

ANALYSIS OF THE IMPACT OF THE COVID19 PANDEMIC ON ONLINE FOOD SHOPPING

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Abstract: In our research, we analyzed the shopping habits that have developed due to the Covid-19 pandemic. The reason for this is that, as a result of the pandemic, consumers were forced to adapt to the new conditions, which caused a significant increase in online grocery shopping. In our research, we tried to examine the impact of Covid on the online food market. Consumer behavior is a complex pattern of behavior that is made up of many elements, from individual needs to environmental factors and available information. Within this, the purchase decision process plays a prominent role, which we analyzed in our research using a five-step model. The model spans from recognition to post-purchase evaluation and is key to understanding consumer satisfaction. In the early stages of the epidemic, panic buying occurred, which is why we considered it important to examine the topic. We examine the evolution of the number of online food orders, the popularity of online food shopping, and the issue of sustainability and environmental awareness in the field of online shopping. In order to review the topic, we conducted a questionnaire survey, as we found that the Covid-19 epidemic brought about fundamental changes in consumer behavior and online food shopping. In our research, we performed a detailed analysis based on the answers of the respondents. The obtained results can highlight the importance of sustainability and trust in digital transactions, as well as the evolution of modern consumer behavior and shopping preferences.

Keywords: online food, shopping, questionnaire

JEL classification: F18, L81

1. INTRODUCTION

The purpose of our research is to examine the impact of the COVID-19 pandemic on online shopping habits and the evolution of consumption behavior. The virus spread quickly, so many restrictions and measures had to be put in place to slow it down, which had a significant impact on people's daily lives. These measures also had an impact on shopping habits and consumption behavior. Due to the restrictions and closures, most of the society restrained their spending and tried to save. There were those who supported local small and medium-sized businesses in order to manage the crisis and tried to buy from them. Due to the rise of digital technology, the number of online purchases has increased significantly. Responding quickly and effectively to these changes is extremely important in the life of various businesses.

In our research, we conducted a questionnaire survey among the Hungarian population. In the questionnaire, we asked the respondents about the effects of the epidemic and their shopping habits. In the questionnaire, we sought the answer to how much the rate of online shopping increased during the epidemic, and which products or services were the most popular in this process. Based on the answers, we also considered it important to examine what factors encouraged consumers to shop online during the epidemic?

2. Literature review

Household expenditures are basically influenced by the products and services they consider necessary. These needs represent a diversity that can change in space and time. Individuals have different needs and these are constantly changing from time to time (Table 1). When planning our total expenses, we must primarily take into account the costs related to everyday life and subsistence. These are called current consumption expenditures (Merényi et al., 2012).

Table 1: Distribution of household expenses per capita, %

Categories	2010	2019
Home maintenance and household energy	25,20%	18,50%
Food and non-alcoholic beverages	22,80%	24,40%
Transport	11%	11,90%
Culture, entertainment	7,80%	7,30%
Other products and services	6,40%	8,10%
Communication	6%	7%
Healthcare	4,90%	5,10%
Hospitality, accommodation service	3,90%	4,80%
Home furnishing, housekeeping	3,90%	4,30%
Clothing and footwear	3,90%	4,20%
Alcoholic beverages, tobacco products	3,20%	3,50%
Education	0,90%	0,90%

Source: KSH, 2019

Customers go through a complex decision-making process during the purchase process, only one part of which is visible while the other part is unknown. The external influencing factors and the results of purchase decisions are the visible elements, while the decision process itself is unknown, since it takes place in the "black box" of the customer. As Figure 1 illustrates, external (characteristics of the environment outside the customer) and internal (characteristics of the customer) stimuli affect the customer and elicit a response. The task of marketing specialists is to try to understand the contents of the "black box" by studying the inputs (stimulus streams) and consumer responses (Horváth, 2012). Food consumption is influenced by many things. Among these, the largest share is represented by previous

experiences and composition (Soós, 2022). After that comes price, sustainability, and brand and other factors.

2.1. The impact of COVID-19 on online shopping habits

Online commerce is growing four times as fast as traditional commerce. This is due to the wider availability of suppliers, rich product selection, high quality goods, competitive prices, alternative fulfillment and delivery options, various payment options, simpler websites and increasing user trust (NIELSEN, 2018a).

The appearance of the coronavirus in mid-March 2020 drastically transformed the daily life of both Europe and Hungary. Most of the people were surprised by the spread of the epidemic in Hungary, and almost at the same time the government announced the #maradjotthon campaign. As a result, everyone started panic-buying the most important food, cleaning products, and tools for working and studying at home. In the meantime, the economy has almost completely stopped, but the situation has caused online trade to change gears. The rapid growth of the online sector is due to the significant increase in popularity of many product categories. As a result of the epidemic situation, certain categories, such as food, cleaning products, vitamins, and medicines, enjoyed increased demand in the online space. In other categories, demand has increased due to digital education and remote work, such as technical items, laptops and computer accessories (Gkid, 2020).

During research conducted in March 2020, it was revealed what people did not buy during the examined period (Figure 1). fruit (15.4%), fresh meat (17.3%) or handicrafts (50.7%). In addition, it was noted that in the case of clothing and footwear products (64.2%), online sales were the breaking point for manufacturing companies. During the quarantine, those who had the necessary resources and needs preferred online shopping instead of traditional stores. It seems that this trend will continue and they will continue to rely on online shopping in the future (Sikos et al., 2021).

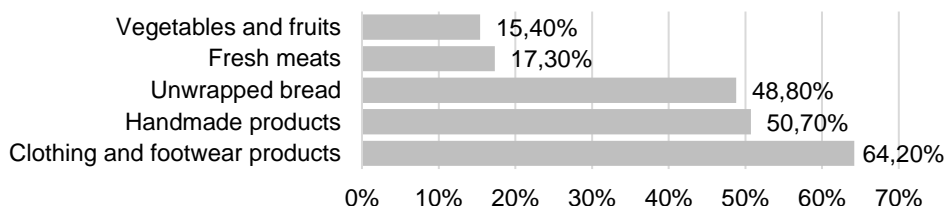


Figure 1: Range of products not purchased during the COVID-19 epidemic, March 2020

Source: Sikos et al., 2021

In the following, we present the change in the number of online purchases, as during the period during the Covid-19 epidemic, it was observed in many parts of the world that, as a result of the epidemic measures, closures and social distancing, people increasingly prefer online platforms when shopping. This process brought about significant changes in the field of online retailing, where the number of online purchases increased greatly.

2.2. The growth of online grocery shopping during the epidemic

The impact of COVID-19 on online shopping habits brought about major changes as people had to quickly adapt to the new circumstances. Online commerce exploded at the start of the pandemic as people panicked to buy essentials. In the online space, this was particularly evident in increased demand for food, cleaning products and other essential items. At the same time, the rise of digital education and remote work brought with it an increase in demand for technical goods and laptops.

The prominence of online shopping has fundamentally changed people's shopping habits, especially during quarantine. Those who had the right resources and opportunities chose online platforms instead of traditional stores. This trend is likely to continue in the future as people get used to the convenience and security of online shopping.

It showed a particularly significant increase during the epidemic, partly due to the restrictions on going out and the shortage of goods in stores. Online stores have had to adapt quickly to increased demand and supply chain disruptions. Although some goods were missing in the first period, the shortages quickly eased and a wide range of products became available to customers on online platforms.

As a result of the coronavirus, the demand for online food orders has increased significantly, which was partly a consequence of the restrictions on going out and the shortage of goods in stores.

In the second half of March 2020, time windows filled up quickly, customer baskets grew, stores became overloaded, and online service providers were operating at full capacity. Department stores have had to deal with suddenly and without transition increased demands and confused supply chains.

Most shoppers thought it was safer to "stock" key products, but neither brick-and-mortar stores nor online stores were prepared for this, so some essential products were quickly sold off the shelves. In particular, the turnover of paper goods (e.g. toilet paper), durable foods (flour, sugar, pasta), baking supplies (e.g. yeast) and household cleaning products increased.

The product shortages of the first 1-2 weeks soon returned to normal, and a month later, at Easter, practically all products were available. Yeast was the only product that was missing for a longer period of time and was only available again after the holiday (Gkid, 2020).

If we examine the growth stages of online food shopping, the change in e-commerce can be divided into 5 stages. The first phase (end of February-beginning of March 2020) is the so-called "calm before the storm", this is the period of careful preparation. Here, the virus still has no detectable effect on everyday life, but the more cautious customers are already preparing. Orders in online stores are slightly higher than average, but the change is not outstanding. During this period, the volume of traffic increased by 11% in the second month of the year (KSH, 2020).

The second phase (starting on March 10, 2020) is called panic buying, during this period the sudden preparation for the quarantine period takes place. Delivery chains and retailers are caught off guard by the outbreak, resulting in some products running out of stock early.

The third stage (from March 28, 2020 to April 14, 2020) is the quarantine, which came into effect on March 28, 2020. At that time, new fresh food delivery companies

start up, partly due to the government decree. Online orders are soaring as the number of orders approaches the Christmas season.

The fourth stage is the period of habituation itself. Easter 2020 will be spent differently than ever before. Overall, the food supply chain is normalized here, as it is now possible to order 1-2 days in advance, stock shortages (flour, yeast) will disappear.

Then the final stage is the fifth, which will be the new "normal" (from May 4, 2020). Things are starting to return to their old ways, as everything is now available in both traditional and online stores, and food can even be ordered for the same day.

2.3. The popularity of online grocery shopping platforms

The popularity of online grocery shopping platforms has grown significantly in recent years. People are increasingly choosing to shop online for food products. There are many reasons for this popularity and it gives an answer to why the world of ordering has become so popular for consumers.

One very important aspect that has contributed to its popularity is that shopping platforms offer convenience and time savings to consumers. They allow customers to easily order food from home or anywhere, even with the help of their mobile phone. This results in significant time savings as they do not have to visit stores or department stores in person. In addition, online platforms are available 24 hours a day, so consumers can shop at any time of the day to suit their own schedule and preferences.

They have a wide range of products, which is an advantage for consumers. They can find many different foods in one place, so they can easily find the products they need. In addition, online platforms allow you to compare prices between different sellers. This helps customers find better value products and even save money when shopping.

They provide flexible shipping and logistics services that provide consumers with convenience and a convenient shopping experience. These services allow the food to be delivered to customers' homes, or even provide the opportunity to pick it up at special customer pick-up points. Such delivery and logistics services are usually fast and reliable, so customers can get their food on time and as planned.

When shopping, it is important for consumers to have trust and quality guarantees. These platforms offer secure payment options and quality guarantees that reassure customers about the quality and freshness of their food. Many online food shopping platforms have implemented, for example, a money-back guarantee or the option to return the product if the customer is not satisfied with it. This trust factor and the presence of quality guarantees increase consumer confidence in online shopping platforms and encourage them to buy food online.

As I mentioned above, when shopping for food online, consumers often rely on online ratings and reviews from other customers. These ratings and reviews can help customers make informed decisions about the quality of a particular product or seller. In this section, it has been proven how popular online grocery shopping has become during this period, and in the following I would like to see how prices have changed as a downside of this.

2.4. The evolution of food prices in webshops over the past 5 years

There is a close correlation between the popularity of online food shopping platforms and the consequences of the prices and workload of food in webshops during the COVID-19 epidemic. As a result of the growing demand, online grocery shopping platforms have become extremely popular as people have been able to conveniently and safely purchase the products, they need from home. However, this increased demand led to an increase in prices in online webshops, while the workload resulted in increased delivery times and limited product stock. This phenomenon has encouraged shoppers to look for alternative solutions, such as buying from local stores or directly from producers, while leaving open the possibility for local farmers and producers to sell online. At the same time, it has become crucial for webshops to increase the flexibility of prices and strengthen the stability of supply chains in order to efficiently and satisfactorily serve the needs and expectations of consumers in the future.

Comparing the prices of some basic household products ordered from different webshops, we found that Tesco sold its products online the most expensively, followed by Spar and Kifli. It is especially noticeable that in the case of dry pasta and paper goods, even if you choose the cheapest option, there is a significant increase in price, they can be purchased at double or even higher prices.

2.5. The evolution of product choice and demand during the epidemic

In 2019, the turnover of domestic retail amounted to about 2,500 billion forints, which means an average of 12 billion forints per week (Az én pénzem, 2023). Compared to the same period of the previous year, there have been significant changes in food consumption. (9th week of 2019 and 9th week of 2020). The turnover of sugar, for example, jumped by 178 percent, which means outstanding growth (Figure 2). The sale of flour also showed a significant increase, as it increased by 168 percent. They also bought large quantities of dry pasta, rice and cooking oil.

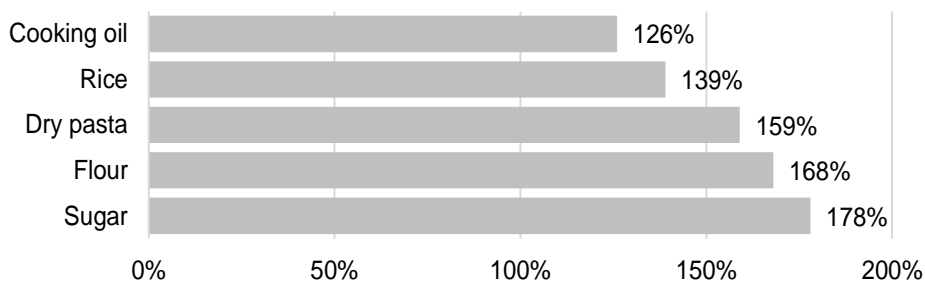


Figure 2: Changes in the turnover of the given food products in Hungary compared to the same period of the previous year

Source: Az én pénzem, 2023

Significant changes can also be observed among durable foods. The consumption of various canned goods increased to an exceptionally large extent, more than twice. This suggests that consumers preferred preserved foods and bought more of them. In addition, sales of bagged soups, shelf-stable milk and frozen vegetables also

increased significantly, indicating that consumers paid more attention to foods with a long shelf life and easy preparation.

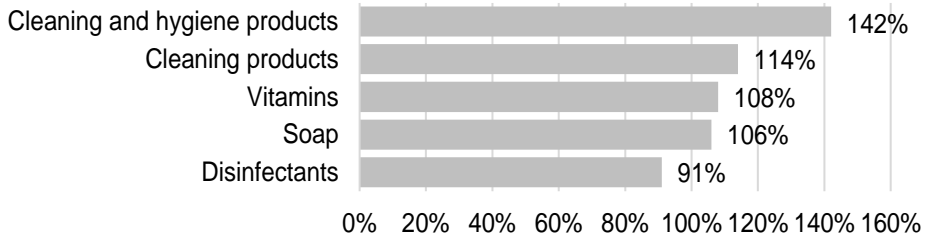


Figure 3: Changes in value turnover of categories in Hungary based on data scanned by Nielsen of international retail chains
Source: Az én pénzem, 2023

As a result of the COVID-19 epidemic, consumers paid more attention to their home supplies and spent more time at home. Perishable foods such as canned goods, bagged soups, and frozen foods allowed them to be stored longer and easily prepared in the home environment. This trend had a significant impact on the food market, and companies had to adapt to consumer needs and changing preferences (My money, 2023). In the recent period, health-conscious behavior has increased remarkably in developed societies (Figure 3). "Disinfectants and hand sanitizers have temporarily run out of domestic retail outlets; of the former, 91 percent more were sold in the last week of February than in the same period of the previous year. The turnover of cleaning and hygiene products increased by 142 percent, vitamins by 108 percent, and hand sanitizers by 73 percent" (Az én pénzem, 2020). It can therefore be seen that foods with health-protective effects are gaining more and more space on the market. A higher proportion of health-conscious consumers choose well-informed and independently, and as a result, more and more foods that have a positive effect on health come to the fore.

In Hungary, in terms of health effects, particular attention is paid to the prevention of cardiovascular problems, the influence of bacterial flora, body weight regulation, and energy and vitamin supplementation (Papp-Bata, et al., 2021). In the case of medicines and vitamins, consumers experienced slight supply difficulties, but pharmacies adapted flexibly with the help of manufacturers and wholesalers. When the medicines were issued, a monthly or three-month supply was provided, so there were only occasional problems in this area (Sikos et al., 2021).

During the transition period, disinfectants and hand sanitizers ran out of the shelves of domestic retail units; 91 percent more disinfectants were sold in the last week of February than in the same period of the previous year. The turnover of cleaning and hygiene products increased by 142 percent, while that of vitamins rose by 108 percent and that of hand sanitizers by 73 percent (Az én pénzem, 2020).

2. MATERIAL AND METHOD

To achieve the research goal, we chose a quantitative survey, which is a questionnaire survey based on completely random sampling. Based on the size of the research sample, the research cannot be considered representative of the entire

population, so it is not suitable for drawing general conclusions regarding the entire population, but it can help to learn about the behavior and habits of consumers in the period before, during and after the pandemic.

For the purpose of quantitative research, I chose to use an online questionnaire as the survey method, since it is possible to reach the broad target group quickly and efficiently.

The main purpose of the questionnaire is to reveal how the respondents' online shopping behavior changed after the coronavirus epidemic compared to the previous period.

The questionnaire consisted of a total of 26 questions, of which 20 were subject-specific questions, while 6 were demographic questions. In terms of answer options, we used single- and multiple-choice closed questions, closed questions to be decided, and questions to be decided. There were also semi-open and closed questions in the questionnaire.

The group of respondents was 348 people, the place of inquiry was the Google Forms platform. We shared the questionnaire in various professional Facebook groups. Descriptive statistical indicators and cross-tab analysis were used for analysis.

3. RESULTS

The gender distribution of the respondents showed that 64% were women and 36% were men. The age group of the interviewees was mixed. The majority of the respondents live in urban areas, as the proportion of people living in cities is 48.56%. This high number can partly be explained by the higher population density in urban areas and the better infrastructure there, which offers people more opportunities in all areas of life. The residents of the capital and the county seat spent almost the same amount of time. Villages also represent a significant proportion, which shows that the respondents live in diverse places of residence.

The respondents are in different marital statuses: the largest proportion, 38.79%, are single, while 30% are married. The proportion of cohabitants is also significant, which is 25%. The proportion of widows and divorcees is relatively low, only 2% and 4% respectively. These data reflect the diversity of modern society and the spread of increasingly diverse family forms.

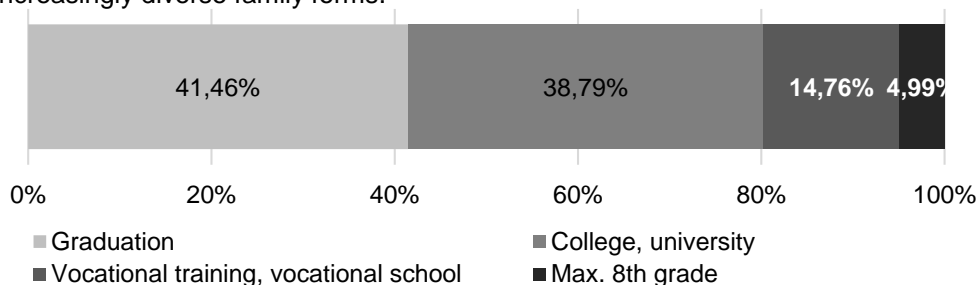


Figure 4: Distribution of respondents by educational level

Source: Calculation based on own questionnaire survey, 2024

Figure 4 shows a diverse picture of the distribution according to educational level: 41% of the respondents have a high school diploma, while 39% have a higher

education, college/university diploma. There is also a significant proportion of those who have graduated from vocational training or vocational schools, whose proportion is 15%. Those with a lower education, who completed a maximum of 8 general education, represent a relatively smaller proportion, only 5%.

Figure 5 shows that the largest number of respondents indicated shopping at the supermarket. It can also be observed that the 46-55 age group chose 3 purchase options in equal proportion. These were the hypermarket, supermarket and convenience store. 30% of the 35-45 and over 65 age groups chose the local small grocery store. The reason for this will be examined later, as it is possible that this category was chosen due to the characteristics of the different places of residence. Internet ordering, i.e. home delivery, was mostly chosen by those under the age of 18. The reason for this may be that the younger generation considered it simpler and faster, and it is also possible that it was the most suitable purchasing method for college students.

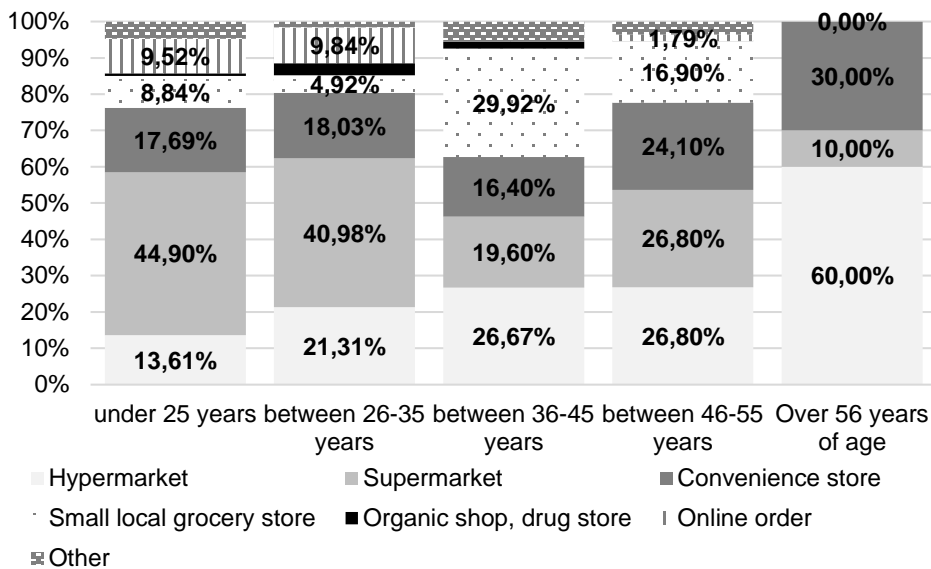


Figure 5: Changes in the shopping locations of each age group as a result of the epidemic

Source: Calculation based on own questionnaire survey, 2024

Further calculations revealed that, regardless of marital status, the majority of respondents shopped two or three times a week before the outbreak of the epidemic (Table 2). In contrast, after the epidemic, this was reduced to once a week (Table 3). The root cause of this could be various restrictions, such as the curfew or the maximum number of certain products that can be purchased, as well as caution arising from health reasons.

Table 2: Comparison of marital status with the frequency of weekly personal shopping in the period before the Covid epidemic

Marital status	Never in person, only online (%)	1x (%)	2-3x (%)	4-5x (%)	More than 5x (%)
1. Married	3,85	17,3	47,12	19,23	12,5
2. Unique	5,19	23,7	46,67	14,81	9,63
3. In a partnership	7,95	15,9	55,68	13,64	6,82
4. Divorced	42,86	14,3	35,71	0	7,14
5. Widow	14,29	28,6	42,86	0	14,29

Source: Calculation based on own questionnaire survey, 2024

Table 3: Comparison of marital status with the frequency of weekly personal shopping in the period after the Covid epidemic

Marital status	Never in person, only online (%)	1x (%)	2-3x (%)	4-5x (%)	More than 5x (%)
1. Married	6,73	46,15	35,58	9,62	1,92
2. Unique	28,57	14,29	28,57	14,29	14,29
3. In a partnership	10,37	48,15	34,07	3,70	3,70
4. Divorced	9,09	53,41	30,68	4,55	2,27
5. Widow	21,43	28,57	28,57	14,29	7,14

Source:

Calculation based on own questionnaire survey, 2024

After reviewing the frequency of purchases, we examined how much they used the opportunity to shop online as a result of the epidemic.



Figure 6: Food shopping habits during the epidemic

Source: Calculation based on own questionnaire survey, 2024

The majority of those filling in bought less in person in stores during the epidemic (Figure 6), however, this soon resulted in more than the "I bought the same as before" category. The reason for this may be that that age group was afraid of this kind of shopping habit.

We examined to what extent those who bought food online for the first time during the covid period will maintain this shopping method after the epidemic. 71% of the respondents would not order food online after the epidemic, because people with lower education had other problems and for this reason, they are less inclined to do so or online shopping is more expensive for them. In the case of the correlation

analysis, we found that those with a higher education did not experience any problems during online payment, while those with a maximum of 8 general education or vocational education had a problem. The reason for this could be the less frequent use of the technology or its more difficult handling. In the case of lower earners, the lower use of online ordering can also be explained by the fact that people belonging to this group may regularly have daily living problems, which also contributes to the fact that they order less online, and that they do not order even after the end of the epidemic, since different fees charged by this purchase method, such as the amount paid for delivery.

4. Conclusions

The Covid-19 pandemic has resulted in fundamental changes in people's daily lives, including the transformation of shopping habits and food procurement methods. As a result of the epidemic, consumers were forced to adapt to the new conditions, which caused a significant increase in the area of online grocery shopping. By carrying out the research, our goal was to gain more insight into consumer behavior in relation to food purchases. We wanted to get an answer to how much online grocery shopping has changed from before the covid pandemic to today. We used an online questionnaire for the research. With the help of the questionnaire, we assessed online shopping habits and assessed the places of change in the topic of online shopping. In our research, we found that the frequency of personal food purchases decreased due to the Covid-19 epidemic during the epidemic. In the period before the epidemic, those filling in went shopping in person 2-3 times a week on average, until the outbreak of the epidemic, this number dropped to 1 time a week. This may be primarily due to health precautions, followed by measures related to going out and shopping that were introduced later. We also received an answer that people stockpiled more food as a result of the panic caused by the Covid pandemic, which has now returned to the pre-Covid state. As a result of Covid, booming online grocery shopping has emerged, which is slowly returning to the form of personal shopping these days. This is because buying live food is safer than buying online. The popularity of online grocery shopping during the Covid era was due to several factors: convenience, time savings, a wide selection of products and flexible delivery options. Of course, we also discovered disadvantages in the research, according to which the prices of household products showed significant differences when bought online. Tesco was the most expensive, followed by Spar and Kifli.

In the initial stages of the epidemic, consumers carefully prepared for the period of the epidemic, followed by panic buying. During the quarantine, the number of online food orders increased rapidly, then stabilized during the year. In the course of our research, we also examined payment methods for online food purchases during the epidemic. The use of bank cards dominated (e.g. Visa or MasterCard), as consumers preferred fast and convenient transactions. PayPal was the second most popular payment method. The decrease in the use of cash during the epidemic is due to the effort to minimize personal contact. The majority of respondents felt that the security of online payment was guaranteed, although technological security measures and further strengthening of trust are needed for full acceptance.

The Covid-19 epidemic brought about fundamental changes in consumer behavior and online food shopping. During my research, I analyzed these trends and related

demographic, psychological, economic and technological factors in detail. The results highlight the importance of sustainability and trust in digital transactions, as well as the evolution of modern consumer behavior and shopping preferences.

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