MARLENA PIEKUT[*]

The Rich North-west, The Poor Middle-east – Consumption In EU Households

Abstract

The aim of paper is to analyze household consumption in EU countries in the 21st century. The two hypotheses posited have been confirmed. The start of the 21st century saw an increase in consumer spending in EU households and reduction in the disparities between households of different countries. At the end of the first decade there was a stabilization in consumer spending. The differences in consumption between households can be considered as a) the effect of freedom of choice, and b) a consequence of specific restrictions that do not allow for an appropriate level of funds to meet household needs. Households with the most favourable situation are located in the United Kingdom and Austria. The most unfavourable situation can be observed in the households of Estonia, Latvia, Poland, Romania and Bulgaria.

Keywords: *households, EU, consumer expenditures, disproportions*

1. Introduction

A major aim of the European Union is to reduce differences in the level of development of the various regions and the backwardness of the outermost regions, including rural areas. As a result of the Treaty of Maastricht in 1992,

[*] Ph.D., Warsaw University of Technology, College of Economics and Social Sciences

instruments and policies were established with the common goal of reducing the asymmetry in the EU regions.

The subject of convergence became popular in new EU Member States upon their accession to the EU. Since then countries from Central and Eastern Europe have been beneficiaries of the cohesion policy - a regional policy of the EU aimed at increasing the level of economic, social, and territorial (spatial) cohesion. While the economic aspect is a very thoroughly researched area of convergence studies, the social aspects are less often covered in the specialist literature.

The aim of paper is to analyze the level and structure of household consumption in EU countries and also to identify changes in consumer spending in 21st century.

Accordingly, research problems posed for the following analysis are:

- To indication the level of consumer spending and its structure in EU households in 21st century.
- To indicate the variability of consumer spending in the period 1995–2011 in EU households.
- To divide EU countries into groups based on similar levels of consumer spending and similarities in their structure.

The following hypotheses were formulated:

Hypothesis 1: The start of the 21st century saw an increase in consumer spending in EU households and a reduction in the disparities between the households of different countries. At the end of the first decade, due to the economic crisis, there has been a stabilization in consumer spending in the EU.

Hypothesis 2: The differences in consumption between households can be considered as a) the effect of freedom of choice; and b) a consequence of specific restrictions that do not allow for an appropriate level of funds to meet the household needs.

This paper is organized as follows. This introduction, which includes the purposes and hypotheses of the report, is followed by a literature review in Section 2. Section 3 describes and explains the research methodology. Section 4 presents empirical results obtained by the panel data analysis approach. It includes a sub-section focusing on analysis of the wear indicator of AIC per capita; a second sub-section classify EU countries according to their AIC; and a third sub-section dealing with the structure of expenses of households in selected countries. Section 5 provides results and discussion, and the final Section 6 contains conclusions.

2. Literature review

The level of affluence of a population and households is dependent on many factors, among which income is particularly important (Piekut 2009). It is a major determinant of the level of needs, both in terms of quantity and qualitatively (Gutkowska et. al., 2012).

There are significant differences in average household income between the various EU Member States. The highest household incomes are in households located in Luxembourg, followed by Austria, Cyprus and France. The lowest incomes were recorded in Romania, Bulgaria, Latvia and Lithuania (see Figure 1).

Figure 1: Mean equivalent net income in households in EU countries in 2005 and 2011, in PPS[1]
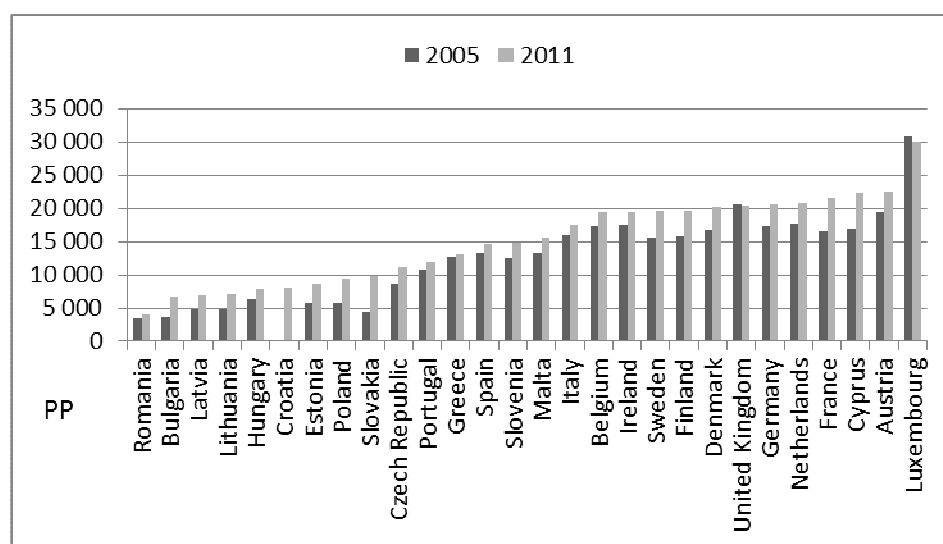
Comment: due to the lack of 2005 data relating to income, the data for 2005 for Romania was taken from 2007 and for Bulgaria from 2006.

Source: own work on the basis of *Eurostat Database*, 2013.

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[1] The PPS (purchasing power standard) is - according to Eurostat (Eurostat – OECD 2005) - a substitute currency unit. Hypothetically, one PPS can buy the same number of goods and services in each country. On the other hand, differences in prices across borders mean that different amounts of national currency units are necessary for the same goods and services depending on the country. PPS is derived by splitting any economic aggregate of a country in national currency by its respective purchasing power parities. Eurostat uses PPS as the technical term for the common currency in which national account aggregates are articulated when adjusted for price level differences using PPPs. Therefore, PPPs can be interpreted as the exchange ratio of the PPS against the euro.

Household income is regarded as the maximum amount that a household can spend on consumption (purchase of goods and services) within a certain period, without the need to fund these expenditures from savings, liquidation of tangible or financial assets, or borrowing. The size of household incomes determines the size and dimensions of expenditure on consumption. Thus each increase or decrease in income (expressed in real terms) also leads to an increase or decrease in consumption (Janoś-Kresło 2006).

Income distribution is one of the most significant problems in modern society. Normally, it is considered that a severe polarisation in terms of income per capita can have a great negative impact on the universal process of economic development (Albu 2012).

Bogović (2002) indicates that private consumption acts as an accelerator of economic growth and development. Consumption is also seen as a specific "locomotive" of economic growth (Bywalec 2007). Increasing the value of consumer spending has multiplier effects in both total production and the economy. In particular, an increase in consumer spending increases the demand for goods and services and thus increases their production. However, this impact is not limited to the production of one sector but all other sectors of the economy, on the basis of output-input. Thus, an increase in personal consumption directly affects the development of one part of the economy, and indirectly the whole economy.

The economic crisis in 2008-2010 had its source in the irrational behavior of household members. Many members of households did not recognize their financial capabilities when they took out loans, and as a result many households became insolvent. The scale of the phenomenon was so great and widespread that it lead to the global economic and financial crisis (Bywalec 2012).

3. Research methodology

This analysis included statistical data from the statistical offices of Germany, Poland and Eurostat. The object of interest was EU countries.

To illustrate the similarities and differences in consumer spending in selected countries we used Ward's analysis and the k-means method.

Ward's cluster analysis method is a hierarchical clustering method which does not require the number of clusters previous. At the beginning of the procedure, it is assumed that each entity (object) is the focus of a separate step, then connects to a group of objects most similar to each other until one cluster forms containing all observations.

Ward's cluster analysis method is considered to be effective because it ensures the homogeneity of the objects inside the cluster and simultaneously the heterogeneity between clusters (Ward 1963). The classification of countries has incorporated the adjusted per capita consumption of individuals.

The k-means method of clustering is different from hierarchical clustering and the Ward method, which are applied when there is no prior knowledge of how many clusters there may be or what they are characterized by. K-means (MacQueen 1967) consists of unsupervised learning algorithms. The main idea is to define k centroids, one for each cluster. K-means clustering aims to partition n observations into k clusters, in which each observation belongs to the cluster with the nearest mean, serving as a prototype of the cluster.

Frequently, both the hierarchical and the k-means methods are used successively. The former (Ward's method) is used to get some sense of the possible number of clusters and the techniques then merge as seen from the dendrogram. Then the clustering is re-run with only a chosen optimum number in which to place all the cases (k-means clustering). Deciding upon the optimum number of clusters is largely subjective, although looking at a dendrogram may help. Clusters are interpreted solely in terms of the variables included in them. Clusters should also contain at least four elements. If we drop to only three or two elements, they cease to be meaningful (Burns and Burns 2008).

The choice of the correct classification was based on the Tabular Accuracy Index (TAI). Calculated by the formula (1) "Evans (1977)":

$$TAI = 1 - \frac{\sum\limits_{j=1}^{k} \sum\limits_{i=1}^{n_j} \left| x_{ji} - \overline{x_j} \right|}{\sum\limits_{i=1}^{n} \left| x_i - \overline{x} \right|} \qquad (1)$$

where:

x_i- the sum of the values in the set,

n - the size of the set,

$\overline{x}$ - the arithmetic mean of the whole set,

k- the number of classes,

x_{ji}- values belonging to the j-th class,

n_j- number of j-th class,

$\overline{x_j}$ - the arithmetic mean of the values found for the j-th class.

The TAI ratio has a value in the range <0,1>. The better the class division reflects the nature of the data, the higher will be the value.

For the classification connected with actual individual consumption expenditure levels, thirteen variables, connected with the AIC expenditure level per capita over the period 2000-2012, have been applied. The TAI value was calculated using the coefficient of variation, as studied similarity countries due to the variability of the AIC.

For the second classification, connected with the structure of expenditure in households, twelve variables, being categories of household expenditure in 2011, have been applied. The TAI was calculated on the basis of the share of expenditure on basic goods, i.e. the share of expenditures on food and fees associated with the maintenance of living premises.

To illustrate the dynamics, the average rate of change was used. This benchmark determines the growth or decrease in the examined phenomenon over a stated time, in relation to the magnitude of this occurrence in the reference period. First, chain indices were calculated (2); and next average values for the given period were established (3) using the given indices.

$$i = y_n / y_{n-1} \qquad (2)$$

i – the chain index

y_n – the analysed period, the present year for which the index is being defined

y_{n-1} – the base period, the year before the present year.

$$\overline{i_G} = \sqrt[n-1]{i_{n/n-1} \cdot i_{n-1/n-2} \cdot ... \cdot i_{2/1}} = \sqrt[n-1]{i_{n/1}} - 1 \qquad (3)$$

i_G – the average rate of change for the analysed period.

The research period encompassed the years 2000-2012.

The statistical analysis was recalculated with Statistica 10 and Excel.

4. Empirical results

4.1. Consumption in households

The first decade of 21st century began with improving economic conditions and increasing economic growth. The Gross World Product in 2001-2003 increased by nearly 10%. Economic acceleration was also seen in the next triennium before the economic crisis. Consumer expenditures of households increased in all EU countries.

A good index for illustrating the level of consumption between countries is actual individual consumption per capita (AIC). While GDP per capita is principally an indicator of the level of economic activity, AIC per capita is an alternative indicator better adapted to represent the material welfare and situation of households. Goods and services actually consumed by individuals, irrespective of whether these goods and services are purchased and paid for by households, by government or non-profit institutions, consist of actual individual consumption. In international volume comparisons, AIC is often seen as the preferable measure, since it is not affected by the fact that the organization of certain significant services consumed by households, like education and health services, vary greatly across countries (Eurostat – OECD 2005).

In general, levels of AIC per capita are more homogeneous than GDP, but still there are substantial differences across the EU countries. In 2012, twelve countries are clustered above the average of the EU-28. Luxembourg has the highest level of AIC per capita in the EU, 90% above the average of the EU-27.

The EU Member State with the second highest AIC per capita is Denmark, at 67% above the average of the EU-28, and then Sweden (59% above), Finland (43% above), the United Kingdom and Austria (each with 32% above) (see Figure 2 below).

In 2001-2003 the highest average growth rate of AIC was recorded in Hungary, Bulgaria, Estonia and the Czech Republic, with yearly increases from 11.0% to 15.6%. In the same period, a relative stabilization of AIC was noted in Malta, the United Kingdom, Sweden and Poland. In the next three years the highest increases in AIC were observed in Romania (24.8%) and Latvia (18.3%). More than 11-percent growth was also noted in Lithuania, Estonia, Slovakia, Bulgaria and Poland. Relative stability was observed in Germany. The first symptoms of the crisis in households manifested themselves by declines in consumer spending. This situation appeared in 2008 in the United Kingdom and Sweden (Piekut 2013). The crisis provoked decreases in AIC in the United Kingdom (a decrease from year to year of 6.8%), Sweden (2.1%) and Ireland (1.7%) in the years 2007-2009. Stabilization or a slight increase in the AIC was noted in other countries. The largest increase in the AIC was observed in Slovakia (14.9%), in other countries it was 8.3%. In the period 2010-2012 a declining growth rate was recorded Greece (a decrease in AIC from year to year of 5.4%), Ireland (1.7%), Portugal (0.8%) and Cyprus (0.2%). In other countries, a slowdown in the previous growth of AIC was observed. The largest increases were recorded in Sweden (10.1%).

In summary, during the 13-year period the greatest rate of change in the AIC was observed in Slovakia and Romania, with increases from year to year in the AIC of 10%. The following numbers (in terms of the size of the AIC) were

recorded in the post-communist countries (Lithuania, Bulgaria, Latvia, Estonia, the Czech Republic, Poland and Hungary): the average AIC from year to year during the period 2000-2012 increased by more than 5.5% to almost 10.0%.

Figure 2. The rate of change of AIC adjusted per capita in period 2001-2012 in the EU, in %
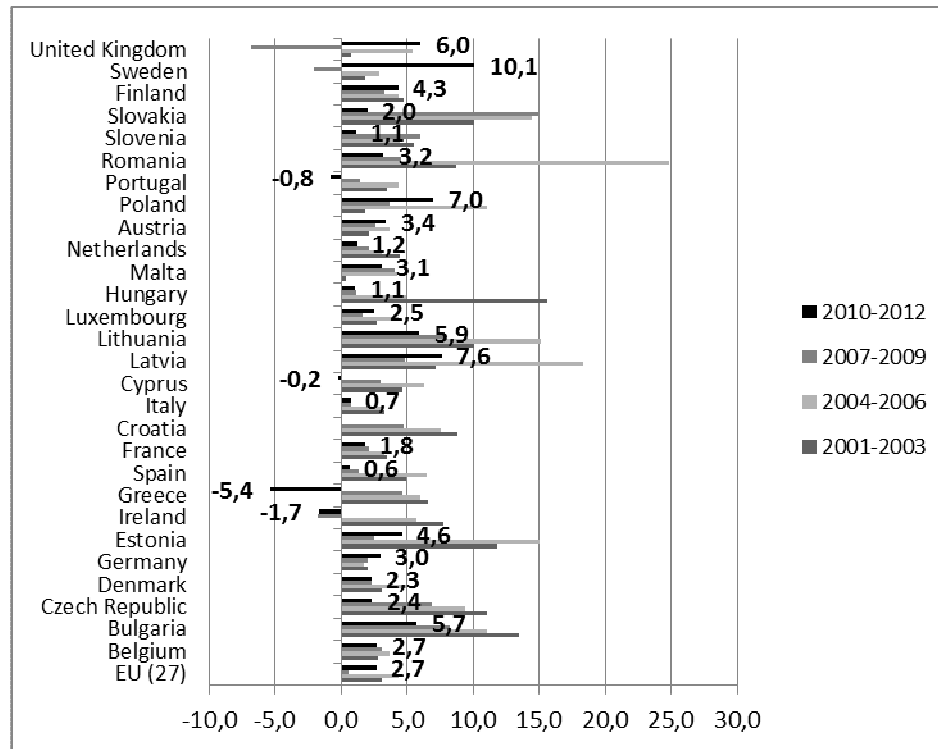
Source: authors' own calculations based on the Eurostat Database, 2013.

4.2. Classification of countries with respect to actual individual consumption

Clustering was used for the analysis of household expenditures and structure of expenditures in households in the EU countries. Ward clustering and the k-means methods were used. The respective analyses yielded slightly different results (Table 1).

Table 1. Cluster countries with respect to the AIC by using the method of Ward and k-means

Cluster	Ward method	k-means method
I	Sweden, United Kingdom, Ireland, Finland, Germany, the Netherlands, France, Austria, Belgium	*Luxembourg, Denmark*, Sweden, the United Kingdom, Ireland, Finland, Germany, the Netherlands, France, Austria, Belgium
II	*Luxembourg, Denmark*	**Portugal, Slovenia, Malta,** <u>Croatia</u>
III	Hungary, <u>Croatia</u>, Slovakia, Poland, Lithuania, Latvia, Estonia, Czech Republic, Romania, Bulgaria	Hungary, Slovakia, Poland, Lithuania, Latvia, Estonia, the Czech Republik, Romania, Bulgaria
IV	**Portugal, Slovenia, Malta,** Cyprus, Spain, Greece, Italy, EU (28 countries)	Cyprus, Spain, Greece, Italy, EU (28 countries)

Source: authors' own calculations based on the *Eurostat Database*, 2013.

The level of actual individual consumption in individual countries is diversified, although a tendency toward reduction of the differences can be observed. The c*oefficient* of *variation for* AIC between the countries being analyzed was 52.1% in 2012, whereas it had been 58.5% in 2005 and 65.4% in 2000. (It is known that if the c*oefficient* of *variation for any cluster is higher than* 50%, the data set is considered as having great variability.)

The cluster analysis *(using Ward's method)* in respect of the level of AIC resulted in the formation four groups of countries. The number of clusters was determined based on the graph of node distance in relation to the node steps, as well as the length of the arms of the dendrogram. In the dendrogram of the clustering result, the longer branches of clusters (where the distances between cluster are bigger) are cut off to obtain the optimal number of clusters. This was followed by the cluster analysis method adopting the k-means, subdivided into four concentrations.

The Tabular Accuracy Index (TAI) for the Ward method was 0.75 and for the k-means method was 0.80. For further analysis the division of countries using the k-means method was adopted.

The first cluster (using the k-means method) is the largest and contains 11 countries, i.e., Luxembourg, Denmark, Sweden, United Kingdom, Ireland, Finland, Germany, the Netherlands, France, Austria and Belgium. These countries had the greatest AIC per capita: from 21,200 euros in Ireland to 34,800 euros in Luxembourg in 2012. In the Ward's clustering method, Luxembourg and Denmark were a separate cluster. From 2000 to 2012 the AIC was the greatest in the mentioned countries. During the first twelve years after 2000, the AIC in cluster I increased from almost 16% in the United Kingdom to over 63% in Finland.

The second cluster (using the k-means method) was comprised of four countries, i.e. Croatia, Malta, Portugal and Slovenia. The AIC per capita in these countries were relatively high and in 2012 ranged from 11,600 euros in Malta to 12,200 euros in Slovenia. In the cluster analysis using the Ward's method, Croatia was included in cluster III. Euclidean value indicated that the nearest neighbour to Croatia was Hungary, and then Estonia and Poland. Between 2000 and 2012, the growth rate of the AIC varied across the countries in this cluster, increasing by 28% in Portugal and even by 65% in Slovenia.

The 3rd cluster (using the k-means method) contained the following countries: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia. In all of these countries the AIC was situated below the average for the UE-28. The highest AIC was recorded in the Czech Republic, Slovakia and Lithuania (from 8200 to 8900 euros per capita), and the lowest in Bulgaria and Romania (3900 and 4400 euros per capita respectively). The rate of AIC growth between 2012 and 2000 increased from approximately two times in Hungary and Poland to three times in Slovakia, Romania, Lithuania and Bulgaria.

The 4th cluster includes Cyprus, Greece, Italy and Spain. The AIC in the 4th cluster was greater than the 2nd and 3rd clusters, but less than the 1st. The AIC in these countries oscillated near the average for the EU-28 (18,300 euros per capita in 2012). In 2012 the AIC ranged from 13,900 euros per capita in Greece to 18,800 euros per capita in Italy. In this group of countries the AIC increased by various factors: from 26% in Italy to 48% in Spain.

4.3. The classification of countries regarding their structure of household expenditures

An important part of consumption analysis is the *structure of household expenditures*. Ernest Engel, Saxon's statistic researcher of household budgets in the 21st century, pointed out certain regularities in consumption. He noticed that along with the increase of incomes overall spending and consumption also grows. We also found the growth rate of expenditure on food is weaker than non-food items, meaning that in affluent households the share of food in total household expenditure is lower, while services related to education and recreation grow in importance in the structure of expenses.

The structures of household expenditures *were much more diverse.* The highest c*oefficient* of *variation was observed for education (51.8%), hotel* and restaurant services (44.6%) *and alcoholic beverages and tobacco (42.5%) i*n *2011.* The greatest diversification was seen in health care - *the c*o*efficients* of

variation reached over 30.5% in the mentioned period. The c*oefficients* of *variation for food and non-alcoholic beverages were* 22.8%. The smallest disparity was observed for the costs of housing, transportation, recreation and culture.

The cluster analysis *(using the Ward`s method)* in respect of the structure of households expenditures resulted in the formation of five groups of countries. Cluster analysis was also performed using the k-means method and yielded a slightly different result than the Ward method (see Table 2).

The Tabular Accuracy Index (TAI) for the Ward method was 0.56 and for the k-means method 0.40. For further analysis we adopted the division of countries ensuing from the Ward method.

Table 2. Clusters of countries arising from the structure of household expenditures using the Ward method and the k-means method

Cluster	Ward method	k-means method
I	Portugal, Malta, Cyprus, Spain, *Ireland*	Portugal, Malta, Cyprus, Spain
II	Slovenian, **Hungary,** Italy, Greece, **Latvia, Estonia**	Slovenian, Italy, Greece, *Ireland,* <u>Austria</u>, EU (27 COUNTRIES)
III	Slovakia, Poland, the Czech Republic	Slovakia, Poland, the Czech Republic
IV	***the United Kingdom, Luxembourg,*** <u>Austria</u>	**Hungary, Latvia, Estonia**
V	the Netherlands, Germany, Belgium, France, Sweden, Finland, Denmark, EU (27 COUNTRIES)	***the United Kingdom, Luxembourg,*** the Netherlands, Germany, Belgium, France, Sweden, Finland, Denmark

Source**:** authors' own calculations based on the *Eurostat Database*, 2013.

The first cluster comprises five countries: Portugal, Malta, Cyprus, Spain and Ireland. The share of expenditures on food in the total household expenditures ranged from more than 10% in Ireland to nearly 17% in Portugal. The share of expenditures on housing were smaller and ranged between 12% (Malta) and 21% (Ireland). The share of expenditures on hotels and restaurant services were the greatest, from above 11% in Malta to 18% in Spain (see Table 3).

The 2nd cluster covers Estonia, Greece, Italy, Latvia, Hungary and Slovenia. The shares of expenditures on food ranged from almost 14% in Italy to about 20% in Estonia and Latvia. The share of expenditures on basic needs (food, soft drinks and housing) observed in Latvia – nearly 45% of total expenditures – was the largest compared to other countries in clusters.

The 3rd cluster covers the Czech Republic, Poland and Slovakia. The share of expenditures on food in total household expenditures for these countries oscillated from about 15% in the Czech Republic to 19% in Poland. This share is high compared to other clusters (in particular in comparison to clusters I, IV and V).

Expenditures on basic goods absorbed 41-43%. The share of expenditures on alcoholic beverages and tobacco products was the highest and ranged from 5% in Slovakia to more than 9% in the Czech Republic.

The 4th cluster also includes three countries, i.e. Luxembourg, Austria and the United Kingdom. In these countries the share of expenditures on food in total household expenditures was the lowest, at about 9-10%. Expenditures on basic goods absorbed 31-33% of total household expenditures and was the lowest of the clusters.

The 5th cluster has the greatest number of countries, i.e., Belgium, Denmark, Germany, France, the Netherlands, Finland, Sweden and EU (27 countries). The share of expenditures on food ranged from above 11% in Denmark to almost 14% in France. In Denmark housing costs accounted for a third of total expenditures. This was the highest share among the EU countries. In households in other countries in the cluster, housing fees ranged between 24% and 27%. In these countries expenditures on alcoholic beverages and tobacco products accounted for small shares of total household expenditures, from 3% in Germany and the Netherlands to 5% in Finland.

Comparing the structure of expenditure in European households with previous years leads to the following conclusions (Piekut 2013): the share of expenditure on food and non-alcoholic beverages was declining and the share of expenditure on secondary goods (recreation and culture, catering and hotel services) in households was increasing.

Table 3. The structure of household expenditure in EU countries in 2011

Specification	Food and non-alcoholic beverages	Alcoholic beverages and tobacco	Clothing and footwear	Housing, water, electricity, gas and other fuels	Furnishings, household equipment maintenance	Heath	Transport	Communications	Recreation and culture	Education	Hotels and restaurants	Miscellaneous goods and services
I cluster												
Ireland	10.4	5.8	4.4	21.5	4.6	5.0	13.3	3.0	7.4	2.2	13.1	9.3
Cyprus	12.6	4.4	6.0	18.6	5.0	5.0	11.5	3.4	7.9	2.7	15.3	7.8
Spain	13.8	2.9	5.3	20.4	4.8	3.5	11.5	2.8	8.1	1.4	17.7	7.9
Malta	15.2	3.0	4.3	12.0	6.8	4.4	13.1	3.4	10.3	1.3	16.0	10.1
Portugal	16.8	3.1	6.0	15.3	5.8	5.9	12.6	3.1	7.2	1.3	11.2	11.6
II cluster												
Italy	14.2	2.8	7.4	22.4	7.2	2.9	12.8	2.4	7.3	1.0	10.2	9.6
Slovenian	14.8	5.4	5.5	19.4	6.1	3.7	15.1	3.2	8.7	1.2	6.9	10.0
Greece	16.2	4.4	3.7	23.8	4.0	6.4	11.8	2.9	5.6	2.4	11.7	7.0
Hungary	17.1	7.4	2.8	21.9	4.3	4.3	13.0	3.7	7.5	1.4	6.7	9.9
Estonia	19.8	9.1	6.3	20.0	4.0	2.6	13.2	3.3	6.4	0.6	7.5	7.1
Latvia	19.9	7.4	4.9	24.8	3.5	3.8	13.6	3.3	7.3	1.8	4.8	5.0

III cluster												
Czech Republic	14.7	9.2	3.1	26.5	5.3	2.5	9.3	3.0	9.4	0.6	7.7	8.6
Slovakia	17.4	5.0	4.0	25.5	6.1	4.0	7.3	3.7	9.5	1.5	5.5	10.6
Poland	18.9	6.5	4.2	24.3	4.5	4.4	10.0	2.9	7.7	1.2	2.8	12.6
IV cluster												
Luxembourg	8.5	8.4	4.6	23.9	6.4	2.0	19.1	1.7	6.9	0.8	7.0	10.5
the United Kingdom	9.1	3.7	6.0	23.9	5.0	1.8	14.2	2.2	10.7	1.5	10.0	11.8
Austria	9.9	3.4	5.7	21.5	6.5	3.5	13.4	2.1	10.4	0.7	12.1	10.7
V cluster												
Denmark	11.4	3.5	4.6	29.1	5.0	2.8	12.3	1.7	10.9	0.8	5.2	12.6
Germany	11.5	3.2	4.9	24.4	6.2	4.8	14.0	2.6	8.9	1.0	5.9	12.6
the Netherlands	11.8	3.1	5.4	23.8	6.0	2.7	12.5	4.1	10.0	0.6	5.1	14.8
Sweden	12.2	3.6	4.8	26.9	5.0	3.2	13.3	3.3	11.1	0.3	5.6	10.7
Finland	12.2	4.9	4.9	26.9	5.3	4.7	11.2	2.2	11.3	0.4	6.4	9.5
Belgium	13.4	3.5	5.0	23.9	5.7	5.6	12.4	2.1	9.0	0.5	6.1	12.8
France	13.5	3.2	4.3	25.1	5.8	3.9	14.4	2.6	8.4	0.8	7.1	11.1
EU (27 countries)	12.9	3.6	5.3	23.6	5.7	3.7	13.2	2.7	8.8	1.1	8.6	10.9
Coefficient of variation	22.8	42.5	20.6	16.4	17.4	30.5	16.9	21.9	18.2	51.8	44.6	21.3

Comment: this analysis did not include Bulgaria, Romania, Lithuania and Croatia due to the lack of data.

Source: own work based on data Volkswirtschaftliche…2012.

5. Results and discussion

It can be concluded that the countries of Northern and Eastern Europe had higher AIC per capita and smaller shares of expenditures on food. Households with the most favorable situation are in the United Kingdom, Austria and Luxembourg. Germany, the Netherlands, Belgium, France, Sweden, Denmark and Finland, which also have a high level of AIC and relatively low the share of expenditures on food.

In countries where households do not have large budgets, the insufficient level of consumer spending also reflected a poorer structure of consumption, with most of the spending for basic needs (food and housing costs). In these countries, it is important to make greater use of the existing production capacity, the development of new industries and changes in the structure of production so as to achieve an appropriate level of demand in the domestic market (Bogović 2002).

Household spending increased in the 21st century, and the difference in spending between the different European countries decreased. During the crisis, there has been a decrease in the stabilization of household expenditures. Gerstberger, Yaneva (2013) indicate that the effects of the financial and economic crisis have varied significantly. The Baltic economies and Greece were the most severely affected, with loss of actual individual consumption (in volume terms). While actual individual consumption started to recover in the Baltic countries in 2011, the contraction accentuated in Greece as a result of the deepening recession and debt crisis. In Romania, Hungary, Bulgaria, Ireland and Poland actual individual consumption also fell, while it expanded in Luxembourg and Sweden.

Glick, Lansing (2010) show that the efforts of households in many countries to cut down their elevated debt loads via increased savings could lead to sluggish recoveries in consumer spending. Higher rates of saving and correspondingly lower rates of domestic consumption growth would mean that a larger part of GDP growth would have to come from business investment, net exports, or government spending. Debt reduction might also be made via various forms of default, such as real estate short sales, foreclosures, and bankruptcies. But such de-leveraging includes significant costs for consumers, who may have tax liabilities on forgiven debt, legal fees, and lower credit ratings.

The AIC growth rate in the countries of Central and Eastern Europe was higher than in the countries of Western and Northern Europe in the early 21st century. However, the crisis has slowed down the growth of AIC. Although each year the differences between EU countries' level of consumption are reduced, there are still significant disparities between the household expenditures of different countries. The new EU members, which joined the Union during the

years 2004-2012, increased their consumer spending levels faster than the others. The highest growth factor in the 2000 to 2012 period was observed in Romania, Slovakia, Bulgaria and Lithuania (above 10.0). Significant growth factors could also be observed also in Latvia, the Czech Republic and Estonia. In Malta and Slovenia household expenditures increased at a slower pace – the growth factor did not exceed 4.3 for these countries.

In recent years, many households of the East European countries have been exposed to market rules and the consequences of their countries' socio-economic transformations their accession to the EU. This has transposed their character and their manner of performance on the market and, accordingly, created changes in area of consumption.

The countries of Central and Eastern Europe had relatively smaller AICs and greater shares of expenditures on food, i.e. households from Estonia, Latvia, Poland, Hungary and Slovakia had relatively lower levels of AIC and a higher share of food in their total household expenditures. Countries where households income or wealth are higher are characterized by lower shares of food expenditures to income (Eurosystem 2013). The above analysis shows the differences in the structure of household expenditures between countries. However, it should also be noted that there are differences depending on the type of household within the country itself. In Poland available income per capita in 2011 for the poorest households (1st quintile group) was 399.33 zł, while for the wealthiest households (5th quintile group) the amount was 3308.57 zl. Available income categorized by family/biological type of household was from 719.09 in marriages with three or more dependent children to 1743.40 zł in marriages without children (Household…2012). Dabrowska's Research (2006) shows that in Polish high income households (income amounting to more than 5000 zł per person), there were relatively small differences in consumption patterns compared to the countries of the "old EU".

The bottom line is that food consumption in households is more evenly assigned than income and net wealth. The fact that spending on food is relatively evenly distributed reflects the fact that households engage in consumption smoothing, so they try to support consumption expenditures even when income or wealth is subject to adverse shocks (crisis). Other documents (Cermakova 2001, Piekut 2008) show that spending on food increases with household size (understandably). Consumption is positively equated with income and wealth. As wealth and earnings are also positively correlated with education, it follows that consumption is higher for more educated people. Food consumption increases in the lower age brackets, peaks for middle-aged households, and subsequently declines. This trend partly reflects modifications in household composition over time (Eurosystem 2013).

It also indicates that the shares of the main consumption items have only gradually changed over the past decade. However, there are some medium-term trends, such as a rising share of expenditure on electricity, gas and other fuels, housing costs, water supply and other dwelling services and health, and falling shares for furnishings, clothing, recreation and communications. Some effect of the financial and economic crisis is discernible in the drop in the shares of miscellaneous goods and services, which include financial and insurance services and transport. On the other hand, the shares for food and non-alcoholic beverages, health, actual and imputed housing costs and water supply seem to have increased, which would be consistent with the fact that expenditures on basic needs tends to be more resilient than other consumption items in an economic recession (Gerstberger, Yaneva 2013).

Studies conducted in Poland (Zalega 2013) indicate that a reduction in consumer spending as a result of the economic crisis in households was achieved by reducing food purchases, changing purchasing patterns and consumption, and greater use of home-grown items, with the help of family and assistance provided by various community organizations.

In the recent years there have been a lot of developments in consumption. In Lithuania, Latvia, Poland and the Ukraine the attractiveness of catering establishments has increased the share of consumer expenditures on them. This phenomenon is dictated by the social need to be with other people, strengthening interpersonal relationships and the need for recreation (Dąbrowska 2011).

The Human Development Index (HDI) is a composite statistic of life expectancy, education, and income indices used to rank countries into four tiers of human development. The HDI combines three dimensions: a long and healthy life (life expectancy at birth), education index (mean years of schooling and expected years of schooling), and a decent standard of living (GNI per capita). The index shows that, over the last decade, all countries accelerated their achievements in the education, health, and income dimensions as measured by the HDI - to the extent that no country for which data was available had a lower HDI value in 2012 than in 2000. As more rapid progress was recorded in those countries with lower HDI indexes during this period, there was notable convergence in HDI values globally, although progress was uneven within and between regions. First place among the EU countries belonged to the Netherlands (fourth place in the HDI ranking), followed by Germany, Ireland, Sweden. Among the countries of Central and Eastern Europe, Slovenia appeared first on the list (21st place). Among the countries of Central and Eastern Europe first on the list emerged Slovenia (21st place), followed by the Czech Republic (28th place), Estonia (33rd place), Slovakia (35th), Hungary (37th) and Poland (39th) (Human… 2013).

6. Conclusions

The two hypotheses have been tested, and the set of H1 has been confirmed. *The start of the 21st century saw an increase in consumer spending in EU households and reduction in disparities between households of different countries. At the end of the first decade*, *due to the economic crisis*, *there has been a stabilization in consumer spending in the EU.*

The level and structure of consumption expenditure shows that there is no uniform model of consumption in the EU. There are significant differences both in the levels of expenditure and their structures. During the economic crisis, there has been a stabilization in consumer spending and deepening disparities between households of different countries.

The set of H2 has also been confirmed. *The differences in consumption between households are a) those that can be considered as the effect of freedom of choice; and b) those that are a consequence of specific restrictions that do not allow for an appropriate level of income to meet needs.*

Households in higher income countries have seen increased consumer spending at their preferred structure. This may indicate a large number of households are satisfying the needs of their members. It seems that these families' consumption is the result of freedom of choice and not a consequence of restrictions. However, in households with lower incomes, it can be seen that basic needs (food, housing payments) absorb a significant part of their budget in terms of the structure of their consumption. One can therefore conclude that in these households consumption patterns are a consequence of restrictions.

The analysis also indicates the polarization of consumption in the EU. On the one hand, there are the Nordic countries and Western Europe (high consumer spending, a low share of spending on basic goods) on the other hand, the countries of Central and Eastern Europe. Although many EU funds have been directed to countries at a disadvantage, one can still see disparities between the East and West. In his study, Albu (2012a; 2012b) showed an important convergence process in the EU, regardless of the negative impact of the actual crisis. However, the differences in terms of convergence emerge at the level of groups of countries. It follows that in the EU-10 (recently-joined EU members) a strong convergence is evident, while in the EU-15 ('old' EU members) a major trend of divergence can be observed.

With respect to the test method, we used the two-dimensional distribution of statistical methods in all EU countries with respect to their household expenses.

The use of different statistical methods could divide the groups, that are not covered by the end and are able to draw conclusion. First, one should be cautious about the results using methods belonging to the cluster analysis.

Statistical methods are useful in the study, but should be supported by experts' knowledge in the field. The methods used made it possible to quickly analyze the data and draw some interesting conclusions. Second, it is appropriate to use more than one statistical method in order to make full use of the information contained in the data and allow for a more comprehensive analysis.

It is necessary to continue to monitor the level and structure of expenditures in households. As indicated, consumption acts as a growth accelerator. Higher consumer spending means a faster development of the country. In particular, the idea is to increase consumer spending in the households of Central and Eastern Europe in order to accelerate the development of these countries.

An analysis of household expenditures makes it possible to prepare for future demands and changes thereto. Households in countries with lower levels of consumption will seek to achieve the level of those countries with expenditures on consumption. This analysis should also be of interest to the private sector, since households are the basic consumer unit.

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Streszczenie

**BOGATY PÓŁNOCNY ZACHÓD, BIEDNY ŚRODKOWY WSCHÓD
– KONSUMPCJA W GOSPODARSTWACH DOMOWYCH UE**

Celem artykułu była analiza konsumpcji w gospodarstwach domowych z UE w XXI w. Początek XXI w. przyniósł wzrost wydatków na konsumpcję w gospodarstwach domowych oraz redukcję dysproporcji między gospodarstwami domowymi z różnych krajów UE. Koniec pierwszej dekady XXI w. przyniósł stabilizację w wydatkach na konsumpcję. Gospodarstwa domowe z najkorzystniejszą sytuacją materialną odnotowano w Wielkiej Brytanii i Austrii. Najmniej korzystna sytuacja gospodarstw domowych uwidoczniła się Estonii, Łotwie, Polsce, Rumunii i Bułgarii.

Słowa kluczowe*: gospodarstwo domowe, UE, wydatki konsumpcyjne, nierówności*