ECONOMIC POLARIZATION ACROSS EUROPEAN UNION REGIONS IN THE YEARS 2007–2012 AT NUTS 2 LEVEL

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Abstract

The aim of this paper is to study the economic polarization in countries of the EU at NUTS 2 level in the years 2007–2012. The studies have to decide on positive or negative verification of the hypothesis, which states that the economic crisis of 2008–2013 had an influence on rising economic polarization in EU countries. The method used in this article is an application of some measures of economic polarization and inequality of income distribution. The carried out research did not allow for the positive verification of the hypothesis. Only in a few countries did the economic crisis have an influence on a reduction of the middle class. In most cases the economic collapse did not play any role in the raising of the economic polarization index. The statistical data used in this paper was taken from the following databases: Statistical Yearbook of the Regions – Poland from 2009 to 2013 and Eurostat – Regional statistics by NUTS classification[*].

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[*] Economic polarization was calculated only for countries that have five or more regions at the NUTS 2 level.

Introduction

The problem of economic polarization is a relatively young issue. The flourishing interest in this subject started in the 1990's. The concept of economic polarization was introduced to the economic literature by the following works by: Esteban, Ray (1994), Esteban et al. (1999), Esteban et al. (2004). They treated the economic polarization problem as the main reason for the appearance of social conflict. They proposed alternative measures versus a wide range of existing inequality measures, elaborated by Gini (1921), Theil (1967), Atkinson (1975) or Sen (1973). First of all, they assumed the division of society into groups localized around the poles and they put special attention to the size of groups and distances existing between the poles. Economists dealing with the problem of economic polarization noted that the situation is possible when the measure of inequality showed a reduction value, which stands for an increase of egalitarianism of income distribution, but at the same time a creation of the poles of income groups takes place. For example Wolfson (1994), having researched the example of Canada in the years 1973–1981, showed a decrease value of inequality indices or keeping them unchanged, while the value of the economic polarization index was increasing.
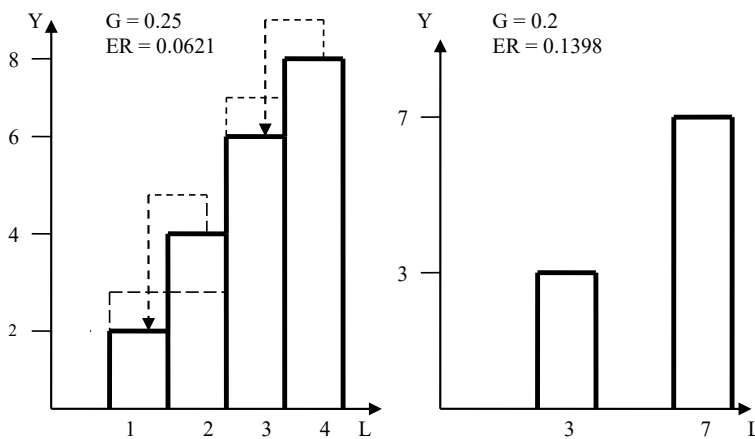

Figure 1. Economic polarization versus inequality
Source: Esteban (1995).

Figure 1 presents the difference between economic polarization and inequality. On the vertical axis are placed the value of income, while on the horizontal axis there are successive citizens. The first person receives two units of income. The other person has four units, while the fourth person has eight units of income. For that income distribution the average income is equal

to five, and the Gini coefficient is $G = 0.25$. The measure of economic polarization Esteban-Ray is $ER = 0.0621$. If we assume the richest person, the fourth person, transfers one unit of income to the third person, and second person transfers one unit of income to the poorest person, the first person, we then can obtain two groups with incomes equal to three and seven. Inequality indicators suggest a more egalitarian income distribution. The Gini coefficient falls to $G = 0.2$. However, the realized transfers led to the appearance of two groups, spaced to each other. Also, we can notice a disappearance of the middle class with an increase of the value of the economic polarization index $ER = 0.1398$.

The aim of this paper is to study economic polarization in European Union countries in the years 2007–2012. The studies were to prove, whether the economic crisis in 2008–2013 caused both an increase in economic polarization and a reduction of the middle class. The first part of the paper is methodological; it explains the differences between the measures of economic polarization and inequality. Besides the methodology of economic polarization measures were presented, with particular emphasis on those measures proposed by Esteban and Ray. The second part of the paper shows an empirical research of economic polarization in European Union regions in the years 2007–2012. Statistical data used in the paper was taken from the following databases: Statistical Yearbook of the Regions – Poland from 2009 to 2013 and Eurostat – Regional statistic by NUTS classification. The study proved that only in the case of countries like: Belgium, Bulgaria, France and Sweden the economic crisis of 2008–2013 had an impact on economic polarization growth. In other countries, if it took place the trend to increase or decrease economic polarization, the economic crisis did not change this situation. The paper ends with conclusions regarding the completed research.

1. Economic polarization – methodology

The concept of economic polarization is associated with a tendency for the middle class to disappear, which was the main subject of several studies (Rosenthal, 1985; Horrighan, Haugen, 1988). However, their analysis showed a lack of consensus, of how the disappearance of the middle class should be measured. According to Kot (2008), there are two approaches for a quantitative description of economic polarization. The first one is nonparametric and consists in tracking changes in the empirical density function over time. While the second method uses quantitative measures to express the degree of economic polarization for a single income distribution.

In 1994 Esteban and Ray (the abbreviation ER) proposed an axiomatic approach to the problem of economic polarization. According to them, society has certain attributes. Individuals with certain characteristics are grouped in clusters. If two persons belong to one cluster, they have similar certain characteristics, but at the same time they differ from persons who belong to another cluster. The authors assume that society is precisely polarized in this way. According to ER the polarization of distributions of individual attributes must satisfy three features:

- there must be a high degree of homogeneity within each group,
- there must be a high degree of heterogeneity across groups,
- there must be a small number of groups of a significant size. In particular, a group of a small size (single) carry little weight.

Presented conditions are shown in the illustrations. Figure 2A shows a uniform income distribution, where the distance between one group and another group is one. Then, in Figure 2B, the income distribution is concentrated in points 3 and 8. This caused a formation of two poles of income, rich and poor, and a complete disappearance of the middle class. Measures of inequality indicate a decrease value, but at the same time increases the homogeneity in each income group. Hence, a measure of the economic polarization shows increased values.
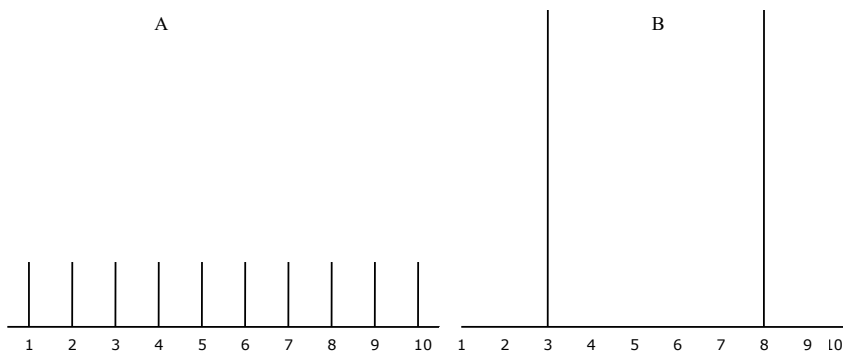
Figure 2. Uniform and polarized distribution of income
Source: Esteban, Ray (1994).

According to a second property, the polarization increases with rising heterogeneity between groups. In Figure 3C groups of poor and rich have an income equal to 3 and 8. Then they move to the extreme values (a group of poor with income equal to 1, and a group of rich with an income equal to 10), which makes an increase in the gap between the rich and poor. This situation implies an increase of economic polarization.

Figure 3. The increase of polarization of income distribution
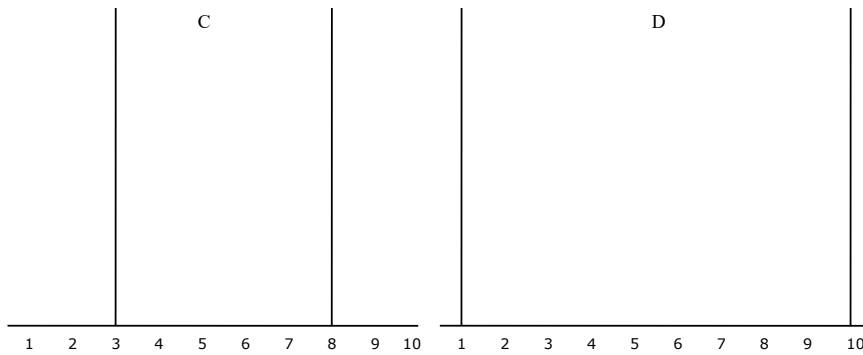
Source: Esteban, Ray (1994).

According to the third property, a group that is a small size has little significance for the formation of income groups. Units spaced from numerous income groups do not affect the formation of social conflict.

Then ER specify what they mean by income distribution. According to them, it is an n-spike representation of income, expressed as the logarithm of income $(\pi, y) \equiv (\pi_1, ..., \pi_n; y_1, ..., y_n)$, where y_i means a logarithm of income, $\pi_i > 0$ express the number of y_i, for $i = 1, ..., n$. Then, the total population for a distribution (π, y) is given by $\sum_{i=1}^{n} \pi_i$. If D is the space of all such distributions then a measure of economic polarization (MP) is the mapping $P : D \to R_+$.

In addition, ER postulate the homothetic property of the economic polarization measure (MP). This means that the economic polarization measure is invariant because of the size of the population, which is standard for the inequality measurement. This condition ER present in this way:

Condition H: if $P(\pi, y) \geq P(\pi', y')$ for two distributions (π, y) and (π', y'), then for all $\lambda > 0, P(\lambda\pi, y) \geq P(\lambda\pi', y')$.

According to the ER, person y identifies with people having the same income, and a sense of identification is greater, when the more numerous is the number of person's p in a given group. ER introduce the continuous identification function $I : R_+ \to R_+$, and they assume that $I(p) > 0$ for $p > 0$, and $I(p)$ is an increasing function of the argument p. This property considers that the economic polarization increases with the rising homogeneity of the group.

Moreover, ER imply that a person with certain income feels alienation against people that are "*far away*" from him, with other income. Authors introduce a continuous no decreasing alienation function $a : R_+ \to R_+$, with $a(0) = 0$. According to ER, a person with income y feels

alienation $a(\delta(y, y'))$ to a person with income y', where $\delta(y, y')$ stands for an absolute distance between the logarithms of income. This property of economic polarization assumes its increase with the rising heterogeneity of the groups.

Then ER combine an identification function and alienation function in a single function of an effective antagonism $T(I, a)$. The authors assume this function is continuous and strictly increasing in a, whenever $(I, a) \gg 0$ and $T(I, 0) = 0$.

Thus, the polarization of society is the sum of effective antagonism and is expressed as follows:

$$P(\pi, y) = \sum_{i=1}^{n} \sum_{j=1}^{n} \pi_i \pi_j T(I(\pi_i), a(\delta(y_i, y_j))) \tag{1}$$

Next, the authors specify the function $T(\cdot, \cdot), I(\cdot)$ and $a(\cdot)$ in order to be used for empirical data. For this purpose, ER present four axioms (Esteban, Ray, 1994). The fulfilment four axioms and *condition H* makes that a measure of economic polarization takes the following form:

$$P^*(\pi, y) = K \sum_{i=1}^{n} \sum_{j=1}^{n} \pi_i^{1+\alpha} \pi_j \left| y_i - y_j \right| \tag{2}$$

for some constants $K > 0$ and $\alpha \in [1; 1.6]$. We can remark, that for $\alpha = 0$, the measure of economic polarization corresponds to the Gini coefficient (Kot, 2007).

ER characterizing the property of economic polarization assume that a person identifies with people who earn the same income, but it can be a point value or bounded interval. However ER did not explain that problem, using the concept of "clusters". On the other hand, Kot (2008) noted the concept of "clusters", introduced by the ER, is not "*clear*". Esteban (1996) in his work showed that one way of grouping data are quantiles, but this method "*sterilizes*" economic polarization. Quantiles divide the population into equal parts. From period to period they change only the boundaries of classes without changing the probability which is equal to the rank of the quantile.

In 1999 Esteban-Gardin-Ray (the abbreviation: EGR) improved the primary measure of economic polarization. They introduced to the analysis a continuous income distribution. EGR assume the income distribution of a population could be expressed by the continuous random variable of a density function *f*, which is contained in the bounded interval [a, b] with the average value $\mu = 1$. An n-spike representation of income distribution is a collection ρ of numbers $(y_0, y_1, ..., y_n; \pi_1, ..., \pi_n; \mu_1, ..., \mu_n)$ such that $a = y_0 < ... < y_k = b$, where:

$$\pi_i = \int_{y_{i-1}}^{y_i} f(y) dy, \mu_i = \frac{1}{\pi_i} \int_{y_{i-1}}^{y_i} y f(y) dy, \ i = 1, ..., k \tag{3}$$

Therefore the primary measure of economic polarization takes the form:

$$ER(\alpha,\rho) = \sum_{i=1}^{n}\sum_{j=1}^{n}\pi_i^{1+\alpha}\pi_j\left|\mu_i - \mu_j\right| \tag{4}$$

Now authors are moving away from the concept of "*clusters*" and openly propose to group the data in income groups. However the bounded interval [a, b] can be divided in many ways, giving only one possible representation of the income distribution and this representation is flawed by an approximation error, which is denoted by $\varepsilon(f,\rho)$. In addition, in this form the measure $ER(\alpha, \rho)$ takes into consideration only the size of groups and their average income, at the same time losing information about the dispersion of per capita income in each group. Now the measure of extended polarization is given by:

$$P(f;\alpha,\beta) = ER(\alpha,\rho) - \beta \in (f,\rho) \tag{5}$$

The value of the measure $P(f; \alpha, \beta)$ is contained in the bounded interval [0, 2]. β is a free parameter which measures the weight attached to the "*measurement error*". The β value is contained in the bounded interval [0, 1]. For $\beta = 0$, the measure $P(f; \alpha, \beta)$ becomes the primary measure $ER(\alpha,\rho)$. In order to minimize an approximation error, the authors propose the decomposition of the Gini coefficient as the difference between the Gini coefficient for continuous distributions and the Gini coefficient for an n-spike representation:

$$\in (f,\rho) = G(f) - G(\rho) \tag{6}$$

In addition EGR propose the following algorithm that allows finding the optimal endogenous division for two adjacent intervals:

$$y_i^* = \frac{\pi_i^*\mu_i^* + \pi_{i+1}^*\mu_{i+1}^*}{\pi_i^* + \pi_{i+1}^*} \tag{7}$$

Hence, the final extended polarization measure takes the form:

$$P(f;\alpha,\beta) = ER(\alpha,\rho^*) - \beta[G(f) - G(\rho^*)] \tag{8}$$

In the case of bi-polarization the society is divided into two groups $k = 2$. The first group is characterized by an income below average and the second group has an income above average $(P_\mu = f(\mu))$. The proposed measure of bi-polarization takes the form:

$$ER(\alpha,\rho) = [\pi^\alpha + (1-\pi)^\alpha][\pi - L(\pi)] \tag{9}$$

An approximation error is expressed as:

$$\varepsilon(f,\rho) = G - [\pi - L(\pi)] \tag{10}$$

Combining (9) and (10) the bi-polarization measure can be written as:

$$P(f;\alpha,\beta) = [\pi^{\alpha} + (1-\pi^{\alpha})][\pi - L(\pi)] - \beta\{G - [\pi - L(\pi)]\} \tag{11}$$

where G is the Gini coefficient for continuous distributions, $[\pi - L(\pi)]$ is the relative mean deviation $D = \frac{1}{2}\int\left|\frac{x}{\mu}-1\right| dF(x) = \pi_{\mu} - L(\pi_{\mu})$, equal to *Schutz-Pietra's* index. Hence, we can rewrite (11) as:

$$P(f;\alpha,\beta) = [\pi^{\alpha} + (1-\pi)^{\alpha}]D - \beta(G - D) \tag{12}$$

If we assume $\alpha = 1$, (12) takes the form:

$$P(f;\alpha = 1,\beta) = (1+\beta)D - \beta G \tag{13}$$

For $\alpha = \beta = 1$ the bi-polarization measure is:

$$P(f;\alpha = 1, \beta = 1) = 2D - G \tag{14}$$

Wolfson (1994) proposed a measure of polarization W, where the median, not an average, is the point that divides the populations into two parts ($P_m = f(Me)$). It has the form:

$$W = (T - \frac{G}{2})\frac{\mu}{Me} \tag{15}$$

where $T = 0.5 - L(0.5)$ denotes the income share of the bottom half of the population and is synonymous with the relative median deviation: $DM = -\int\left|\frac{}{Me}-1\right| dF(x)$, G is the Gini coefficient, μ is the average income, *Me* is the median.

In order to obtain the value of Wolfson's index contained in the bounded interval [0, 1], the following formula should be used:

$$W = 2(2T - G)\frac{\mu}{Me} \tag{16}$$

The main difference between the Wolfson measure and the EGR measure is a choice of the centre point of the income distribution. The Wolfson measure uses the median, which divides the population into two equal parts. In turn EGR use the average of income distribution. Then, the W measure is used only to study the bi-polarization, while the EGR measure allows establishing

several poles of income. Also, as Kot (2008, p. 29) emphasizes, the W index is based on the Lorenz function, and the ERG measure has its source in the density function.

2. Economic polarization in European Union countries – results of research

In order to estimate the level of economic polarization the European Union regions were divided in two and three intervals. In first case $k = 2$ the bi-polarization measure $P(f; α, β)$ and the Wolsfson index W were used. The point that separates the first group of regions "poor regions" from the second group of regions "rich regions" was the average of the income distribution. In turn in the case of the Wolfson index, the median divided a population into two groups, not an average.

In second case $k = 3$ there are three groups of regions. The first group contains poor regions, to the second group belong regions with an income approximate to an average income (middle class) and the third group is a set of rich regions. For $k = 3$ measures of economic polarization $ER(α, ρ)$ and $P(f; α, β)$ were used.

The parameter α must be contained in the interval $[1, 1, 6]$. The economic polarization was calculated for α = 1.6. In the research the value of the parameter is equal to one β = 1 that stands for the highest weight to the "*measurement error*" ε was attached.

The obtained results were presented in appendix 1, which shows the calculated value respectively: bipolarization $P(f; α, β)$ for $k = 2$, α = 1.6, economic polarization $ER(α, ρ)$ and extended polarization $P(f; α, β)$ for $k = 3$, α = 1.6. Columns four and five in the table contain the Gini coefficient and the Wolfson index value. The research confirmed the existence of three groups of countries. To the first group belong countries like: Austria, Denmark, Greece, Spain, the Netherlands, Poland, Portugal and Italy. In their case economic polarization was growing in the analysed period. The second group is created by the countries of (Finland, Germany, Czech Republic, Romania, the United Kingdom and Hungary) where economic polarization was decreasing during the six years. The third group of countries (Belgium, Bulgaria, France and Sweden) is characterized by the following regularity. The economic polarization started growing in 2008, but in 2011 this trend reversed and economic polarization started decreasing. Therefore the conclusion is the economic crisis of 2008–2013 had an influence on economic polarization growth only in those countries which belonged to group three. In other countries, if the trend took place to increase or decrease economic polarization, the economic crisis did not change this situation.
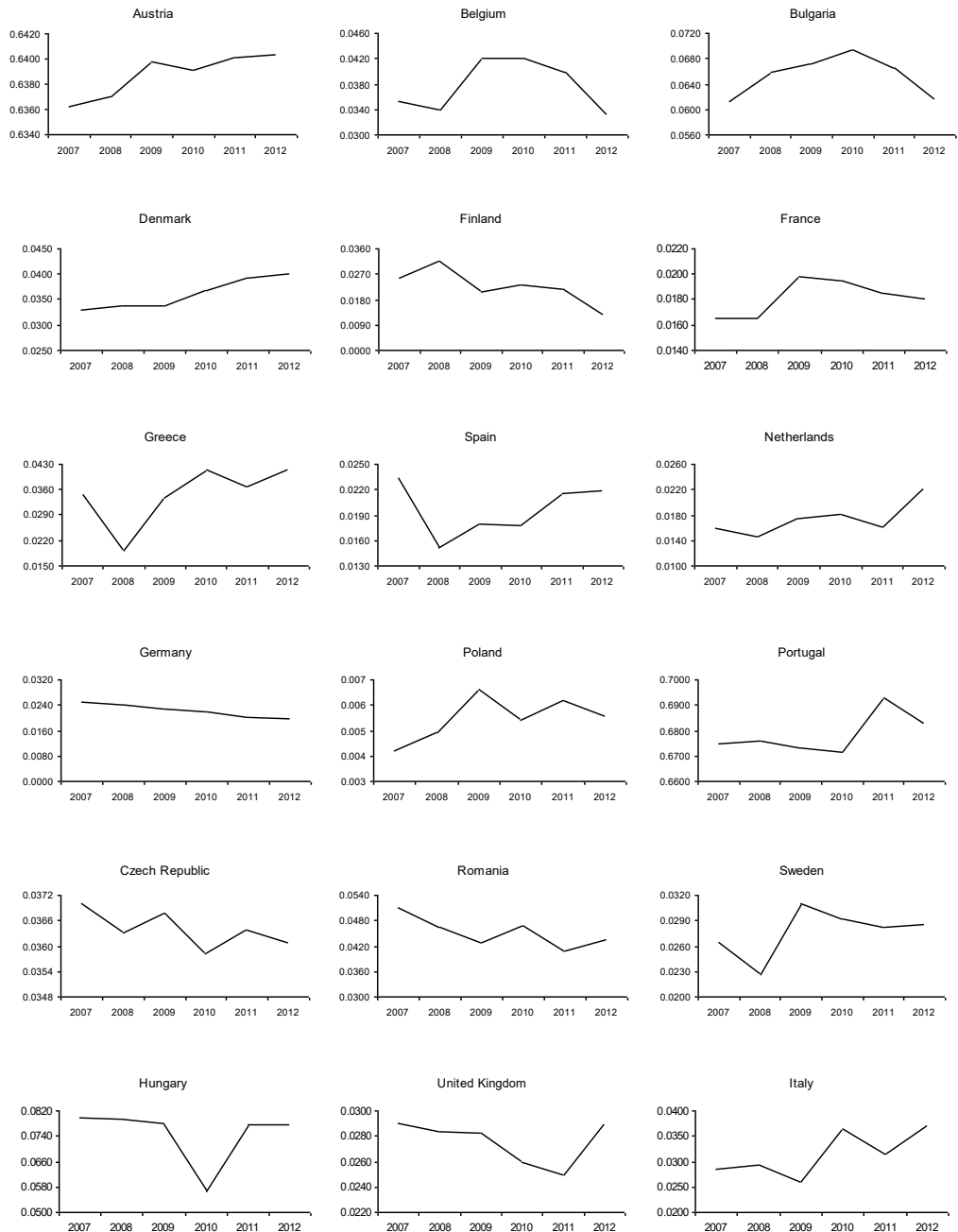
Figure 4. Economic polarization *P*(*f*; α, β) for *k* = 3, α = 1.6 across European Union regions in the years 2007–2012

Figure 4 presents the extended polarization $P(f; α, β)$ for $k = 3$, $α = 1.6$ in European Union countries at NUTS 2 level in the years 2007–2012. In the case of Austria, Denmark, Czech Republic, the Netherlands and Italy an upward trend of economic polarization took place. On the other hand in Germany and Romania a downward trend occurred for all of the analysed periods. In Greece and Spain economic polarization decreased between the years 2007–2008, but from the year 2009 economic polarization started growing. Economic polarization was growing to year 2009 in Belgium, France, Sweden and Poland; afterwards a downward trend took place. A similar situation could be seen in Bulgaria. In this country economic polarization was lifting to year 2010. Then the polarization index decreased. In the case of Finland the growing value of economic polarization only between the years 2007–2008 was noticed. From that time the situation changed and economic polarization went down constantly. In Portugal the index of economic polarization was unchanged to the year 2011. Then it started growing. In the United Kingdom economic polarization was falling to the year 2011 and in Hungary the polarization index reached the smallest value in 2010.

Table 1. Summary of the research results

Country	Bipolarization $P(f; α, β)$ $k = 2$, $α = 1.6$	Wolfson	$ER(α, ρ)$ $k = 3$, $α = 1.6$	$P(f; α, β)$ $k = 3$, $α = 1.6$	Gini
Austria	Yes	No	No	Yes	No
Belgium	–	–	–	–	No
Bulgaria	No	–	–	–	Yes
Denmark	–	–	Yes	Yes	Yes
Finland	Yes	Yes	No	No	No
France	No	No	Yes	Yes	Yes
Greece	–	Yes	Yes	Yes	–
Spain	–	Yes	–	Yes	Yes
The Netherlands	–	Yes	Yes	Yes	Yes
Germany	No	No	No	No	No
Poland	Yes	Yes	Yes	Yes	Yes
Portugal	Yes	No	No	Yes	No
Romania	–	Yes	No	No	Yes
Czech Republic	Yes	No	No	No	No
Sweden	–	Yes	Yes	Yes	Yes
Hungary	–	–	No	No	–
The United Kingdom	Yes	Yes	Yes	No	Yes
Italy	–	No	–	Yes	Yes

Source: own elaboration.

Table 1 contains a summary of the research results. The words "Yes" and "No" indicate, whether or not an analysed measure was growing. If the index did not change, the sign "–"

was put. In the first and second column the result of bipolarization is placed. The difference between the bipolarization measure $P(f; α, β)$ and the Wolfson index consists on the point of the division of society. The bipolarization measure uses the average and the Wolfson index median of income distribution. In three countries: Austria, Portugal and Czech Republic the results are different. The bipolarization measure indicates the growth of economic polarization, but the Wolfson index shows the diminishing values. In the case of the polarization measure for three groups of income $k = 3$, the table contains, column three and four, results of the $ER(α, ρ)$ and $P(f; α, β)$. In the case of countries like Austria, Portugal and the United Kingdom the index values are different, which arise as a result of taking into account an approximation error $\in (f, ρ)$ in $P(f; α, β)$ measure. We can also observe that the values of the measure of economic polarization can be different from inequality indices like the Gini coefficient. That issue was explained in the first part of the paper. In Austria, Portugal, Romania and the United Kingdom values of economic polarization for $k = 3$ and the Gini coefficient are different.

Conclusions

According to Esteban (1996) the degree of economic polarization between countries in the 1980's decreased, but at the regional level it increased. The same situation was in South America. Gardín and Rossi (2001) point to increasing polarization in Uruguay. In the case of Colombia and Argentina the level of polarization increased too (Birchenall, 2001; Paraje, 2001). Only in Spain the polarization across autonomous communities decreased (Esteban, 1994).

The measures of economic polarization are an alternative to the measures of inequality. Their structure, in contrast to the measures of inequality, takes into account the problem of income group formation and the existing distance between them.

The main objective of this paper was to study economic polarization in European Union countries in the years 2007–2012. The research proved that the economic crisis in the years 2008–2013 had an influence on the growing economic polarization index only in a few cases. In most of the countries, if there was an upward or downward trend of economic polarization, economic collapse did not change this situation. In this paper the formation of middle class in eighteen countries was examined. In eleven of them the economic polarization index increased and in seven countries it decreased, so in most of the analysed cases an upward trend in economic polarization took place.

Appendix

Table A1. Economic polarization and inequality measures in European Union regions
in the years 2007–2012

Years	Bipolarization $P(f; \alpha, \beta)$ $k = 2, \alpha = 1.6$	Polarization $ER(\alpha, \rho)$ $k = 3, \alpha = 1.6$	Polarization $P(f; \alpha, \beta)$ $k = 3, \alpha = 1.6$	Gini	Wolfson
1	2	3	4	5	6
Austria					
2007	0.6362	0.0379	0.6362	0.1070	0.0954
2008	0.6370	0.0544	0.6370	0.1072	0.0905
2009	0.6398	0.0303	0.6398	0.1034	0.0902
2010	0.6391	0.0342	0.6391	0.1030	0.0914
2011	0.6401	0.0296	0.6401	0.1018	0.0839
2012	0.6404	0.0292	0.6404	0.1001	0.0798
Belgium					
2007	0.6227	0.0530	0.0352	0.1720	0.0814
2008	0.5990	0.0520	0.0340	0.1691	0.0846
2009	0.6319	0.0592	0.0420	0.1691	0.0844
2010	0.6272	0.0600	0.0419	0.1698	0.0897
2011	0.6148	0.0574	0.0398	0.1641	0.0764
2012	0.6276	0.0512	0.0331	0.1637	0.0842
Bulgaria					
2007	0.6975	0.0636	0.0612	0.1593	0.1141
2008	0.6888	0.0699	0.0659	0.1760	0.1372
2009	0.6902	0.0719	0.0671	0.1822	0.1337
2010	0.6852	0.0746	0.0694	0.1891	0.1357
2011	0.6870	0.0719	0.0665	0.1818	0.1320
2012	0.6890	0.0649	0.0616	0.1600	0.1123
Denmark					
2007	0.6336	0.0367	0.0329	0.0808	0.0292
2008	0.6335	0.0362	0.0338	0.0804	0.0422
2009	0.6352	0.0375	0.0337	0.0825	0.0324
2010	0.6312	0.0414	0.0369	0.0902	0.0338
2011	0.6816	0.0412	0.0392	0.0904	0.0305
2012	0.6773	0.0447	0.0401	0.0977	0.0373
Finland					
2007	0.6447	0.0457	0.0256	0.0838	0.0802
2008	0.6426	0.0474	0.0316	0.0844	0.0690
2009	0.6460	0.0482	0.0208	0.0902	0.1050
2010	0.6452	0.0489	0.0233	0.0877	0.0953
2011	0.6457	0.0439	0.0219	0.0799	0.0791
2012	0.6500	0.0397	0.0128	0.0752	0.0910
France					
2007	0.6731	0.0375	0.0166	0.0785	0.0300
2008	0.6745	0.0371	0.0165	0.0776	0.0325
2009	0.6718	0.0397	0.0198	0.0810	0.0291
2010	0.6519	0.0406	0.0194	0.0809	0.0295
2011	0.6543	0.0375	0.0184	0.0785	0.0295
2012	0.6730	0.0390	0.0180	0.0798	0.0298

1	2	3	4	5	6
Greece					
2007	0.6300	0.0532	0.0344	0.0899	0.0463
2008	0.6381	0.0320	0.0192	0.0730	0.0449
2009	0.6560	0.0452	0.0338	0.0919	0.0536
2010	0.6317	0.0515	0.0416	0.0955	0.0577
2011	0.6322	0.0552	0.0369	0.0904	0.0636
2012	0.6329	0.0564	0.0416	0.0824	0.0449
Spain					
2007	0.0265	0.0379	0.0233	0.1032	0.1169
2008	0.0256	0.0366	0.0152	0.1052	0.1065
2009	0.0236	0.0362	0.0180	0.1068	0.1110
2010	0.0241	0.0352	0.0178	0.1087	0.1174
2011	0.0259	0.0382	0.0215	0.1122	0.1251
2012	0.0285	0.0386	0.0219	0.1133	0.1242
The Netherlands					
2007	0.6623	0.0250	0.0159	0.0771	0.0527
2008	0.6539	0.0302	0.0147	0.0923	0.0634
2009	0.6572	0.0281	0.0174	0.0870	0.0586
2010	0.6517	0.0307	0.0181	0.0961	0.0562
2011	0.6521	0.0296	0.0162	0.0921	0.0549
2012	0.6549	0.0359	0.0222	0.1093	0.0849
Germany					
2007	0.6491	0.0400	0.0250	0.1023	0.0469
2008	0.6502	0.0400	0.0241	0.1014	0.0487
2009	0.6259	0.0374	0.0229	0.0963	0.0461
2010	0.6212	0.0378	0.0220	0.1017	0.0439
2011	0.6261	0.0359	0.0203	0.0985	0.0421
2012	0.6256	0.0353	0.0198	0.0994	0.0457
Poland					
2007	0.0186	0.0443	0.0042	0.1147	0.0998
2008	0.0186	0.0448	0.0049	0.1167	0.0998
2009	0.0195	0.0445	0.0066	0.1172	0.0996
2010	0.0189	0.0432	0.0054	0.1125	0.0998
2011	0.0231	0.047	0.0062	0.1188	0.1075
2012	0.0256	0.0495	0.0056	0.1247	0.116
Portugal					
2007	0.6747	0.0549	0.6747	0.0931	0.0721
2008	0.6756	0.0576	0.6756	0.0888	0.0856
2009	0.6734	0.0574	0.6734	0.0890	0.0809
2010	0.6717	0.0564	0.6717	0.0874	0.0734
2011	0.6926	0.0560	0.6926	0.0870	0.0716
2012	0.6828	0.0502	0.6828	0.0802	0.0342
Czech Republic					
2007	0.8272	0.0428	0.0370	0.1601	0.0859
2008	0.8291	0.0417	0.0363	0.1583	0.0874
2009	0.8343	0.0393	0.0368	0.1545	0.0874
2010	0.8326	0.0396	0.0358	0.1571	0.0809
2011	0.8314	0.0397	0.0364	0.1516	0.0684
2012	0.8284	0.0409	0.0361	0.1523	0.0738
Romania					
2007	0.7284	0.0658	0.0511	0.1884	0.1366
2008	0.7305	0.0627	0.0463	0.2027	0.1440

1	2	3	4	5	6
2009	0.7283	0.0596	0.0428	0.1984	0.1298
2010	0.7303	0.0638	0.0467	0.1994	0.1479
2011	0.7276	0.0610	0.0408	0.2124	0.1593
2012	0.7298	0.0602	0.0435	0.2034	0.1424
Sweden					
2007	0.6565	0.0296	0.0264	0.0610	0.0240
2008	0.7117	0.0269	0.0226	0.0661	0.0276
2009	0.6524	0.0338	0.0310	0.0775	0.0342
2010	0.6862	0.0327	0.0292	0.0730	0.0424
2011	0.7083	0.0328	0.0283	0.0732	0.0366
2012	0.7048	0.0343	0.0286	0.0769	0.0357
Hungary					
2007	0.6217	0.0862	0.0800	0.1790	0.1954
2008	0.6177	0.0875	0.0793	0.1816	0.1865
2009	0.6344	0.0860	0.0780	0.1778	0.1619
2010	0.6315	0.0734	0.0564	0.1737	0.1902
2011	0.6089	0.0865	0.0778	0.1841	0.2088
2012	0.6187	0.0871	0.0777	0.1805	0.1950
The United Kingdom					
2007	0.6407	0.0546	0.0290	0.1177	0.0606
2008	0.6553	0.0551	0.0284	0.1203	0.0585
2009	0.6656	0.0539	0.0283	0.1198	0.0570
2010	0.6649	0.0527	0.0259	0.1176	0.0555
2011	0.6782	0.0548	0.0250	0.1236	0.0632
2012	0.6599	0.0578	0.0290	0.1254	0.0670
Italy					
2007	0.6568	0.0518	0.0286	0.1111	0.0768
2008	0.6567	0.0520	0.0293	0.1112	0.0561
2009	0.6543	0.0455	0.0260	0.1171	0.0514
2010	0.6529	0.0517	0.0363	0.1267	0.0583
2011	0.6522	0.0472	0.0315	0.1290	0.0588
2012	0.6400	0.0521	0.0374	0.1403	0.0569

Source: own elaboration.

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