

## The Importance of the Diet Catering Sector During the COVID-19 Pandemic and Its Impact on Families Eating Together

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**Abstract.** Proper nutrition, physical activity, positive interpersonal relations, sleeping, and resting promote health and well-being. A varied and well-balanced diet is one of the fundamental factors influencing human mental and physical balance. Diet catering services involve providing customers with individualized sets of meals chosen based on their preferences and needs. The purpose of this paper is to analyze the importance of the diet catering sector during the COVID-19 pandemic, whose activities were not limited by government restrictions, and the impact of ordering a healthy boxed diet on eating together of all family members. The empirical study included customers of diet catering enterprises. Individual in-depth interview was used as a quantitative research technique. The analysis of the empirical study proved the extremely different behavior of the respondents, who had completely different views on the basic issues related to the measures that limit social and economic life. They often had no knowledge of the current pandemic and often performed a variety of mutually exclusive actions.

### Introduction

Eating habits are one of the key issues of physical and mental health. World Health Organization defines health as "complete, physical, mental and social well-being, and not just the absence of disease or disability" [1]. An individual's dietary choices depend on a variety of factors. By forming the most important environment in a child's life, parents shape children's food preferences, eating behaviors, and reduce caloric intake [2]. Based on the values instilled at home, children learn what foods to eat, how to eat them, and at what times of the day [3]. In addition, the manner of meals offered and the products eaten by family members are important [4]. Determinants of learning proper eating habits include exposure and availability (the presence of fruit and vegetables in a visible place increases the likelihood of eating them more often) [5], trying new tastes, and eating meals together [6]. The last element was included in the empirical field of the present study and the literature considerations at the level of an increasingly popular form of nutrition, i.e. boxed diets offered by external catering firms.

Analyses of international empirical studies indicate [6] that families that eat meals together ( $\geq 5$  meals per week) are less likely to have children's nutrition-related health problems by  $\square 25\%$  (compared to children who eat  $\leq 1$  meal with their family members). Furthermore, children and youth raised in families that share at least 3 family meals per week are less likely to be overweight (12%), consume unhealthy foods (20%), and have eating disorders (35%), and have increased chances of eating healthy foods (24%). A correlation is also indicated between better parental education/higher socioeconomic status, and healthy eating patterns [7,8] Increased frequency of

family meals correlates with higher intake of fruits and vegetables, fiber and micronutrients, less fried foods and carbonated beverages, saturated fats, trans fats [9], sweets, and fast foods [8]. Shared family meals consumed during adolescence may have lasting positive effects on diet quality and meal patterns in young adulthood [10].

### **Lifestyle Changes in Families During the COVID-19 Pandemic**

On January 31, 2020, the World Health Organization declared a public health emergency of international concern [11] and on March 11, 2020, a pandemic state. Awareness of the morbidity risk of COVID-19, with the limited medical capacity to treat it, where non-pharmaceutical interventions were the main strategy to contain the pandemic [12], prompted both individuals and national governments to take preventive action and introduce restrictions. In addition to the massive health impacts, the COVID-19 pandemic carries significant economic losses for households, businesses, and governments, with massive social, economic, and livelihood disruptions as a result of closures, lockdowns, supply chain disturbances, and a sharp decline in commercial activity [13]. The economic losses generated by the pandemic caused by the SARS-CoV-2 virus will affect the entire world for a long time while the uncertainty about the further course of the pandemic continues to worry people and economies [14].

A large percentage of the population has been forced to switch from the traditional form of on-site work to remote, home-based work. Polish Economic Institute indicates that in Poland, 27% of employees have the opportunity to work remotely. Instability and uncertainty of the situation generate anxiety, amplified by the dynamic changes as to the prognosis of further progress of the epidemic. Serious mental disorders (caused by stress and anxiety) have emerged in society associated with decreased physical activity and reduced social interaction. People who stay at home for a long time (both those who work online and those who take care of children) are characterized by disturbed emotional reactions, with their intensity individually variable and depending mainly on personality traits, psychiatric and somatic co-morbidities, and the environment in which the individual stays. Changing the circadian cycle often results in overeating, with a particular focus on convenience foods, which are rich in sugar, high fats, and simple carbohydrates [15], which stimulate serotonin production and positively affect mood [16]. Furthermore, less frequent shopping due to government restrictions is indicated, resulting in the consumption of fewer fresh fruits and vegetables relative to highly processed foods [17].

Having to stay at home also changes the priorities and lifestyles of family members, including meal preparation and eating. The involvement of family members and the way meals are prepared can influence the establishment of relationships, learning proper eating patterns, building a sense of security, self-esteem, and identity. Meals offered by diet catering companies requiring only a final heat treatment (if the meal is to be eaten hot) do not provide an opportunity to spend time together while preparing the meals. Very often, these meals are eaten hurriedly and alone.

### **The Situation of the Catering Market During the COVID-19 Pandemic**

The country's socio-economic situation in 2020 was determined by the restrictions implemented to counteract the COVID-19 pandemic, which affected performance in core business areas with varying degrees of intensity. The dynamics in most basic areas of economic activity in 2020 was much weaker than in previous years, which contributed to the first decline in the gross domestic product since the transformation period in Poland. Gross domestic product is estimated to have reduced by 2.8% in real terms in 2020, compared to the growth of 4.5% in 2019. The Polish Economic Institute forecasts that the year 2021 will be irregular: poor first months will be accompanied by a strong rebound in the second half of the year. In 2022, growth rates are expected to be similar to those observed in the years preceding the epidemic [18] (Fig. 1).

The most unfavorable business climate assessment concerned entities from the accommodation and catering section (Table 1), whose activity has been limited since November due to the

introduced restrictions. Of entrepreneurs, 60% declared that their businesses would not survive in such conditions for more than 3 months. These entities reported a reduction in employment in January by around 9% [19]. Food services directly impact the lives of individuals. Food services, including the activities of diet catering businesses, have seen increasing growth rates in recent years, but their situation has changed significantly following the introduction of restrictions.

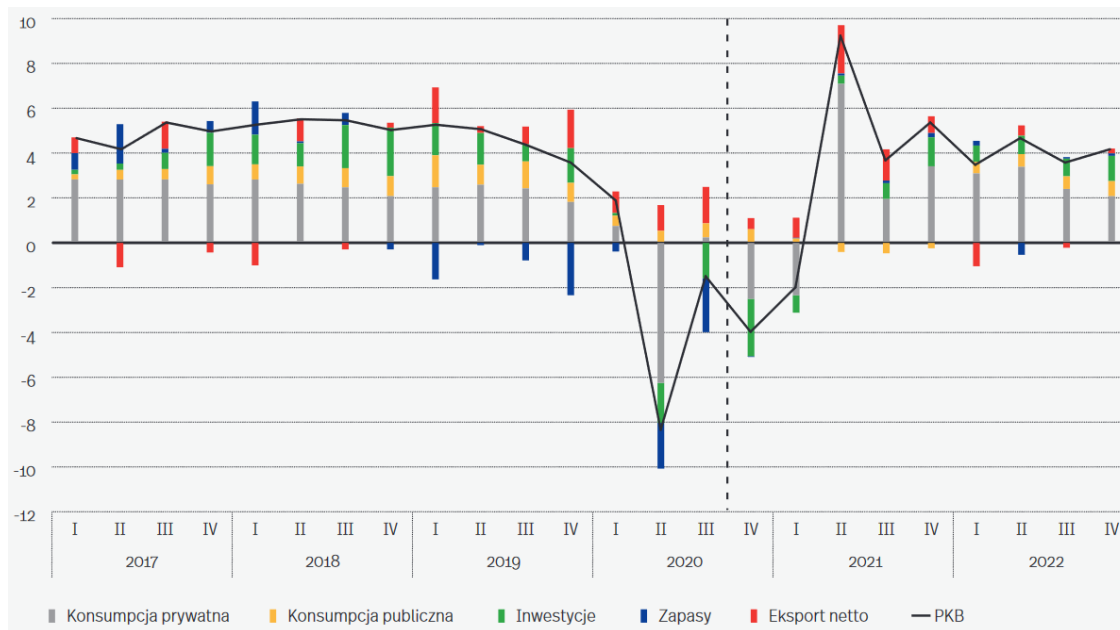


Fig.1. Structure of GDP growth: PIE forecast; gray – private consumption, yellow – public consumption, green – investments, blue – stocks, red – net export, black – GDP [18].

Table 1. Economic trends in January 2021 [19]

General business climate indicator	
industrial processing	-9.9
construction	-18.7
retail commerce	-13.9
transport and storage	-7.8
<b>accommodation and catering</b>	<b>-52.1</b>

The catering industry has suffered significantly from the loss of customers and regulatory uncertainty associated with the COVID-19 crisis. Diet catering provides services based on delivering (to the address indicated by the customer) meal kits personalized in terms of quantity, calories, and type of diet. These meals are prepared by a team of cooks based on menus compliant with the requirements of IŻŻ (Institute of Food and Nutrition) and FAO/WHO, prepared by dieticians taking into account the balanced diet. During the pandemic, this form of meals turned out to be one of the most desirable for customers, both because of the awareness of the importance of a varied and well-balanced diet and the possibility to maintain the disinfection regime and social distancing (non-contact delivery). Enterprises commit to: accept cashless payments, the mandatory wearing of gloves and protective masks, delivery of meals in a non-contact manner (so that they are also recommended for people in quarantine and isolation), constant internal checks on workers' body temperature and health status, and disinfection of all facilities, machinery, and equipment.

## **Methodology of Empirical Research**

The study examined 147 people. The respondents were a group of customers of diet catering enterprises. The selection criterion was the form of home-office work duties performed and having children. The research was conducted in the second half of February 2019. The research method was a diagnostic survey and the research tool was a focus group interview. Based on the interviews, the respondents identified factors affecting the demand for services offered by boxed diet enterprises during the COVID-19 pandemic. The study group was selected using a non-probabilistic distribution with a network nature. The aim of the study was to outline the effect of ordering diet catering services on the meals families eat together.

## **Analysis of Empirical Research**

The group of respondents consisted of customers of diet catering enterprises in the south-western part of Poland, with 77% of respondents being female. Furthermore, 73% of the respondents declared a master's degree, 22% – a bachelor's degree, 4% – secondary education, and 1% – primary education. The largest percentage of people were respondents aged 25-35 (38%), 29% were those aged 35-45, 20% – 45-55, 3% – over 50, and 9% – respondents under 25. The majority of respondents, specifically 55%, resided in big cities with a population exceeding 300,000 inhabitants. Additionally, 22% of the respondents lived in cities with a population of up to 300,000 inhabitants, while 14% resided in towns with a population of up to 50,000 inhabitants. Lastly, 9% of the respondents lived in villages.

The situation of enterprises offering diet catering changed after the Polish government introduced restrictions on their operation. The shift from on-site to remote work often led to customers no longer ordering meals. This was influenced by economic conditions and the greater amount of time spent at home associated with the possibility to prepare meals for the entire family. Clients indicated that they needed to allocate the amount they were previously spending on boxed diet meals to other purposes. This situation has continued from the time the restrictions were introduced (March 2020) until May 2021. Only in the period from May to October 2020, there were small fluctuations in order quantities with an upward trend.

A large part of respondents indicated ordering a boxed diet on a regular basis regardless of the ongoing epidemiological situation, due to lack of time to prepare meals. In many cases, remote work involves even more time, because in the vast majority of enterprises (as indicated by clients) there is no rigid time frame allocated to work duties, as was the case when individuals worked on the company's premises, and the employee is paid for work done. These respondents indicated smaller financial resources due to the need to stay at home, and therefore less opportunity for travel and in-store shopping. An additional determinant is the presence of children at home. Those in infancy, preschool, and early school age need their parent's care and attention throughout the day.

The ongoing COVID-19 pandemic has also affected customers' perception of the meals delivered. In this case, customers fall into two main ideological groups. The first group is convinced of the hygienic nature of meal preparation and distribution. These people indicated the advantages of ordering diet catering such as no need for meeting other people during shopping, maintaining social distancing, the health-promoting nature of the diet which increases the human body's immunity, the observance of personal protection rules by the enterprise's employees, including drivers, and several safeguards guaranteed in the catering enterprise.

The second group, who perceived the situation from a completely different perspective, is convinced that the use of diet catering services during the pandemic is not epidemiologically safe enough. These people declare that meals should be isolated for at least 24 hours to eliminate the likelihood of SARS-CoV-2 virus transmission through physical things, which is not feasible with boxed diet delivery. They declare that they are afraid of ordering diet catering meals in order not to expose themselves and their relatives to possible infection with the virus.

At the same time, the respondents indicated that the manner of eating meals has not changed, despite the fact that they perform most of their professional duties at home, and not, as before, on the company's premises. Although respondents worked at home, they did not eat more meals with their families than when they had worked away from home. When asked to indicate the reasons why, despite the change in the style of performing professional duties at home, they eat meals alone, they mostly indicated the need to focus on work and do not treat meals as a break during work (they eat while working at the same time), or, on the contrary, they explain that during meals they want to rest/relax in silence.

*Table 2. Opinions declared by the respondents on the reasons for ordering/ceasing to order diet catering services [own study]*

<b>Opinions of respondents declared according to groups</b>		
Free time criterion	Lack of time to prepare meals (more time devoted to remote work due to higher demands of employers/problems with combining remote work with family life)	More free time (remote work, no need to spend time commuting, parental leave taken due to closure of nurseries, kindergartens, and schools)
Economic criterion	Reduced financial resources (job loss, reduced salaries due to restrictions imposed on various sectors of the economy)	Greater financial resources (anti-crisis shields, limited travel, and traditional in-store shopping)
Epidemiological safety criterion	The conviction that epidemiological safety measures are insufficient (lack of meal isolation for 24 hours, uncertainty whether all individual safeguards are met)	The conviction that the sterility of meals delivered is ensured (accepting only non-cash payments, obligation to wear gloves and protective masks, delivery of meals in a non-contact manner, constant internal checks on employees' body temperature and health status, disinfection of all equipment, machines, and devices.
Replacement criterion	No impact of the inability to use restaurant services on the number of orders in diet catering firms (people using restaurant services require, in addition to the food served in an appropriate form, the celebration of the food eaten: social meetings, a way to spend free time, show love, celebrate)	Lack of possibility to use restaurant services led to the increase in orders of diet catering firms (substitution of services of a similar nature of the benefits)

An important criterion is to distinguish between families where diet catering is ordered by only one person, both parents, and the whole family (parents and children). This has a determining effect on the perception of eating meals together (Table 3). Families in which meals are ordered by only one person relatively less frequently consume them together with the family (19%), whereas in the situation when meal kits are provided for all family members, the percentage of shared consumption is the highest (93%). When analyzing the way how diet catering foods are consumed, it is important to consider the reason for ordering such products. One of the most

common (occurring primarily among people who order boxed diets as the only family member) is the need or desire to lose weight. In this case, eating alone may have an effect on increasing feelings of control over eating. When meals are eaten together and the other family members are eating meals high in calories and tastier, the individual needs higher self-control, and this situation can arouse negative emotions. When the same meals are eaten together (when the whole family orders and eats the boxed diet meals), there is no need to monitor the quality and quantity of food portions, while adherence to the group with whom the meal is eaten is reinforced. On the other hand, it is worth noting the effect of social facilitation: an increase in the effectiveness of performed tasks caused by the presence of other people.

Another conclusion that can be drawn from the study is that people who order boxed diets as the only ones in their families decide most often to purchase five meals, whereas when there are more orders in the family, the percentage of three- and one-meal kits increases, which may confirm the thesis that the reason for ordering meals for one person is the desire/need to change the diet, whereas for whole families, the reasons include the unwillingness to cook, no need to do shopping or the need to devote time to other duties or hobbies.

In addition, it should be recalled that often customer behavior changes depending on the market situation [20-22]. The COVID-19 pandemic is a good example. It is important to analyze such behavior, learn from it and use it in future development plans [23-24].

*Table 3. Number of ordered diet catering kits per family and percentage distribution of meals consumed together [own study]*

<b>1 person</b>		<b>2 people (parents)</b>		<b>family (parents and children)</b>	
47 people	32%	72 people	49%	28 people	19%
<b>the number of meals ordered per day:</b>					
5 meals	91%	5 meals	85%	5 meals	32%
3 meals	6%	3 meals	11%	3 meals	57%
1 meal	3%	1 meal	4%	1 meal	11%
<b>percentage of people who eat all meals with their family during the day</b>					
19%		68%		93%	

### Conclusion

The analysis of the empirical study proved the extremely different behavior of the respondents, who had completely different views on the basic issues related to the measures that limit social and economic life. They often had no knowledge of the current pandemic and often performed a variety of mutually exclusive actions. There was no correlation between government restrictions of the food service industry and the activities of boxed diet companies. It can be argued that diet catering does not affect the operation of restaurants and other food service operators as they meet different customer needs. Eating together in families depends on the number of boxed diet kits ordered per family. In the case of ordering boxed diets for the whole family, the percentage of eating together is 93%, whereas when ordering by only one member of the family, this percentage is 19%. This is undoubtedly related to ordering boxed diets. Predictors of ordering diet catering meals by individuals are primarily the desire or need to lose weight, while in the case of whole families, the reasons are different (lack of time or willingness to cook).

In terms of future research and limitations, it is important to address certain issues. Specifically, one area that requires further examination is the relationship between individuals who discontinued using dietary catering services during the COVID-19 pandemic and those who consistently ordered meals, with regard to their practice of eating meals together with their families. It is also worth noting that this study has certain limitations in terms of its geographic scope and duration.

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