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WELFARE REGIMES OF EUROPEAN COUNTRIES AND THEIR DEVELOPMENT IN THE CONTEXT OF MEMBERSHIP IN THE EUROPEAN UNION

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ABSTRACT. Welfare regimes represent potential approaches to the implementation of redistributive policies worldwide. In European countries, several significant regimes have been identified, including the Conservative, Southern, Social Democratic, Liberal model, the Post-Communist European model, and the Model of the Former USSR. The present study focused on identifying the welfare regimes of EU members and candidate countries and examining whether shifts between these regimes occur over time. The k-means method was employed, generating a different number of clusters for two observed periods: 2013 and 2022 on the sample of 27 member and 4 candidate countries and 2023 on the sample of 27 member countries of EU. The input variables consisted of redistributive indicators focusing on income inequality and the risk of poverty. The analysis results confirmed that countries transitioned between regimes in all observed periods. In the mixed group of member and candidate countries, the number of clusters decreased from five to two. For member countries in 2023, the number of clusters was three, mainly due to the worsening risk of poverty in some countries. Notably, none of the clusters represented a pure form of the originally defined welfare regimes. A significant finding of the study was that all observed EU candidate countries have shifted towards the redistributive policies of EU member states. This shift was noted towards regimes of geographically proximate countries. Within the member countries, however, the adopted measures have also led to the negative phenomenon of mutual distancing of social regimes.

Keywords: welfare regimes, poverty risk gap, income inequality, k-means, EU countries, candidate countries.

Introduction

Welfare regimes can be understood as different forms of designing redistributive policies and social protection systems, implemented with an emphasis on the historical, cultural, economic, and religious orientation of a country. More than thirty years have passed since the

publication of the first seminal study by Esping-Andersen (1990) and a wide range of studies on welfare regimes have emerged in that time. These studies attempt to categorize selected countries based on chosen variables in various domains, such as social assistance (Berg et al., 2018; Watson et al., 2021), education (Ydesen and Buchardt, 2020; Meng and Li, 2023), healthcare (Yörük, 2022), gender inequality (Elgin and Elveren, 2021), income inequality (Mishchuk et al., 2018; Mudričenko et al., 2023), family policy (Gauthier, 2018; Neyer, 2021), tax and insurance systems (Glonti et al., 2023; Velichkov and Stefanova, 2017), social policy tools reducing risk of poverty (Saher et al., 2024; Yurchyk et al., 2024). There are also studies focusing on the housing market, which Pfeffer and Waitkus (2021a) argue plays a significant role in inequality. Scientific research confirms that significant differences have been observed in the clustering of countries depending on the type of redistributive policy, with distinctions based on age, gender, and race evident even in developed countries (Roumpakis, 2020; Pfeffer and Waitkus, 2021b).

Welfare regimes currently encompass a complex array of perspectives on the implementation of redistributive policies, which significantly complicates the categorization of countries into specific groups. This complexity can sometimes lead to inaccurate claims about changes in redistributive policies over time, particularly to the original definition of welfare regimes as proposed by Esping-Andersen (1990). While the original framework identified three regimes, it is now possible to define as many as ten different welfare regimes that categorize most countries globally (Aspalter, 2020).

For EU countries, Kammer et al. (2012) identified up to five distinct regimes, whereas Meng and Li (2023) grouped EU countries into only two large clusters with similar characteristics. Among EU members, a smaller number of comprehensive studies focus on all the countries that joined the Union after 2004 (Fenger, 2007; Kuitto, 2016; Magyar and Madlovics, 2020; Hassel and Palier, 2021).

EU candidate countries are either not included in comprehensive research studies or are only partially addressed as part of studies analyzing OECD countries (Schröder, 2019). Given the EU's policy efforts to align the level of redistribution among member countries, there is a notable research gap concerning the analysis of whether candidate countries are converging with or diverging from EU member states in the context of welfare regime theory. Shark and Gough (2010) have demonstrated that membership in regime groupings tends to converge over time, with countries under various levels of integration potentially adopting similar characteristics, including in redistributive policies. This convergence can lead to an overlap of welfare regimes, making "pure" forms increasingly rare (Powell *et al.*, 2020). A pertinent example is the countries of Central and Eastern Europe, which have become more similar in their approach to redistribution over time (Orosz, 2019). A similar scenario can be anticipated for EU candidate countries, which, in their efforts to join the Union, are likely to implement measures aimed at achieving greater income equality or gender equality.

The study aims to identify the welfare regimes of EU member and candidate countries within specified periods. Using cluster analysis, it seeks to determine whether candidate countries have moved closer to a selected welfare regime model of the member states over time.

1. Literature review

The foundational categorization of welfare regimes was introduced by Esping-Andersen (1990), who defined three models of welfare states. The first was **the Social Democratic model**, characterized by universal egalitarian social policies, a high degree of decommodification, low levels of social stratification, and a limited role for private sector-provided social services. The second, **the Conservative model**, was marked by strong

protection of family and employment, with social systems in conservative states supporting the preservation of the status quo and existing inequalities. In this model, the state is the primary provider of social insurance, while private insurance plays only a marginal role. The third model, **the Liberal model**, was characterized by a low degree of de commodification, high social stratification, a limited role of the state, and a significant involvement of the private sector in the provision of social services and insurance. Esping-Andersen's typology has been subject to criticism and was subsequently expanded by other scholars to include additional social regimes.

Ferrera (1996) supplemented the three existing welfare regimes by introducing **the Southern model**, which is characterized by a highly fragmented and polarized social system, generous old-age pensions, gaps in the social safety net, clientelism in the distribution of cash benefits, and a highly collusive system between public and private institutions in the social sphere. Arts and Gelissen (2002) concluded that actual welfare states rarely conform to pure types and are typically **hybrid regimes**. This conclusion has since been supported by other researchers, including Castles and Obinger (2008), Schröder (2009), Vrooman (2009), and more recently, Aspalter (2023). During this period, additional models were introduced, including **the Christian Democratic model** (Scruggs and Allan, 2006; Castles and Obinger, 2008), **the Mediterranean model**, which is essentially another term for the Southern model (Obinger and Wagschal, 2001), and **the Radical model** (Shalev, 2007).

Fenger (2007) included in his study the EU countries that joined the Union after 2004. In his study, he defined **the Post-Communist European model** and **the Former USSR model**. The European model represents a mix of Esping-Andersen's Conservative and Social Democratic models (including Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Slovakia, and Slovenia). In contrast, the Former USSR model is characterized by significant female participation, an extensive public sector, and high economic growth associated with high inflation (including Belarus, Estonia, Latvia, Lithuania, Russia, and Ukraine).

Bohle and Greskovits (2007) distinguish among three social models within the group of post-communist countries: the neoliberal model of the Baltic states, the embedded neoliberal model of the Visegrád Four countries, and the neo-corporatist model of Slovenia. Their classification is based on the nature of state institutions, the success of countries in implementing market economy principles, the character of industrial transformation, social inclusion, and macroeconomic stability.

The period from 1990 to 2010 was significant for the development and stabilization of the definition of welfare regimes (Iershova et al., 2024). Particularly in European countries, these regimes were clearly defined. Following the onset of the financial crisis in 2008, the question arose as to whether existing differences in welfare regimes led to varying responses to the consequences of the crisis. This research, based on a sample of EU-15 countries, was addressed by Josifidis (2015). The results indicate that institutional rigidity and inherent inertia have remained key factors in the convergent processes of welfare states within Social Democratic and Corporatist regimes. Deviations from this trend are most apparent in Mediterranean welfare state regimes, especially in Greece and Portugal.

Recent studies such as Dorlach (2021), Powell et al. (2020), Ferragina and Filetti (2021), and Aspalter (2023) offer a systematic review of available research in this field, emphasizing the delineation of regimes and methods for measuring them over time and space. Based on a review of existing studies, Aspalter (2023) identified up to ten distinct welfare regimes globally. In Europe, these include the Neoliberal Welfare Regime, which encompasses the United Kingdom, and the Selective Rudimentary Welfare Regime, which includes former Soviet countries such as Russia, Kazakhstan, Georgia, Ukraine, and Belarus (Verulava and Asatiani, 2020; Hort and Zakharov, 2019).

The Social Democratic Welfare Regimes are consistent with the original study by Esping-Andersen (1990). Distinct categories of regimes are defined for countries in Africa, Asia, India, and the Middle East.

In the existing literature, there are no studies that simultaneously examine both EU member and candidate countries, except for Turkey, which is analyzed in studies focused on OECD countries (Yörük *et al.*, 2019; Schröder, 2019).

Based on the analyzed studies, *Table 1* provides a chronological overview of selected research on welfare regimes, focusing predominantly on European countries since 2000. The purpose of *Table 1* is to highlight the shifts or persistence of the countries under observation within specific welfare regimes. The selected studies are those that employed similar variables for the delineation of these regimes.

Table 1. Overview of the results of studies focused on the social regimes of European countries¹

Author	Model/regime	Countries
Saint-Arnaud and Bernard (2003)	Liberal	UK, NL, IE
	Conservative	BE, FR, DE, AT
	Social-democratic	SE, FI, DK
	Latin countries	ES, IT, EL, PT
Fenger (2007)	Post-communist European (mix of conservative and social-democratic)	BG, HR, CZ, HU, PL, SK, SI
	Model of the former USSR	EE, LV, LT
Bohle and Greskovits (2007)	Neoliberal	EE, LV, LT
	Embodden neoliberal	SK, CZ, PL, HU
	Neo-corporate	SI
Vrooman (2009)	Social-democratic	DK, SE
	Corporatist	DE, BE, FR
	Liberal	AT, UK
	Hybrid	NL
Kammer, Niehues and Peichl (2012)	Regime of the social democratic	DK, FI, SE
	Hybrid	BE, NL
	Conservative	AT, DE, FR, LU
	Southern	EL, PT, IT, ES
	Liberal	UK, IE
Lauzadyte -Tutliene et al. (2018)	Eastern Europe welfare model	LV, LT, EE, BG, RO
	Central Europe welfare model	CZ, HR, PL, SK, SI, HU
	Mediterranean/ Latin region	EL, ES, IT, CY, PT
	The small European states	LU, MT
	The old European countries	AT, BE, DK, UK, NL, FR, FI, SE, DE
Aspalter (2020)	Social Democratic	SE, FI, DK, IS
	Christian Democratic	DE, AT, NL, BE, LU, FR, ES, PO, IT, PL, CZ, SK, HU and others
Meng and Li (2023)	Conservative	AU, BE, FR, DE, IT, PT, ES
	Liberal	UK, DK, FI

Source: *own processing by the authors*

¹ The table includes only a selection of EU member countries or EU candidate countries from the group of all analyzed countries that the studies contain.

Based on the comparison of results in Table 1, two groups of countries can be delineated. The first group includes countries such as Sweden, Denmark, Finland, Ireland, Germany, France, and Belgium, which are consistently categorized into the same welfare regimes across the studies. These are the "old member states" that have long maintained a stable welfare regime model. Similarly, Southern European countries remain within the same cluster.

The new "member states" that joined the EU after 2004 are predominantly classified under the Post-Communist European model or the model of the former USSR. Recent studies, such as those by Aspalter (2020) and Meng and Li (2023), categorize European countries into only two distinct clusters, suggesting a potential blurring of significant differences between regimes and an increasing overlap among them.

For countries such as Albania, Serbia, North Macedonia, and Montenegro, available studies focus on their redistributive policies (Mirkov and Manić, 2021; Hrast *et al.*, 2020; Poni, 2022), but do not provide a clear definition of their welfare regimes. Fetahu (2017) concluded that the social systems in these Western Balkan countries were historically weak, facing issues such as slow economic growth, political instability, high levels of corruption, and numerous social problems. However, candidate countries are experiencing institutional development, partly due to the significant influence of negotiations with the European Commission. Geographically close EU member states like Slovenia and Croatia have more developed pension systems and social protection frameworks and are classified by Lauzadyte-Tutliene *et al.* (2018) as part of the Central Europe welfare model.

Matkovic (2017), based on the basic definition by Esping-Andersen (1990), categorized Western Balkan countries as social-democratic countries. However, this classification does not align with the core characteristics of the social-democratic regime, as critiqued by subsequent studies. This claim cannot be universally applied to all Western Balkan countries. Orosz (2019) grouped Balkan countries into the same cluster as the Baltic states, which, according to Table 1, fall under the Model of the Former USSR.

Turkey, as another EU candidate country, employs a combination of various social programs and policies, but it most closely aligns with the Southern Regime (Buğra and Keyder, 2006; Bılır and Açıkgöz, 2017). Over time, Turkey has developed programs supporting families with children and unemployed individuals. Compared to other European countries, Turkey's social system is less developed. Lafleur and Yener-Roderburg (2022) indicate that there have been changes in redistributive policies in the healthcare sector, influenced in part by emigration. In similar EU research, Fenwick (2019) supports the view that increasing immigration tends to lead to the expansion of the welfare state rather than its restriction and that European welfare states remain resilient to the globalization of migration.

The differences in redistributive policies identified through the analysis of selected studies suggest that, over time, some new member countries in Eastern Europe have been moving towards welfare regimes characteristic of Central or Western Europe. It is possible to anticipate a similar development for candidate countries, driven by the commitments arising from accession negotiations with the European Commission.

2. Methodological approach

The primary objectives of the study are to test the following hypotheses:

H1: There is an overlap of welfare regimes among EU member countries.

H2: Selected EU candidate countries are converging towards the welfare regimes of EU member states over time.

The presented study focuses on 31 countries in Europe, including 27 EU member states, and 4 candidate countries: Turkey, North Macedonia, Serbia and Montenegro. *Table 2* provides

an overview of the analyzed countries, the periods under review, and their relationship to the European Union.

Table 2. List of countries analyzed in the study

Country	Code of country	EU member*	Country	Code of country	EU member*
Austria	AT	1 (1995)	Lithuania	LV	2 (2004)
Belgium	BE	1 (1957)	Luxembourg	LU	1 (1957)
Bulgaria	BG	2 (2007)	Malta	MT	2 (2004)
Croatia	HR	2 (2013)	Netherlands	NL	1 (1957)
Cyprus	CY	2 (2004)	Poland	PL	2 (2004)
Czechia	CZ	2 (2004)	Portugal	PO	1 (1986)
Denmark	DK	1 (1973)	Romania	RO	2 (2007)
Estonia	EE	2 (2004)	Slovakia	SK	2 (2004)
Finland	FI	1 (1995)	Slovenia	SI	2 (2004)
France	FR	1 (1957)	Spain	ES	1 (1986)
Germany	DE	1 (1957)	Sweden	SE	1 (1995)
Greece	EL	1 (1981)	North Macedonia	MK	0 (2005)
Hungary	HU	2 (2004)	Montenegro	ME	0 (2010)
Ireland	IE	1 (1973)	Serbia	RS	0 (2010)
Italy	IT	1 (1957)	Turkey	TR	0 (1999)
Latvia	LT	2 (2004)			

Notes 1: 0- Candidate countries, 1- Countries that joined the EU before 2004, 2 – Countries that joined the EU after 2004

* In parentheses, the year of EU accession is provided for member states, while for candidate countries, it indicates the official year of confirmation of candidate status.

Source: *own processing by the authors*

The presented study excludes countries Bosnia and Herzegovina, Moldova, and Ukraine, which were officially granted candidate status only in 2022, and Georgia, which joined them in 2023. Data necessary for the analysis were not available for these countries.

To achieve the primary objective of the study, cluster analysis is employed using the k-means method in R programming software. This method helps to identify groups of countries belonging to specific welfare regimes based on selected redistributive variables. Hierarchical cluster analysis is one of the most frequently used methods for defining welfare regimes, as evidenced by its application in studies such as Bertin and Carradore (2015) or Mkandawire (2020). The k-means method aims to provide a more precise definition of clusters (Bertin and Carradore, 2015).

Changes in cluster composition are monitored across two selected periods: 2013 and 2022 for member and candidate countries and year 2023 for member countries.

The year 2013 represents a period following the end of the financial crisis, during which redistributive policies of countries should no longer be significantly influenced by the aftermath of the 2008 crisis. It is also the year of the last EU enlargement with Croatia.

The year 2022 is the last year when data is available for all selected countries. It is also a year when most EU countries are no longer applying the redistribution tools that were caused by Covid 19 and high inflation.

To ensure that the data is up-to-date, the year 2023 was also analyzed, but only for EU member countries. Data for candidate countries were not available for 2023 in any case.

For the interpretation of the cluster analysis results, graphical outputs from the k-means method in R are utilized. These visualizations help in understanding the distribution and characteristics of clusters, as well as in assessing the proximity and differentiation of countries

within each cluster. The selection of observed countries posed a fundamental limitation on the choice of input variables, potentially due to the scarcity of scientific studies focusing on this specific group of states.

Based on the available data, a set of variables related to income inequality, poverty risk, and redistribution excluding social transfers was selected, with considerations for categories such as gender and age. In total, eleven variables are included in the analysis (*Table 3*). Given the strong correlations among the observed variables, Principal Component Analysis (PCA) was conducted prior to the k-means clustering. The components calculated using PCA are subsequently used as input variables for the k-means clustering analysis. For the k-means method, determining the optimal number of clusters is crucial; in this analysis, methods outlined by Mirkin (2011) will be employed.

Table 3. Description of redistribution and socioeconomic variables

Indicator	Description	Source
Income inequality for older people - EU-SILC survey (total)	The ratio of total income received by the 20 % of the population with the highest income (top quintile) to that received by the 20 % of the population with the lowest income (lowest quintile).	Eurostat
Income inequality for older people - EU-SILC survey (male)		
Income inequality for older people - EU-SILC survey (female)		
Inequality of income distribution (total)		
Relative median poverty risk gap by age group - EU-SILC survey (total)	The indicator is defined as the difference between the median equivalised total net income of persons below the at-risk-of-poverty threshold and the at-risk-of-poverty threshold, expressed as a percentage of the at-risk-of-poverty threshold.	Eurostat
Relative median poverty risk gap by age group - EU-SILC survey (less than 18 years)		
Relative median poverty risk gap by age group - EU-SILC survey (from 18 to 64)		
Relative median poverty risk gap by age group - EU-SILC survey (65 years over)		
At-risk-of-poverty rate before social transfers by sex - EU-SILC survey (total)	The share of persons with an equivalised disposable income, before social transfers, below the risk-of-poverty threshold, which is set at 60 % of the national median equivalised disposable income (after social transfers).	Eurostat
At-risk-of-poverty rate before social transfers by sex - EU-SILC survey (male)		
At-risk-of-poverty rate before social transfers by sex - EU-SILC survey (female)		

Source: *own processing by the authors*

3. Conducting research and results

In *Table 4*, the composition of weights for the two principal components with the highest explanatory power of variability in the examined data for the years 2013 and 2022 is presented. The values of these selected components are subsequently used as inputs for the k-means clustering analysis.

Table 4. Structure of the two most significant components estimated by PCA

Indicators	2013		2022	
	Comp. 1	Comp. 2	Comp. 1	Comp. 2
Income inequality for older people (total)	0.342		0.324	0.304
Income inequality for older people (male)	0.325		0.328	0.287
Income inequality for older people (female)	0.344		0.300	0.312
Inequality of income distribution (total)	0.354	0.198	0.339	0.182
Relative median poverty risk gap by age group (total)	0.316	0.264	0.261	0.030
Relative median poverty risk gap by age group (less than 18 years)	0.282	0.325	0.292	-0.129
Relative median poverty risk gap by age group (from 18 to 64)	0.293	0.260	0.333	0.111
Relative median poverty risk gap by age group (65 years over)	0.319		0.324	0.052
At-risk-of-poverty rate before social transfers by sex (total)	0.238	-0.491	0.263	-0.465
At-risk-of-poverty rate before social transfers by sex (male)	0.249	-0.457	0.262	-0.465
At-risk-of-poverty rate before social transfers by sex (female)	0.220	-0.509	0.269	-0.477

Source: *own processing by the authors*

The selection of appropriate variables and the application of the k-means method in R enabled the graphical representation of clusters, which reflect the amalgamation of different social regimes. *Figure 1* illustrates the resulting country clustering for the years 2013 and 2022.

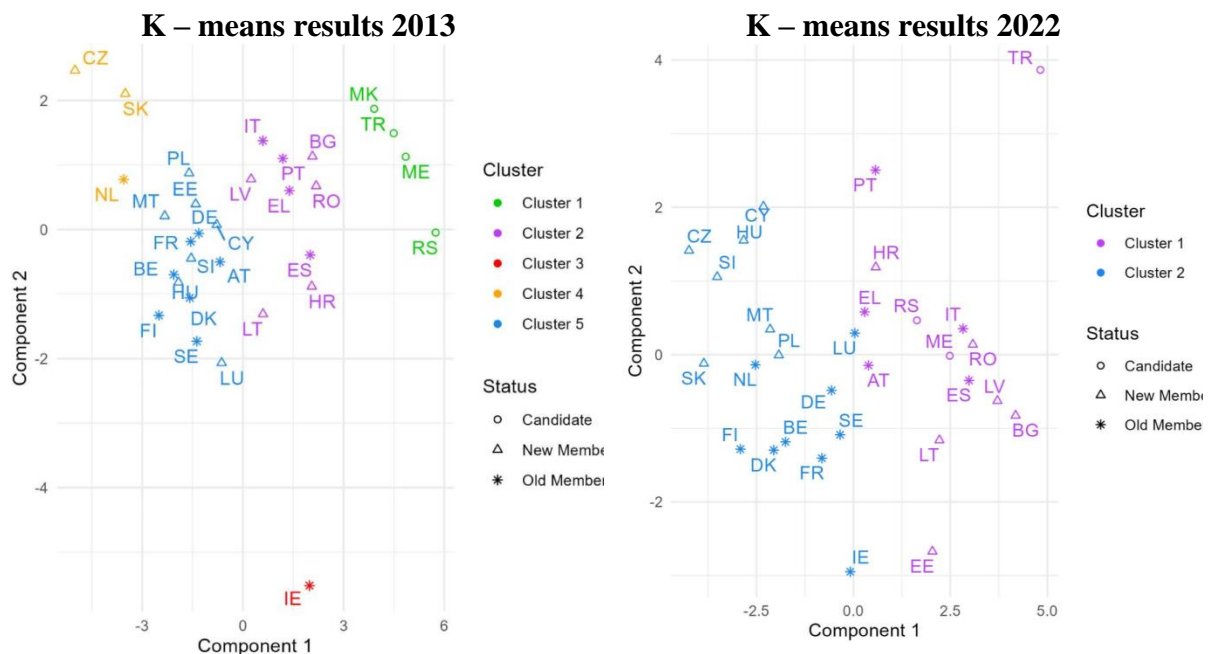


Figure 1. Results of k-means clustering for selected European countries

Source: *own processing by the authors*

Based on *Figure 1*, significant differences are observable among the countries under study, leading to the formation of five clusters in 2013 and three clusters in 2022. In 2013, EU member states presented significant overlaps among welfare regimes. Cluster 5 emerged as the

largest group, comprising a blend of the Social Democratic model, Conservative model, and portions of the Post-Communist European model. Notably, the Model of the Former USSR, which previously included Estonia, Latvia, and Lithuania, disappeared. While Estonia was part of Cluster 5, Latvia and Lithuania shifted to Cluster 2, primarily consisting of Southern model countries. New member states such as Croatia and Bulgaria also joined this cluster in 2013. Cluster 1 exclusively included candidate countries, indicating that in 2013, these countries were significantly different from EU member states in terms of income inequality and poverty risk. Cluster 4 included countries from the Post-Communist European model, alongside the Netherlands from the Conservative model. Cluster 3 consisted solely of Ireland, representing the Liberal regime. In 2022, only two clusters were created, which reflects a significant shift of the candidate countries closer to the EU member states. Cluster 1 now includes the three candidate countries of Montenegro, Serbia and Turkey, along with the predominantly southern model areas and post-communist countries such as Bulgaria and Croatia, which were in clusters 1 and 2 in 2013. Although Turkey was included in this grouping according to the results of k-means, Figure 1 means that in 2022 Turkey deviated the most from the indicators used within this grouping. Cluster 2 includes predominantly post-communist European model countries, such as the V4 countries and Slovenia, along with almost all conservative model countries, as well as the southern model countries, Cyprus and Malta.

The results of the cluster analysis indicate a significant shift in the redistribution policies of candidate countries towards alignment with EU member states, as well as a blending of welfare regimes. This shift is evident in the reduced number of clusters, a phenomenon also noted by Aspalter (2020) and Meng and Li (2023).

For improved interpretation of the results, welfare regime maps have been created in Figure 2, illustrating the geographical distribution of these regimes.

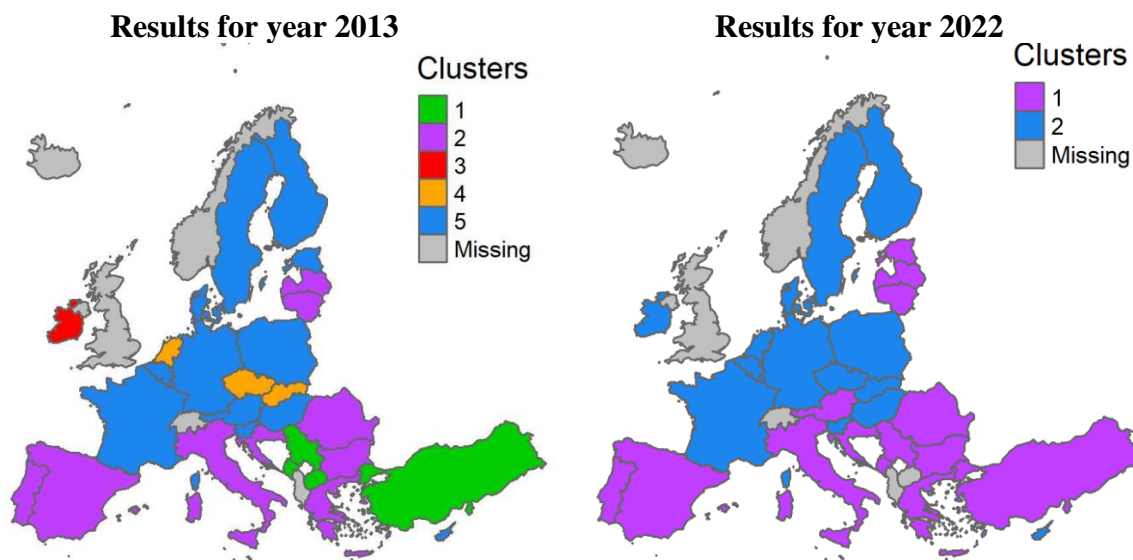


Figure 2. Results for hierarchical cluster analysis with welfare indicators
Source: own processing by the authors

Studies conducted after 2000, such as those by Arts and Gelissen (2002), Vrooman (2009), and Aspalter (2023), have concluded that actual welfare states are rarely pure types and are generally hybrid regimes. From a geographical perspective, similarities can be observed among countries extending from the north to the south, except former USSR countries and post-communist states, which exhibited distinctive regime types due to differing social and economic

developments. *Figure 2* also confirms the geographical proximity of countries within the same cluster. In 2013, most countries were clustered in northern and central Europe, representing a mix of social-democratic and conservative regimes. The Southern regime was predominantly composed of southern European countries, with candidate countries showing significant deviations. In 2022, a geographical division into northern and southern countries can be observed. Southern countries are clustered together with all the candidate countries, which points to their shift towards the redistribution policy of the EU. The same type of policy also applies to the country of the former USSR. On the other hand, there is a strong cluster of Central, Northern and Western European countries. The mix of these countries points to a strong intermingling of regimes and a fusion of conservative and social regime countries.

Based on the theoretical insights and the results of the cluster analysis illustrated in *Figures 1* and *2*, both established hypotheses can be accepted. The differences among the clusters of the studied countries can be further analyzed using *Figure 3*, which presents boxplots of selected variables for all clusters in the years 2013 and 2022.

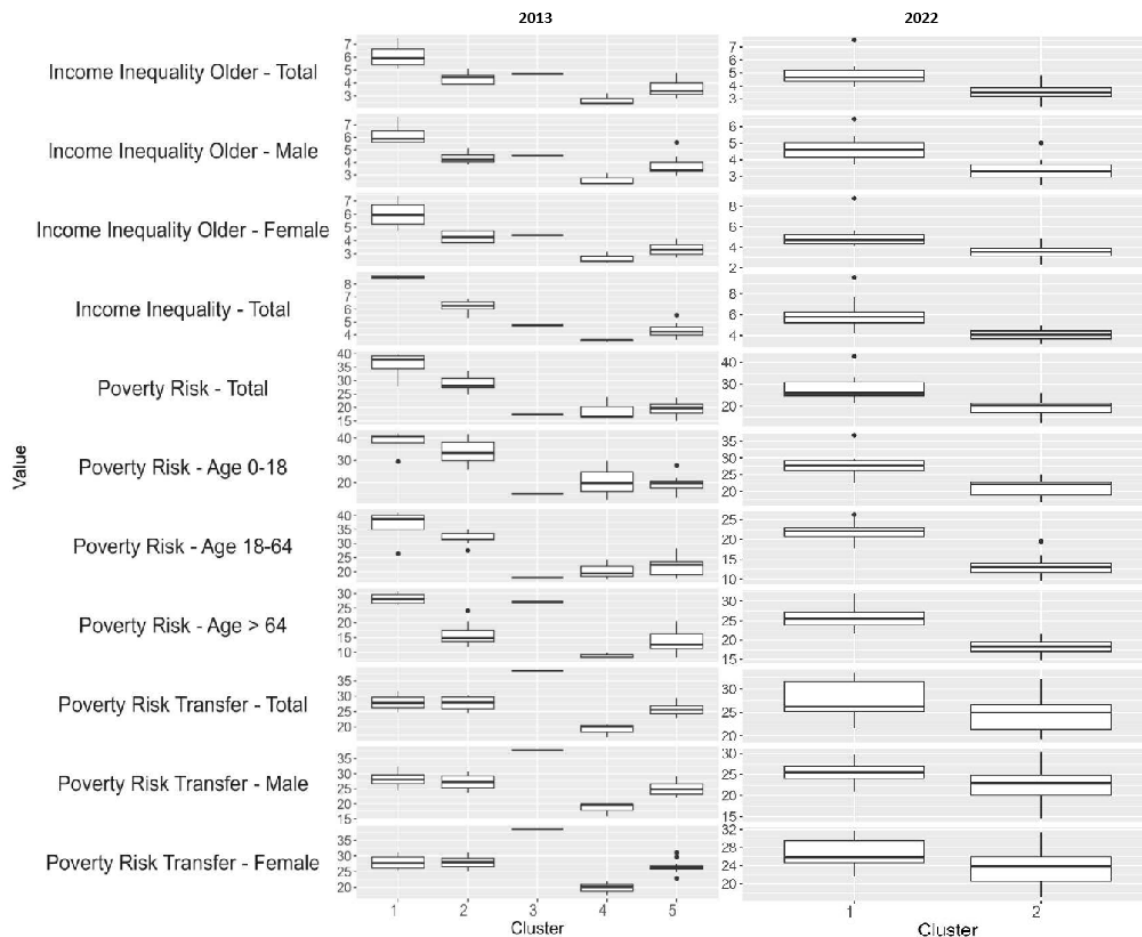


Figure 3. Characteristics of variables in clusters for the years 2013 and 2022

Source: own processing by the authors

Based on the results illustrated in *Figure 3*, several conclusions can be drawn. In 2013, there were significant disparities between clusters in terms of income inequality and poverty risk across both genders and all age groups. The poorest performance was observed in Cluster 1, which primarily comprised candidate countries such as Montenegro, North Macedonia, Serbia, and Turkey. Poverty Risk Transfer did not exhibit notable differences between clusters. In 2022, it is possible to see changes in the evaluation scales for selected indicators, which

speak of an improvement in both the Income inequality and Poverty risk indicators in both clusters. Cluster 1, which represents the southern and candidate extremes, achieves worse results in all indicators. Overall, the risk of poverty has decreased, but a significant gap between clusters remains between the most vulnerable age group 0-18 and the over-64 age group. The analysis of the variables also points to a high variability in the indicators of poverty risk transfers. In Cluster 1, this is caused mainly by the presence of Turkey, which is farthest away from other EU countries with its redistribution policy. In Cluster 2, the reason is the countries of Central and Eastern Europe, which can be attributed to the structural economic problem in the region - especially the problem with the pension systems (see Aidukaite, Hort and Ainsaar, 2021; Baranowski and Jabkowski, 2022).

However, the year 2022 is specific in that many countries have implemented assistance in reducing the effects of high inflation, which had an impact on the implemented redistribution policy. For this reason, the year 2023 was also included in the analysis, where these impacts should already be milder. The availability of data for the year 2023 makes it possible to create a clusters for EU member countries only, which is shown in Figure 4.

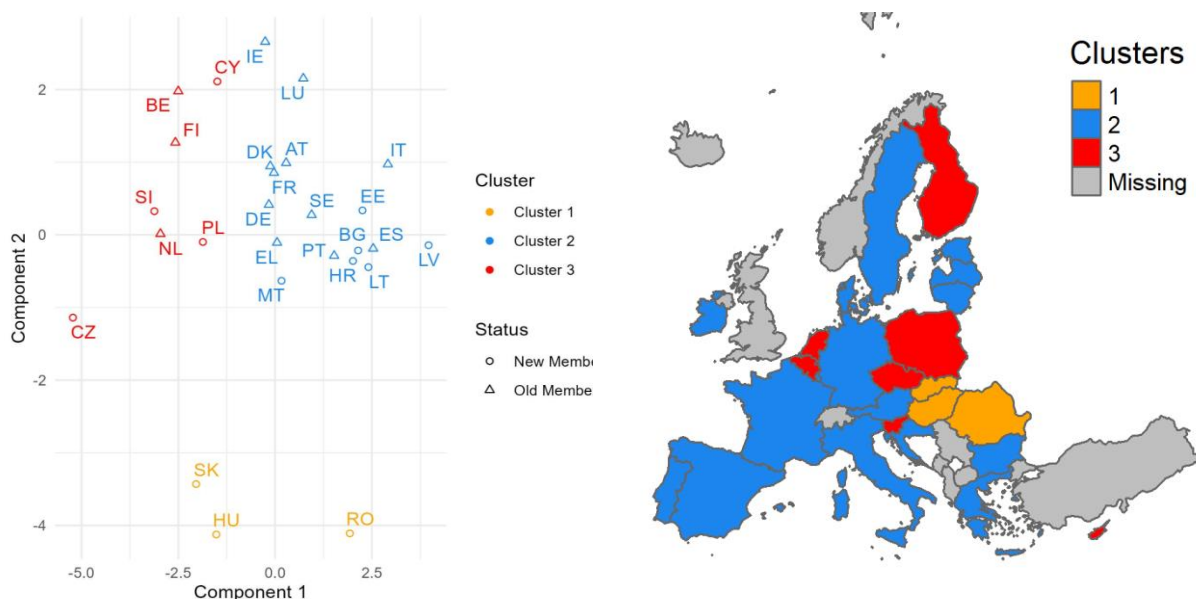


Figure 4. Results for hierarchical cluster analysis with welfare indicators for year 2023
Source: own processing by the authors

The analysis from 2023 pointed out that if we look only at EU countries, we find greater differences in redistribution. The source of this difference is mainly the risk of poverty, which led to the separation of countries such as Slovakia, Hungary and Romania. The countries of this cluster do not have a problem with income inequality, which is also shown in Figure 5. Slovakia and Hungary even belonged to the cluster with Western countries in 2022. The growth of the risk of poverty could thus be caused by long-term problems with inflation, which grew significantly faster than wages in these countries.

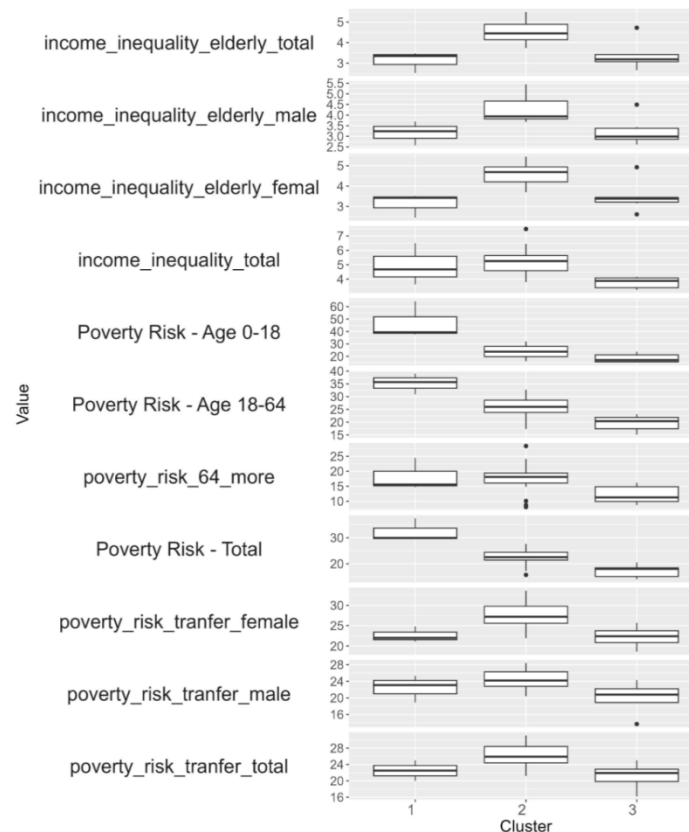


Figure 5. Characteristics of variables in clusters for the year 2023

Source: *own processing by the authors*

By comparing the results for the years 2013 and 2022, as well as by analyzing the year 2023 for EU member states, we came to several findings. The results of the analysis of input variables together with the findings from the k-means method point to differences in redistribution policies within and outside the European Union. Despite the EU's efforts to tackle income inequality and poverty, significant disparities persist, especially from north to south. From a geographical point of view, the countries of the former USSR show a higher level of inequality and poverty compared to the neighboring Nordic countries. Inequality between the European countries studied is decreasing, including in the case of new EU member states as well as candidate countries. The results of this study indicate that it is currently not possible to clearly define the boundaries of social regimes. Post-communist countries are moving more towards the conservative model represented by Germany, Austria and the Netherlands. In addition, there is a mixing of conservative and social democratic models. In 2023, however, it was demonstrated that the sudden economic problems that arose in the EU at the beginning of the war in Ukraine and the subsequent high inflation manifested themselves in a different ability of the state to respond to these challenges.

A significant shift occurred between the candidate countries, which in 2013 created a separate cluster separated from the other EU member states. Long-term candidates such as Turkey, which reached the thresholds, as well as newer candidate countries such as Serbia and Montenegro in 2022, have shown a shift towards redistributive policies typical of EU countries, reflecting a combination of conservative, social democratic and Southern models.

Conclusion

Candidate countries aspiring to join the EU must undergo significant reforms across various domains. One of the goals of integrating these countries is to align their social standards with the required levels, which involves reducing income inequality, poverty risk, gender inequality, and addressing many other areas that are the focus of welfare regimes. The presented study focuses on the progress made by selected candidate countries in this area, as well as on the convergence of welfare regimes within EU member states.

The results of the analysis demonstrated the presence of predefined types of welfare regimes in selected European countries, confirming the hypothesis that there is significant overlap among regimes, including both candidate and member states, and that pure forms of these regimes are increasingly rare. This situation can be explained by the implementation of a common European redistribution policy, which candidate countries are willing to follow. Between 2013 and 2020, candidate countries made substantial progress in reducing income inequality and poverty risk across genders and age groups. In redistribution policy, they have shown real results in moving closer to EU standards. The period under review indicated that even new member states are increasingly aligning with older member states, as evidenced by mixed clusters. The pure forms of regimes typical of post-communist countries and former USSR countries are diminishing, with countries adopting characteristics of regimes typical of new member states, such as Conservative and Social-Democratic regimes. Similar conclusions were reached by Oros (2019). The analysis confirmed Powell et al.'s (2020) assertion that pure forms of welfare regimes are increasingly rare over time. It also supported the claims of Shark and Gough (2010) that membership in regime groupings tends to become more cohesive over time and those countries, influenced by various levels of integration, may adopt similar characteristics in redistribution policies. It is necessary to realize that the policy of redistribution is fully in the hands of those who have the opportunity to respond to economic shocks such as high inflation through transfers. A different approach to solving these problems may be the cause of a different arrangement of countries into clusters, as shown in 2023. This year, however, the intermingling of individual welfare regimes was confirmed.

The results of the presented study also indicate a change in the number of clusters that the analyzed countries have achieved over time, specifically a decrease from five to two clusters. However, these results are limited by the type and number of variables examined, which were primarily focused on income inequality and poverty risk. These variables do not provide a comprehensive view of the redistribution policy, which can be observed in the context of welfare regimes. Our research is also limited by the selection of monitored periods. The monitored years 2013 and 2022 only provides a retrospective analysis and may not fully reflect the current state of welfare regimes, especially in the candidate countries. Despite this limitation, the data suggest that countries are converging in this area, creating fewer distinct clusters and reducing the differences between them. In the case of EU member countries, this was confirmed by the results for 2023. This finding supports the notion of convergence in redistribution policies among European countries and partially confirms the results of Meng and Li (2023), who divided EU countries into only two major groups with similar characteristics. Our analysis indicates that this trend has also been observed among candidate countries.

The results obtained led to the confirmation of both hypotheses and the conclusion that there is significant overlap among welfare regimes within EU member states and that selected EU candidate countries are progressively aligning with the welfare regimes of member states over time.

Despite the findings of our study, it is important to recognize that the social systems functioning in the examined European countries remain distinct, and a complete convergence among all welfare regimes cannot be anticipated. The primary reason for this is the entrenched nature of existing redistribution systems within each society, where radical changes could potentially lead to social unrest.

In future research, it would be beneficial to include additional significant variables related to education, healthcare, family, and tax policies, which may eventually be available for candidate countries as well. Expanding the study to encompass Bosnia and Herzegovina, Moldova, and Ukraine - countries that officially became candidates in 2022, along with Georgia, which joined in 2023 - would also be valuable. Among the countries examined, Turkey, the longest-standing candidate country, presents an intriguing case. Despite significant national-level reforms, Turkey has shown the least progress toward alignment with other European countries.

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