bordering the Czech Republic except Germany (where this high percentage is well above the EU average constantly). However, the Czech Republic is struggling with the phenomenon that the number of e-shops per capita is very high (this ratio is the highest in the EU countries; see Czech e-commerce, 2021). At the same time, the percentage of individuals that purchased goods or services online is growing more than in bordering Countries and, as you can see in Fig. 1, this percentage in 2017 also exceed the EU average. This share had already reached 64% in 2019 in the Czech Republic; the EU average was 60%.

The results of the research conducted among 351 respondents in the Czech Republic show how young people (mean = 20.5) use the internet to shop for goods and services to satisfy their needs, what devices they use for shopping online – whether they use a smartphone, desk computer, laptop, tablet, virtual reality or

television and what factors influence them the most. Tab. 2 shows how often young people shop online and what devices they use.

As Tab. 2 shows, a smartphone and laptop are the most common devices used for shopping, followed by a desk computer. The use of a tablet, television, and virtual reality for shopping is almost negligible. For example, television had never been used by more than 90% of respondents. Information about ownership of the given devices is used as information for marketers. Almost all own a smartphone and laptop. About 70% of respondents own a television but do not use it for shopping. Over 40% own a desk computer, just as a tablet. Almost 90% do not own, have no access, and also do not consider using virtual reality for shopping.

The  $\chi^2$  test with the subsequent  $p$ -value of 0.00000 confirmed the dependence between Shopping Frequencies of smartphone and laptop devices. This is a medium dependence because the Gamma correlation coefficient has a value of  $\gamma = 0.547$  and Spearman's  $r_{Sp} = 0.451$ . The test, therefore, confirmed that those who shop frequently on the smartphone buy less frequently shop on the laptop and vice versa.

Tab. 2: Shopping frequency and preferred online shopping devices

	Smartphone	Desktop computer	Laptop	Tablet	Virtual reality	Television
Weekly	64	8	30	7	1	9
Monthly	129	38	149	16	2	4
Quarterly	63	36	86	16	0	2
Less than quarterly	45	19	58	5	1	2
I have not shopped as yet	25	23	13	70	43	244
I have none	1	197	16	217	295	76

Tab. 3: Preferred method of shopping in the given product categories

	Brick & mortar stores	Online shopping	Online selection: shopping in brick and mortar store	Selection in store: online shopping	I do not shop for this category
Food	324	13	7	0	6
Clothes	161	118	54	17	0
Cosmetics	170	63	35	21	60
Fashion accessories	121	114	23	14	75
Consumer electronics	67	201	50	28	3
Ready meals	197	113	25	9	0
Furniture	162	48	60	22	58
Kitchen accessories	168	66	30	8	77
Toys	95	67	12	5	169
Gift items	113	168	33	9	0
Sex toys	22	114	10	6	197

The results show that purchases made by phone are more common on a monthly basis. In contrast, a desk computer is more commonly used for shopping with a yearly frequency. It is evident from the relationship between the weekly and monthly use of a device that the choice prevails of the same devices and the monthly purchases are more frequent (in all device categories except television). Those devices used most frequently in a month (smartphone, laptop) are used less often for shopping on a quarterly or annual basis. In contrast, devices such as desk computers are used less often in a week and more frequently on a quarterly and annual basis. The conclusive dependence with almost 100% likelihood between shopping frequency and preferred device used for shopping can be affected not only by the acquisition price of the device but also by the financial volume of the given product or service.

Tab. 3 shows what method of shopping respondents prefer in a given category of prod-

ucts, whether online or in brick and mortar stores, and what preferences in the (choice × purchase) link respondents choose.

It is evident from Tab. 3 that for most observed categories of products, i.e. brick and mortar stores prevail in the purchase of food, ready meals, cosmetics, fashion accessories, clothes, furniture, kitchen accessories, and toys. Only online purchases prevail of consumer electronics, gift items, and sex toys.

Information can be interesting to brick and mortar store retailers that for all products the order prevails of firstly making a selection online and then making the purchase in a brick and mortar store. This approach appears to be logical since the selection made online means a lot of the time obtaining initial information and considering making a purchase. The procedure of viewing in store and purchasing online was not used for any product. The research did not confirm the common worry of brick and mortar store retailers that a customer would try the



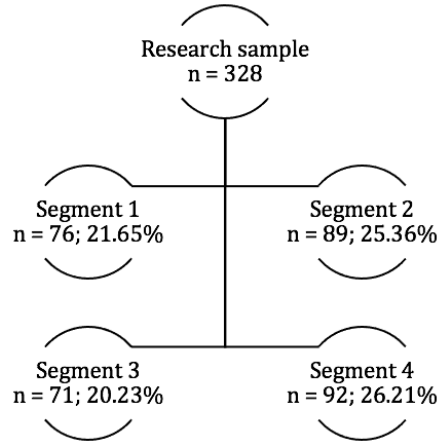


Fig. 2: Size of the arisen segments, calculation in IBM SPSS Statistics

product in store and then purchase it for less money online.

The cluster analysis was applied to customer segmentation which allows the better targeting of an offer for a group of customers with similar product and service requirements and similar shopping behaviour. The application of the cluster analysis method using the *K*-means algorithm resulted in the creation of four segments of similar online shopping behaviour. We can see the size of the segments in Fig. 2.

Segment 1 (economically decisive from a city) includes 76 cases (21.65%). These are men and women – students living in cities with a population of 100,000 and more. If an e-shop offers registration, they prefer not to register and instead fill in data again when making the next purchase. But if an e-shop offers some benefit arising from registration then they prefer to register. If an e-shop has its own app from which access is possible, they prefer not to download it and instead prefer to use a web browser. They also think that advertising cannot affect their opinion of a product and allow their emotions to influence their purchase. They do not actively use goods price comparison websites but search for the lowest price of a given product online themselves.

Segment 2 (emotively decisive) includes 89 respondents (25.36%). These are mostly women students living in smaller municipalities (popu-

lation of 10,000–19,000). If the e-shop offers registration, they prefer to register so they do not have to fill in data again when making the next purchase. Equally, they like to register if the first purchase offers some benefit. These women like to enter an e-shop from a web browser and from an app. Before purchasing a product from an e-shop they read the reviews about the given product. For them a discount is more a guide for the purchase. They also believe that advertising may influence their opinion of a product and when making the purchase they prefer to be influenced by their emotions. They prefer searching the internet for the product with the lowest price and do not use price comparison websites.

Segment 3 (rationally thinking from a town) includes 71 respondents (20.23%). These are men and women, students who live in towns (population of 10,000–19,000). If the e-shop offers registration, these consumers prefer to register so they do not have to fill in data again when making the next purchase. If the e-shop has its own app they prefer not to use it and enter the e-shop from a web browser. Before purchasing a product they will certainly read the reviews. For them a discount is a guide for the purchase. Advertising may influence their opinion of a product, but they do not let emotions influence them. On the internet, they will certainly be searching for the product with the lowest price and will also use price comparison websites.



Segment 4 (economically active) includes 92 cases (26.21%). These are mostly men who work for 40 hours a week and more. These men usually do not register with an e-shop. But if the registration offers some benefit, such as a discount, they will prefer to register. If the e-shop has its own app, they will prefer not to use it and will enter the e-shop from a

web browser. Before purchasing a product they prefer to read the reviews and a discount can be a guide to the purchase. Advertising may influence their opinion of a product. But they prefer not to be influenced by emotions. They search the internet for the product with the lowest price and use goods price comparison websites.

## 5 DISCUSSION

Sabou et al. (2017) state that if the consumer wants to shop online, he needs a device allowing him to shop. The conducted research shows that young people do not use a desk computer to a great extent and instead shop using a smartphone or a laptop. They also do not own relatively technologically new devices such as a tablet or virtual reality.

The study of Kopřivová and Bauerová (2021) identified using a mobile phone by Millennials as one of four behavioural characteristics of consumer behaviour in the Czech market. Even though the respondents of our research were not strictly the generation of Millennials (part of the respondents can be considered Millennials) this study confirms the results of Kopřivová and Bauerová (2021). The smartphone plays an important role in the shopping behaviour of younger people and this must be considered when marketing strategies are created. This study confirmed that frequently the actual purchase is made using smartphones.

The conducted research shows that the most commonly sold categories of products are consumer electronics, gift items, clothes, and fashion accessories. If in the questionnaire construction the clothes and fashion accessories categories were to be combined, then they would be the most common. In such a case, we would reach the same conclusions as stated by Czech e-commerce (2021). According to Czech e-commerce, the food category is in third place in terms of the most frequently purchased products online. Our research shows that the respondents purchase food as the least of all the product categories. This may be influenced by the fact that the respondents are usually young

people aged 19–26, who typically make smaller purchases according to their current needs. The most frequently purchased category according to the questionnaire construction is consumer electronics which does not correspond to the data from Czech e-commerce, which states that consumer electronics accounts for only 5% of online purchases. The described situation may be caused by the Covid-19 pandemic and its developmental stages. The second factor may again be the age of the respondents who purchase consumer electronics on a greater scale than the older generation.

Cluster analysis is a commonly used method for consumer segmentation, although there are not many of them. The cluster analysis has made it possible to divide the consumers into segments according to the selected factors of the online shopping behaviour of young people, similar to research (Ladhari et al., 2019), where segments were formed within the young generation Y in Canada and the United States: (1) price shoppers; (2) discovery shoppers; (3) emotional shoppers; (4) strategic shoppers; (5) fashionistas; (6) shopping fans.

It is clear from this analysis that in all segments the consumers search for the product with the lowest price however the segments can be differentiated by the different reactions to shopping stimuli or the influence of the situation factors. Two segments of consumers do not like to register with e-shops, but if there is some benefit offered by registration, such as a discount, usually they all register, and this leads to the recommendation for e-shops – to offer a reward for registration such as in the form of further purchase. According to cluster analysis,

a study by Daryanti and Simanjuntak (2016) of 232 respondents in Indonesia divided internet users into four groups: (1) savvy users; (2) loyal users; (3) value users, and (4) traditional users.

In one segment where there are more women, it turned out that emotions play a role during a purchase. This segment partially corresponds to the segment defined by Ladhari et al. (2019) – emotional shoppers. In this segment, unlike all the others, it also turned out that if the e-shop has an app, they download it. So if the e-shop selects a target group of young emotively decisive women – there is the potential here of investing in the development of an e-shop app. Consumers from all segments prefer to enter from a web browser – so it is important to be particular during the operation of e-shops about the technical solution, user-friendliness (UX) – so that making a purchase from the web browser is as convenient as possible. The differences in the technical solution of different browsers should be taken into account.

In all the segments it turned out that the younger consumers read reviews before making a purchase. So it is important for the e-shop to monitor what reviews appear about their e-shops on the internet and address this if some negative ones appear. It is also good to have reviews posted directly on the given e-shop.

Goods price comparison websites are actively used by only one segment – rationally thinking. The segment of price sensitives consumers was created also in the study of Jayawardhena et al. (2007). This study conducted in the United Kingdom on 151 respondents identified five distinct purchase orientations: (1) active shoppers; (2) price sensitives; (3) discerning shoppers; (4) brand loyals; and (5) convenience-oriented. This information is important for creating online marketing communication. This is despite the fact that the data published by the Heureka Group (2021) shows that Heureka.cz, i.e. the biggest Czech price comparison website, has 4.6 million users a month and the average age of shoppers via this price comparison website is 25–34 years.

## 6 CONCLUSIONS

It is clear from the secondary data obtained that the Czech e-commerce market is growing and is bigger than is the European Union average. Czech consumers shop online more often when compared to the EU average. Eurostat data are only available until 2019, before the first wave of the Covid-19 pandemic. It can therefore be expected that after the first wave and others there was a rapid increase percentage of individuals that shopped online.

The primary research showed that the most commonly used device for online shopping among the younger generation is the mobile phone. In addition, the frequency of mobile phone use for online purchases has been shown to be dependent on the frequency of laptop use for online purchases. The  $p$ -value obtained by the  $\chi^2$  test confirms this relationship. Correlation coefficients (Spearman, Gamma) indicate a moderate dependence. It is clear from the data that laptops and phones are very often used by young people for shopping. Surprisingly,

young people usually don't even own a desktop computer anymore.

Using cluster analysis, four segments of young consumers were created based on the factors that define their consumer behaviour on the Internet. These segments were named according to their typical consumer characteristics: economically decisive from a city, emotively decisive, rationally thinking from a town and economically active.

In all segments, consumers access the Internet from a web browser on computers (laptops and desktops) and from the phone. E-shops have to watch what their store looks like on different devices that have different screen sizes. Young emotionally decisive women access online stores not only from web browsers but also from applications, which is why there is room for e-shops to invest in development. Reviews are very important because young people read them and they can have a final impact on the decision on which e-shop to buy from.

## 7 ACKNOWLEDGEMENT

This paper is the result of a research project supported by the grant of the Grant Agency IGA Faculty of Business and Economics, MENDELU No. PEF\_DP\_2021017.

## 8 REFERENCES

- AKAR, E. 2021. Customers' Online Purchase Intentions and Customer Segmentation During the Period of COVID-19 Pandemic. *Journal of Internet Commerce*, 20 (3), 371–401. DOI: 10.1080/15332861.2021.1927435.
- ALJUKHADAR, M. and SENECAL, S. 2011. Segmenting the Online Consumer Market. *Marketing Intelligence & Planning*, 29 (4), 421–435. DOI: 10.1108/02634501111138572.
- BALAKRISHNAN, N. 2010. *Methods and Applications of Statistics in Business, Finance, and Management Science*. Hoboken, NJ: Wiley. ISBN 978-0-470-40510-9.
- CARLSON, S., DABLA-NORRIS, E., SAITO, M. and SHI, Y. 2015. *Household Financial Access and Risk Sharing in Nigeria* [online]. IMF Working Paper No. 15/169. Available at: [https://www.imf.org/~media/Websites/IMF/imported-full-text-pdf/external/pubs/ft/wp/2015/\\_wp15169.ashx](https://www.imf.org/~media/Websites/IMF/imported-full-text-pdf/external/pubs/ft/wp/2015/_wp15169.ashx). [Accessed 2021, November 15].
- Czech e-commerce. 2021. *Size of E-Commerce Market* [online]. Available at: <https://www.ceska-ecommerce.cz/>. [Accessed 2021, November 20].
- DARYANTI, S. and SIMANJUNTAK, K. U. 2016. Segmentation of Mobile Internet Users in the Indonesian Context: Insight for Mobile Internet Product Development Management. *The South East Asian Journal of Management*, 10 (1), 95–107. DOI: 10.21002/seam.v10i1.7707.
- DI CROSTA, A., CECCATO, I., MARCHETTI, D., LA MALVA, P., MAIELLA, R., CANNITO, L., CIPÌ, M., MAMMARELLA, N., PALUMBO, R., VERROCCHIO, M. C., PALUMBO, R. and DI DOMENICO, A. 2021. Psychological Factors and Consumer Behaviour During the COVID-19 Pandemic. *PLOS ONE*, 16 (8), e0256095. DOI: 10.1371/journal.pone.0256095.
- DONTHU, N. and GUSTAFSSON, A. 2020. Effects of COVID-19 on Business and Research. *Journal of Business Research*, 117, 284–289. DOI: 10.1016/j.jbusres.2020.06.008.
- EGER, L., KOMÁRKOVÁ, L., EGEROVÁ, D. and MIČÍK, M. 2021. The Effect of COVID-19 on Consumer Shopping Behaviour: Generational Cohort Perspective. *Journal of Retailing and Consumer Services*, 61, 102542. DOI: 10.1016/j.jretconser.2021.102542.
- Eurostat. 2021. *Internet Purchases by Individuals* [online]. Available at: [https://ec.europa.eu/eurostat/databrowser/view/ISDC\\_EC\\_IBUY\\_custom\\_850539/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ISDC_EC_IBUY_custom_850539/default/table?lang=en). [Accessed 2021, November 15].
- GOUR, S. 2018. *A Study of Influence of Consumer's Disposable Income on Buying Decision* [online]. Available at: <https://www.scribd.com/document/87306962/A-study-of-influence-of-consumer-s-disposable-income-on-buying-decision>. [Accessed 2021, November 8].
- GREENE, W. H. 2018. *Econometric Analysis*. 8th ed. New York: Pearson. ISBN 978-0-13-446136-3.
- GU, S., ŚLUSARCZYK, B., HAJIZADA, S., KOVALYOVA, I. and SAKHBIEVA, A. 2021. Impact of the COVID-19 Pandemic on Online Consumer Purchasing Behaviour. *Journal of Theoretical and Applied Electronic Commerce Research*, 16 (6), 2263–2281. DOI: 10.3390/jtaer16060125.
- Heureka Group. 2021. *With Heureka to Czechia. Internet Market Overview* [online]. Available at: <https://heureka.group/czechia>. [Accessed 2021, November 20].
- HUANG, N., MOJUMDER, P., SUN, T., LV, J. and GOLDEN, J. M. 2021. Not Registered? Please Sign Up First: A Randomized Field Experiment on the Ex Ante Registration Request. *Information Systems Research*, 32 (3), 914–931. DOI: 10.1287/isre.2021.0999.
- JAYAWARDHENA, C., WRIGHT, L. T. and DENNIS, C. 2007. Consumers Online: Intentions, Orientations and Segmentation. *International Journal of Retail & Distribution Management*, 35 (6), 515–526. DOI: 10.1108/09590550710750377.
- KARTHIKEYAN, G. 2016. Problems Faced by Online Consumers. *International Journal of Current Research and Modern Education*, 1 (1), 166–169.

- KONDO, F. N. and OKUBO, T. 2022. Understanding Multi-Channel Consumer Behaviour: A Comparison Between Segmentations of Multi-Channel Purchases by Product Category and Overall Products. *Journal of Retailing and Consumer Services*, 64, 102792. DOI: 10.1016/j.jretconser.2021.102792.
- KOPŘIVOVÁ, V. and BAUEROVÁ, R. 2021. Marketplace Behaviour: Who are the Czech Millennials? *Forum Scientiae Oeconomia*, 9 (3), 43–57. DOI: 10.23762/FSO\_VOL9\_NO3\_3.
- KOTLER, P. 2001. *Marketing Management*. 10th ed. Praha: Grada. ISBN 80-247-0016-6.
- KRÁL, Š. and FEDORKO, R. 2021. Development of Online Shopping within B2C E-Commerce in the Visegrad Four Countries. *Marketing Science & Inspirations*, 16 (3), 42–50. DOI: 10.46286/msi.2021.16.3.5.
- LADHARI, R., GONTHIER, J. and LAJANTE, M. 2019. Generation Y and Online Fashion Shopping: Orientations and Profiles. *Journal of Retailing and Consumer Services*, 48, 113–121. DOI: 10.1016/j.jretconser.2019.02.003.
- OUANPHILALAY, S. 2017. The Impact of Household Credit on Consumption in Laos. *Journal of Southeast Asian Economies*, 34 (2), 345–366. DOI: 10.1355/ae34-2f.
- PANTANO, E., PIZZI, G., SCARPI, D. and DENNIS, C. 2020. Competing During a Pandemic? Retailers' Ups and Downs During the COVID-19 Outbreak. *Journal of Business Research*, 116, 209–213. DOI: 10.1016/j.jbusres.2020.05.036.
- POLLÁK, F. and DORČÁK, P. 2015. Analysis of Online Reputation of Elected E-Commerce Entities Operating in the Central European Market. In DOUCEK, P., CHROUST, G. and OŠKRDAL, V. (eds.). *IDIMT-2015: Information Technology and Society Interaction and Interdependence*. 23rd Interdisciplinary Information Management TalksAt.
- POLLÁK, F., MARKOVIČ, P., VÁCHAL, J. and VAVREK, R. 2022. Analysis of E-Consumer Behaviour During the COVID-19 Pandemic. In *Intelligent Processing Practices and Tools for E-Commerce Data, Information, and Knowledge*. Cham: Springer International Publishing. Chapter 6, pp. 95–114. DOI: 10.1007/978-3-030-78303-7\_6.
- SABOU, S., AVRAM-POP, B. and ZIMA, L. A. 2017. The Impact of the Problems Faced by Online Customers on Ecommerce. *Studia Universitatis Babeş-Bolyai Oeconomica*, 62 (2), 77–88. DOI: 10.1515/subboec-2017-0010.
- VARIAN, H. R. 2010. *Intermediate Microeconomics: A Modern Approach*. 8th ed. New York: W. W. Norton & Co.
- WILCOX, K., BLOCK, L. G. and EISENSTEIN, E. M. 2011. Leave Home Without It? The Effects of Credit Card Debt and Available Credit on Spending. *Journal of Marketing Research*, 48, 78–90.

## AUTHOR'S ADDRESS

Michal Pšurný, Department of Marketing and Trade, Faculty of Business and Economics, Mendel University in Brno, Zemědělská 1, 613 00 Brno, Czech Republic, e-mail: xpsurny@mendelu.cz

Irena Antošová, Department of Marketing and Trade, Faculty of Business and Economics, Mendel University in Brno, Zemědělská 1, 613 00 Brno, Czech Republic, e-mail: irena.antosova@mendelu.cz

Jana Stávková, Department of Marketing and Trade, Faculty of Business and Economics, Mendel University in Brno, Zemědělská 1, 613 00 Brno, Czech Republic, e-mail: jana.stavkova@mendelu.cz