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## Article

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## PATTERNS AND CONVERGENCE IN HOUSEHOLD SPENDING: INSIGHTS FROM WESTERN AND EASTERN EUROPE

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### Abstract

This paper identifies and analyzes the trends and patterns in consumption differences between Eastern and Western European households from 2000 to 2021. Using clustering methods and regression analysis, it examines consumer spending patterns and convergence processes, focusing on how household expenditures have evolved over time in these regions. The study employs Ward's hierarchical clustering and k-means clustering to categorize countries based on their expenditure structures. The findings reveal two distinct patterns of consumer spending across Europe, with Eastern European countries prioritizing basic necessities, such as food and non-alcoholic beverages, and Western European countries allocating more to higher-order goods and services, including recreation, culture, and housing. The research confirms a convergence of spending on certain categories, such as food and miscellaneous goods and services, indicating an improvement in living standards in Eastern Europe. However, it also identifies areas of divergence, particularly in spending on clothing, footwear, communication, and education. Despite these changes, the study concludes that consumption structures remain relatively stable over time between Eastern and Western Europe. The persistence of these patterns underscores the enduring impact of economic and social factors on consumer behavior. The paper provides valuable insights for policymakers and businesses, highlighting the need for tailored public policies and strategic business decisions to address regional consumption differences. By understanding these patterns, stakeholders can better promote balanced economic development, reduce regional disparities, and improve living standards across Europe. Future research should incorporate primary data and individual demographic factors to further explore the nuances of consumer behavior within the European context, offering a more comprehensive understanding of the ongoing convergence and divergence in household consumption.

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## Introduction

Differences in household consumption are a significant aspect of economic development and European integration (Bolea et al., 2018). Studying patterns of consumption provides valuable insights into the difference in consumption levels between different countries and regions in Europe. Consumption is a key indicator for assessing the well-being of citizens (Zhao and Wei, 2019), and understanding its dynamics and patterns is essential for effective public policies and strategic business decisions. Furthermore, analyzing these differences can help to shape the design and implementation of public policies, contributing to social cohesion and economic stability within the European Union.

While previous studies have explored various aspects of consumer spending in Europe, there is limited research examining the convergence of consumer expenditure structures across Eastern and Western European households over time. This study aims to fill this gap by analyzing consumption patterns over a period of two decades, thus contributing new insights into the dynamics of consumer expenditure in a changing Europe.

This paper seeks to address the following research question: Does the structure of consumer expenditures in Europe show signs of convergence between Eastern and Western European countries, and to what extent, during the years 2000-2021?

The research hypothesis is that in the years 2000-2021, the structures of consumer spending between the countries of Eastern and Western Europe, particularly within the EU, were unified.

The allocation of household budgets is a fundamental aspect of economic decision-making and has significant implications for individual well-being (Verba and Kudinova, 2019) and overall economic stability (Frey, 2010; Llena-Nozal et al., 2019). Consumption is one of the primary components of demand in an economy (Ahmad and Khattak, 2020). Examining the structure of consumer spending helps to understand how people allocate their incomes to different goods and services, which, in turn, impacts overall demand and economic activity. Studying consumer expenditure allows for an examination of consumer preferences and behavior towards different goods and services. This information is valuable for producers who can better tailor their products and marketing strategies to meet market demands. Analyzing consumer expenditure provides insights into how income is distributed among different goods and services. This enables an assessment of income equality. The structure of consumer spending influences production patterns in the economy. If people prefer certain products, production sectors will focus on supplying those goods, leading to economic specialization and resource allocation optimization. Public policy interventions can leverage these insights to promote balanced economic development and reduce regional disparities.

The paper has the following structure. First, we briefly review some research from the literature on the diversity of consumer spending in Europe. Next, we discuss the methods used in this article to assess convergence and contrast in household spending patterns in

Europe. In the results and discussion section, we identify the groups of countries in Europe with similar consumption patterns and present changes in these patterns in 2000-2021. Next, we present the categories of consumer spending that are unified in the structure of spending in various European countries. In the final section, we present the conclusions and discuss the limitations and policy implications of the study.

## **1. Review of the scientific literature**

The convergence of consumer spending is vital for achieving the objectives set out in the Treaty on European Union (EU) and for mitigating the effects of asymmetric shocks (Barbier-Gauchard et al., 2021; Kuc-Czerep, 2017). In recent years, the issue of comparing consumer expenditure structures and observing the convergence process in European countries has gained renewed attention, particularly following the EU's largest expansion and subsequent financial crises. This section reviews significant studies on the topic, categorized into historical, post-crisis, and recent sustainable consumption analyses.

Early literature from the period surrounding the EU's largest expansion in the early 2000s highlights significant consumption differences between Western and Eastern European households. Ševela (2004) documented substantial disparities in consumption patterns between countries in 1995, noting a narrowing of these differences by 2002. In turn, Liobikienė and Mandravickaitė (2013) found that household consumption expenditure increased significantly in new EU member states from 1995 to 2005, driven by disposable income, prices, and EU integration. They observed that the Czech Republic, Estonia, Lithuania, and Slovenia made notable progress in converging their consumption structures with those of older EU members, while Latvia and Poland lagged behind.

The financial crisis and its aftermath prompted further examination of household expenditure trends. Gerstberger and Yaneva (2013) analyzed EU-27 household consumption from 2001 to 2011, revealing that despite the economic downturn, the impact on household spending was moderate due to increased government consumption. The Baltic economies were most affected in 2009, while Greece experienced a continued decline in household spending during a deepening recession, with the sharpest fall observed in 2011. Consumption patterns and the crisis's impact on expenditure categories varied significantly among EU Member States, highlighting the diversity of the situation.

The study conducted by Dudek and Koszela (2013) examined the comparison of households' expenditure structures in selected countries of the EU in 2011. The authors found that housing, water, electricity, gas, and other fuels accounted for the largest portion of household expenditures in most EU countries. New member states also had significant expenditures on food and non-alcoholic beverages. The proportion of expenditure allocated to different consumption categories varied greatly among the member states. To measure the dissimilarity of consumer baskets, the authors used distance indices, with values closer to zero, indicating higher similarity in household expenditure structures. Slovenia and Malta were found to have the most similar structures to the EU-15 average, while Estonia and Latvia were the most distant. Post-communist countries had higher shares of expenditure on alcoholic beverages, tobacco, and narcotics compared to older EU member states. Eastern and Central European households spent less on restaurants and hotels compared to the EU-15 average. In terms of Poland, the consumer basket structure was most similar to Hungary and Slovakia, followed by Slovenia and Latvia. These countries shared higher shares of

expenditure on food, beverages, tobacco, communication, health, and education compared to the European average. Austria, Luxembourg, and the United Kingdom had the most differing consumer structures compared to Poland. The study did not find a clear division of household expenditure structures between new and old EU member states (Dudek and Koszela, 2013).

Piekut (2015) examined household consumption in EU countries from 2000 to 2012, identifying an increase in consumer spending and a reduction in disparities between households. during the early 21st century. Differences in consumption among households can be attributed to freedom of choice and specific restrictions limiting funds to meet household needs. The United Kingdom and Austria have the most favorable household situations, while Estonia, Latvia, Poland, Romania, and Bulgaria have the least favorable situations.

Another analysis concerned the differences in household consumption expenditures between Central and Eastern European countries and Western European countries (EU-15) from 2004 to 2015. The findings indicated (Mikuła, 2017) that the structure of consumption expenditures in the Czech Republic, Lithuania, Latvia, Poland, and Slovakia resembles that of the EU-15, although differences in living standards exist due to varying levels of economic development. Real GDP per capita influenced expenditure structures, but variations between countries suggest the influence of non-income factors on consumption levels and patterns.

However, existing literature predominantly focuses on historical data and lacks a comprehensive examination of how recent global events, such as the COVID-19 pandemic, have further influenced household consumption patterns. In recent years, there has been a focus on analyzing consumer expenditure in terms of sustainable consumption (Castellani et al., 2019). Numerous publications have emerged examining energy consumption in households, particularly in relation to housing expenses (Balezentis, 2020; Ivanova and Wood, 2020), as well as in the context of energy poverty (Kyprianou et al., 2019; Feenstra and Clancy 2020; Karpińska and Śmiech, 2020; Piekut, 2020, 2021). Additionally, research has been conducted on the effects of the COVID-19 pandemic on consumer expenditure structures in European households. Researchers (Baker et al., 2020; Coibion et al., 2020) have indicated that the pandemic significantly impacted household spending patterns, resulting in a decrease in consumption across almost all categories in 2020, except for food and non-alcoholic beverages.

The literature reveals a complex and evolving landscape of household consumption across Europe. While convergence in certain expenditure categories is evident, significant regional disparities persist, influenced by economic development, cultural factors, and recent global events.

This article aims to fill a critical research gap by providing a long-term analysis of household consumption patterns from 2000 to 2021, employing advanced clustering and regression methods. It uniquely incorporates the impact of the COVID-19 pandemic, a factor often neglected in existing studies. Moreover, it will address theoretical, methodological, and empirical gaps identified in the literature, offering insights into the convergence process within the EU. This article fills a research gap by providing a long-term analysis of household consumption patterns from 2000 to 2021, employing advanced clustering and regression methods. It uniquely incorporates the impact of the COVID-19 pandemic, a factor often neglected in existing studies. This approach allows for a nuanced understanding of regional consumption differences and the convergence process within the EU.

## **2. Research methodology**

This study utilizes secondary data from the Eurostat database to analyze household expenditure structures across 30 European countries from 2000 to 2021. This section is structured to provide a comprehensive analysis of consumption patterns and convergence processes, encompassing data collection, preparation, and detailed statistical analyses.

### **2.1. Data collection and preparation**

The primary data source for this study is the Eurostat database, which provides detailed information on household expenditure structures. Data from national sources are classified using the Classification of Individual Consumption According to Purpose (COICOP) into 12 categories (United Nations - Department of Economic and Social Affairs, 2018). Data validation and cleaning procedures are applied to handle missing values, outliers, and inconsistencies, ensuring high data quality and consistency. This step lays the foundation for subsequent analyses by ensuring the reliability and accuracy of the data.

### **2.2. Monitoring the evolution of consumption in European households**

The first stage involves aggregating data from the Eurostat database for individual countries, compiling a comprehensive dataset of household consumption expenditures categorized according to the COICOP. The structure of consumption for each country is calculated by determining the share of expenditure on each of the 12 COICOP categories. This detailed overview provides insights into how household expenditures are distributed across different categories.

To examine consumer spending patterns, two clustering methods are employed: Ward's hierarchical clustering and k-means clustering. Initially, each country is treated as a separate cluster in Ward's hierarchical clustering. This method iteratively merges the most similar clusters until a single cluster remains, using an algorithm that minimizes within-cluster variance. A dendrogram is generated to visualize the clustering process, offering an initial understanding of the potential number of clusters. Ward's method is highly regarded for ensuring homogeneity within clusters and heterogeneity between clusters, as highlighted by Murtagh and Legendre (2011) and Reiff et al. (2016).

Based on the dendrogram from Ward's method, the optimal number of clusters is determined, and the k-means clustering method is subsequently applied. This method assigns each country to one of the k clusters, where each cluster's centroid minimizes the distance to the member countries. Cluster validation techniques such as the Silhouette method and Elbow method are used to objectively determine the optimal number of clusters. The contents of clusters obtained by Ward's method and k-means clustering are then compared to ensure consistency and validate the identified patterns. A statistical analysis is conducted to identify the categories of consumer spending that significantly contribute to the clustering of countries. This analysis determines which expenditure categories are driving the observed differences in consumer spending patterns.

### 2.3. Monitoring the convergence of consumption in European households

To monitor convergence, the standard deviation (Wiktorowicz et al., 2020) of the natural logarithms of expenditure shares for all 12 COICOP categories across the 30 countries is calculated. This measure accounts for proportional changes in expenditure shares over time. Próchniak (2019) suggested that the standard deviation of variable levels should not be used, as these series tend to increase in variance over time. Instead, the differentiation of spending shares is measured by the standard deviation of the natural logarithms of individual categories of consumer spending between countries. Additionally, the variance and coefficient of variation are calculated.

The trend function for changes in the share of individual expenditure categories over time is then calculated to analyze the direction and magnitude of changes in consumption patterns. A negative slope of the trend line indicates sigma convergence ( $\sigma$ ). To verify the convergence of  $\sigma$ , we used the following regression equation:

$$\text{s.d.}(\ln Y_t) = \alpha_0 + \alpha_1 t + \varepsilon_t \quad (1)$$

where  $\text{s.d.}(\ln Y_t)$  is the standard deviation of the natural logarithms of the shares of consumption expenditure in year  $t$ , the variable  $t$  on the right side of the equation is a time variable (linear trend assumed), and  $\varepsilon_t$  is a random component.

### 2.4. Justification for the selection of research methods

In this study, we analyze the consumption structures across EU Member States using Ward's clustering method followed by k-means clustering. The choice of Ward's method allows for an initial grouping of countries based on minimized variance within clusters, providing a robust hierarchical structure. Subsequently, k-means clustering refines these groups, enhancing the distinction between clusters through iterative centroid optimization. This combination of methods is widely recognized in socio-economic analyses for its ability to yield statistically cohesive clusters, ensuring accurate categorization of countries by similar consumption characteristics.

Additionally, the analysis focuses on sigma convergence, as this measure is particularly suited to assess cross-sectional convergence, which in this case pertains to the harmonization of consumption patterns across the EU. Sigma convergence quantitatively captures the reduction of variance over time, directly indicating whether disparities among EU Member States are diminishing, thereby supporting insights into market integration within the Union.

## 3. Results and discussion

### 3.1. Geographical differentiation in consumer expenditure structures

The Based on the application of the Ward clustering method and k-means clustering to household consumption structure (considering 12 categories of consumer goods and services) for the years 2000, 2005, 2010, 2015, 2020, and 2021, the countries were categorized into two primary groups. The first group predominantly comprised Western European countries, while the second group mainly consisted of Eastern European countries. This geographical

distinction emerged as a statistically significant variable differentiating expenditure levels across several categories of goods and services in European households.

The division of countries into these two groups was primarily influenced by the proportions of expenditure on food and non-alcoholic beverages, housing and associated costs with expenditure on health having a lesser influence. Minimal differences were observed in categories such as communication, alcoholic beverages and tobacco products, clothing and footwear (notably observed in 2020-2021), recreation and culture, education, and miscellaneous goods and services. The results of the statistical analysis for consumer spending from 2000 to 2021 are summarized in table no. 1 (statistically significant differences are marked in bold in the table). No statistically significant differences were identified between households from the two distinguished groups of European countries in relation to other categories of goods and services. Parametric and nonparametric tests were used to examine statistically significant differences, depending on the nature of the variable distribution. Analyses by other researchers (Castaño-Rosa et al., 2019; Althoff et al., 2022) also emphasized the impact of geographical factors on consumer spending.

**Table no. 1. Results of the analysis of variance for consumer spending (CS) in European households by Eastern and Western European countries (2000-2021)**

CS*	2000		2005		2010		2015		2020		2021	
A	F	p-value	F	p-value	F	p-value	F	p-value	F	p-value	F	p-value
B	37.9	<b>0.0000</b>	73.4	<b>0.0000</b>	66.1	<b>0.0000</b>	38.1	<b>0.0000</b>	29.4	<b>0.0000</b>	29.0	<b>0.0000</b>
C	8.2	<b>0.0078</b>	7.3	<b>0.0114</b>	17.5	<b>0.0003</b>	8.0	<b>0.0085</b>	6.9	<b>0.0137</b>	6.7	<b>0.0154</b>
D	4.0	0.0563	0.0	0.8888	0.4	0.5244	0.6	0.4591	5.8	0.0223	6.6	0.0155
E	57.3	<b>0.0000</b>	3.1	0.0869	4.7	<b>0.0382</b>	36.8	<b>0.0000</b>	81.1	<b>0.0000</b>	76.7	<b>0.0000</b>
F	3.0	0.0960	3.9	0.0594	7.1	0.0125	7.8	0.0094	3.1	0.0883	2.7	0.1090
G	11.2	<b>0.0024</b>	1.1	0.3028	2.9	0.1013	4.9	<b>0.0348</b>	8.1	<b>0.0082</b>	11.1	<b>0.0024</b>
H	0.4	0.5553	0.9	0.3416	0.2	0.6827	0.1	0.7019	0.0	0.8526	0.1	0.7852
I	10.6	<b>0.0030</b>	0.0	0.8398	5.8	<b>0.0231</b>	12.1	<b>0.0017</b>	10.3	<b>0.0032</b>	8.4	<b>0.0072</b>
J	7.5	<b>0.0104</b>	10.0	<b>0.0037</b>	12.6	<b>0.0014</b>	13.7	<b>0.0009</b>	7.6	<b>0.0100</b>	7.0	<b>0.0133</b>
K	6.1	0.0194	2.4	0.1291	0.9	0.3469	6.3	0.0185	7.1	0.0125	6.4	0.0169
L	0.4	0.5461	3.6	0.0688	10.7	0.0028	0.0	0.9525	0.1	0.7128	0.0	0.9387
M	8.2	<b>0.0079</b>	24.4	<b>0.0000</b>	18.3	<b>0.0002</b>	12.9	<b>0.0012</b>	6.6	<b>0.0153</b>	7.2	<b>0.0123</b>

Notes: A = Expenditures, B = Food and non-alcoholic beverages, C = Alcoholic beverages, tobacco and narcotics, D = Clothing and footwear, E = Housing, water, electricity, gas and other fuels, F = Furnishings, household equipment and routine household maintenance, G = Health, H = Transport, I = Communications, J = Recreation and culture, K = Education, L = Restaurants and hotels, M = Miscellaneous goods and services.

However, certain deviations from the conventionally accepted division between Western and Eastern Europe (Lehne, 2019) in terms of assigning countries to consumption patterns have been observed. For instance, the Czech Republic (only in the Ward clustering method) and Slovakia (in both clustering methods), typically classified as Eastern European countries, were found to align more closely with the Western European consumption patterns according to the 2000 classification. In subsequent years (2005, 2010, 2015, and 2020), their consumption patterns continued to place them closer to Western European countries.

The consumption expenditure patterns in Slovenian and Maltese households, according to the Ward clustering method (except for 2021), also exhibited greater similarity to the expenditure patterns observed in Western European households. Similarly, Croatian households, in 2005, 2010, and 2015, positioned themselves closer to Western European countries.



Conversely, Portugal, based on the Ward clustering method, aligned with Eastern European consumption patterns in 2000, 2005, and 2021. However, according to the k-means clustering method, Portugal's consumption patterns in 2015, 2020, and 2021 placed them among Eastern European countries. Greece was similarly classified as Eastern European in 2021 and exhibited closer proximity to Eastern European countries in 2015 and 2020 using the k-means method. Migration towards Western European consumption patterns was observed for Hungary in 2000 and 2010, based on the k-means clustering method. Table no. 2 provides a detailed classification of European countries according to their consumer spending patterns using the Ward cluster and k-means methods across the selected years from 2000 to 2021.

**Table no. 2. Classifications of European countries using the Ward cluster and k-means methods according to consumer spending patterns (2000-2021)**

Year		Ward methods	K-means methods
<i>COUNTRIES PERMANENTLY ASSIGNED BY CONSUMPTION PATTERNS TO EAST OR WEST</i>			
<b>all years</b>	East	Bulgaria, Bosnia and Herzegovina, Estonia, Lithuania, Latvia, Poland, Romania, Serbia	
	West	Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Italy, Ireland, Luxembourg, Netherlands, Norway, Slovenia, Sweden, Spain	
<i>COUNTRIES ACCORDING TO CONSUMPTION PATTERNS "FLOATING" BETWEEN EAST AND WEST</i>			
<b>2000</b>	East	Slovakia, Croatia, Czechia, Portugal, Hungary	Slovakia, Croatia
	West	Greece, Malta, Slovenia	Hungary, Czechia, Portugal, Greece, Malta, Slovenia
<b>2005</b>	East	Portugal	Croatia
	West	Croatia, Malta, Greece, Czechia, Slovakia, Slovenia, Hungary	Portugal, Malta, Greece, Slovenia, Czechia, Slovakia, Hungary
<b>2010</b>	East	Hungary	
	West	Malta, Croatia, Portugal, Greece, Slovakia, Czechia, Slovenia	Hungary, Malta, Croatia, Portugal, Greece, Slovakia, Czechia, Slovenia
<b>2015</b>	East	Hungary	Portugal, Croatia, Greece, Malta,
	West	Malta, Portugal, Croatia, Greece, Slovakia, Czechia, Slovenia	Slovakia, Czechia, Slovenia, Hungary
<b>2020</b>	East	Croatia, Hungary	Croatia, Hungary, Slovenia, Malta, Portugal, Greece
	West	Slovenia, Malta, Portugal, Greece, Slovakia, Czechia	Slovakia, Czechia
<b>2021</b>	East	Croatia, Portugal, Greece, Malta, Slovenia, Hungary	
	West	Slovakia, Czechia	

In all years, the group of countries representing Eastern Europe included Bulgaria, Estonia, Latvia, Lithuania, Poland, Romania, Bosnia and Herzegovina, and Serbia. Conversely, the group of Western European countries consistently included Belgium, Germany, France, Netherlands, Denmark, Sweden, Finland, Italy, Norway, Iceland, Austria, Luxembourg and Spain. These groupings suggest that the consumer expenditure structures in European households exhibit a relatively stable nature over time. In countries such as Malta, Croatia, Portugal, Greece, and Hungary, no permanent assignment to Eastern or Western Europe has been identified. Depending on the year, these countries were in different clusters. Thus, the countries of Southern Europe are so-called "floating" countries in terms of consumption patterns between the east and the west of Europe. The Czech Republic and Slovakia serve as

examples of the countries where consumption patterns have become most similar to those observed in Western Europe among Eastern European countries.

### **3.2. Comparative analysis of consumer expenditure structures**

The analysis of the years 2000, 2005, 2010, 2015, 2020, and 2021 reveals differences in the structures of consumer expenditure between the two groups of countries. In the Eastern European countries, a higher percentage of expenditure on food and non-alcoholic beverages was observed, which, according to Engel's Law, indicates a lower standard of living compared to the group of the Western European countries. Food is a basic necessity for survival, and consumers with lower incomes must allocate a larger portion of their budget to food (Perali, 2008). On the other hand, consumers with higher incomes have greater flexibility and can allocate a larger share of their expenditure to other products and services. In the group of the Eastern European countries, a higher proportion of expenditure was also observed on alcoholic beverages and tobacco, education, communication, and, starting from the 2005 classification, on clothing and footwear as well as health. Therefore, expenditure structures in the Eastern European countries are dominated by obligatory goods and services. Notably, between 2000 and 2021, there was a decrease in the share of expenditure on food and non-alcoholic beverages in the Eastern European region. In the Western European countries, the share of expenditure on food and non-alcoholic beverages remained at a similar level throughout the analyzed period (Table no. 3).

In contrast, in the second group, predominantly composed of countries from Western Europe, higher shares of discretionary expenditures, which satisfy higher-order needs, such as housing equipment and household maintenance, accommodation and gastronomic services, recreational and cultural goods and services, as well as other goods and services, were noted. In this group of countries, there is a tendency for a higher share of expenditure on services, as well as on housing equipment and household maintenance. Several factors can explain this phenomenon. Households in wealthier European countries have higher average household incomes compared to Eastern European countries. Higher incomes provide greater financial capacity to invest in housing equipment and access various services. Households in these countries can afford to purchase better and more modern appliances, furniture, and other products. Consumers in the Western European countries often have higher living standards, which means greater expectations regarding quality and comfort at home. They may strive for better and more functional solutions in terms of home furnishings, such as modern appliances, high-quality furniture, or home automation systems. Another factor is the culture of consumption, which can differ between wealthier and poorer countries. In wealthier countries, consumption and possession of material goods often carry greater social and symbolic significance, and there is a greater emphasis on experiencing various attractions and entertainment. The greater availability and diversity of products and services provide more choices for consumers. As a result, households can make greater use of various services and lean towards greater investment in housing equipment, which can serve as a symbol of social status. It is worth noting that the share of spending on recreation and culture in the years 2000-2021 in the Western European countries decreased, while in the Eastern European countries, it remained at a relatively constant level. In turn, the share of spending on miscellaneous goods and services in both Western and Eastern European countries increased.

Since 2005, households in countries mainly located in Western Europe have also experienced higher expenditure on housing maintenance and energy costs. The increased share of housing expenditure in household consumption in wealthier countries can be attributed to several factors, including rising housing costs. In wealthier countries, especially in large cities and regions with high demand for real estate, housing prices can be significantly higher (Wang et al., 2012). The increasing cost of housing leads to a larger share of expenditure on housing in household budgets (De Francisco, 2023). The growth of housing costs is influenced by rising living standards and changing consumer preferences. As household incomes and living standards increase, households strive for better housing conditions, such as larger apartments, better locations, or modern amenities (Heidenreich, 2022). Consequently, they decide to allocate a larger portion of their budget to housing costs. The increasing share of housing expenditure may also be a result of real estate investment (Qi et al., 2022). However, it should be noted that the relationship between the growth of housing expenditure and a country's wealth can be complex and vary depending on specific factors and context. It is important to consider various determinants, such as housing policies, the real estate market situation, demographics, and social factors, to better understand this relationship in the specific context of each country.

Throughout the given period, the group of countries representing the structure of consumer expenditure with a bias towards obligatory consumer goods included Bulgaria, Estonia, Latvia, Lithuania, Poland, Romania, Bosnia and Herzegovina, and Serbia. On the other hand, in each of the analyzed years, the group of countries with a consumer expenditure structure biased towards discretionary goods included Belgium, Germany, France, the Netherlands, Denmark, Sweden, Finland, Italy, Norway, Iceland, Austria, and Spain.

The structures of consumption expenditures by country clusters for selected years from 2000 to 2021 are presented in table no. 3, highlighting the differences in expenditure patterns between Eastern and Western European countries.

**Table no. 3. Structures of consumption expenditures by country clusters (2000-2021)**

CS*	2000		2005		2010		2015		2020		2021	
A	East	West	East	West	East	West	East	West	East	West	East	West
B	25.1	<b>13.1</b>	24.7	<b>13.2</b>	23.4	<b>13.0</b>	22.2	<b>13.3</b>	22.4	<b>14.4</b>	20.0	<b>13.0</b>
C	7.3	<b>4.9</b>	6.7	<b>4.9</b>	6.4	<b>4.7</b>	6.9	<b>4.6</b>	7.5	<b>4.9</b>	6.4	<b>4.8</b>
D	4.8	<b>5.8</b>	5.2	<b>5.1</b>	5.2	<b>4.9</b>	4.8	<b>4.8</b>	4.7	<b>4.2</b>	5.0	<b>4.2</b>
E	20.6	<b>19.4</b>	18.6	<b>21.0</b>	18.8	<b>23.0</b>	19.0	<b>23.4</b>	19.1	<b>25.5</b>	18.6	<b>26.5</b>
F	5.1	<b>6.3</b>	5.3	<b>6.0</b>	5.4	<b>5.8</b>	5.0	<b>5.4</b>	5.6	<b>5.9</b>	5.5	<b>6.1</b>
G	2.9	<b>3.4</b>	4.0	<b>3.6</b>	3.9	<b>3.7</b>	4.8	<b>3.9</b>	5.4	<b>4.1</b>	5.4	<b>4.0</b>
H	11.3	<b>14.2</b>	12.7	<b>13.6</b>	13.0	<b>12.4</b>	12.5	<b>12.2</b>	10.6	<b>11.1</b>	11.6	<b>11.4</b>
I	2.9	<b>2.6</b>	3.1	<b>3.1</b>	3.1	<b>2.9</b>	3.5	<b>2.6</b>	3.6	<b>2.7</b>	3.3	<b>2.5</b>
J	6.8	<b>9.7</b>	6.8	<b>9.4</b>	7.5	<b>9.1</b>	7.1	<b>8.8</b>	6.9	<b>8.0</b>	6.9	<b>8.5</b>
K	1.1	<b>0.8</b>	1.4	<b>1.0</b>	1.3	<b>1.0</b>	1.2	<b>1.0</b>	1.2	<b>1.1</b>	1.3	<b>0.9</b>
L	5.8	<b>9.0</b>	5.3	<b>8.7</b>	5.3	<b>8.9</b>	5.4	<b>9.7</b>	4.8	<b>7.0</b>	7.2	<b>7.1</b>
M	6.2	<b>10.7</b>	6.3	<b>10.4</b>	6.7	<b>10.5</b>	7.7	<b>10.3</b>	8.3	<b>11.1</b>	8.9	<b>11.2</b>

Notes: \* A = Expenditures, B = Food and non-alcoholic beverages, C = Alcoholic beverages, tobacco and narcotics, D = Clothing and footwear, E = Housing, water, electricity, gas and other fuels, F = Furnishings, household equipment and routine household maintenance, G = Health, H = Transport, I = Communications, J = Recreation and culture, K = Education, L = Restaurants and hotels, M = Miscellaneous goods and services

### 3.3. Trends in expenditure shares and convergence process in European countries

Several concepts of convergence exist, including beta convergence, sigma convergence, and gamma convergence. This study focuses on sigma convergence, which is analyzed by observing changes over time in the value of a coefficient that measures the diversity of variables. In other words, sigma convergence means a decrease in the dispersion of economies (countries or regions) in terms of the degree of development. It occurs when the differentiation of the studied variables between countries decreases over time. Sigma convergence occurs if the slope of the trend line, i.e. the assessment of the parameter at variable  $t$  in formula (1) in section Data and Methods, is negative and statistically significant.

In the years 2000-2021, the rate of change in the share of expenditure on food and non-alcoholic beverages, transport, recreation and culture, and other consumer goods and services showed a negative trend. This means that in the European countries the shares of the discussed categories of expenses were more concentrated around the average, and the differences between the indicated shares of expenses between countries were decreasing, i.e. the process of convergence was taking place. Food and non-alcoholic beverages are basic necessities, while recreation and culture are needs of a higher order (table no. 4). The equalization of the share of expenditures for these needs indicates the harmonization of the standard of living in European countries. The process of divergence, increasing differences between countries in the years 2000-2021 concerned such expenditure categories as the shares of expenditure on clothing and footwear, communication, and education. In other categories of expenditure shares, stabilization was demonstrated in European households in terms of equalizing differences.

**Table no. 4. Trends in Expenditure Shares and Convergence Process  
in European Countries**

Specification	The slope of the trend	p	R2
Food and non-alcoholic beverages	-0.0037	0.0000	0.9374
Clothing and footwear	0.0010	0.0263	0.1846
Communications	0.0032	0.0000	0.8191
Recreation and culture	-0.0051	0.0000	0.7091
Education	0.0197	0.0012	0.3848
Miscellaneous goods and services	-0.0081	0.0000	0.8343

### Conclusions

The study highlights that a country's geographical location, economic conditions, and historical background significantly influence consumption patterns in the European households. Western European countries, with higher levels of economic development and disposable income, tend to spend more on higher-order goods, travel, and entertainment. In contrast, Eastern European countries, due to their post-socialist legacies and lower average incomes, prioritize basic necessities.

The implications of contrasting household budget allocation patterns for individual well-being, economic stability, and social inequality in Western and Eastern European societies are significant. Differences in how households allocate their budgets impact various aspects of individuals' lives and the overall socioeconomic landscape. Household budget allocation

patterns influence the well-being of individuals and their families. The way households allocate their budgets can also impact economic stability. Household consumption plays a crucial role in driving economic growth globally, including in both Western and Eastern European societies. If households allocate a significant portion of their budgets to consumption, it can stimulate demand and contribute to a stable and growing economy. Contrasting household budget allocation patterns can contribute to social inequality within Western and Eastern European societies.

The conducted research led to the following conclusions:

- Two general patterns of consumer spending can be distinguished in European households, with an East-West division emerging as a general trend. However, certain countries, particularly in Southern Europe, do not consistently align with either pattern, 'floating' between the two groups depending on the year. The consequence of differences in the proportions of spending on basic and higher-order goods are inequalities in the level and quality of life. Despite the changing proportions between spending on basic and higher-order goods, the differences in consumption spending structures remain relatively stable over time between households from Eastern and Western Europe. The group of countries representing Eastern Europe included Bulgaria, Estonia, Latvia, Lithuania, Poland, Romania, Bosnia and Herzegovina, and Serbia. The group of Western European countries included Belgium, Germany, France, Netherlands, Denmark, Sweden, Finland, Italy, Norway, Iceland, Austria, and Spain.

- In the years 2000-2021, the standard of living in European households improved. The levels of share of spending on food and non-alcoholic beverages, culture and recreation, miscellaneous goods and services have been unified. In the poorer countries (due to consumption patterns) from Eastern Europe, the percentage of expenditure on food decreased, while the expenditure on recreation and culture, other goods and services increased (see table no. 4).

The obtained results, due to the complexity of the studied phenomenon, support the research hypothesis presented in the introduction of the article only to a certain extent but do not fully confirm it. The study's findings underscore the complex nature of consumption convergence within the EU, where broad trends indicate gradual alignment, but persistent economic and social differences remain between Western and Eastern Europe. These findings point to an incomplete yet ongoing process of integration that reflects broader economic and social cohesion efforts within the EU. While consumption of certain goods is converging, substantial disparities in living standards and consumption choices persist, particularly due to differing economic backgrounds and historical legacies. This partial convergence suggests that further policy efforts are needed to bridge consumption disparities and improve quality of life across the EU. Targeted social policies and investment in Eastern Europe could accelerate this process, creating a more balanced standard of living that enhances social cohesion and well-being.

In the context of European integration, these findings imply that achieving a truly unified consumer market will require continued efforts to address economic inequality. Businesses and policymakers alike must consider these regional disparities in consumer spending, adopting strategies that support sustainable economic integration and regional economic stability. Future research could provide deeper insights into the underlying drivers of both

convergence and divergence, further informing effective policy and business responses to Europe's evolving consumption landscape.

The study found significant differences in consumer expenditure between Western and Eastern European countries. Practitioners should consider these regional variations in consumer spending patterns and preferences when tailoring marketing strategies, product offerings, and pricing to specific markets. Policymakers should address economic inequalities and invest in education, healthcare, and infrastructure to improve living standards in Eastern Europe. Understanding consumer preferences in different regions can enhance business competitiveness.

Given the reliance on secondary data in this study, it would be beneficial to complement this approach with primary research, such as surveys or interviews, to enhance the accuracy and timeliness of the findings. Future research should consider individual factors and demographics to understand consumer expenditure within countries. Researchers could explore the underlying drivers of the observed convergence and divergence in consumer expenditure structures. For instance, they might examine how economic development, as measured by GDP per capita, influences spending patterns in different regions of the EU. Additionally, analyzing the effects of income inequality, such as the Gini coefficient, could reveal disparities in consumption choices. Investigating cultural values through cross-cultural surveys and assessing the impact of government policies, like tax incentives and social welfare programs, could provide a deeper understanding of the mechanisms at play. Conducting comparative studies between different regions or continents could shed light on global consumption patterns and their implications. Exploring similarities and differences in consumer expenditure structures across diverse contexts can contribute to a more comprehensive understanding of consumer behavior on a global scale.

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