SZENT ISTVÁN UNIVERSITY

CUSTOMER BUYING DECISIONS IN ONLINE AND OFFLINE ENVIRONMENTS

THESES OF DOCTORAL (PHD) DISSERTATION

CSABA JÓZSEF KOVÁCS
GÖDÖLLŐ
2021

SZENT ISTVÁN UNIVERSITY

CUSTOMER BUYING DECISIONS IN ONLINE AND OFFLINE ENVIRONMENTS

THESES OF DOCTORAL (PHD) DISSERTATION

CSABA JÓZSEF KOVÁCS
GÖDÖLLŐ
2021

The Doctoral School's

Name: Doctoral School of Economics and Regional Sciences

Research field: Management and Business Administration
Regional Sciences

Head of the school: **Prof. Dr. József Popp**
University Professor, Director of Institute, Dean,
Rector's Commissioner for International Relations,
Corresponding Member of the Hungarian Academy of Sciences
Szent István University
Faculty of Economics and Social Sciences
Institute of Agribusiness

Supervisor: **Prof. Dr. habil. Tamás Sikos T.**
University Professor, Corresponding member of the Hungarian Academy of Sciences
University of Miskolc
Faculty of Economics
Institute of Management Sciences

....

Approval of the Head of the Doctoral School

Approval of the Supervisor

TABLE OF CONTENTS

1. INTRODUCTION

1.1. The Rationale for Chosen Topic

There has been an appreciation of the social space researches. It is especially true for applied business sciences such as marketing, logistics or management. The paradigm shift has been resulted in a number of publications in the recent decades closely related to spatiality. However, the main research aims of the above-mentioned disciplines are usually not to solve spatial or territorial problems. In these works, spatiality is just one factor in the observed socio-economic processes.

Spatiality-focused researches are primarily belong to the field of regional sciences, of which one discipline is the marketing geography. I hold the view it is a marketable and socially useful research field of regional sciences, which has great development potential. The digital transformation has an important role in opening up a new era, not only in our daily lives but also in the academic history of geography. Modern technology provides very effective tools to both customers and companies for producing and consuming the social space. These kind of digital solutions cannot be interpreted solely as a technological issue, as they have many socio-economic and geographical implications (Kollányi 2007).

From the research point of view, it is worth examining the blending online and offline retail spaces, the increasing complexity of customers' spatial behavior and the blurring spatial boundaries of marketing channels. These phenomena cause huge changes in retail and greatly affect the entire shopping decision process. It is also important to observe the usage and integration of digital devices to the customers' decision process. Besides all these, it is necessary to conduct researches on retail stores in which an efficiency based or experience-driven business models are implemented. The analysis tools of marketing geography are excellent for examining all the above-mentioned phenomena, including both the exploration of shopping behaviors and the customer data processing for the marketing strategy.

1.2. Research Objectives and Hypotheses

The dissertation deals with online and offline marketing channels which deeply influenced the way of customer decisions in Budapest. Due to the extension of the chosen topic, the scope of research questions had to be narrowed down to specific points. The focus of my dissertation is on the usage of digital tools and marketing channels during the decision-making stages. On the one hand, it is worth examining how digital devices build into the decision-making process, change customer habits and make retail more efficient and experiential. On the other side, examining the information channels and information gathering that underpins the buying decision are also important research tasks. In my work, the aim to observe both the common ways of customers' information browsing and the attractiveness of sales locations.

Before performing the analyses of multi-channel customer habits, it is necessary to explain the concept of dual approach model in the regional sciences. The theory creates a logical framework for the examination of the research objectives and hypotheses in this work. In terms of spatiality, it has to be point out the paradoxical nature of space. One of the basic features of space that it is fragmented and continuous at the same time. These characteristics are also relevant in the case of customer decision stages. Partly for this reason, the internal space of society, the geographical space and their structure of relationship explored to better understanding the customer usage of online-offline spaces (Nemes Nagy 2017).

The duality of social space according to the spatial theoretical concept can be seen in Figure 1:

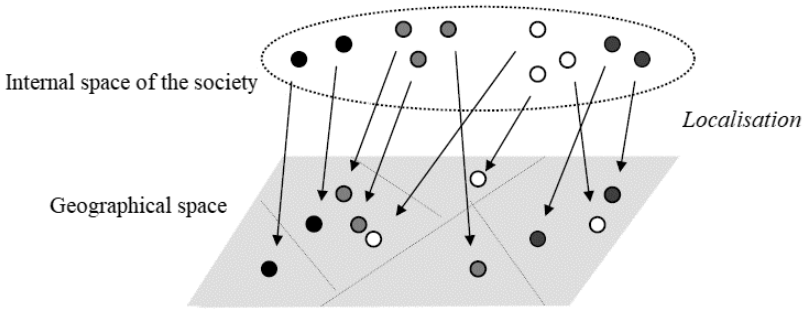

Figure 1: The model of internal and external spaces
Source: Nemes Nagy (1998, 43)

Despite the two dimensions of space are closely related to each other and made up the social space together according to the widely accepted spatial theory in the field of regional sciences, the examination of geographical and internal space is usually carried out separately in Hungary. In addition, it can be clearly stated that regional researchers are still less likely to explore the internal relationship of abstract space than the physical space, which can be precisely described by geographical parameters (Szabó 2008).

In this research work, I undertake to achieve three well-separable objectives. These research aims are primarily to facilitate the exploration of the internal social space structure in the terms of customer's use of space. Each of the objectives set out in the research is a direction of examination of multichannel retail purchases in which significant changes have taken place in recent decades. Moreover, spatial processes are of great importance in these undergoing processes.

Nowadays, using digital devices are almost inevitable during the shopping activity, even if the place of transaction is not on the internet but in a store. These devices provide not only connectivity between online and offline spaces, but also make purchasing an easy and enjoyable customer experience. These are the reasons why the examination of digital device usage is the first objective (O1). In addition, it is also an important task to observe through which channels do customers gather information about products and where do they purchase them in Budapest. Because of the digital transformation, there are significant changes in both the collection of information prior to the purchasing decision and the popularity of shopping locations. Therefore, the second objective is to examine the most widely used online and offline marketing channels (O2). The third objective is about the delivery and pick up, because they shape the whole customer decision journey, these are closely related to it. In recent decades, the modes of delivery opportunities have developed considerably, which has increased customer demands in this kind of services. The exploration of customers' attitude and their behaviour towards product delivery is already indispensable to maximize the customer experience. In order to achieve it, it also requires that customers to have access to the purchased product as conveniently and cheaply as possible (O3).

Based on the above mentioned research directions, the following objectives were set out at the beginning of the research work, which were contribute to better understanding customers in Budapest (Table 1):

O1	**MEASURING THE INTEGRATION LEVEL OF DIGITAL DEVICE USAGE IN THE CUSTOMER DECISION-MAKING PROCESS.**
O2	**EXAMINING THE WAYS OF CONSUMING MARKETING CHANNELS IN OFFLINE AND ONLINE SPACES.**
O3	**EXPLORING CONSUMER PREFERENCES TOWARDS PICK UP AND DELIVERY OF PRODUCTS.**

Table 1: Objectives of the dissertation
Source: self-edited based on own research

Taking into account the set goals, the dissertation attempted to answer five research questions. These questions revolved around the interaction between the main changes in society and digitalisation that have the greatest impact on today's retail. The identification and characterization of customer types were especially important tasks in the research process to explore the potential shoppers in Budapest. Besides of these, there is huge emphasis on the generational shift and the change in age structure on the consumer markets. From the retailers' perspective, aging is the main demographic process in most cases of the settlements in the country, including the Hungarian capital as well. In comparison with counties, the dynamic of aging process in Budapest is higher than in the countryside. Moreover, the total number of elderly is more and their per capita purchasing power is higher in Budapest than in any counties (KSH 2018a). It is also worth evaluating the situation caused by the coronavirus. Although the crisis is having an adverse effect on the whole country, the involvement of the capital is undoubtedly outstanding (Fleischer 2020). For these reasons, it is necessary to place great emphasis on this point, as the capital city is expected to be more affected by the consequences of COVID-19 pandemic in relation to the customer habits.

The research questions were summarized for ease of reference in Table 2:

RQ1	**WHAT LEVEL OF INTEGRATION HAS BEEN ACHIEVED BETWEEN THE USAGE OF DIGITAL DEVICE AND MARKETING CHANNELS IN THE PURCHASE DECISIONS PROCESS?**
RQ2	**WHAT ARE THE CHARACTERISTICS OF CUSTOMERS?**
RQ3	**HOW MUCH DO GENERATIONAL DIFFERENCES AFFECT THE CUSTOMER'S USE OF RETAIL SPACES?**
RQ4	**WHAT DIFFERENCES ARE THERE BETWEEN AGE GROUPS IN THE CUSTOMER STORE CHOICE?**
RQ5	**WHAT IMPACT OF COVID-19 HAS HAD ON SHOPPING HABITS?**

Table 2: Research questions of the dissertation
Source: self-edited based on own research

Thereafter based on the literature, the analysis of secondary data and previous research results, I set up the following hypothesis statements about the potential purchasers in Budapest (Table 3):

H1	**CUSTOMERS HAVE DIFFERENT PERSONAL DEMOGRAPHICS AND HABITS IN ONLINE SHOPPING.**
H2	**THE WAY OF USING DIGITAL DEVICES AND MARKETING SPACES ARE SPECIFIC AMONG OF INTERNET USERS AGED OVER 50.**
H3	**THERE IS STATISTICALLY SIGNIFICANT CORRELATION BETWEEN THE CUSTOMER CHOICE OF STORE AND AGEING.**
H4	**COVID-19 PANDEMIC IS DRIVING UNPRECEDENTED CHANGES IN SHOPPING BEHAVIOURS.**
H5	**CUSTOMER CHARACTERISTICS ARE SPECIFIC BY AGE GROUP IN THE CHANGING HABITUAL BEHAVIOUR OF CUSTOMER STORE CHOICE.**

Table 3: Hypotheses of the dissertation
Source: self-edited based on own research

2. METHODS

I gathered the primary data from online questionnaire surveys by using Google Forms to perform the required analyses. The questionnaire design was based on the relevant chapter in the book called "Kutatástervezés" by Lengyelné Molnár (2012). An important criteria in the data collection process was to include in the sample only those respondents who are able and willing to use digital devices. The main reason for applying this criteria that the research focused on the impacts of digital transformation and the patterns of how customers use the innovative technological solutions. In terms of the target population, the ability of using internet was the prime selection criteria in the research. There are large numbers of data related to internet usage, which is very advantageous for the research in several respects. It expands the possible number of analytical tools for evaluating customer behaviour and makes the main types of shoppers well identifiable. Among others, there are reliable data about what percentage of the population considered internet users in Hungary. According to NOK survey, the percentage of people using the internet at least once a month was 96% in the age group 15-69 in Budapest at the end of 2019 (Klenovszki 2020). In addition, 97% of the Hungarian internet users were active to some extent on the social media in 2018. Facebook was the most popular web application among of them (NMHH 2019).

In addition, the relatively easy availability of respondents on the social media was another important consideration. The data query procedure was much more effective on these platforms than it would be on the spot. With this data collection, the optimal sample size was easy to be ensured in the research. This size of the sample is widely accepted and frequently used by market research institutes. In terms of this survey sample size, in the case of random sampling at 95% confidence level, the margin of error surrounds the measure is maximum 3.2 percentage points (Rudas2006). I determined the sample size of the first questionnaire to approximate 1000 respondents after the data cleaning process.

The extremely rapid socio-economic changes caused by the COVID-19 crisis have had their impacts on all areas of life, but it is still unpredictable to what extent shopping habits has been affected by the recent crisis. For this reason, it became necessary to carry out a new survey to make any changes during the COVID-19 pandemic visible. The determined sample size of the second survey was 300 respondents. The main reason of the smaller size of the second sample that it was a complementary survey, primary had a control role in the research. It has to be noted, the margin of error in the sample nowhere exceeds ten percent at 95% confidence level (Rudas 2006). In order to make the responds of the two questionnaire surveys comparable with each other, the

structure was almost the same in both tests. However, some new questions were necessarily included in the second survey, which provided valuable information about the recent COVID-19 situation.

The table below provides a brief summary of the topics covered in the questionnaire survey, all of them are related to the online and offline spatiality (Table 4).

SPACE	OBJECT OF QUESTIONS
VIRTUAL	INFORMATION GATHERING
	ONLINE STORE CHOICE
	USAGE OF DIGITAL DEVICES
PHYSICAL	PHYSICAL STORE CHOICE
	PRODUCT DELIVERY AND PICK-UP
	SEEING THE PRODUCT
	IMPACTS OF COVID-19

Table 4: Topics covered in the survey
Source: self-edited based on own research

Two-stage cluster sampling was applied in the data collection process. At the first stage, the non-probability sampling method was carried out. Facebook groups related to districts or city quarters of Budapest were selected from the social media website. The largest groups were preferred among of them, and territorial coverage was a priority in the sampling process as well. Questionnaire surveys were posted on Facebook groups. The main topics of the chosen groups were local news and information, because the demographic composition on these platforms were roughly similar to the social media users from the districts of Budapest. However, these conditional directions were not possible to precisely carry out, because joining and posting to groups depends on administrator permisison. In the second stage, a random sampling method was used in the research. The biggest challenge in the sampling that responses wasn't random at all in the practice, therefore demographic profile of the survey respondents didn't show normal statistical distribution.

This fact can be traced back to several reasons at the same time, some of those are worth highlighting. According to the empirical experience, more women are willing to fill out questionnaire than men in the entire population. Sampling bias also caused by the fact that shopping activity was more related and presumably more favourable by females than by males. This is largely due to the fact shopping decisions are most often made by women within the family. However, it is somewhat improved the reliability of the sample. Another challenge was that in most cases it was not possible to calculate neither the exact date of joining the Facebook group nor the duration of membership. This largely determined the number of questionnaire responses collected in each group that caused significant differences by the place of residence in the distribution ratio.

The surveys are not representative for the basic demographic characteristics of the capital city. Nevertheless, after comparing the most important indicators with the 2011 census data, it can be concluded that the questionnaire samples are adequately represent the population of Budapest for the pre-defined research goals to be achieved.

For more details on the history of the Hungarian capital city, see the book named "Budapest – zászlóshajó vagy vízfej?" is written by Beluszky (2014). The development history of the current districts is explained in the book. The two maps below show that the delimitations of external and internal districts are based on the establishment of Greater Budapest in 1950, even though the administrative boundaries do not completely fit with the historical parts of the Hungarian capital (Figure 2).

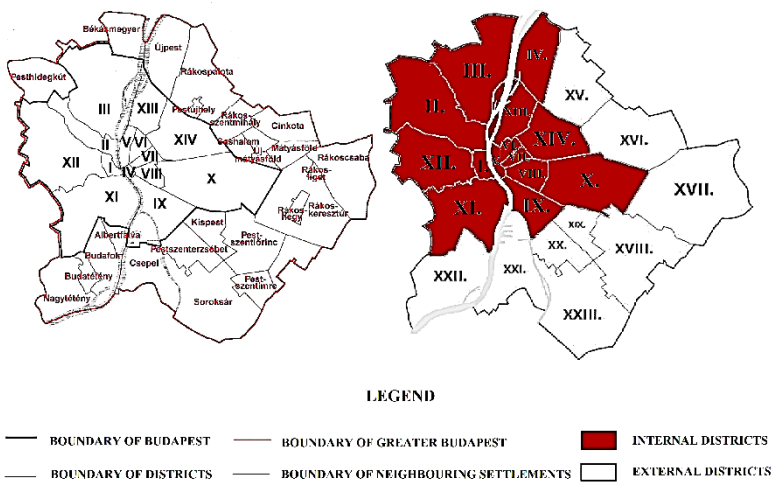

Figure 2: The development of districts in Budapest
Source: EGYKOR.HU/Leguan; KáTé

IBM SPSS Statistics and Microsoft Excel 2013 programs were used for descriptive statistics. The book of Sajtos and Mitev (2007) demonstrates the applicability of analytical methods to perform on SPSS. These procedures are not going to be detailed in this chapter, as the exact application of the analytical techniques used in the research is described in the section entitled Research Findings.

The methods applied in the dissertation are listed in the table below (Table 5).

TYPE OF ANALYSIS	APPLIED METHOD
BASIC STATISTICS	MEAN AND DEVIATION
	FREQUENCY DISTRIBUTION
TIME-SERIES	RATIO ANALYSIS
CORRELATION AND DEPENDENCE	CROSS-TABULATION ANALYSIS
	CORRELATION ANALYSIS
	PRINCIPAL COMPONENT AND FACTOR ANALYSIS
	CLUSTER ANALYSIS
CONTENT	QUANTITATIVE CONTENT ANALYSIS

Table 5: Summary table of applied statistical tools
Source: self-edited based on own research

3. RESEARCH RESULTS

3.1. Customer Trends in Device Usage

Based on the results of the survey, it can be stated that the majority of respondents use their personal computer or smartphone before making a purchase decision. It can be clearly seen from the overall chart that the use of these devices is similar in the categories of usually and always. Meanwhile, larger differences can be observed at lower acitivity level on the graph. The proportion of respondents who didn't collect information on the smartphone was about 7 percentage points higher than that on personal computer. However, the proportion of occasional users was higher in the case of personal computer device usage (Figure 3).

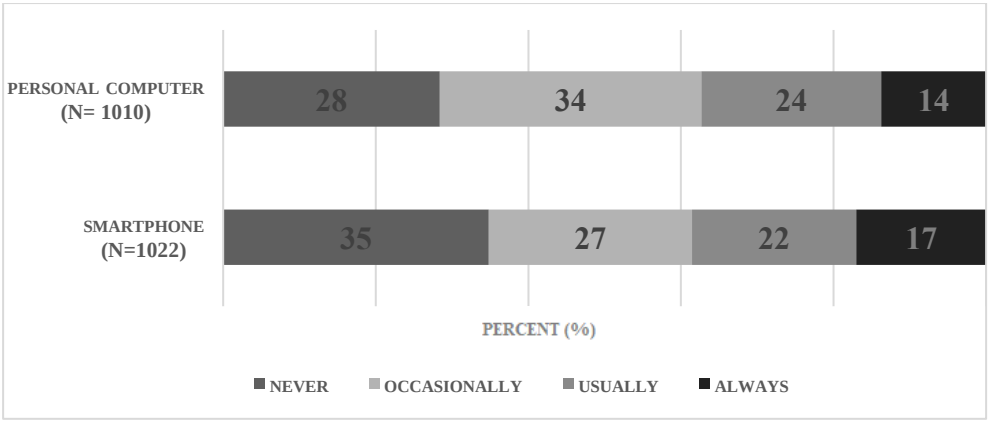

Figure 3: Frequency of using personal computer and smartphone, before purchasing the product

Source: author's own research based on survey data, 2019

It also can be seen from the chart that through which applications potential customers collected relevant information of the product. There were questions included in the survey specifically related to the most important modes of gathering online information (Figure 4).

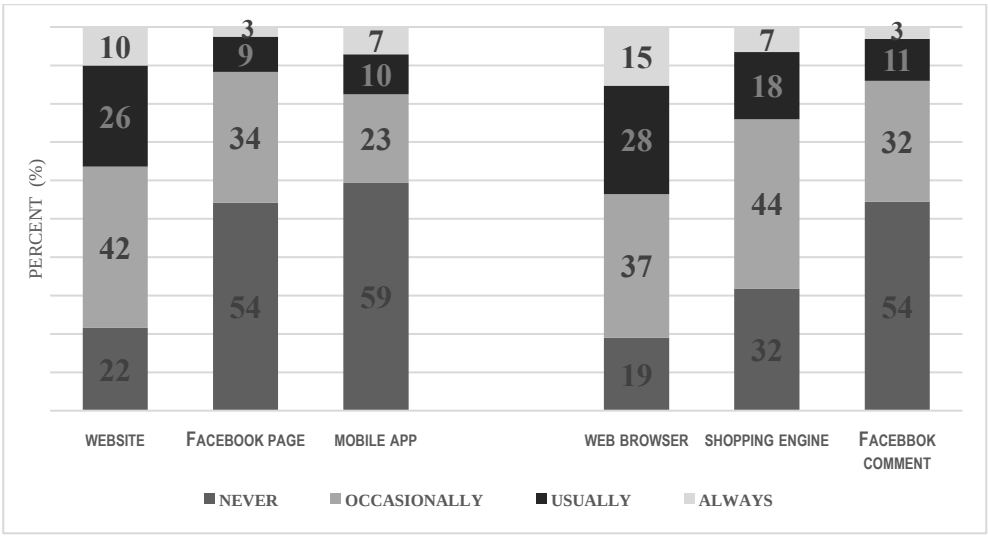

Figure 4: The main online places of information gathering, by activity level

Source: author's own research based on survey data, 2019

It was also important to examine payment solutions, because it is always a critical point in the shopping activity. The survey conducted in 2019 included questions about the use of credit card and self-checkout machine. One of these questions targeted exactly the preference of traditional or digital solutions. The results can be seen on the chart below (Figure 5).

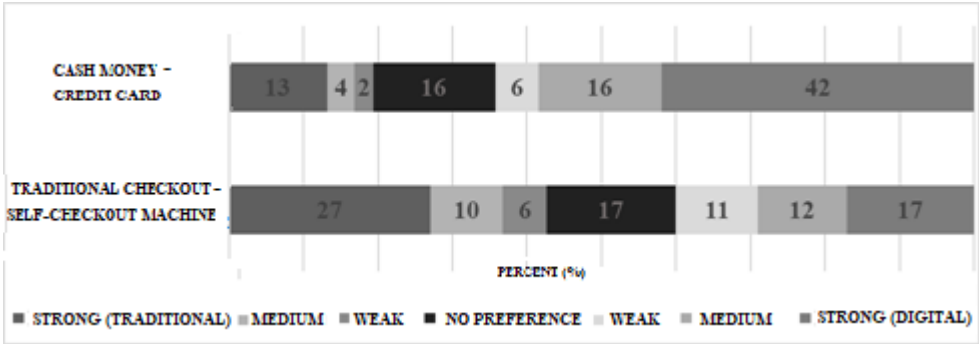

Figure 5: Preferences between digital and traditional payment solutions

Source: author's own research based on survey data, 2019

COVID-19 has had a significant impact on how customers use the online and the offline space. One of the questions in the survey conducted in 2020 was covered the use of cash money. Responses showed roughly half of the customers planned to change their payment habits even after the health crisis (Figure 6).

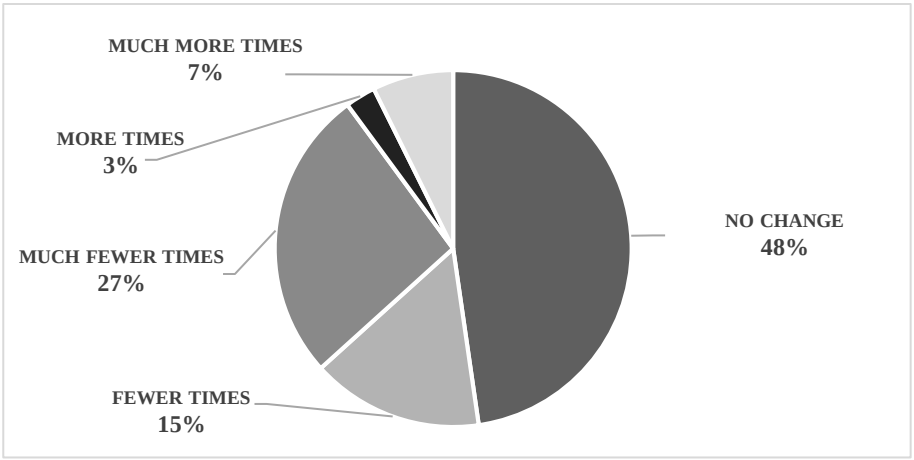

Figure 6: The planned frequency of using cash money after the pandemic, compared to 2019
Source: author's own research based on survey data, 2020

3.2. Store Choice

As shown in Figure 7, retail formats were divided into two groups. The frequency of visting modern retail formats can be seen on the left side of the chart (hypermarkets, supermarkets and discount stores). These compaines are mostly foreign-owned, market-leading retail store chains. Even though the number of modern retail stores are much more less than that of traditional shops, they generate the majority of sales revenue in the FMCG market. The reasons of this fact lie in many factors such as size of store, well-coordinated and organized retail chain store system, larger and more affordable range of products. On the right side of the chart can be found the traditional retail channels. These shops are partly belongs to the local store chains and partly they are individual shops (Figure 7).

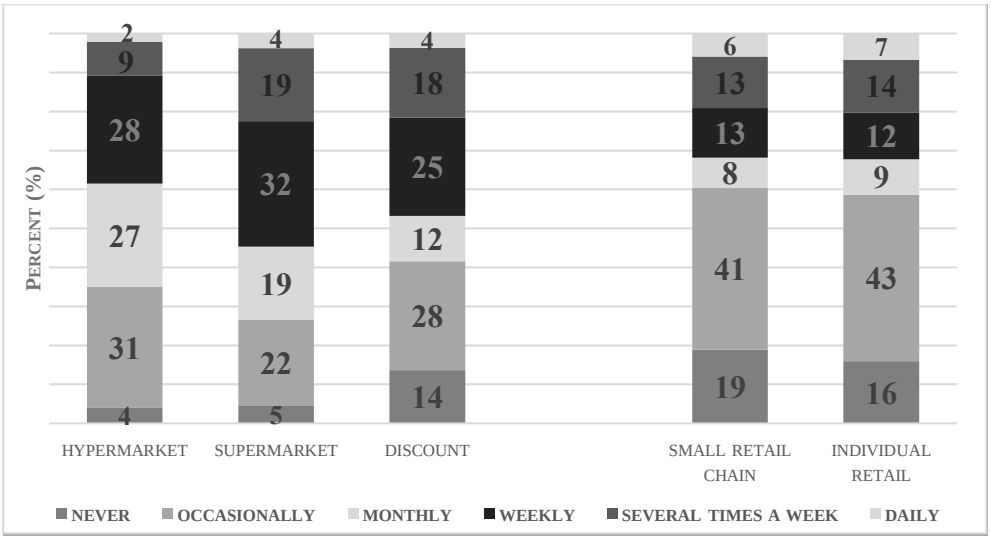

Figure 7: Frequency of store visits by retail format
Source: author's own research based on survey data, 2019

It can be seen from the chart that the proportion of respondents shopped at least one time a month was higher in each of the modern retail formats than in the traditional retail stores. According to survey data, 73% of customers regularly visited supermarkets. The proportion of this category was 65% at hypermarkets and 58% in the case of discount stores. 80% of hypermarket visitors used the retail store for an once-a-week or once-a-month big shop. Meanwhile, the proportion at supermarket visitors was 70%. The lowest percentage can be found again in the discount stores (47%). Although it meant that roughly 37% of the regular visitors shopped several times a week in this retail place, the activity level in corner shops were higher (48%). Due to the business model of hypermarkets, the category of daily shopping were less important in this retail fomat than in supermarkets or discount stores. Both of them are fulfil an intermediate role in the retail, largely because of the more extentend store chain and the relatively small store size, especially in the urban area. Therefore, these retail formats can be considered to competative retail places for both the bulk purchase and the daily essential shopping in the high-density settlements. It partly explains why 60% of survey respondents never or rarely visited the traditional stores. Among those who were regular visitors, around 50% shopped several times a week in these retail places. After comparing the frequencies of store visits, it can be stated that the market position of traditional retail formats can be considered to relatively advantageous solely in the case of daily shops with small basket customers in Budapest.

Results of the survey showed that lockdown during the COVID-19 pandemic had deeply affected the majority of in-store retail. Even though, 53% of the respondents answered in the summer of 2020 that they didn't plan to change in the frequency of visiting physical stores after the pandemic (Figure 8).

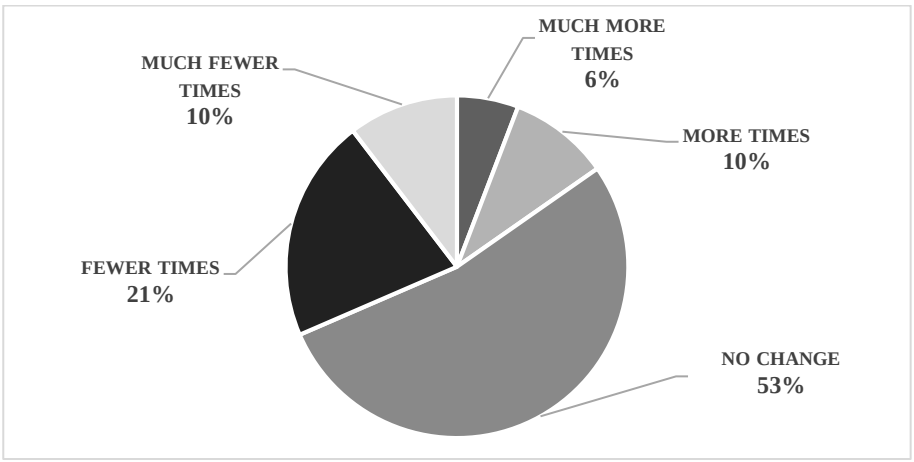

Figure 8: The planned frequency of store visits after the pandemic, compared to 2019
Source: author's own research based on survey data, 2020

The frequency of visiting local and global online marketplaces can be seen from the summary chart (Figure 9).

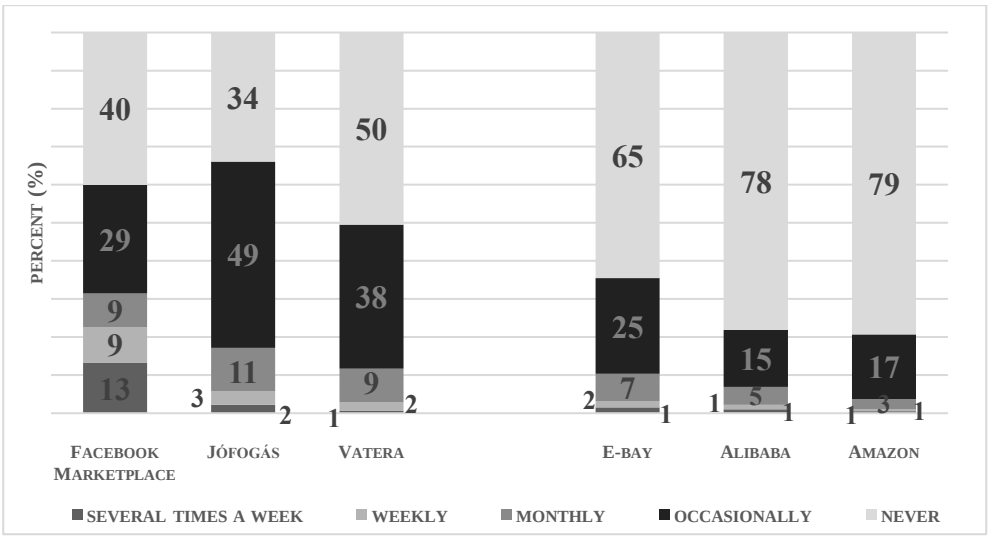

Figure 9: Frequency of online marketplace visits
Source: author's own research based on survey data, 2019

It is worth evaluating data of customers who regularly visited online stores. Every respondent purchased on the internet at least one time a month was considered to be regularly visitor. According to the survey results, it can be stated that the most popular online marketplace was Facebook. 31% of Facebook Marketplace clients regularly used the platform for purchasing purposes, which was an exceptionally high value among of the observed marketplaces. The number of visitors was larger on Jófogás than that it is on Facebook Marketplace. Two-third of respondents answered that they purchased on the first-mentioned platform. Meanwhile, the activity level of users was higher at the latter website. The vast majority of clients rarely visited Jófogás, while every second customer shopped regularly on Facebook Marketplace. Although Vatera had been the most popular online marketplace for a long time in Hungary, it must be noted that it has been relegated to the third place in the size of customer base. Furthermore, the activity level of marketplace visits also lagged significantly behind Facebook Marketplace.

The competitive advantage of Facebook Marketplace over online advertisement sites or auction portals can be traced back to several factors. One of the reasons that the potential customers were constantly connected to the social media, so they got notifications about the latest purchase offers even if they hadn't been browsing for shopping purposes. The same business modell cannot be implemented to the classical marketplace. Furthermore, the success of this modell can be seen from the fact that nearly 20% of respondents visited Facebook Marketplace at least once a week. The proportion of those customers was 5% at Jófogás and 3% at Vatera.

Global market conditions are different from the local markets, therefore results of visiting international marketplaces must be explored in a separate paragraph. The most important factors were explained by reasons listed earlier in the literature review chapter of the dissertation. Three online marketplaces, e-Bay, Alibaba and Amazon, were involved in the research. It can be clearly seen from the survey data that the frequency of online marketplace visits can be considered much lower on the international platforms than that it was on the local marketplaces. The most often viewed online global marketplace on the Internet was e-Bay among the customers in the Hungarian capital. Meanwhile every one in three respondents visited e-Bay, only one in five people shopped on the platforms of Amazon or Alibaba. Despite number of attendance were nearly equal between the last two platforms, the activity level of Alibaba clients were slightly higher than of those were on Amazon.

Online grocery shopping was also an important part of the survey. Despite challenges fulfilling orders, customers more and more likely to use this service in the recent years. One-fifth of respondents had already ordered products in this way, while a quarter of them were occassionally users in 2019. However, it is clear to see that most customers hadn't ordered any grocery products on the internet yet. For this reason, there are still plenty of room for the further market expansion (Figure 10). It is worth noting that the proportion of those who have never used online shopping was 10 percentage points lower in 2020 than that was it in the previous year. The most significant part of the growth was noticed in the category of usually users increased by roughly 5 percentage points. Such a large difference between the two values in the survey sample was unlikely to be caused by sampling error or chance.

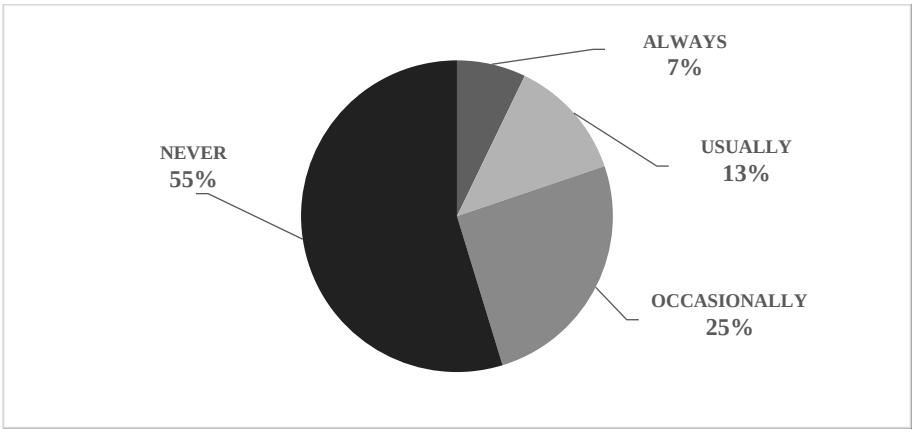

Figure 10: Frequency of online grocery shopping
Source: author's own research based on survey data, 2019

Although the declining trend in purchasing power due to negative impacts of COVID-19 pandemic on the economy violates the online stores, they strenghtened their market positions against the traditional in-store players during the health crisis. However, they could improve their positions without the new situation as well. As results of the pandemic, the integration of digital solutions into the shopping habits has been accelerated in a rapid way. It is uncertain yet whether the new customer habits remain and to what extent after the pandemic. Besides these facts, retailers have not been equally affected by these changes. Therefore, large differences can be observed between product categories.

After the lockdown was over, respondents were asked about how often they would like to shop online in the post-pandemic era, compared to the previous year. Answers related to electronic products, grocery items and orders from abroad (Figure 11).

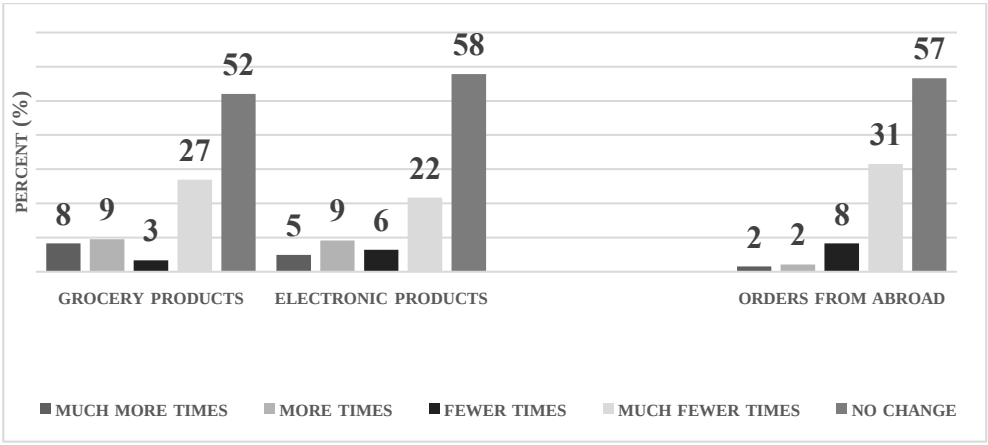

Figure 11: The planned frequency of online shopping after the pandemic, compared to 2019
Source: author's own research based on survey data, 2020

3.3. Delivery and Pick-up

The main modes of receiving products and the frequency of their use can be seen in Figure 12.

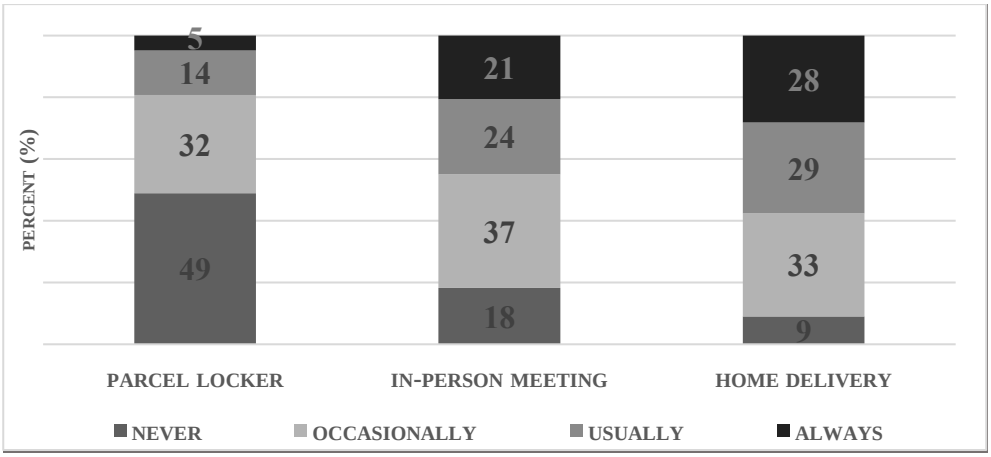

Figure 12: The frequency of home delivery and self pick-up orders
Source: author's own research based on survey data, 2019

According to results of the survey, it can be firmly stated that customers used home delivery services the most often among of the possible responses. 91% of potential customers chose this option of receiving products. Furthermore, customers are also likely to pick up their orders in face-to-face meetings. The majority of them, 82% of the total respondents answered that they received product in this way. However, the value was almost 10 percentage points lower than the same at home delivery. It can be seen from answers that nearly 63% of the clients were regularly users in the case of home delivery service. The proportion rate was 55% at clients who picked up their orders usually or always in person. The frequency of using parcel locker service was considered much lower than the above-mentioned modes of receiving products. This statement can be confirmed by the fact, roughly 50% of customers never chose this delivery option after their purchases. In contrast to other delivery and pick-up opportunities, regular clients used these machines only occasionally. To be accurated, 63% of them belonged to that intensity category.

The preference between home delivery and parcel locker was also observed in the research. Analyses of data contributed to provide an answer to the popularity of parcel lockers in each age group, apart from the influencing effect of online shopping frequency (Figure 13).

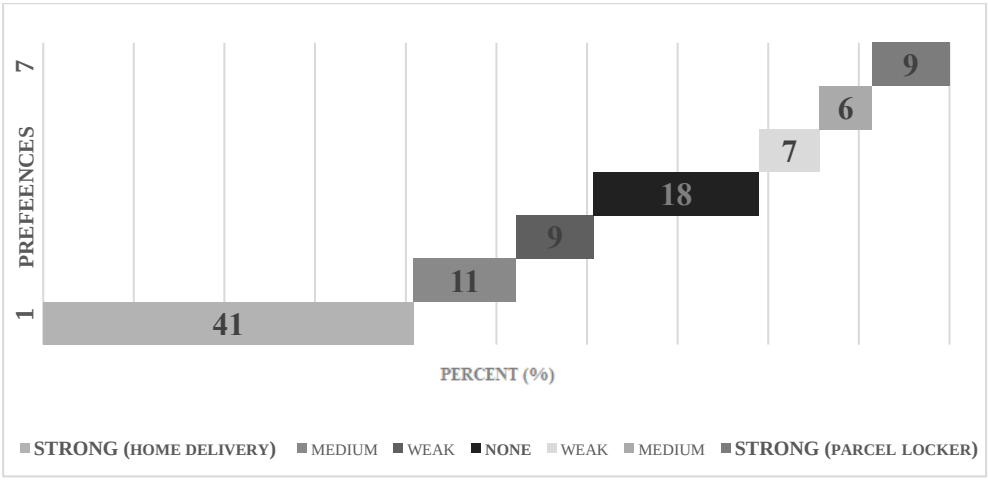

Figure 13: Preference between home delivery and parcel locker
Source: author's own research based on survey data, 2019

According to the survey results, COVID-19 pandemic also had a deep effect on CEP market. This fact partly seen from the answers related to coronavirus situation of the second questionnaire, but also partly from the increasing popularity of online grocery shopping and from responses about home delivery since the previous year. 57% of the survey respondents answered that they regularly chose home delivery, while 45% of the customers responded that they usually or always received the product in face-to-face meeting in 2019. The proportion of the category at the first receiving mode was 67%, while it was 38% at the second case in 2020. The observed difference between the two survey databases were 2 percentage points in terms of the parcel lockers. It considered to be insignificant, because the difference was possibly caused by sampling error.

In the case of product delivery, it is also a relevant issue whether consumers will go back to old habits and to what extent. To put it another way, it must know what is the impact caused by recent changes in the CEP market on consumer habits in the long run (Figure 14).

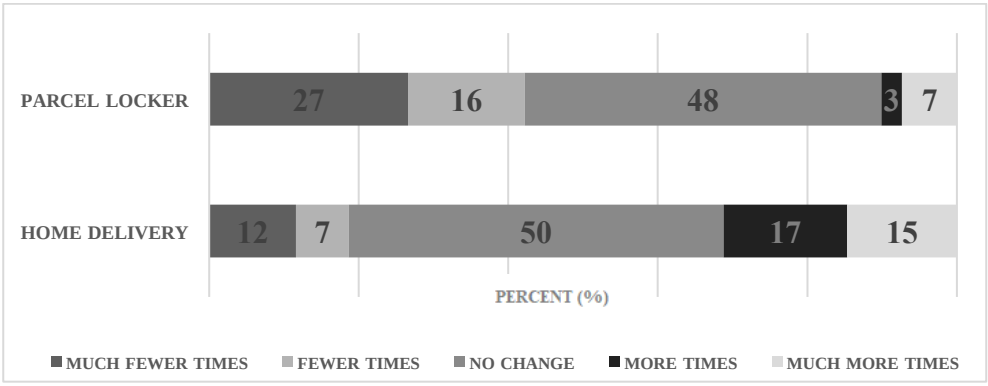

Figure 14: The planned frequency of using delivery services after the pandemic, compared to 2019

Source: author's own research based on survey data, 2020

3.4. Customer Characteristics

Remarkably different customer types were created according to the results of analysis (Table 6).

NUMBER	TYPE OF CUSTOMER	HEADCOUNT	PROPORTION OF THE SAMPLE (%)
1	LATE MAJORITY USERS	197	30.64
2	CONVENIENCE-DRIVEN CONSUMERS	171	26.59
3	LOCAL MARKETPLACE VISITORS	68	10.58
4	GLOBAL MARKETPLACE VISITORS	73	11.35
5	WEBSHOPPERS	50	7.78
6	PRODUCT INSPECTORS	84	13.06

Note: Data were processed by SPSS.

Table 6: Clusters of online customers
Forrás: self-edited based on own research, 2019

Two clusters were outstanding in the number of members. The relative size of these groups can be clearly seen from the fact that the narrow majority of respondents (57%) belongs to these customer types. The largest cluster group (1) made up roughly 30% of the total respondents ("late majority users"). Members of the cluster were less likely to use digital solutions than the "average" customer in the survey sample. However, the frequency of online store visits differs relatively slightly from the sample size. The experimental proportion of 50-60 age group and over-60 age group were higher than their expected distribution rates. This customer type was the most common within these age groups, nearly 40% of them belonged to the cluster. Middle-aged people (30-50 years old) were less likely to be classified into this customer group, while the number of those respondents under 30 years old were roughly equal to the expected value. After the review of cross-tabulations, it also can be stated that there weren't any other specific features in the personal demographics in this customer group.

According to the recent survey, members of the second largest cluster group (2) were more likely to use online information gathering tools and digital payment methods ("convenience-driven consumers"). They didn't need see the product in store, which was proved by the variable measured exactly these consumer needs. The lowest value of this variable was found in this cluster in the whole sample. In large part to this fact, these type of customers were used delivery services relatively often in their shopping process. However, they didn't shop as often as the "average" customer. It can be seen from the values of relevant variables that they visited online marketplaces and webshops less frequently than respondents of the sample. Meanwhile, the usage of mobile phone is very similar to the whole sample. Observing the basic demographic charecteristics of this customer cluster, it can be stated that there were no significant differences between experimental and expected values within the cluster group.

In the case of Cluster 3, it can be firmly stated that the most important differentiating factor was the frequency of visiting local marketplaces ("local marketplace visitors"). These customers were likely to use smartphones for shopping purposes, through which they were constantly available on the internet and immediately got notifications about the latest purchase offers. Facebook Marketplace is an ideal platform for these reasons. Members of the cluster were also more likely to use digital payment methods than in the whole sample, while they were shopping on webshops and global marketplaces less frequent. As it can be concluded from the results by age group, respondents between 20-30 years old were overrepresented in the cluster. One of the main reasons for this fact that they were the most active smartphone users among each generation. The opposite trend was observed in the 50-60 age group. In consequence of it, the experimental value in the survey sample was lower than the expected value.

The dominant factor variable was the frequency of visiting global online marketplaces in Cluster 4 ("global marketplace visitors"). These customers preferred to collect information about the product on the Internet and used smartphones more likely than "normal" customers. Besides of these features, it can be explored that seeing the product in the store was not an important factor for the majority of this cluster. Although, apart from the main factor, differences in shopping behaviour were not significant from the sample mean. At the same time, demographic structure showed the most cluster-specific charecteristics in this customer group. Considerable generational differences can be observed in the cluster, since the proportions of the silver generation and younger age groups were contrasting. Customers in the over-50 age group were underrepresented, while the number of young respondents were much more than the statistically expected values. Furthermore, people with tertiary

education were more likely to belong to this cluster. One of the important reasons of these results was that the basic skills necessary for making orders from abroad (e.g. language skills, knowledge of law etc.) were most of the times better in the case of youngers than the older customers. Not entirely independent of it, the level of education was higher among younger than among the older generations. Furthermore, the largest difference between the expected and the experimental values in the place of residence was also observed in this cluster group. This customer type was more common in the internal districts than in the external districts.

Members of Cluster 5 were distinguished from other groups by the frequency of webstore visits ("webshoppers"). These respondents were also like shopping on online marketplces and were reluctant to order product from abroad. Partly because of the lack of appropriate skills, but also partly beacuse of mistrust. Besides of these, they regularly used applications before the purchase in order to get informed about products, which were usually ran on personal computer. However, these customers preferred to cash money in terms of payment methods. It is a common customer group among the older generations, especially among those aged between 50-60 years. In consequence of this, the importance of older generations were much higher in the age structure of the cluster than it was expected before. The experimental value (28%) was about 10 percentage points higher than the expected value (18.8%).

Finally, Cluster 6 was described by it’s features. Customers of the group were likely to browse information on the internet, used digital payment solutions and smartphones as well. The need of seeing the product in the store was extremely important to them in the decision-making process ("product inspectors"). Largely for this reason, these respondents of the survey shopped fewer times on the websites than it was expected by the sample mean. Meanwhile, this trend could not be observed in the case of home delivery. It can be seen from data that this customer type was relatively rare below 30 years old. Although only 20% of the 40-50 age group belonged to this group, it accounted for 42% of the cluster members.

4. CONCLUSIONS AND RECOMMENDATIONS

5.1. Outcomes of Hypothesis Tests

HYPOTHESIS 1: CUSTOMERS HAVE DIFFERENT PERSONAL DEMOGRAPHICS AND HABITS IN ONLINE SHOPPING.

EVALUATION: VALID.

In order to prove Hypothesis 1, there was a need to reduce the number of variables about digital shopping behaviours by principal component analysis. Subsequently, 6 distinct customer types were distinguished by using the K-means clustering method. According the results, members of the largest cluster group were respondents who were less likely to rely on digital solutions. Therefore, they used internet for shopping purposes less frequent than the average of the total sample ("late mayority users"). In the over-50 age group of internet users in Budapest, this customer type is more prominent as the age increases. Customers of the second largest cluster group prefered to implement digital tools for their shopping activities, but they were buying online less often than the sample mean ("convenience-driven consumers"). It can be shown from the results that in which cluster the preference for mobile use was strong, there was great importance of the 20-30 age group at the same time. Age seemed to be an important determining factor in the case of online shopping from abroad. The differences were especially large between the calculated and experimental values in the over-50 age group. Largely because of the fact that the members of this customer cluster were usually young people, the level of education is above than the average. It is a typical form of behaviour in the age group 40-50 to partially integrate digital solutions to the shopping proccess. They like searching for information on internet, but they less likely to purchase the product online than the average. These purchasers generally want to see product in the store, but in some cases they tended to use delivery services as well ("product inspectors"). Two more customer clusters were identified by the results of the analysis. In one, members were usually going to shop more times on domestic marketplaces than the sample mean ("local marketplace visitors"). In the other group, the dominant factor was the frequency of visiting webshops ("webshoppers").

HYPOTHESIS 2: THE WAY OF USING DIGITAL DEVICES AND MARKETING SPACES ARE SPECIFIC AMONG OF INTERNET USERS AGED OVER 50.

EVALUATION: VALID.

In Hypothesis 2, results and conclusions of hypothesis testing were in accordance with country-level surveys in Hungary. On the one hand, the frequency of digital device use significantly decreased in the over-50 age group. On the other hand, the literature review confirmed the assumption that seniors of the capital city have a significant share of disposable income. Basic statistics, cross-tabulation analysis and correlation tests were applied to verify the hypothesis statement. In order to achieve this purpose, data from the questionnaires were analysed in the research. Despite elderly respondents of the surveys were internet users and active members of the online social media, there was statistically signicant correlation between the increase of age and the frequency of device usage. The biggest differences were found in the smartphone and mobile application usage at the stage of information gathering. Besides them, there were considerable differences in the case of online shopping from abroad as well. It is worth noting that the negative correlation between the above-mentioned variables can be observed at 95% significance level in the use of self checkout machines. In contrast, the preference for using credit card didn't show statistically significant co-movement with increasing age.

HYPOTHESIS 3: THERE IS STATISTICALLY SIGNIFICANT CORRELATION BETWEEN THE CUSTOMER CHOICE OF STORE AND AGEING.

EVALUATION: VALID.

Hypothesis 3 was tested with cross-tabulation analyzes and statistical correlation tests. Spearman's rank correlation, Chrames's V and Chi-square tests were all applied for correlation calculations. Independent retail formats, shopping malls and retail markets were observed during the research. Data of retail store attendance based on the questionnaire survey. According to the results of the analyses, there was statistically significant correlation between the increase of age and shopping frequency in case of each retail place. The directon of the correlation relationship was negative in all but one cases. In other words, it is statistically confirmed that the frequency of visiting retail places are lower among the older population with one exception. Variables were moving in the opposite direction in the case of retail marketplaces. It is also important to note that the strength of correlations was weak in all cases. Spearman's rank correlation coefficient showed the strongest relationship at supermarkets (-0.156), while it indicated the weakest correlation in relation to hypermakets (-0.107). The coefficient value signified stronger correlation at retail marketplaces, as the strength of relationship could be considered nearly medium (0.25). After making cross-tabulation analyses, it is worth exploring the frequency of store visits in modern retail formats among of the silver generation. Over the age group of 60, the percentage of respondents who never or rarely visited these types of stores were remarkably high. Depending on the particular store type, distribution rates ranging from 40 to 50%, which were almost 10 percentage points higher than the sample mean in each type of retail format.

HYPOTHESIS 4: COVID-19 PANDEMIC IS DRIVING UNPRECEDENTED CHANGES IN SHOPPING BEHAVIOURS.

EVALUATION: VALID.

In order to verify Hypothesis 4, responses of the survey conducted after the lockdown in early summer were analysed (N=353). Some questions about the COVID-19 situation were included in the survey. These topics related to the use of cash money, delivery services or the planned frequency of visiting online stores. Nearly half of the respondents answered that they plan to change their shopping habits compared to the previous year. These results showed that the crisis has had a great impact on shopping behaviours. Although, the level of involment in changes is different between the discussed topics. Among of them, the decreasing use of cash money was the most notable trend in the shopping process. However, it is not possible to forecast precisely the consequencies of the undergoing processes in the long term. It is still unclear how lasting the effect of the health crisis will be on the new habits. It is likely that the process of digital transformation has been greatly accelerated by the coronavirus situation, thus these changes would also happen at a slower pace without the outbeak of the pandemic. Besides of these facts, a significant and rapid increase in the use of delivery and online grocery shopping can be seen from the survey data. Furthermore, it can be stated the market position of online stores has become more advantegous than traditional retail shops during the period of lockdown. Nevertheless, the majority of respondents plan to reduce both the number of online shopping and physical store visits after the pandemic, as a result of their changing habits and the challenging economic environment.

HYPOTHESIS 5: CUSTOMER CHARACTERISTICS ARE SPECIFIC BY AGE GROUP IN THE CHANGING HABITUAL BEHAVIOUR OF CUSTOMER STORE CHOICE.

EVALUATION: PARTIALLY VALID.

Data analyses for testing hypothesis 5 was based on the survey conducted in early summer of 2020. I performed mainly cross-tanulation analyses and statistical correlation tests to prove the hypothesis. According to the results, there wasn't statistically significant correlation between the increase of age and the planned frequency of physical store visits. In contrast to it, the statistically significant co-movement between the above-mentioned variables have been observed in online shopping. Spearman's rank correlation coefficient was similar to electronics and grocery products, the strength of correlations were nearly the same (-0.21). In terms of online shopping from abroad, the strength of relationship has been medium (-0.34). It can be stated that middle-aged people want to increase both the frequency of buying electronic products and groceries in comparison to 2019. In the age group of 30-40, proportion of those who plan to shop online are exceeds 30% It is worth noting that the proportion of shoppers in the over-50 age group who plan to reduce the frequency of online shopping after the epidemic has increased significantly compared to other age groups. Overall, it is clear from the results of the two questionnaire surveys that there are detectable generational differences in online commerce, while there are no statistically significant shifts in traditional in-store retail. Being aware of these facts, the hypothesis statement can be considered to be partially confirmed.

5.2. Propositions

P1: According to research results, there were significant generational differences between the respondents in their multichannel shopping habits. Most specific customers were members of the over-50 age group that has become even more important to both traditional retailers and online shops. Partly because of the growing number of senior customers, but also partly because their remarkable purchasing power. Despite of their increasing importance on the consumer market, the professional literature is still relatively small about the silver generation in Hungary. For these reasons, there is lot of potential in the examination of older generations. Researchers should pay more attention and put more effort into the exploration of the silver generation.

P2: Ageing of the society and generational shifts have impacts on almost every businesses in the retail, but these findings are especially true for FMCG companies. Senior customers tend to use digital devices and applications during their shopping activity, therefore retail stores have to adapt gradually the demands of older generations into their marketing strategy. In this business process, the integration of marketing channels should be an important part of the strategy. The topicality of these changes was confirmed by results of the questionnaire surveys, as the level of digital maturity was much more similar to the sample mean in the 50-60 age group than in the 60-over age group.

P3: According to the annual online retail sales in Hungary, more than 40% of the purchase value was generated by ordering from abroad in 2018. Despite the percieved barriers, the trend is rising which seriously concerns the local companies. Small businesses can enter to the global market with more difficulties than the biggest chain stores. However, the number of customers who are uncertain or unwilling to order products from abroad can be considered to be large based on the questionnaire surveys. As small stores cannot compete with price or product range, they should target their marketing to these customer groups. In consequence of the coronavirus pandemic, temporary disturbance in the international logistics system was a good opportunity for the SME sector to improve their market situation and attract new customers to the local stores in the short term.

P4: Although the recent coronavirus pandemic has caused economic damage in the retail sector as well, it provides a good opportunity for implementing new business models, introducing innovative technological solutions or expanding the market size. Creating multi-channel distribution system and the proper coordination of marketing channels were among of the key elements of success even before the COVID-19 situation, but consequences of the health crisis reinforced these needs. It has become possible to target those groups of customers who would never use the innovative purchasing solutions and services or just years later, if the coronavirus pandemic never happened.

P5: The demand for delivery is high, as it seems that is already the case in fast-moving consumer goods as well. Box delivery or online grocery shopping at large chain stores can provide with good practices for small retail companies. In order to implement these services, it would be worth for them to cooperate with other market participants.

5. NEW RESEARCH FINDINGS

1. I synthesized the literature on multichannel customers and put it in a logical framework. I have described the possible manifestations of customers' space consumption and their way of using marketing channels at certain stages in the decision-making process.

2. I explored the shopping behaviours of internet users in the capital city related to device usage, store choice and product delivery based on data from questionnaire surveys.

3. I segmented customers of Budapest by using principal component analysis and cluster analysis based on their online shopping habits

4. I detected generational differences in multichannel shopping habits, while pointing out the significant customer potential of the silver generation.

5. I contributed to explore the possible impacts of COVID-19 pandemic on shopping behaviours after the lockdown in spring with my research.

6. LIST OF PUBLICATIONS RELATED TO THE DISSERTATION

Articles published in Scientific Journals

In English:

KOVÁCS, CS. J. (2019): A generational comparison of mall-visiting behaviors in Árkád Budapest: Understanding senior consumers *DETUROPE: Central European Journal of Tourism and Regional Development 11 (3)*, pp. 175-189.

SIKOS T., T. – **KOVÁCS, CS. J.** (2019): The Silver Generation as Potential Purchasing Power in Budapest: a Case Study Theory Methodology (TMP) 15 (2), pp. 53-63.

In Hungarian:

SIKOS T., T. – **KOVÁCS, CS. J.** (2020): Az élelmiszerdiszkontok és a COOP versenye Észak-Magyarországon *Területi Statisztika 60 (6)*, pp. 688-713

KOVÁCS, CS. J. (2018): Egy elektronikus piactér regionális jellemzői Komárom-Esztergom megyében *Földrajzi Közlemények 142 (1)*, pp. 62-73.

KOVÁCS, CS. J. (2018): Termékmárkázás Komlóskán *Acta Regionis Rurum 12*, pp. 68-77.

KOVÁCS, CS. J. – SIKOS T, T. (2018): Az ezüstgeneráció mint potenciális vásárlóerő a budapesti bevásárlóközpontokban *Területi Statisztika 58 (4)*, pp. 399-416.

KOVÁCS, CS. J. – SIKOS T., T. (2018): Az Arena Mall és az Árkád Budapest versenye az átalakuló társadalmi-gazdasági térben *Földrajzi Közlemények 142 (3)*, pp. 201-218.

Presentations published in Conference Proceedings

In English:

KOVÁCS, CS. J. (2020): Competition of online marketplaces in Hungary In: Horváth, B. – Földi, P. – Kápolnai, Zs. – Antalík, I. (eds.) *International Conference of Economics PhD Students and Researchers in Komarno*: Conference Proceedings, J. Selye University, Komarno, Szlovákia, pp. 140-147.

KOVÁCS, CS. J. (2019): Analysing shopping frequency at physical stores in the digital age: A case study on Budapest In: Horváth; B. – Kápolnai, Zs. – Földi, P. (eds.): *V. International Winter Conference of Economics PhD Students and Researchers: Conference Proceedings*, Gödöllő, pp. 111-118.

KOVÁCS, CS. J. (2018): Analysing geographic proximity on e-sales success: A case study of Vatera auction portal In: Budinská, S. – Huliaková, Z. – Budinský, M. (eds.): *Scientia Iuventa: Proceedings from International Conference of PhD. Students*, Vydavatelstvo Univerzity Mateja Bela, Banská Bystrica, Slovakia, 8 p.

In Hungarian:

KOVÁCS, CS. J. (2018): Földrajzi közelség vizsgálata e-piactereken: esettanulmány Komárom Esztergom megyéből In: Földi, P. – Borbély, A. – Kápolnai, Zs. – Zsarnóczky, M. B. – Gerencsér, I. – Gódor A. K. – Gubacsi F. – Nyírő, A. – Bálint, Cs. – Szeberényi, A. – Fodor-Borsos, E. (eds.): Innovatív társadalom - Innovatív gazdaság: Absztraktkötet. Budapest, Magyarország: Doktoranduszok Országos Szövetsége, pp. 12-12.

7. REFERENCES

1. BELUSZKY, P (2014): Budapest - zászlóshajó vagy vízfej? A főváros és az ország - történeti-földrajzi áttekintés, Szent István Egyetemi Kiadó, Gödöllő, 172 p.
2. EGYKOR.HU (2010): Budapest kerületei 1873-ban, 1930-ban, 1950-ben http://egykor.hu/images/2010/original/budapest-budapest-keruletei-1873-ban-1930-ban-1950-ben-.jpg (Last accessed: 08.08. 2020.)
3. FLEISCHER, T. (2020): Megállapítások a koronavírus terjedéséről és a teendőkről. Közgazdaság- és Regionális Tudományi Kutatóközpont, Világgazdasági Intézet, Budapest. 21 p.
4. KÁTÉ (2020): Budapest kerületei http://www.kate.hu/wp-content/uploads/2020/04/budapest23.jpg (Last accessed: 08.08. 2020.)
5. KLENOVSZKI, J. (2020): 87% internetező hazánkban https://nrc.hu/news/internetpenetracio-2/ (Last accessed: 08.08. 2020.)
6. KOLLÁNYI, B. (2007): Térhasználat az információs társadalom korában. In: Pintér Róbert (ed.): *Az információs társadalom. Az elmélettől a politikai gyakorlatig*, Tankönyv, Budapest, Gondolat – Új mandátum, pp. 82–93.
7. KSH (2011): Népszámlálás 2011: http://www.ksh.hu/nepszamlalas/ (Last accessed: 08.08. 2020.)
8. KSH (2018): Budapest. Gazdaság és társadalom http://www.ksh.hu/docs/hun/xftp/idoszaki/pdf/budapest.pdf (Last accessed: 08.08. 2020.)
9. LENGYELNÉ MOLNÁR, T. (2012): Kutatástervezés, Eszterházy Károly Főiskola, Eger, 151 p.
10. NEMES NAGY, J. (1998): A tér a társadalomkutatásban: bevezetés a regionális tudományba. Hilscher Rezső Szociálpolitikai Egyesület, Budapest, 260 p. http://geogr.elte.hu/REF/REF_Kiadvanyok/Ter_a_tarskutban/NNJ_03.pdf (Last accessed: 08.08. 2020.)

11. NEMES NAGY, J. (2017): Tér, függés, kohézió, hálózatok. *Területi Statisztika* 57 (1). pp. 3-23.

12. NMHH (2019): Az elektronikus hírközlési piac fogyasztóinak vizsgálata, 2019 – háztartási felmérés Prezentáció, 85 p. http://nmhh.hu/cikk/212531/Az_elektronikus_hirkozlesi_piac_fogyasztoinak_vizsgalata_2019__haztartasi_felmeres (Last accessed: 08.08. 2020.)

13. RUDAS, T. (2006): Közvélemény-kutatás, Corvina Kiadó, Budapest, 96 p.

14. SAJTOS, L. – MITEV, A. (2007): SPSS kutatási és adatelemzési kézikönyv. Alinea Kiadó, Budapest, 404 p.

15. SZABÓ, P. (2008): A térszerkezet fogalma, értelmezése. *Tér és Társadalom* 22 (4), pp. 63–80.