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Changes in Patterns of Consumer Spending in European Households

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Abstract: Consumption is an important concept in economics and many social sciences. The aim of the study is to compare consumption in European households in the years 2004–2020 and to identify groups of countries with similar consumption–expenditure structures. Statistical methods were used: trend analysis, cluster analysis. Between 2004 and 2019, the consumption expenditures of European households gradually increased. In all countries, spending on categories such as food, housing maintenance, and food and accommodation rose. Most countries also saw an increase in spending on other categories of consumer goods and services, although there were also countries where some types of spending decreased during the period under study. Our research grouped countries according to their consumption structure in 2004, 2019 and 2020. In Europe, several groups of countries can be distinguished according to their consumption structure. Similarities between EU countries' consumption change through time. Ward's clustering and k-means methods allowed to reduce a large number of countries to a few basic groups, which can be perceived as the subject and direction of further analysis.

Keywords: consumption; household; Europe

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1. Introduction

Consumer spending patterns are an important concept in economics and many social sciences. Consumption has always been at the center of macroeconomic interest, and the importance of this phenomenon has endured despite many changes in macroeconomic theory [1]. Consumption can be defined as the total value of goods and services purchased by a household [2] or household expenditure on goods and services [3]. Household consumption expenditures encompass the market prices of all goods and services purchased by households to satisfy their needs and wants. Consumption includes all non-durable and durable goods, such as cars, washing machines, TV sets, etc. [4].

Household expenditures are closely interrelated, and they are also closely associated with the concept of living standards and well-being. The level of household spending indicates and corresponds to the level of development of the economic system as a whole. Many factors affect the size and structure of household spending. In this context, one can distinguish between exogenous factors, dictated by the state of a country's economy and the world economy in general, and endogenous factors [5] connected with the circumstances of particular households.

The historical and continued interest in analyzing differences between countries plays an important role in creating useful knowledge to establish and understand the standard of living of individual communities [6]. It has been pointed out [7,8] that increasing disparities in living standards and costs across Europe have emerged. One of the factors shaping the situation is the fact that much of Europe's economic growth is uneven.

A growing body of research documents the impact of the COVID-19 pandemic on consumer behavior and hardship indicators at the macro level [9]. Numerous studies

cover European countries and analyze the situation more broadly, examining the region beyond the area. However, so far, there have been few studies of changes in consumer spending and hardship during the pandemic observed at the household level or on how these changes vary across countries [10]. To fill this cognitive gap, the authors set out to examine changes in consumer spending in different European countries considering the time before and during the outbreak of the COVID-19 pandemic. Using a combination of descriptive approaches, i.e., trend coefficient and cluster analysis, the following research questions were posed:

- How did consumer spending in European households evolve between 2004 and 2019 and 2020?
- Which European countries are similar in terms of the structure of household consumption expenditures?
- How has the pandemic affected the spending patterns of European households?

The aim of the study is to compare consumption in European households and identify changes in consumption in the years 2004–2020, as well as to identify groups of countries with similar consumption–expenditure structures (consumption patterns). Consumption is important for both the individual and the economy; consumption patterns reflect socio-demographic factors, lifestyle choices and values as well [11,12]. For the purposes of this study, the authors assumed that the term "consumption pattern" represents the composition of the basket of consumer goods and services that is characteristic of households distinguished by their country of residence. This study enriches the body of literature presenting economic analysis and consumer financial decision making in the context of large-scale economic shocks, since it has examined consumer spending behavior from 2004 to 2019, related changes in the first year of the COVID-19 pandemic, and, if the data were available, also in 2021. The comparative nature of the work, which examines the spending behavior of consumers from 32 European countries over a 17-year period, makes it possible to show how societies build their consumption structures and how these structures are changing. Examining similarities and differences between countries helps to show how households manage their budgets and how they respond to shocks and adverse circumstances. This knowledge is important because examining the spending behavior of societies allows the identification of the most vulnerable regions in Europe. Thus, such research supports and facilitates the process of the appropriate formulation and implementation of targeted policy responses and interventions at the level of the European Union, as well as at the national or regional level.

The novelty of this paper is the creation of proprietary groups of countries with similar patterns of consumption in households and comparing them over the years.

The remainder of this paper is organized as follows. In Section 2, we discuss the theoretical framework that explains spending behavior in households. Section 3 describes the data and the method. Section 4 summarizes our key findings; Section 5 concludes this paper.

2. Literature

On the subject of consumption in households, there is a large body of literature. Changes in consumer behaviours are seen from different viewpoints. Analyses of consumer spending are carried out by researchers around the world. These analyses often concern one country and indicate the factors determining the consumption of a given good or service in a given society. However, there are also studies that cover more countries.

Many authors raise the issue of food and non-alcoholic drinks expenses [13,14]. Maličká [15] wrote about consumption of food and non-alcoholic beverages by the degree of urbanization in the EU countries. She observes that higher shares of consumption of food and non-alcoholic beverages are obtained from Central and Eastern Europe and southern countries, and that countries with lower levels of GDP per capita spend more on goods of daily use.

Szwacka-Mokrzycka [16] presents the determinants and directions of changes in food consumption in Poland against the background of other EU countries. A comparative analysis of food consumption in EU countries indicates that discrepancies remain in the level of economic growth within the European Union. Changes in consumption patterns in EU states are of both a quantitative and qualitative character.

Other researchers are looking at alcohol and tobacco consumption [17–20]. In a study conducted in Spain [21], it was found that together with the purchasing power increases (Engel relationship) in poor households, the increase in alcohol expenditures is proportionally smaller than in non-poor households. In the households of the poor, an improvement in financial situation first affects the purchase of goods and services, as they are basic necessities. In contrast, the likelihood of spending money on cigarettes was higher among households with a lower socioeconomic status. Households living in poverty, headed by a person with less than a high-school education and a person performing manual labor were more likely to spend money on cigarettes than those with higher socioeconomic status [22]. The prevalence of individuals with certain characteristics in a community will, therefore, be related to specific household spending behaviors.

Some researchers analyze energy expenditure in households. The research concerns both European households [23–27], as well as Asian households [28,29], American households [30] or African households [31–33]. Meechai and Wijesinha [34] consider variations in energy expenditure and consumption patterns in the United States and seek to determine if there is a relationship between a household's energy expense and use patterns, and its sociodemographic features. They use the 2017 Data Challenge in which the data set featured was the public use files from the Consumer Expenditure Survey conducted by the United States Bureau of Labor Statistics. They observe that there is a strong association between the sociodemographic characteristics of a household and whether or not a household uses a given energy type. The association is particularly strong with regard to natural gas, where it is popular with the urban upper class and wealthy, but little used among the urban blue collar. They explore a very strong association between building type and gasoline consumption. They highlight that gasoline use is disproportionately low among apartment dwellers, but popular among those living in detached houses and other housing types. Probably, this is a consequence of the fact that apartment dwellers are more likely to live in more densely populated areas with access to public transport.

Widely in the literature on the subject is also described spending on health in households [35–38]. Azzani, Roslani and Su [36] wrote about catastrophic health expenditure. They argue that socioeconomic inequality has a vital role in the incidence of catastrophic health expenditure worldwide, where high-income households are at a low risk of financial hardship from healthcare payments.

The paper by Skálová and Stávková [39] is devoted to the analysis of expenditure development in the Visegrad Four countries compared to other European countries and assesses whether there are any transfers of the shares between categories. The authors pointed out that is not easy to clearly identify determinants that shape and influence household consumer spending. Besides social, cultural, personal and psychological features, a microeconomic and a macroeconomic variable play an important role in household decisions, precisely, how their money will be spent. The authors further state that the volume of available household resources, for which they can buy individual items, depends on the current state of the economy, inflation and unemployment.

However, a paper by Stejskal and Stávková [40] deals with analysis of consumption expenditures in European households in 2000–2009. The aim was to evaluate the impacts of economic development on the life situation of households from a specific point of view. The authors found that there are certain groups (clusters) of countries with similar structures of household expenditures. These clusters were relatively stable over time and corresponded to the traditional perception of similarity between countries in terms of cultural, political, geographical, etc. factors.

3. Database and Method of the Study

The study was carried out using secondary sources of information contained in the Eurostat database.

Background for evaluations of households' expenditure structures was data collected from national sources by Eurostat (the Statistical Office of the European Communities). Household consumption expenditure can be classified by consumption purpose according to the Classification Of Individual Consumption by Purpose classification (COICOP). COICOP categories are the following consumption areas: (1) food and non-alcoholic beverages; (2) alcoholic beverages, tobacco and narcotics; (3) clothing and footwear; (4) housing, water, electricity, gas and other fuels; (5) furnishings, household equipment and routine household maintenance; (6) health; (7) transport; (8) communication; (9) recreation and culture; (10) education; (11) restaurants and hotels; and (12) miscellaneous goods and services [41]. Annual information on average household-expenditures structures was drawn from Eurostat (the statistical office of the European Union). The analysis includes only those countries (32) for which data are available. Data for the years 2004–2021 were used.

The classification of individual consumption by purpose (COICOP) is a nomenclature developed to classify and analyze individual consumption expenditures incurred by households, non-profit institutions serving households and general government according to their purpose. Household final consumption expenditure covers all purchases made (either at home or abroad) by resident households to meet their needs.

In order to present the changes in spending over the years, the analysis took into account a timeframe of 16 years, and if the data for the period were available, the year 2021 was also included. The scope of the study covered changes in consumption from 2004 to 2019, changes that occurred in 2020, and whenever the data for 2021 were available; more recent trends were also examined for comparison purposes. It is important to note that 2004 was a time of great significance for the region, since it was in this year that the largest expansion of the European Union (EU) took place. The EU's drive for economic convergence was expected to bring tangible benefits in terms of the consumption levels and circumstances observed in the poorer European countries during the period analyzed in the study. The final year closing the scope of the research was 2019. This allowed examining household spending behavior until the outbreak of the COVID-19 pandemic, i.e., a specific shock to households. The choice of such a period shows both the development of consumption in the EU countries and in other regions of Europe (Albania, Bosnia and Herzegovina).

To examine whether a specific trend is evident in the data over the years, a trend directional indicator (using the Statistica package) was applied, and time was used as an explanatory variable in the study. A formula of linear trend function [42,43] is presented below (Theorem 1). The analysis was conducted for each country separately.

Theorem 1. *A formula of linear trend function.*

$$Y = s\,t + c \tag{1}$$

where: s—trend slope:

$$s = \frac{\sum(t_i - \overline{X}) * (Y_i - \overline{Y})}{\sum(t_i - \bar{t})^2}$$

c—trend intercept:

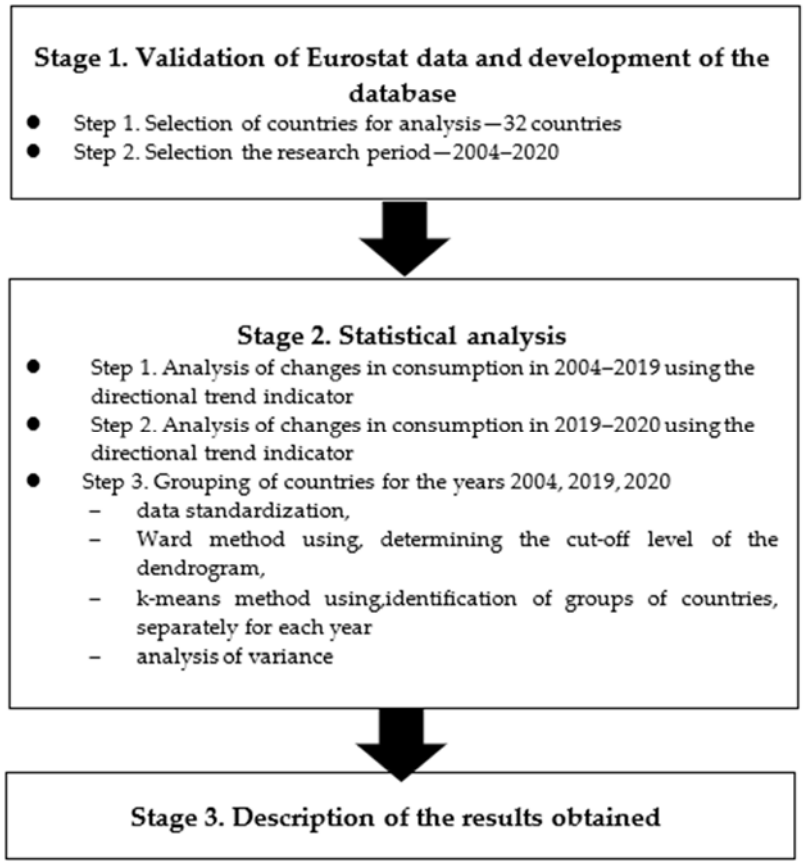
$$c = \overline{Y} - s * \bar{t}$$

t_i, Y_i values of the variables t and Y.
$\bar{t}$, $\overline{Y}$—means of variables t and Y.

When (1) $s < 0$, there is s downward trend. The smaller the s, the faster the Y value decreases over time, or (2) $s > 0$ we are dealing with s growing trend. The greater the s, the faster the value of Y increases over time.

The authors divided countries into groups according to their expenditure structures in 2004, 2019 and 2020. The methods that allowed the authors to distinguish internally consistent groups of objects were cluster methods, i.e., the hierarchical Ward method and the non-hierarchical k-means method. Cluster analysis makes it possible to combine into clusters (groups, groupings, sets) the units that are most similar to each other and, at the same time, most dissimilar from others in terms of characteristics distinguished in the research [44]. Ward's method is a minimum variance method, which uses a variance analysis approach to estimate the distance between clusters. The square of the Euclidean distance was taken as the distance measure [45]. The results of hierarchical clustering can be viewed through development tree or dendrogram [46]. The number of clusters was determined with the help of a chart of the merging distance versus merging steps and a tree diagram, which was used in the k-means method to select the appropriate groups of countries. By moving objects between clusters, the k-means method aims to minimize variability within clusters and maximize variability between clusters [47,48]. The legitimacy of the selection of the indicated methods is confirmed by numerous literature studies devoted to evaluating the effectiveness of clustering processes of multidimensional objects [49].

The diagnostic variables used for country clustering were 12 variables representing individual categories of consumer goods and services. These variables were subjected to standardization. The research steps are shown in Scheme 1.



Scheme 1. A flowchart with the stages of the research.

4. Results

4.1. Private Consumption in 2004–2020

This part of the study was conducted to answer the research question: *How did consumer spending in European households evolve between 2004 and 2019?*

Consumption is a fundamental characteristic and a distinguishing factor in modern societies. Private consumption per person is the highest for the Swiss, Luxembourgers, Icelanders, Norwegians and Danes, while the lowest consumption expenditures are recorded in households including Albanians, Serbs, Bulgarians and Romanians. Eurostat data show that household consumption expenditures per person in 2020 were estimated at EUR 36,690 in Switzerland, EUR 31,370 in Luxembourg, EUR 25,630 in Iceland, EUR 25,630 in Norway and EUR 24,040 in Denmark, and were lower than the previous year by 3%, 10%, 19%, 9% and 2%, respectively. In contrast, in 2020, Albanian households spent 3740 euros on consumption (2% less than in 2019), Serbian households spent EUR 4460 (1% more than in 2019), Bulgarian households spent EUR 5230 (5% less than in 2019), and Romanian households spent EUR 6770 (3% less than in 2019). The Montenegro community is also characterized by low consumer spending, with per-capita spending estimated at EUR 5660 in 2020, down 23% year on year. The lack of data for the Bosnia and Herzegovina community makes it impossible to include it in this analysis, and this country also records low per-capita spending [41].

When the authors engaged in examining the first period of analysis, before the pandemic, it was discovered that household consumption expenditures rose successively from 2004 to 2019. In the aforementioned period, the largest increases in consumption spending were recorded in post-communist countries, i.e., Romania increased their consumption spending by 3.6 times, Lithuania and Latvia by nearly 3 times, Bulgaria by 2.8 times, Slovakia by 2.7 times, Albania by 2.6 times, Estonia by 2.4 times, Poland by 2.3 times and Serbia by nearly 2.2 times (Figure 1). Generally, in relative terms, the increase in consumer spending in households from countries located in Eastern Europe was greater than in households from western European countries. In absolute terms, however, the largest increase was recorded in the richer European countries: Switzerland (2019 spending was higher by EUR 13,690 compared to 2004), Iceland (EUR 11,920), Luxembourg and Norway (nearly EUR 8000), and Denmark and Finland (more than EUR 7000 each). The smallest increase in absolute terms was seen in Greece (spending in 2019 was higher by EUR 1230 compared to 2004), followed by Serbia, Albania and Hungary (EUR 2350–EUR 2950).

When considering the various categories of consumer spending in European households in 2004–2019, it is worth noting that not all countries recorded spending increases on particular categories of goods and services.

During the analyzed period, all European countries saw a statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) increase in spending on food and non-alcoholic beverages. The largest increase in spending on food, amounting to EUR 1360, was recorded in Estonian households. Spending on food and non-alcoholic beverages increased by more than EUR 1100 in households from Lithuania, Romania, Slovakia and Switzerland. Households from Estonia recorded the lowest increase in terms of spending in the analyzed period of 16 years.

Between 2004 and 2019, almost all European countries analyzed in the research recorded statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) increases in spending on alcoholic beverages, tobacco products and drugs. The exceptions were Luxembourg and Greece, where spending stabilized, and Ireland, which saw a small (estimated at EUR 10) but statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) decrease in spending on the category in question.

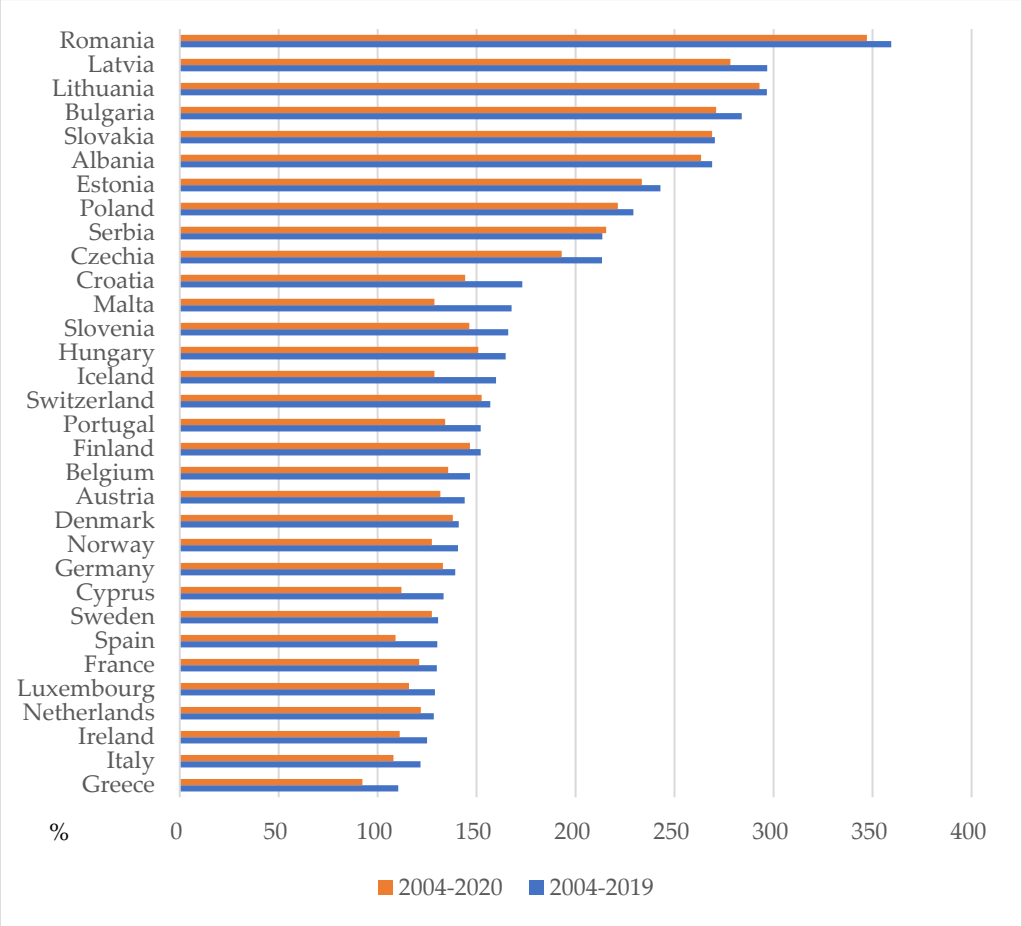


Figure 1. Changes in consumption expenditure in 2004–2019 and 2004–2020 w%. Source: own work [50].

In the period 2004–2019, stabilization was observed with regard to clothing and footwear spending in Cyprus, Italy and Ireland. Countries such as Spain (estimated at EUR 10), France (estimated at EUR 50) and Greece (estimated at EUR 130) recorded a statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) decrease in terms of spending on clothing and footwear. In the case of other European countries examined in the study, there was a statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) increase in clothing and footwear, and it ranged from EUR 90 in Sweden to EUR 400 in Romania.

All European countries experienced statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) increases in spending on housing maintenance, energy and fuel. The largest increases in spending on these basic needs were observed in Switzerland (EUR 3890) and Iceland (EUR 3450). Relatively high increases were also reported in Denmark, Luxembourg, Finland and Norway.

In the period 2004–2019, household spending on goods and services related to housing furnishings and household management stabilized in households in Portugal, Italy, Croatia, Spain, Malta and Cyprus. In Ireland and Greece, on the other hand, households reduced their level of spending on the goods and services in question, and the above-mentioned change was statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$). In other European countries, there were statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) increases in spending on housing and household goods, ranging from EUR 50 in Spain and Italy to more than EUR 500 in Lithuania and Norway.

Health-related spending increased statistically significantly (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) between 2004 and 2019 in most of the European countries

analyzed (from EUR 110 in Serbia to EUR 3070 in Switzerland). The exceptions were Greece, which saw a statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) decrease, and The Netherlands, where spending stabilized during this period.

Transportation expenditure increased statistically significantly (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) in almost all European households, except for Greek households, which noted a statistically significant decrease in spending on health.

Considering the analysis of expenditures on goods, most of which can be categorized as non-essential goods in the fifteen-year period, stabilization of expenditures on telecommunications was observed in Greece, Austria, Portugal and Norway. A statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) decrease in spending on telecommunication services was observed in Ireland, Italy, France, The Netherlands and Cyprus.

With the exception of Irish households, spending on culture and recreation increased statistically significantly (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) in the European households analyzed in the study. In Ireland, spending turned out to remain stable during the period in question.

There was a statistically significant (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) increase in education spending in almost all European countries. Estonian households were the exception, since this type of expenditure stabilized in the country in the examined period.

In 2004–2019, all European households experienced a statistically significant increase (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) in spending on food services and accommodation.

Spending on other consumer goods and services decreased statistically significantly (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$) in Irish households. However, in the case of households from other countries, it went up, and the trend was characterized by statistical significance (the directional trend indicator for $\alpha = 0.05$, $p \leq 0.05$).

4.2. Consumption during the COVID-19 Pandemic

This part of the study was conducted to answer the research questions: *How did consumer spending in European households evolve between 2019 and 2020?* and *How has the pandemic affected the spending patterns of European households?*

Consumption spending declined in 2020 compared to 2019, most notably in Malta and Montenegro, i.e., by more than 23%, followed by Iceland by about 20% and Greece, Spain and Croatia by about 16–17% each. In Greece, the COVID-19 pandemic had such a strong effect on consumer spending that it was nearly 8% lower in 2020 than in 2004 (Figure 2).

Eurostat data for 2021, currently available only for some countries, indicated that household consumption expenditures began to rise again. Thus, in Luxembourg, after a large decline in 2020, spending in 2021 grew by 15% year on year, in The Netherlands—by 12%, and in the Czech Republic and Malta—by 10%. All countries for which data for 2021 were collected saw an increase in consumption spending.

Compared to 2019, when looking at individual categories of consumer spending in the first year of the pandemic, it should be noted that food spending in most European countries grew slightly or remained stable. The highest increases in food spending were recorded in Slovakia and The Netherlands, with 12% and 10% higher spending in 2020 compared to 2019. By way of contrast, Malta and Iceland saw a decrease in food spending by 7% and 12%, respectively.

Spending on non-alcoholic beverages remained at similar levels in most European countries. The largest increase in spending in this category was observed in The Netherlands (by 11% in 2020 compared to 2019), as well as in Portugal and Lithuania (about 7% each). In contrast, the largest decreases in spending on soft drinks were recorded in Ireland and Malta (about 10% each).

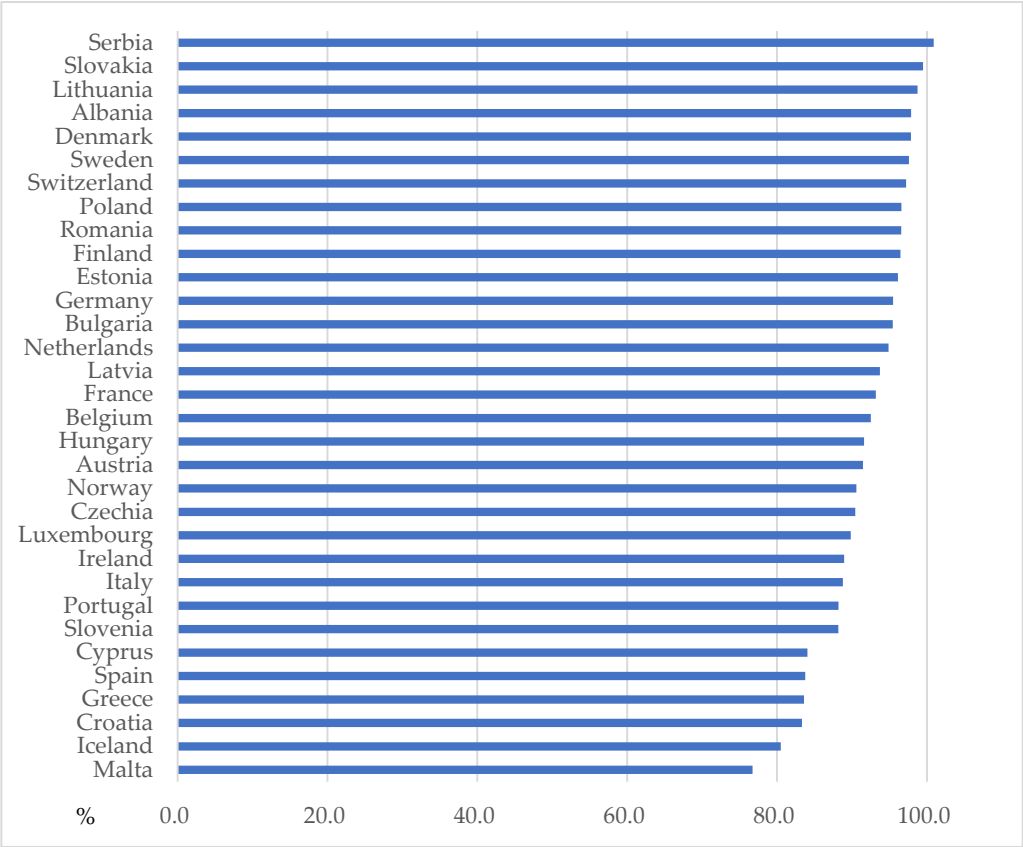


Figure 2. Changes in consumption expenditure in 2019–2020 w%. Source: own work [50].

In all European countries, the COVID-19 pandemic resulted in a decrease in clothing and footwear spending. The largest decrease, by about 30%, was recorded in Greek and Spanish households, and by at least 20% in Belgium, Croatia, Italy, Austria, Portugal and Finland. In contrast, fairly stable levels of clothing and footwear spending were reported in Denmark and Slovakia.

In 2020, the level of spending on housing, energy and fuel by European households remained at similar levels compared to the pre-pandemic period. The largest increase in spending on housing, energy and fuel was recorded in households from Malta and Slovakia. The expenditures in question rose by approximately 6% in 2020 compared to 2019.

In European countries, no single trend was observed in terms of the level of expenditures on housing and household furnishings. In countries such as Denmark, Estonia, Lithuania and The Netherlands, spending on the category in question in 2020 was higher by between 6% and 10% compared to 2019. In contrast, in the same period in Ireland, Spain, Portugal, spending decreased by approximately 12–13%.

During the COVID-19 pandemic, health-related spending in most countries decreased or remained at similar levels. The largest decrease was recorded in Cyprus. The health-related expenditures indicated by Cypriot households in 2019 were more than double the values recorded in 2020. By contrast, the largest increases in health spending were recorded in Bulgaria, Poland and Romania, and they amounted to 7–9%.

Due to imposed restrictions, all European countries saw a reduction in household transportation spending. Transport-related expenditure in Greece, Slovakia, and Cyprus in 2020 was approximately 30% lower than in 2019. The smallest declines in transportation spending were noted in Sweden, Romania and Germany, and it was estimated at 10% each.

In the first year of the COVID-19 pandemic, spending on communication services (postal services, telephone and telefax equipment, telephone and fax services) in most countries remained unchanged in relation to the previous year. Some exceptions to this rule were observed in Portugal, Luxembourg and Spain, where spending decreased by

more than 5% in 2020 compared to 2019, while in Belgium, Bulgaria and Greece it increased between 8% and 14%.

Between 2019 and 2020, households also saw a reduction in spending on recreational and cultural goods. Icelandic, Latvian, Maltese and Spanish households saw the largest decrease in spending on these goods. The expenditures in the said households in 2019 were about 80–90% higher than a year later. The smallest decreases were recorded in households from Estonia and Sweden, and the group of expenditures in question in 2019 was larger by about 7% compared to 2020.

Restrictions related to COVID-19 particularly affected spending on food services and accommodation-related services. All countries reported a decrease in spending on these services. In 2019, compared to 2020, food and accommodation services were higher among households in Malta by 2.8 times, in Croatia and Greece by more than double, and in Iceland by almost double. The smallest decrease in spending was observed in the Slovakian society, where spending accounted for 20% more in 2019 compared to 2020.

In 2019, in relation to 2020, education spending in European households remained mostly at similar levels or decreased. Two countries, namely, Lithuania and Bulgaria, saw an increase in education spending, by 20% and 17%, respectively.

4.3. Groups of Countries According to the Structures of Household Consumption Expenditure

This part of the study was conducted to answer the research questions: *Which European countries are similar in terms of the structure of household consumption expenditures?* And *How has the pandemic affected the spending patterns of European households?*

In 2004, six country clusters emerged as a result of the application of Ward's analysis (Figure 3) and the k-means method (Figure 4).

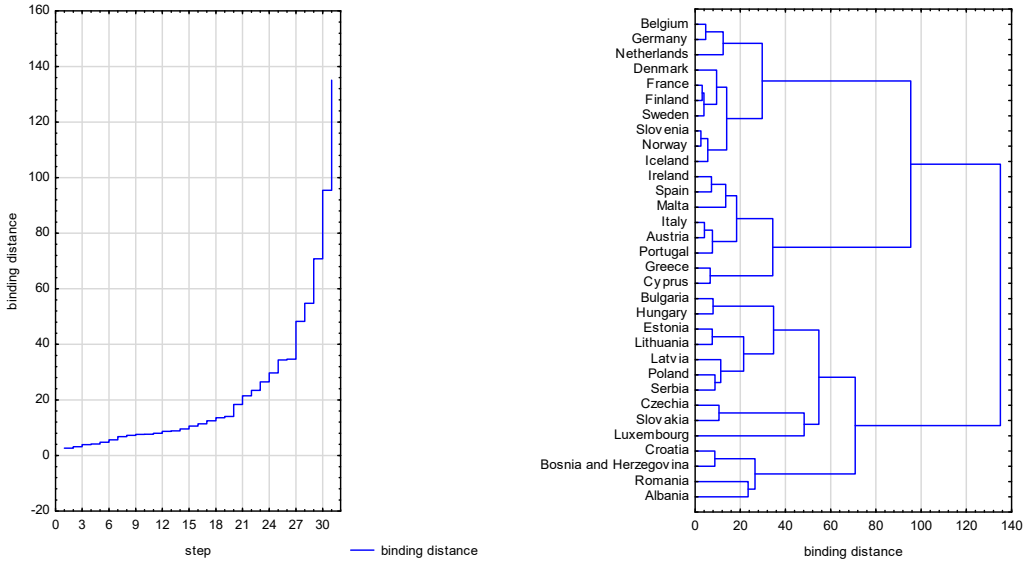


Figure 3. The results of the analysis using the Ward's method for 2004. Source: own work.

Higher variability between clusters and lower variability within clusters indicate the correct grouping of countries. The value of the F-statistic reflects the extent to which a particular expenditure category discriminates against a group. In 2004, such expenditure categories as food and non-alcoholic beverages and restaurants and hotels had the greatest impact on the division of countries into groups. Expenditures on recreation and culture, together with other consumer goods and services, also played a fairly significant role in the formation of country clusters (Table 1).

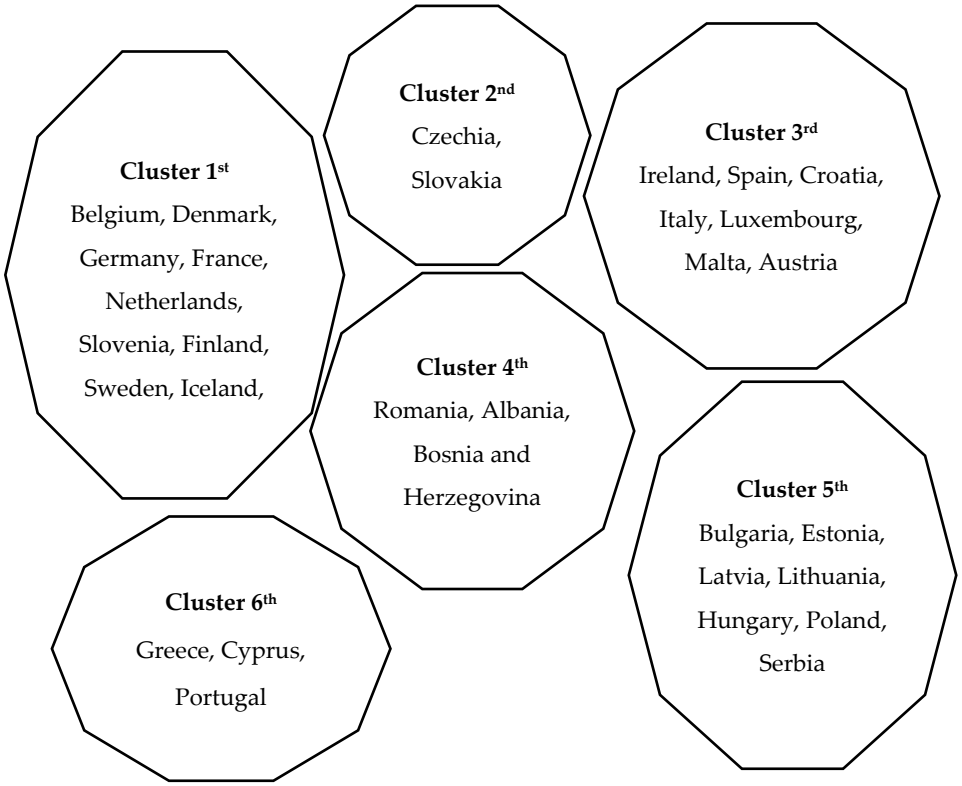


Figure 4. Groups of countries according to the k-means method in 2004. Source: own work.

Table 1. The results of the analysis of variance for clustering in 2004.

Specification	Variability between Clusters	f	Variability within Clusters	df	Statistic F	*p*
Food and non-alcoholic beverages	26.34	5	4.66	26	29.42	0.0000
Alcoholic beverages, tobacco and narcotics	14.21	5	16.79	26	4.40	0.0049
Clothing and footwear	8.12	5	22.88	26	1.85	0.1389
Housing, water, electricity, gas and other fuels	17.98	5	13.02	26	7.18	0.0002
Furnishings, household equipment and routine household maintenance	14.09	5	16.91	26	4.33	0.0053
Health	14.73	5	16.27	26	4.71	0.0034
Transport	17.07	5	13.93	26	6.37	0.0005
Communications	10.32	5	20.68	26	2.59	0.0495
Recreation and culture	19.51	5	11.49	26	8.82	0.0001
Education	17.41	5	13.59	26	6.66	0.0004
Restaurants and hotels	23.23	5	7.77	26	15.55	0.0000
Miscellaneous goods and services	18.05	5	12.95	26	7.25	0.0002

Source: own work.

The structure of consumption for 2004 in each cluster is shown in the Table 2.

In 2019, seven country clusters emerged as a result of the application of cluster methods (Figures 5 and 6). The greatest impact on the division of countries into groups were expenditures on food and non-alcoholic beverages; expenditures on housing, water, electricity, gas and other fuels; and also expenditures on education, clothing and footwear (Table 3).

In 2019, the structure of consumption in each cluster is shown in the Table 4.

In 2020, seven country clusters emerged as a result of the application of cluster methods (Figures 7 and 8). The greatest impact on the division of countries into groups were expenditures on food and non-alcoholic beverages, recreation and culture, and also restaurants and hotels, and education (Table 5).

Table 2. The structure of consumption in clusters in 2004.

Cluster Numbers	C1st	C2nd	C3rd	C4th	C5th	C6th
Food and non-alcoholic beverages	12.6	15.9	13.2	35.6	22.8	15.5
Alcoholic beverages, tobacco and narcotics	4.2	6.6	5.7	4.4	7.3	4.6
Clothing and footwear	5	4.4	5.6	4.4	4.9	6
Housing, water, electricity, gas and other fuels	22.7	28.7	17.8	17.3	19.1	14.7
Furnishings, household equipment and routine household maintenance	5.8	5.5	6.9	6.5	4.9	5.5
Health	3.9	1.7	3.4	4	3.9	4.7
Transport	13.8	8.7	12.8	8.3	12.8	15.4
Recreation and culture	11.1	9.6	8.2	6	7.7	6
Restaurants and hotels	6.2	7.2	12.5	4.8	4.7	12.9
Communications	3.2	3.5	2.8	2.4	3.5	3.4
Education	0.7	1	1	1.7	1.4	2
Miscellaneous goods and services	11	7.7	10	4.5	6.8	9.3

Source: own work.

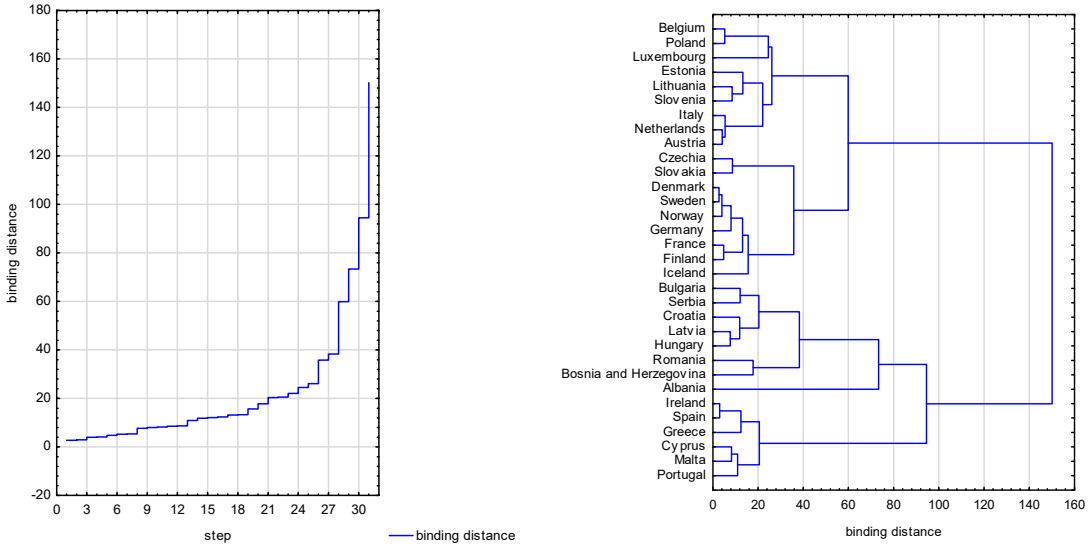


Figure 5. The results of the analysis using the Ward's method for 2019 (Source: own work).

In 2020, the structure of consumption in each cluster is shown in the Table 6.

Analysis of all the groupings shows that European households form several groups, characterized by a specific structure of consumption expenditures. One of these groups includes countries such as Ireland, Greece, Spain, Cyprus, Malta and Portugal. These countries were part of one cluster in 2020, and they were divided into two clusters in 2019, and in 2004 Greece, Cyprus and Portugal formed one cluster, and Spain, Malta and Ireland formed a separate cluster with another four countries. Households from these countries show a relatively low share of spending on food and non-alcoholic beverages and recreational and cultural goods and services. On the other hand, these societies have a high share of spending on food and hospitality services and some of the higher shares of spending on transportation and other consumer goods and services. In 2004 and 2020, the countries analyzed in the study recorded a relatively high share of expenditure on education.

Low living standards were the characteristic feature of households in Albania, Bosnia and Herzegovina and Romania. In 2004, all these countries formed a single cluster. In 2019 Albania formed a single cluster, and the other two countries were part of a cluster with two other countries. In 2020 Albania, Bosnia and Herzegovina formed one cluster and Romania was part of another cluster. The societies of these countries were characterized by a high share of spending on food and non-alcoholic beverages in general consumer spending. Relatively low shares of spending were recorded in these countries with respect to clothing and footwear, transportation, food and hotel services, telecommunications and other goods and services, i.e., higher order goods. A low share of spending on alcoholic beverages and

tobacco products was also observed in consumer spending in 2004 and 2019, but this trend was not confirmed in 2020.

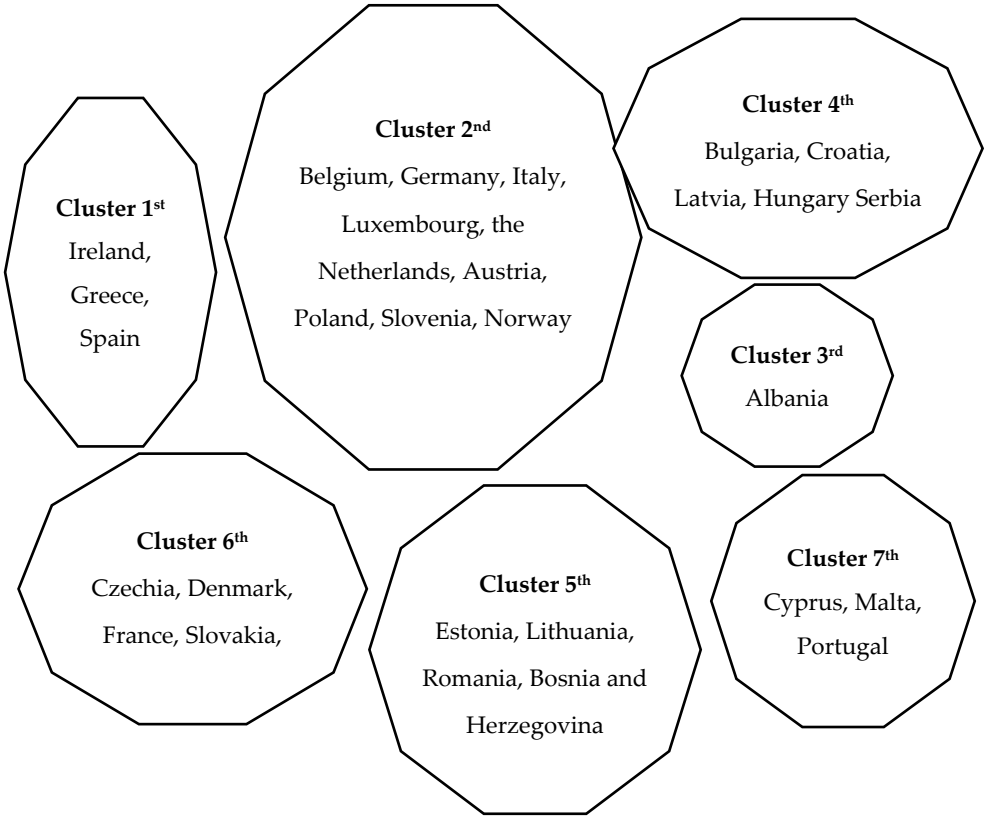


Figure 6. Groups of countries according to the k-means method in 2019. Source: own work.

Table 3. The results of the analysis of variance for clustering in 2019.

Specification	Variability between Clusters	f	Variability within Clusters	df	Statistic F	*p*
Food and non-alcoholic beverages	26.07	6	4.93	25	22.03	0.0000
Alcoholic beverages, tobacco and narcotics	14.62	6	16.38	25	3.72	0.0089
Clothing and footwear	21.20	6	9.79	25	9.02	0.0000
Housing, water, electricity, gas and other fuels	25.36	6	5.64	25	18.74	0.0000
Furnishings, household equipment and routine household maintenance	19.05	6	11.95	25	6.64	0.0003
Health	8.49	6	22.51	25	1.57	0.1972
Transport	12.72	6	18.28	25	2.90	0.0276
Communications	15.77	6	15.23	25	4.32	0.0040
Recreation and culture	20.38	6	10.62	25	7.99	0.0001
Education	17.60	6	13.40	25	5.47	0.0010
Restaurants and hotels	21.86	6	9.14	25	9.97	0.0000
Miscellaneous goods and services	19.65	6	11.35	25	7.22	0.0002

Source: own work.

Table 4. The structure of consumption in clusters in 2019.

Cluster Numbers	C1st	C2nd	C3rd	C4th	C5th	C6th	C7th
Food and non-alcoholic beverages	12.4	12.1	39.9	13.3	19.1	23.6	13.4
Alcoholic beverages, tobacco and narcotics	4.5	4.5	2.9	4.6	7.1	6.6	3.9
Clothing and footwear	4.1	5.1	3.7	3.8	4.2	5.9	5.3
Housing, water, electricity, gas and other fuels	22.2	22.3	12.5	26.8	19.6	16.3	14.9
Furnishings, household equipment and routine household maintenance	3.8	6	5.8	5.3	4.6	6.3	4.8
Health	4.3	4.3	4.9	3.2	4.8	4.3	4.7
Transport	12.4	13.7	5.3	11.5	12	12.2	13.3
Recreation and culture	6.7	9.1	12.9	10.2	7.9	7.1	7.2
Restaurants and hotels	16.3	8	3.9	8.1	8.2	6.3	17.8
Communications	2.9	2.2	1.7	2.6	3.9	2.7	2.5
Education	1.8	0.8	2.4	0.7	1.3	0.9	2.2
Miscellaneous goods and services	8.6	12	4	9.8	7.3	7.8	10.2

Source: own work.

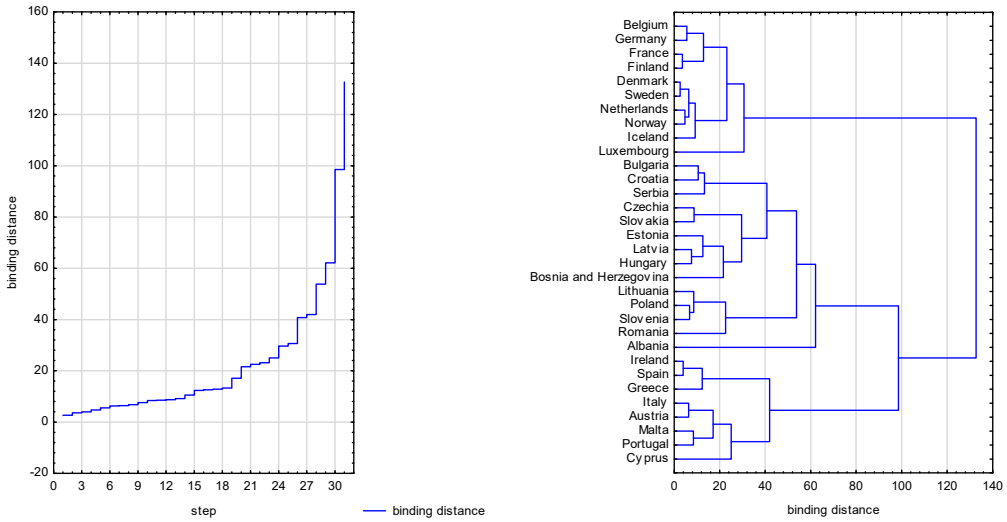


Figure 7. The results of the analysis using the Ward's method for 2020. Source: own work.

In 2020, countries such as Belgium, Germany, France and Finland formed one cluster. In 2004, all these countries formed one cluster with other countries, and in 2019 they belonged to two different clusters. A characteristic feature of the households from the abovementioned countries was a low share of spending on food and non-alcoholic beverages, and high shares of spending on housing, water, energy and other fuels. High percentages of spending on other goods and services were noted in 2004 and 2019, but this regularity was not confirmed for 2020, perhaps due to the emergence of special conditions.

Another cluster formed in 2020 included Bulgaria, Croatia, Latvia, Romania and Serbia. In 2019, the aforementioned countries also formed one cluster, with the only difference related to the fact that Hungary was part of it instead of Romania. In 2004, on the other hand, Bulgaria, Latvia and Serbia formed one cluster, while Croatia and Romania were part of other groups. In the structure of consumption expenditures of households from the analyzed countries, the shares of expenditures on food and non-alcoholic beverages were relatively high. High expenditure shares were also observed in relation to categories such as alcoholic beverages and tobacco products, transportation and telecommunications. On the other hand, lower shares of expenditures were observed for food and hotel services and goods related to housing and household management. Due to their structure of consumption expenditure, these communities can be categorized as having a lower standard of living.

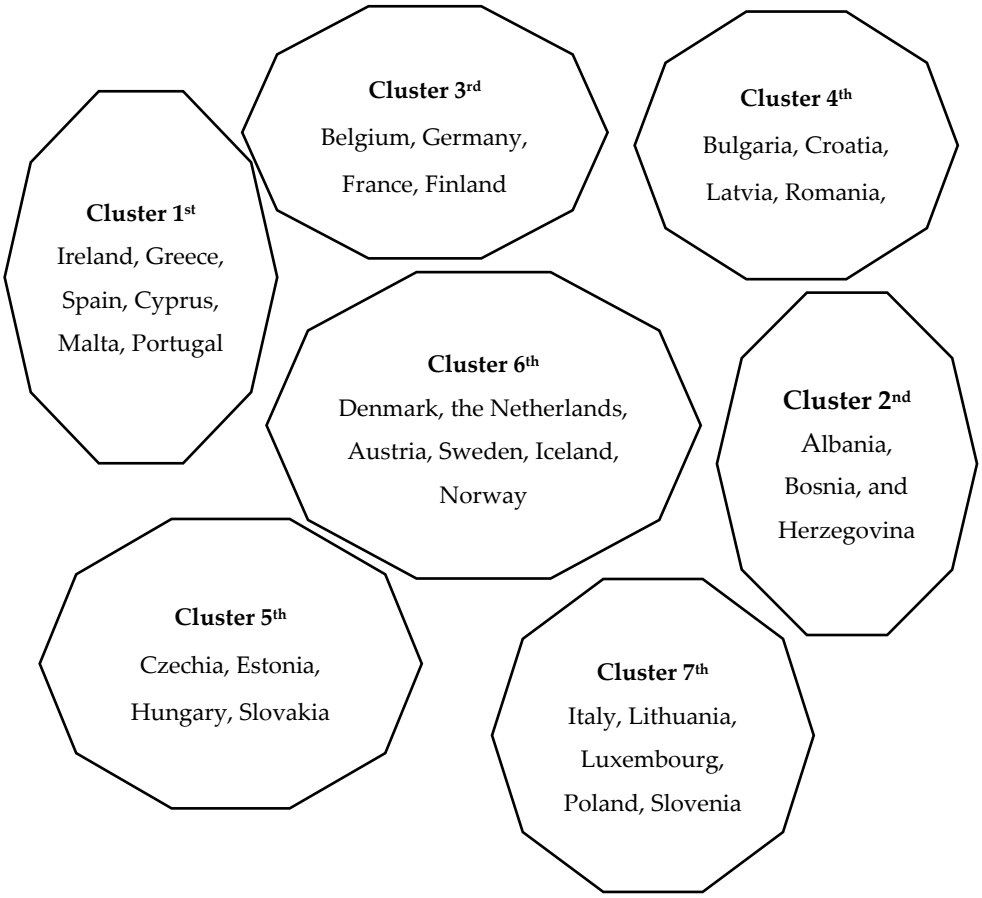


Figure 8. Groups of countries according to the k-means method in 2020 (Source: own work).

Table 5. The results of the analysis of variance for clustering in 2020.

Specification	Variability between Clusters	f	Variability within Clusters	df	Statistic F	*p*
Food and non-alcoholic beverages	25.55	6	5.45	25	19.54	0.0000
Alcoholic beverages, tobacco and narcotics	16.27	6	14.73	25	4.60	0.0028
Clothing and footwear	6.73	6	24.27	25	1.16	0.3607
Housing, water, electricity, gas and other fuels	16.94	6	14.06	25	5.08	0.0017
Furnishings, household equipment and routine household maintenance	13.73	6	17.27	25	3.31	0.0154
Health	16.78	6	14.22	25	4.92	0.0019
Transport	19.03	6	11.97	25	6.62	0.0003
Communications	22.10	6	8.90	25	10.35	0.0000
Recreation and culture	21.54	6	9.46	25	9.49	0.0000
Education	16.89	6	14.11	25	4.99	0.0017
Restaurants and hotels	20.87	6	10.13	25	8.59	0.0000
Miscellaneous goods and services	19.89	6	11.11	25	7.46	0.0001

Source: own work.

In 2020, countries such as the Czech Republic, Slovakia, Hungary and Estonia also formed a cluster. In 2004 and 2019, the Czech Republic and Slovakia formed one cluster, but Hungary and Estonia already belonged to other clusters. The structure of household consumption in the examined countries was characterized by a relatively high share of spending on alcoholic beverages and tobacco products as well as housing and household maintenance.

Table 6. The structure of consumption in clusters in 2020.

Cluster Numbers	C1st	C2nd	C3rd	C4th	C5th	C6th	C7th
Food and non-alcoholic beverages	15.4	37.9	13.5	22.7	19.2	12.8	16.3
Alcoholic beverages, tobacco and narcotics	4.8	6	4.4	6.9	7.5	3.9	6.1
Clothing and footwear	4.5	4.1	3.6	4.5	4.1	4.2	5
Housing, water, electricity, gas and other fuels	22	14	27.5	20.4	25.1	26.2	21.4
Furnishings, household equipment and routine household maintenance	4.7	6.1	5.9	5.3	5.6	6.6	6.5
Health	4.6	5.1	5.2	5.7	3.2	3.3	4.7
Transport	11.1	6.1	11.4	10.3	8.8	11.9	12.7
Recreation and culture	6	5.2	8.5	7	8	10	6.7
Restaurants and hotels	11	5	4.8	4.8	5.8	6.9	5.1
Communications	3.2	2.3	2.5	4.5	3	2.6	2.4
Education	2.2	2.1	0.6	1.3	1	0.7	0.9
Miscellaneous goods and services	10.6	6.5	12.3	6.6	8.7	11	12.2

Source: own work.

Denmark, The Netherlands, Austria, Sweden, Iceland and Norway are the next group of countries to form a cluster according to their spending structure in 2020. In 2004, the same countries, except for Austria, co-created a single cluster. In 2019, Denmark, Sweden and Iceland were assigned to one cluster and The Netherlands, Norway and Austria to another cluster. Households from these countries are characterized by a relatively high standard of living, as evidenced by low shares of expenditures on food and non-alcoholic beverages and high shares of expenditures on household furnishings and housekeeping or recreational and cultural goods and services, which are frequently referred to as higher order needs. The relatively low shares of spending on alcoholic beverages and tobacco products and education are other characteristic features of the expenditure structures of households from the indicated countries.

The last cluster to emerge in 2020 was formed by Italy, Luxembourg, Poland, Slovenia and Lithuania. In 2019, these countries, in addition to Lithuania, also co-formed one cluster. In contrast, in 2004, Italy and Luxembourg were part of one cluster with other countries, Lithuania and Poland belonged to another cluster, and Slovenia to yet another. A characteristic feature of the consumption patterns in these countries was the relatively high share of spending on transportation and other consumer goods and services.

5. Discussion

Between 2004 and 2019, the consumption expenditures of European households gradually increased. In all countries, spending on categories such as food, housing maintenance, and food and accommodation rose. In addition to the increase in the level of expenditure on gastronomy and accommodation, it was also noticed that in the years 2004–2019 this expenditure gradually increased in the consumption structure in all European countries. Most countries also saw an increase in spending on other categories of consumer goods and services, although there were also countries where some types of spending decreased during the period under study. In the period 2004–2019, Irish households recorded decreases in spending on alcoholic beverages and tobacco products, furnishings, housekeeping, and telecommunications. In France, on the other hand, spending on clothing and footwear needs and telecommunications was reduced, and in The Netherlands, the same tendency was noted in terms of spending on health and telecommunications. Greek households saw a decline in spending with regard to most categories. Spending on four categories, i.e., clothing and footwear, housing and household furnishings, health, and transportation, decreased in these households between 2004 and 2019.

Greek households went through economic upheaval during the period analyzed. In late 2009, the Greek economy faced a debt crisis. The economic crisis posed a threat to the stability of the eurozone [51]. The government decided to adopt a rescue package and committed to implementing a large-scale economic adjustment program (EAP) [52]. The

plan put in place led to a decline in GDP and an increase in the unemployment rate [53]. At the same time, the fragmented social protection system failed to overcome the effects of the deep crisis, and social indicators and living conditions worsened [54,55]. The share of the population affected by severe material deprivations increased [56]. Eventually, Greek households began to rebuild their consumption, although another shock from the COVID-19 pandemic led to a relatively large reduction in spending. It is important to note that spending levels in 2020 were lower than in 2004. It is worth mentioning, however, that expenditure reduction may also have a beneficial dimension in terms of sustainable consumption. Consumption of household energy use, mobility, food and textiles have been recognized as the most polluting lifestyle domains in the EU [57]. Bringing about more sustainable consumption patterns is an important challenge for society [58].

The COVID-19 pandemic caused the most significant change in consumer behavior in recent history [59,60], and disrupted many spheres of household life [61], not only in Greece but also in other European countries. These disruptions were associated with the "stay-at-home" recommendation and various types of lockdown [62]. These lockdowns, introduced in European countries, forced people to significantly modify their behavior [63]. Among other things, the preventive and protective measures introduced as a response to the pandemic threat included solutions such as working/learning from home, limited socialization (social distancing), and limited travel [64]. As far as demand was concerned, widespread and sudden drops in income due to job losses or reduced working hours led to a decrease in spending on many non-essential purchases and forced many families to forgo meeting many needs [10,65]. Lockdowns have reduced household consumption spending. Consumers in all European countries analyzed in this study who experienced restricted mobility during the COVID-19 crisis also reduced their total consumption expenditures. During the first year of the pandemic, all European countries analyzed in this work experienced reductions in spending on clothing and footwear, transportation, recreation and culture, as well as food and accommodation-related services. The sectors most affected by the COVID-19 pandemic were those that relied on direct contacts or people gathering. Thus, imposing the social-distancing requirement caused financial damage to the service industry, tourism, transportation and entertainment [66]. As for the other categories of consumer goods and services, the only category that recorded an increase in spending in most countries was food. According to aggregate data for the eurozone alone, household spending fell by almost 7% in 2020 compared to 2019 and even more significant declines were recorded in France, Spain and Italy [67]. Higher macroeconomic uncertainty induces households to reduce their spending on non-durable goods and services as well as to engage in fewer purchases of larger items, such as package holidays or luxury goods [68].

Tourism has been one of the areas most affected by the pandemic. Restrictions on mobility and closing down tourism businesses have had a significant impact on the financial situation of the sector [69]. There have been changes in tourists' consumption patterns and, consequently, in the business strategy of the offer presented by entities and organizations operating in the industry. The pandemic has negatively affected tourism worldwide [70]. The food service sector, an integral part of the global hospitality industry, has been severely affected by the pandemic [71]. Lockdowns have forced most companies to close their businesses or significantly reduce the scope of their operations [64]. Although many food service providers only temporarily closed their operations, some decided, given the continuing uncertainty, not to reopen. Lockdowns have temporarily eliminated food consumption outside the home. Imposing lockdowns resulted in stockpiling and panic buying. Most of the consumers bought more food than they needed. Many households stockpiled canned and dried food that was suitable for long-term storage [72].

In 2021, an increase in consumer spending and a slow return to pre-pandemic spending behavior were observed. Other studies assumed that after lifting the restrictions related to COVID-19, consumers would follow the consumption patterns established during the lockdown [72].

Our research grouped countries according to their consumption structure in 2004, 2019 and 2020. The emerging clusters of households indicate the presence of several groups of European countries divided according to their consumption structures. The results of cluster analysis show the significant differences in consumer spending among the southern European states, western and northern European States in the particular years 2004 and 2019. The formation of such clusters of countries was partially anticipated due to geographic locations, cultural affinities and other mutual connections [40].

The countries of the poorer regions of Europe, i.e., those located in Eastern Europe, were included in several clusters, representing specific and internally consistent consumption expenditure patterns. Some Central and Eastern European countries and Estonia, forming one cluster, were characterized by a high share of expenditure on alcoholic beverages and tobacco products and housing maintenance. The Balkan countries (Bulgaria, Croatia, Serbia), but also Latvia and Romania—forming another cluster—were characterized by high shares of expenditure on food and non-alcoholic beverages, as well as on transport, communication, and alcoholic and tobacco products. High percentages of expenses for priority needs, such as food, probably contributed to the low share of expenses for higher order needs performed by services in the indicated group. The lowest living standards were the characteristic feature of Albanians and the community of Bosnia and Herzegovina, and these countries formed another group. The high share of food expenditures led to specific budget constraints in their households. According to Juric [73], Bosnia and Herzegovina is a country with a low level of economic development, with consumption accounting for more than 70% of GDP. The highest amounts of household final consumption expenditures are those related to basic needs. The weakening of purchasing power, limited consumption, and ultimately low domestic demand have been the result of low wages, their stagnation over a long period, and a high unemployment rate in the country.

In countries such as Albania and Bosnia and Herzegovina, the 2004 and 2019 classifications indicate a low share of spending on alcoholic beverages, tobacco products and drugs in consumer spending. However, in 2020, this was not confirmed. Perhaps this is due to the phenomenon of increased consumption of alcoholic products during the pandemic, as described in the literature [74–77]. Albania is a country known for its low alcohol consumption; in addition, the prevalence of smoking tobacco products is low throughout the country [19]. Yet, more recent studies [20] indicate that rates of alcohol consumption, smoking and drug use are increasing in Albanian society. On the other hand, in Bosnia and Herzegovina, smoking and cigarette consumption are high. In Bosnia and Herzegovina, 38.2% of adults smoke an average of 14.8 cigarettes per day. This country has some of the lowest cigarette prices in Europe [78]. Similarly, in Romania, cigarette prices are relatively low [79]. Since the demand for cigarettes is strongly linked to price increases, authorities are considering imposing higher taxes on the goods [80]. It is indicated that a 10% increase in cigarette prices would reduce cigarette consumption by 14% in low-income households, by nearly 10%, in middle-income households and by 7% in high-income households [81].

Households from western European countries were characterized by higher living standards. These countries indicated low shares of spending on food and non-alcoholic beverages with higher shares of spending on higher order needs. Another study [82] showed that in countries where household net income was higher (e.g., Luxembourg, The Netherlands, Germany, Sweden, the United Kingdom, Denmark, and Belgium), the remaining household expenditures (other than housing expenses) were spent on higher order needs and savings. However, in countries where household net income was lower (e.g., Lithuania, Bulgaria, Romania, Latvia, Hungary, Poland, Croatia, Czech Republic, and Estonia), the remaining household expenditures were allocated to basic needs without (e.g., in the case of Lithuania, Latvia, Bulgaria) or with minimal savings. It has been noted that the structure of consumption in poorer EU countries has improved more than in poorer non-EU countries. Romania is an example of such a trend. Although it is pointed out that a large part of income in Romanian households is spent on meeting the basic needs of the population [83], the situation is still better than, for example, in Albanian households.

Between 2004 and 2019, Romanian households have seen particularly large increases in spending on food, clothing and footwear, recreation and culture. Research findings suggest that rising spending in Romania can be attributed to income growth [84].

A low level of needs saturation implies a faster change in consumption structure as income increases. Once the needs of subordinate goods are satisfied, consumption is directed to the needs at higher levels of the hierarchy, as widely described in the example of the change in consumption expenditures in Bulgarian households [85]. The improving consumption levels in the EU's poorer countries can be linked to the realization of that group's goals relating to social convergence. Jankiewicz [86] points out that the process of the convergence of food expenditures in Europe is progressing, although, as he points out, food expenditures were significantly affected by the financial crisis in 2009 and the share of food spending in total consumer spending was higher at that time. The crisis caused by the COVID-19 pandemic also saw an increase in the share of food spending in consumption expenditures.

One cluster was formed by Ireland and southern European countries, including two island nations. Ireland's appearance among these countries may come as a surprise. Ireland is considered a wealthier country than Portugal, Greece, Malta, or Cyprus, and the standard of living of the Irish is more similar to that observed in Switzerland, the United Kingdom, the United States, or Norway. Still, other studies [87] have already indicated that Irish households are often closer to households from countries such as New Zealand, Israel, or Italy. In addition, Ireland's appearance among the countries with the highest living standards is due to the use of misleading, albeit conventional, statistics (e.g., by GDP comparison) [87]. Ireland also appeared adjacent to Southern European countries in previous studies [40].

In the 2004 and 2020 groups of southern European countries and Ireland, the share of spending on food services and accommodation was high. The food service sector plays an important socio-economic role in many countries, as it is an important source of economic income and employment opportunities [88]. Southern European countries maintained a leadership position in terms of the share of catering expenditures in household consumption during the 2020 pandemic.

In the group of southern European countries and Ireland, relatively high levels of spending on education were observed, both before and during the pandemic. It is pointed out [89] that the factors that appear to be responsible for higher education spending are, for example, the level of difficulty of children's entrance exams. If it is higher, then households spend more money on private preparation courses so that children get to the next stage of their education. Another factor is the quality of the education system. In Greece, for example, the general opinion is that the quality of public education is low due to the fact that more money is being invested in private education. There is also a very high regard for education in some countries, which means that people are generally willing to invest more than household members from other countries [90]. In Cyprus, it is reported that a large share of households (between 60–90% at the level of primary and secondary school) spend money on private tutoring regardless of the income group they belong to [91].

Scientific reports in the literature show that patterns of consumption are shifting from richer to poorer countries [92,93]. The efforts of the European Union towards social convergence should be conducive to this process. It is also indicated that European countries are catching up, eastern countries are converging with western countries, but they are developing at a different pace, the so-called multi-speed Europe [94,95]. A substantial proportion of the structure of spending of EU consumers can be explained by income differences. In addition, due to cultural and historical developments, local preferences play an important role [96]. It is also important that Europeans are responsible consumers with their consumption. The responsible consumer is one who displays patterns and behaviors embedded in the paradigm of sustainable development in everyday life [97,98].

6. Conclusions

The conducted research achieved the research aim and answered the research questions. The first research question was: *How did consumer spending in European households evolve between 2004 and 2019 and 2020?* Between 2004 and 2019, the level of consumption expenditures in European households increased. Spending on food, housing, water and energy, cultural and recreational goods and services as well as catering and hospitality increased in all countries analyzed. Spending on other categories of consumer goods and services also increased in most countries. Seven European countries recorded a drop in spending on selected categories of goods and services between 2004 and 2019. In several countries (Ireland, France, The Netherlands, Italy, Cyprus), spending on telecommunications decreased. Expenditures on clothing and footwear declined in Greece, Spain and France, while expenditures on home furnishings and housekeeping decreased in Ireland and Greece. A decline in spending on goods such as clothing and footwear, as well as home furnishings, may be a symptom of consumers moving toward sustainable consumption, although this particular finding requires further analysis and research.

The second research question was: *How has the pandemic affected the spending patterns of European households?* The answer to this was obtained by analyzing changes in the level of expenditure between 2019 and 2020 as well as differences in groupings of countries due to the structure of consumption. Turning to the analysis of changes in consumer spending, the following should be stated. In the first year of the pandemic, consumption spending decreased in all European countries. Spending declined in regards to almost all categories of consumer goods and services. Only spending on food and non-alcoholic beverages increased in most countries, the exceptions being Malta and Iceland. In particular, a decrease in spending was noted for the category of consumption needs related to socializing and gatherings. All countries saw declines in spending on food and hospitality, culture and leisure, clothing and footwear as well as transportation goods and services. In 2021, increases in spending were observed, both in nominal terms and in terms of the structure of spending on goods and services. The specific types of goods and services that had to be reduced during the pandemic period gained importance in that period.

In response to another research question, *Which European countries are similar in terms of the structure of household consumption expenditures*? it should be stated that in Europe, several groups of countries can be distinguished according to their consumption structure. On one hand, there are countries with a low level of household consumption. The countries with a consumption structure that indicates a very low standard of living are Albania and Bosnia and Herzegovina. The characteristic feature of the societies of these countries is a high share of food spending and low shares of spending on higher order goods spending.

Another group of countries with a relatively high share of household spending on food and non-alcoholic beverages is Bulgaria, Croatia, Latvia, Romania and Serbia. The consumption patterns of societies from the countries mentioned above reflect a high share of spending on alcoholic beverages, tobacco products and telecommunications and, in addition, one of the higher shares related to transportation costs.

The next group of countries includes the Czech Republic, Estonia, Hungary and Slovakia. In households in these countries, the share of food expenditures settled at an average level, as did expenditures on higher order goods. A characteristic feature of the societies of the countries analyzed in the research was a high share of spending on alcoholic beverages and tobacco products and a low percentage of spending on health.

The next group to be distinguished in 2019 and 2020 included Italy, Lithuania, Luxembourg, Poland and Slovenia. Characteristics of households in these countries include a high share of spending on transportation and other goods and services. In this cluster, Luxembourg society slightly deviates from other countries in terms of its consumption structure. A distinguishing feature, in this case, is the low share of food expenditures in Luxembourg households contrary to the average in the other societies.

The next two groups of countries are characterized by significantly more favorable living standards. A relatively high standard of living was a characteristic feature of house-

holds from Denmark, The Netherlands, Austria, Sweden, Iceland Norway forming one cluster. The other group of countries included Belgium, Germany, France and Finland. Both groups had low shares of food expenditures, which, according to Engel's law, confirms the favorable income situation in households from these countries. Low shares of spending in both groups were also recorded with regard to categories related to telecommunication and educational goods and services. A high share of expenditures on housing maintenance, water, energy and fuel was noted in both clusters, confirming Engel–Schwabe's law according to which housing maintenance expenditures increase in wealthier households. The differences between the groups were related to the share of expenditures on health. The cluster represented by Belgium, Germany, France and Finland had a higher share of health expenditures.

The following conclusions were drawn:

- Similarities in consumption between EU countries change over time. The relocation of countries is evident when comparing clusters in the period 2004 and 2019 and 2020. Several pairs of countries have always remained next to each other (in one cluster), i.e., (a) Italy and Luxembourg, (b) Finland and France, (c) Czech Republic and Slovakia, (d) Cyprus and Portugal, (e) Bulgaria and Latvia, and (d) Ireland and Spain. It was also noted that the cluster including Ireland and the southern European countries in 2004 represented the so-called "richer" region of Europe (higher living standards of the population), and the next two groupings represented the "poorer" region of Europe (lower living standards of the population).
- Restrictions and lockdowns imposed during the pandemic changed household consumption patterns. The situation led to a reduction in the use of services, resulting in the reallocation of some "richer" European countries to the region of countries representing less favorable (in terms of living standards) consumption patterns. Dividing the 2004–2020 analysis period into two stages (2004–2019 and 2019–2020) in the study was justified, as the consumption pattern in the second stage was shaped by specific socioeconomic circumstances.
- In methodological terms, the following claims can be formulated. Ward's clustering and k-means methods allowed to reduce a large number of countries to a few basic groups, which can be perceived as the subject and direction of further analysis. Comparing consumption structures in groups (clusters) rather than in individual countries reduced workload and shortened the time required to conduct the analysis. The method used in the research provided the possibility of comparing multivariate objects, as each country was described by variables relating to 12 categories of expenditure on consumer goods and services. Ward's and k-means clustering methods can be used as a tool to help divide Europe into regions characterized by different consumption structures.

In the conducted analysis, there was a number of unexpected "exceptions," such as a high degree of similarity between the structure of expenditures of Poland and the Western countries in 2019 and Luxembourg and the countries of Central and Eastern Europe in 2020, as well as Ireland's stable position among Southern European countries. Analysis of partial shifts in the positions of countries during examined period offers further research potential.

The presented results may constitute the basis for evaluation of economic development and also as an indicator of the impact of economic development in the standard of living of European households. Findings are applicable in the marketing and business sphere for the creation of cross-border marketing strategies and can be used as a base for the decision making of administrative bodies.

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