polish sociological review 3(203)'18
ISSN 1231 – 1413
DOI:10.26412/psr203.01

Socio-Economic Transformation

KATARZYNA PIOTROWSKA
Kozminski University

GAVIN RAE
Kozminski University

Divergence Not Convergence. The Strengthening of the post-Communist Welfare State Model in Central and Eastern Europe After European Union Expansion

Abstract: This paper analyses the welfare states in the post-Communist countries from Central and Eastern Europe, which are members of the European Union. It applies the welfare regime typology methodology, partly developed by Esping-Andersen, as a framework for this research. The paper examines the two main predictions that emerged from the literature on the future of the welfare states in Central and Eastern Europe. Firstly, was the thesis that these welfare states would not fit easily into any of the existent models in Western Europe. Secondly, that these welfare states would gradually converge with one or more of the welfare regimes existent in the West. We have used hierarchical cluster analysis to check the extent of this welfare convergence/divergence over the first ten year period after the eastern expansion of the European Union (2004 and 2014). We discovered that in 2004 the post-communist countries were divided between two clusters, although by 2014 all of the post-Communist countries (apart from Slovenia) had grouped together in one separate cluster. Therefore a process of divergence from the western European welfare models and a convergence between the post-Communist welfare states had actually occurred.

Keywords: Welfare state, Esping-Andersen, European Union, Central and Eastern Europe, Cluster analysis, post-Communism

Comparing Welfare States

A common approach to the welfare state, in post-War Western Europe, was the idea that it was part of the extension of citizens' rights into the sphere of social rights (Marshall 1992). This was often seen as a continuation of society's double movement against the commodification of areas of economic and social life, first described by Karl Polanyi (1944). The Power Resource Theory encapsulated such an approach to the welfare state, believing that the relative differences between welfare states could be understood by the strength of a country's social democratic parties and trade unions (Korpai 1985). Esping-Andersen's (1993) classic approach to comparing different welfare states expanded this approach, combining the concepts of double movement, social rights and (de)commodification.

Esping-Andersen stated that the introduction of social rights weakened the commodification of labour and argued that if rights were to be universal then this inevitably means creating areas of socio-economic life that are *decommodified*. For Esping-Andersen a cru-

cial test for a welfare state is whether someone is able to maintain a 'socially acceptable standard of living,' when they are not engaged in productive work. This is determined by such things as the level and availability of unemployment benefits, paid maternity/paternity leave, free universal healthcare, education, pensions and so on. The decommodification of labour occurs if these are universally available to all irrespective of one's market position; and also when they are of a sufficient high quality and standard to satisfy the needs of the whole of society. Using this yardstick, Esping-Andersen developed three ideal types of social welfare systems. Esping-Andersen did not believe that any of these welfare systems actually existed in their pure form, but that they are useful models for comparing and contrasting the welfare states of different countries:

— *Liberal Welfare States* (e.g. the UK)—these are welfare systems in which social benefits are modest, they are often means tested and where entitlement rules to receiving them or gaining access to some public services are strict.
— *Conservatist Welfare States* (e.g. Germany)—such welfare systems are concerned with preserving status divisions and are centred on traditional institutions such as the Church and family.
— *Universal/Decommodified Welfare States* (e.g. Sweden)—these welfare systems tend to deliver high quality universal benefits and services are provided.

Subsequent comparative welfare state analyses, using Esping-Andersen's framework, have proposed other welfare state regimes. In particular research has identified a fourth typology defined as being 'Latin' or 'Southern European'. This is made up of countries from Southern Europe, whose welfare states are characterised by such things as the lack of a social minimum; fragmented social security schemes; and a strong reliance on the family. Subsequent empirical research has validated the three welfare state typologies of Esping-Andersen along with the addition of the fourth welfare typology in Southern Europe (Saint Arnaud and Bernard 2003).

Following the collapse of Communism in Central and Eastern Europe, and the subsequent accession of ten post-Communist countries into the European Union, attention turned to the future of welfare states in the region. The main area of discussion was around whether the welfare states in Central and Eastern Europe would converge with the welfare models existent in Western Europe; and whether a new distinct welfare regime (or regimes) would consolidate within the post-Communist countries.

The Welfare State in Central and Eastern Europe

One approach to the welfare states in the post-Communist countries, has been that these continue to be influenced by the historical legacies of the past (Pierson 2009). This is influenced by the path dependency approach to the post-Communist transition, which is built upon the premise that the institutional framework inherited from the past provides the basis upon which new institutions are built (Stark and Bruszt 1998). Accordingly, Inglot (2003), adopting an Historical Institutionalist approach, argues that the welfare systems in Central and Eastern Europe developed in a complex and often ad-hoc manner, creating hybrid structures and institutional layers that are difficult to fit into existing classifications of wel-

fare states in Western Europe. Due to these historical legacies it should be expected that the welfare sates in Central and Eastern Europe will not fit easily into the welfare models existent in Western Europe.

One of the reasons that the welfare states in the post-Communist countries tend not to suit the models developed for analysis in Western Europe is that they remain intrinsically and uniquely connected to the Communist period and also to the transition from Communism (Rae 2016). Almost all areas of economic and social life during Communism were controlled or directed by the state. One of the defining features of the Communist economies was the decommodified nature of labour, which was maintained through the guarantee of full-employment by the central government via the state's monopolisation of the vast majority of the economy, both at a micro and macro level (Rueschemeyer et al. 1999). As well as the majority of people having a guaranteed job, employees received other benefits and services via their workplace, such as access to holiday accommodation, some health care services, pensions and child care facilities. Therefore, as labour was decommodified through the policy of full-employment, so individuals were reliant upon their workplace to receive full welfare benefits. Conversely, those who were excluded from the labour market would often find themselves living in conditions of poverty without access to benefits. This is diametrically opposed to the situation in the welfare states in Western Europe, where the crucial feature of decommodification—as identified by Esping-Andersen—concerns whether one can maintain a socially acceptable standard living whilst not in employment. The welfare states in Central and Eastern Europe therefore have a unique history and it is out of these structures that the modern welfare states in the region have been created. Simultaneously, however, the post-Communist countries (particularly those that are now part of the European Union) have been integrated into a global institutional and economic framework common to the welfare states in Western Europe.

Esping-Andersen (1996) himself believed that after some time the Central and Eastern European welfare states would converge with one or more of the three typologies that he had identified. He further believed that the post-Communist welfare states would most likely move towards having minimalist, liberal systems of welfare, due to the neo-liberal character of the post-Communist transitions (Esping-Andersen 1996). This chimes with the arguments of the Power Resource Theory, as resistance to commodification was subdued due the weakness of the social democratic parties and trade unions in Central and Eastern Europe.

Subsequent research has tended to show that the welfare states in the post-Communist countries do not fit easily into any of the existing welfare regimes, although some significant differences remain between the Central and Eastern European welfare states (Deacon 2000; Fenger 2007; Ferge 2001; Rys 2001; Sengoku 2004). Fenger (2007) researched whether the post-Communist countries in the whole of Central and Eastern Europe could fit into the welfare typologies outlined by Esping-Andersen. He found that that these welfare states did align with the Esping-Andersen welfare typologies and also that there were large differences between the welfare states in the region. Others have further claimed that the variance between the post-Communist welfare states show that there is no such thing as a post-Communist welfare state regime. Over a quarter of a century after the end of Communism, we should no longer be able to discern any noticeable differences between the welfare states in the eastern and western parts of Europe (Rys 2001).

Methodology

Although many predictions have been made that integration into the European Union would facilitate the convergence of the welfare states in Central and Eastern Europe with those in Western Europe, little research has actually been carried out on this topic. The aim of this paper therefore is to check whether the post-Communist European Union welfare states converged towards the existent welfare state models in Western Europe (a decade after they had become members of the European Union); or whether a distinct model in Central and Eastern Europe has consolidated according to the predictions of path dependency theory.

For the purpose of this analysis we have formulated three main research questions:

1. Have the post-Communist European Union states converged towards any of the existent welfare state models?
2. Has a distinct model in Central and Eastern Europe consolidated?
3. What are the similarities and differences between the welfare states in the Central and Eastern European countries?

We have analysed this process of convergence/divergence through a cluster analysis of the welfare states of all countries belonging to the European Union. We carried out this cluster analysis at two points in time: 2004 and 2014. In 2004, eight Central and Eastern countries joined the European Union (Hungary, Estonia, Latvia, Lithuania, Poland, Slovakia, Slovenia and the Czech Republic). We have also included into our analysis Bulgaria and Romania (that joined the European Union in 2008) and Croatia (that joined in 2010). As candidate members of the European Union from the beginning of this research, they were already being institutionally integrated into the structures of the European Union. We also have access to common data for these countries, allowing them to be incorporated into our cluster analysis.

Our research follows the method of Saint Arnaud and Bernard's (2003) study of welfare regime typologies in the OECD countries, using the quantitative approach: hierarchical cluster analysis. This analytical framework was adopted by Fenger (2007), who used the same hierarchical cluster analysis to research the welfare regime clusters in Central and Eastern Europe. As far as possible we have attempted to replicate the data of these analyses. Where available we have taken our data from Eurostat [1] (as this covers all the countries under analysis), using the categories devised by Saint Arnaud and Bernard and used by Fenger. These categories are: Government Programmes, Social Situation and Political Programmes. Accordingly, these should show us the size and comprehensiveness of the welfare state, the social effects of this welfare spending and the social countermovement that exists in these societies. One of the limitations of this research, as in all such analysis, is that in order to perform hierarchical cluster analysis, no data can be missing for even a single country during one year. As we wanted to compare two points in time this limitation influenced the analysis to a greater extent than in the aforementioned research, as the data had to be available for both 2004 and 2014. Due to this constraint, some variables were omitted from

[1] The data which was derived from other sources are for the Individual income tax rate variable, which is from KPMG; and GDP growth rate, which we took from the World Bank (taking the mean for the previous 10 years).

our analysis that had been used by Saint Arnaud and Bernard and Fenger.[2] The variables used in our analysis and the omitted variables that had been used in the previous studies) are presented in *table one*.

Table 1

Variables Used and Omitted in the Cluster Analysis

Included Variables	*Omitted Variables (which were included in analysis of Saint-Arnaud and Bernard)*	*Variables Added in the Last Stage of the Analysis (Social Stratification)*
Total general government expenditure % of GDP	Long-Term Unemployment[a]	Risk of Poverty
Final consumption expenditure of general government (% GDP)	Subsidies	Material Deprivation
Social benefits paid by general government (% of GDP)	Direct interest payments	Housing Deprivation
Investment by institutional sectors % of GDP	Employee social insurance Contributions	Inequality (Gini Coefficient)
Total general government revenue % of GDP	Number of years since first law on: old age, sickness, employment, work injury, family allowances	
Individual Income tax Rate	R&D scientists and technicians	
Net Social contributions % of GDP	Level of trust	
Public health spending % GDP	Daily newspaper read	
Research and Development expenditure	Government Investment	
Hospital Beds		
Education spending % of GDP		
Unemployment Rate		
Long-Term Unemployment		
GDP Growth Rate		
Employment Rate		
Female Employment Rate		
Infant Mortality Rate		
Fertility Rate		
Inflation Rate		
Life expectancy		
Age first child born		
Voting turnout		

[a] The long-term unemployment rate was omitted from our analysis as the correlation between it and the unemployment variable was too high (higher than 0.9).

In this paper we present the dendograms for 2004 and 2014 (which display the cluster analysis results), showing how the process of convergence/divergence proceeded over this decade. Following, the example of Saint Arnaud and Bernard, we have used hierarchical cluster analysis. Also in line with these authors' methodology we have standardised all of the variables on a scale of 0 to 1; used the classic measure of distance ('squared Euclidean'); and adopted the Ward's method for the actual groupings.[3]

We then look in depth at the mean scores of the variables in the three categories, in order to analyse the similarities and differences between the welfare states in the European Union and in particular the post-Communist countries. After presenting these results we have added some new variables, in the category of social stratification, that were not included in the research of Saint Arnaud and Bernard or Fenger. This is an important feature of welfare

[2] For public investment we had data for all of the countries apart from Luxemburg. In this case we replaced the figure for Luxemburg with the mean public investment level for all the other 27 European Union countries.

[3] When running the analysis the SPSS software version 24.0 was used.

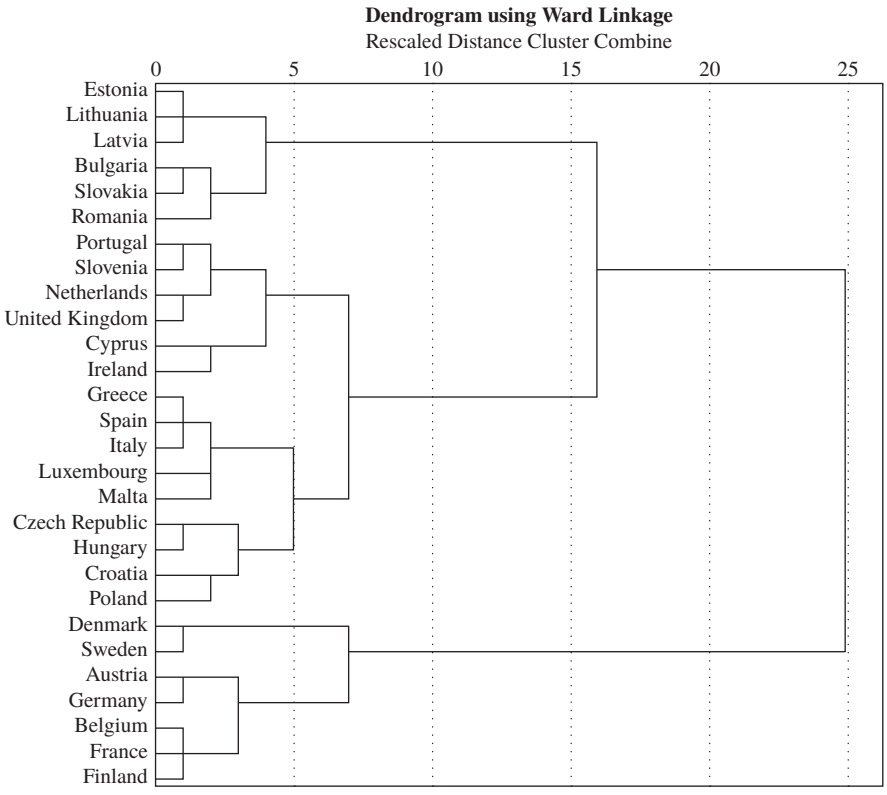
states, according to Esping-Andersen's model, with the social democratic welfare states, for example, reducing the level of inequality far more than the liberal welfare states. We then create a new dendogram with these variables for the year 2014 and analyse the mean scores for these social stratification variables. We did this separately as we wanted to first present our data that as close as possible followed the methodology of the previous cluster analyses before expanding the model ourselves.

European Union Welfare Clusters 2004 and 2014

The welfare state clusters in the European Union in 2004 are displayed in *figure one*.[4] The post-Communist countries from Central and Eastern Europe are divided into two groups. The first one is exclusively made up of the Central and Eastern European countries, including the three Baltic State countries and Bulgaria, Slovakia and Romania. Meanwhile, the rest of the Central and Eastern European states (Slovenia, the Czech Republic, Hungary,

Figure 1

European Welfare State Clusters (2004)



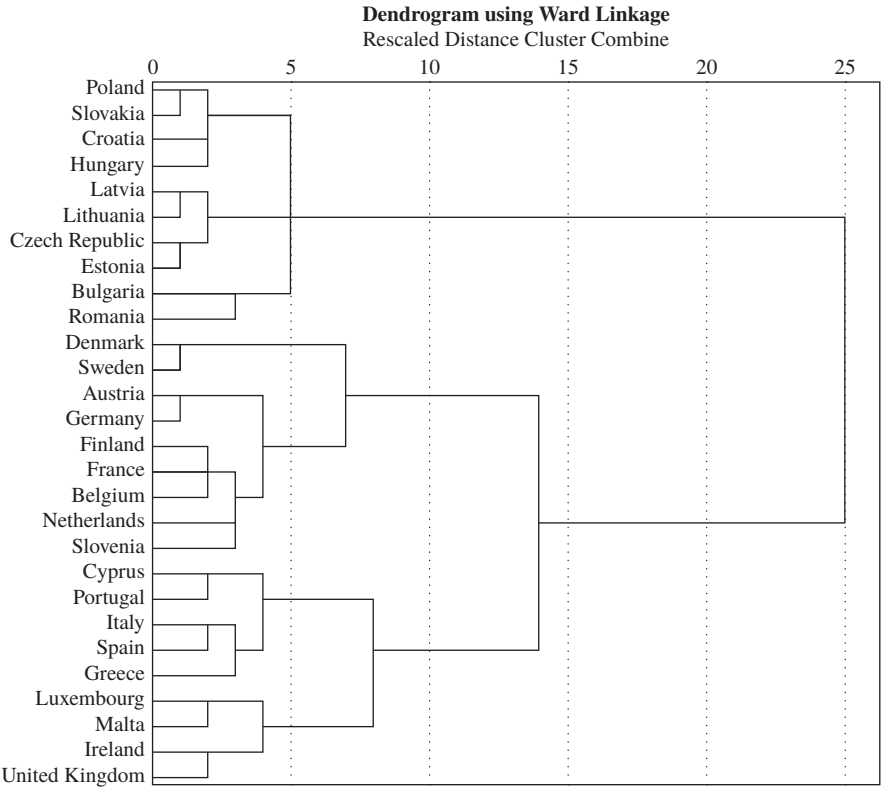
[4] The significances of the differences between the clusters for every variable included in the analysis are presented in appendix one.

Croatia and Poland) are grouped together with countries that would normally be considered to belong to the liberal or Mediterranean models. The third cluster in this dendogram includes countries that according to Esping-Andersen's research are social democratic or conservative. Interestingly, Slovenia is included in this group. We can therefore see that at the moment of the first eastern expansion of the European Union, the welfare states in Central and Eastern Europe were divided between three main clusters and no clear post-Communist welfare cluster is discernible.

The next part of our analysis is to study how these welfare clusters changed a decade after the first eastern enlargement of the European Union. We are interested in observing whether any process of convergence has taken place between the welfare states in Central and Eastern Europe and Western Europe during this time. We can see in *figure two* that a strong cluster of post-Communist welfare states had actually consolidated by 2014[5]. The dominant cluster in this dendogram is made up exclusively of Central and Eastern European countries. In fact all of the post-Communist countries are grouped into this cluster;

Figure 2

European Union Welfare Clusters (2014)



[5] The terms 'strong cluster' or 'clear cluster' are used in this text to describe how the further to the right the cluster diverge the stronger/clearer the cluster is.

apart from Slovenia, which remains within the social democratic or conservative welfare regime. The case of Slovenia can perhaps be explained by the fact that Slovenia was the only country within Central and Eastern Europe that did not undergo shock-therapy style economic reform at the beginning of the transition (Mencinger 2002). Therefore, we have found the perhaps surprising result that rather than the Central and Eastern European countries converging with the welfare state models existent in Western Europe, nearly all of these countries have converged together, making a distinct post-Communist cluster.

Characteristics of the Welfare Regime Models

The next part of our analysis will be to look at the mean scores for the variables in 2014, which have been broadly grouped into the three categories: government spending, social situation and political participation. From the cluster analysis we have induced three dominant welfare state regimes in the European Union. We have defined these as being:

1. Social Democratic/Conservative
2. Post-Communist
3. Liberal/Mediterranean

For the purposes of this paper we are of course particularly interested in the post-Communist model and at how this compares to the other two.

Table Two, displays the mean scores for all of the variables in 2014.[6] What we can see in this table is that for over half (eight) of the variables on government programmes, the post-Communist model displays the most liberal features. This is particularly observable when it comes to overall government expenditures on such things as public health, education and research and development, where the post-Communist governments tend to spend the least. Meanwhile the post-Communist model is more liberal than the social democratic/conservative welfare model on such things as income tax and social contributions, although for the latter they are less liberal than the liberal/Mediterranean welfare states.

Conversely, the post-Communist welfare states have the highest scores when considering both the number of hospital beds and public investment. The high number of hospital beds is an effect of the historical legacies of the former Communist countries, which is part of the inherited welfare infrastructure in the health sector that remains a part of the contemporary welfare states in the region. Meanwhile, the rate of public investment in most Central and Eastern European countries grew significantly, during the period under study, due to the influx of European Union funds. The Central and Eastern European countries were the largest beneficiaries of the cohesion and structural funds from the last two European Union budgets that has allowed significant central and local government expenditure in parts of their infrastructure.[7]

For the variables on the social situation in the European Union countries we find that the post-Communist welfare state model stands between the social democratic/conserva-

[6] The significances of the differences between the clusters for every variable included in the analysis are presented in appendix two.

[7] However, this temporary influx of European Union funds should not be seen as the only reason for the formation of a post-Communist cluster in 2014. When we take away the public investment variable, the clusters remain unchanged.

Table 2

Mean Scores for all Variables Included in the Cluster Analysis (2014)

	Social democratic / conservative (n = 9)		Post Communist (n = 10)		Liberal / Mediterranean (n = 9)	
	Mean	SD	Mean	SD	Mean	SD
Total general government expenditure % of GDP	52.41	4.9	41.15	5.1	46.34	4.61
Final consumption expenditure of general government (% of GDP)	23.33	3.03	18.07	1.9	18.54	1.5
Social benefits (other than social transfers in kind) paid by general government (% of GDP)	16.86	2.81	12.38	1.74	15.82	2.96
Government Investment % of GDP	3.59	0.97	4.25	0.63	2.69	0.81
Total general government revenue % of GDP	50.14	4.86	38.67	4.18	41.72	4.39
Individual income tax rate	50.4	4.09	22.1	8.84	43.26	5.77
Net Social contributions % of GDP	12.82	6.19	11.41	2.39	10.29	2.98
Public Health Spending % GDP	8.38	1.11	4.83	0.83	6.14	1.18
Research and Development expenditure	2.7	0.44	1.03	0.46	1.16	0.39
Hospital Beds per 10,000 people	534.7	191.2	633.14	69.71	370.33	91.79
Education Spending % of GDP	5.83	0.9	4.84	0.88	5.04	0.75
Unemployment Rate	7.74	1.78	10.04	3.42	13.68	7.69
Employment Rate	73.47	4.4	67.94	4.61	65.56	6.91
Female Employment Rate	69.72	4.77	62.61	5.76	58.53	8.58
GDP growth	1.17	0.32	2.54	1.15	0.89	1.64
Infant Mortality Rate	3.13	0.61	4.84	2.12	3.52	1.39
Fertility Rate	1.7	0.18	1.5	0.1	1.47	0.25
Inflation Rate	0.66	0.44	0.18	0.76	0.16	0.82
Life expectancy	81.6	0.64	76.37	1.63	82.14	0.8
Age first child born	30.62	0.35	29.01	0.91	31.04	0.61
Voting turnout	72.89	13.26	56.09	6.81	74.09	12.21

tive and liberal/Mediterranean welfare states for the questions on employment.[8] For these variables the social democratic/conservative welfare states have the highest levels of employment and the lowest unemployment, whilst the liberal/Mediterranean countries stand on the opposite side of the spectrum. Meanwhile, the post-Communist welfare states score the lowest for the variables concerning infant mortality, age of first child born and life expectancy. The one area where the post-Communist states score the highest is GDP growth. It should be borne in mind that many of the countries in the liberal/Mediterranean group suffered the most from the post-2008 economic crisis. Once again, it may be postulated that the large inflow of European Union funds and ensuing public investment helped to boost economic growth in the post-Communist countries.

Finally, we have looked at political participation, which should tell us to what extent there is a strong countermovement against the commodification of the welfare state. In this category we observe that the post-Communist countries have significantly lower

[8] One criticism we have of the analytical model that we have adopted from Saint Arnaud and Bernard and Fenger is that there is an over-emphasis on the issue of employment in the social situation category. As noted in table one we have omitted long-term unemployment from our analysis.

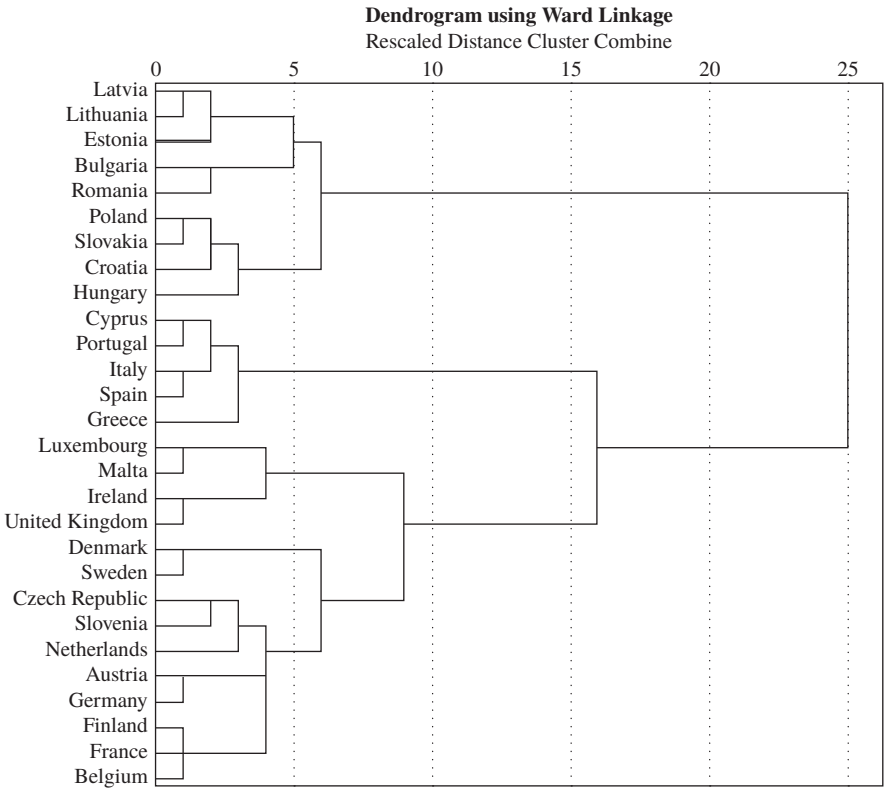
voter turnout, meaning that they participate less in the political process than in both the social democratic/conservative and liberal/Mediterranean countries. Further analysis has also revealed that trade union membership is lowest amongst the post-Communist countries, although this data could not be included in our cluster analysis as the data was only available in 2014 (and not 2004). Therefore the countermovement to the commodification of welfare states is expected to be the lowest in the post-Communist countries.

Adding Social Stratification

The final stage of our analysis has been to move beyond the given analytical framework from Saint Arnaud and Bernard and Fenger. Here we have added variables from the category of social stratification to the cluster analysis in 2014. A feature of Esping-Andersen's model is that decommodified welfare states tend to reduce social inequality and poverty. We have therefore included available variables looking at social stratification outcomes, as shown in *table one*. We can observe (*figure three*) that the strongest welfare state model continues

Figure 3

European Union Welfare Clusters with Added Social Stratification Variables



to be that made up exclusively of post-Communist countries. Nine of the eleven post-Communist countries are grouped into a single cluster, with the Czech Republic now joining Slovenia outside of this cluster. The other two clusters have been altered by the inclusion of social stratification variables. There is now a smaller although clearer Mediterranean group of welfare states, made up exclusively of Southern European countries. Meanwhile, the social democratic/conservative welfare cluster has expanded with some liberal welfare states (e.g. the UK and Ireland) and the post-Communist Czech Republic joining this group. It therefore seems that when we expand this model, the post-Communist welfare cluster is the most resilient and easily discernible in the European Union.

Table three displays the mean scores for the social stratification variables. Here it is striking how the post-Communist countries have by far the highest scores of the three welfare regime clusters. Therefore, the populations of Central and Eastern Europe are most likely to be at risk of poverty; have lower access to housing and have the highest levels of income inequality. We can conclude from this data that the post-Communist welfare states inside the European Union are the most liberal and that they reduce inequality and poverty the least.

Table 3

Mean Scores for Social Stratification Variables (2014)

	Social democratic / conservative (n = 14)		Post Communist (n = 9)		Liberal / Mediterranean (n = 5)	
	Mean	SD	Mean	SD	Mean	SD
Risk of Poverty	19.84	3.45	30.28	6.77	29.68	3.61
Material Deprivation	5.02	2.70	17.30	8.73	13.22	5.47
Housing Deprivation	2.18	1.56	11.50	6.05	4.84	3.34
Income Inequality (Gini)	27.66	2.26	32.43	3.58	34.18	1.00

Discussion and Conclusion

The literature on the welfare regimes in the post-Communist countries reveals two main conflicting ideas. On the one hand it was expected that these countries would retain distinct welfare states, due to their historical legacies mainly situated within the inherited institutional structures from the past. On the other hand, it was predicted by some that these countries' welfare states would converge with one or more of the existing welfare regimes in Western Europe, as they become institutionally integrated into global and European economic and political structures. By examining the welfare states in Central and Eastern Europe, during the decade after the eastern expansion of the European Union, some tentative conclusions can be drawn about how this process of convergence or continued divergence has proceeded.

One of the most striking results of our research has been that rather than the welfare states in Central and Eastern Europe converging with one or more of the models in Western Europe, there has actually been a clear process of divergence from these models. By following as close as possible the methodology of previous research, we find that eleven of the twelve post-Communist states are grouped together in one cluster in 2014. When we have

developed our research model and added variables on social stratification, we still find that the post-Communist welfare regime remains the most resilient of those under study. We can therefore conclude that there is no evidence of the welfare states in Central and Eastern Europe as having converged with the existing models in Western Europe. Furthermore, it seems that the differences between the Central and Eastern European welfare states are less significant than those with other welfare states inside the European Union.

When we examine the character of the post-Communist welfare regime we can derive some interesting conclusions. On the one hand, we can see how the transition from a command state managed economy to a private capitalist one has resulted in these welfare states having many features that can be described as liberal. These include low government spending in many areas; low fertility and life expectancy; low political participation; and high social inequality and poverty rates. It may be argued that the expectation of Esping-Andersen that the welfare states in Central and Eastern Europe would converge towards the liberal model has been partially confirmed. Moreover, in these areas, this liberalisation has gone beyond that in the liberal or Mediterranean welfare regimes in Western Europe, adding a new liberal dimension to the welfare states in the European Union.

However, the post-Communist welfare regime (apart from in the areas of political participation and social stratification) is not a purely liberal model. These countries tend to have higher levels of employment than in the liberal/Mediterranean states, although lower than in the social democratic/conservative ones. Furthermore, in some cases (public investment, GDP growth and the number of hospital beds), the post-Communist welfare states actually reveal higher scores than those included in the other welfare regime models. On the one hand, the first two of these may be explained by the effect of these countries' entry into the European Union and the large amount of funds they have received during the first decade of membership. However, this will probably be temporary as it is likely that the amount of European Union funds going to the Central and Eastern European countries will significantly fall during the next European Union budget. On the other hand, the hospital bed variable does show up an interesting phenomenon that is most probably linked to historical legacies.

The post-Communist welfare states often built up large welfare structures in areas such as health, education and child care. Some of these survived the post-Communist transition and remain part of the welfare state to this day. Future research into the post-Communist welfare regime should focus on such areas to see the extent to which these inherited welfare structures differentiate the post-Communist welfare states from those in Western Europe. Some of these legacies were also created during the transition itself (as shown by Slovenia remaining within the social democratic/conservative cluster). For example, in some post-Communist countries pensions and the number of pensioners expanded during the transition period. This was allowed both in order to help ease the social effects of the mass unemployment caused by privatisations (by encouraging early retirement) as well governments co-opting certain labour groups by maintaining or even enlarging the relatively high pension rights that they had gained during Communism (e.g. uniformed workers, miners, etc.). It is difficult to further expand our welfare regime model through cluster analyses, due to the limitation of available data. However, it would be useful to develop this analysis through examining associations between these welfare regimes and some of the areas out-

lined above. This would allow us to better understand the nature of these post-Communist welfare states; their relationship to the past and the likely durability of this welfare cluster.

References

Deacon, B. 2000. Eastern European welfare states: the impact of the politics of globalization, *Journal of European Social Policy* 10(2): 146–161.

Esping-Andersen, G. 1993. *The Three Worlds of Welfare Capitalism*. Princeton: Princeton University Press.

Esping-Andersen, G. (Ed). 1996. *Welfare States in Transition: National Adaptations in Global Economies*. London: SAGE Publications Ltd.

Fenger, H. 2007. Welfare regimes in Central and Eastern Europe: Incorporating post-communist countries in a welfare regime typology, *Contemporary Issues and Ideas in Social Sciences* 3(2): 1–30.

Ferge, Z. 2001. Welfare and Ill-fare Systems in Central-Eastern Europe, in: B. Sykes, B. Palier, and M. Prior (eds.), *Globalization and European Welfare States: Challenges and Change*. Basingstoke: Palgrave.

Inglot, T. 2003. Historical Legacies, Institutions and the Politics of Social Policy in Hungary and Poland, 1989–1999, in: G. Ekiert, and S. Hanson (Eds.), *Capitalism and Democracy in Central and Eastern Europe: Assessing the Legacy of the Communist Rule*. New York: Cambridge University Press.

Korpai, W. 1985. Power Resources vs Action and Conflict: On Causal and Intentional Explanation in the Study of Power, *Sociological Theory* 3(2): 31–45.

Marshall, T.H. 1992. *Citizenship and Social Class*. London: Pluto.

Mencinger, J. 2002. Slovenia: Alternative Economic Policies in Action, *Der Offentliche Sektor – Dorschungs-B Erichte* 3–4: 58–63.

Pierson, P. 1996. The New Politics of the Welfare State, *World Politics* 48(2): 143–179.

Pierson, P. 2009. *The New Politics of the Welfare State*. Oxford [u.a.]: Oxford Univ. Press.

Polanyi, K. 1944. *The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press.

Rae, G. 2016. Public Capital and the Post-Communist Welfare State: The Case of Poland, *Polish Sociological Review* 194: 155–169.

Rueschemeyer, M., Cook, L., and Orenstein, M. 1999. *Left Parties and Social Policy in Postcommunist Europe*. Colorado: Westview Press.

Rys, V. 2001. Transition countries of central Europe entering the European Union: Some social protection issues, *International Social Security Review* 54(2–3): 177–189.

Saint-Arnaud, S., and Bernard, P. 2003. Convergence or Resilience? A Hierarchical Cluster Analysis of the Welfare Regimes in Advanced Countries, *Current Sociology* 51(5): 499–527.

Sengoku, M. 2004. Emerging Eastern European Welfare States: A Variant of the "European" Welfare Model, in: S. Tabata, and A. Iwashita Sapporo (Eds.), *Slavic Eurasia's Integration into the World Economy and Community*. Sapporo: Slavic Research Center, Hokkaido University.

Stark, D., and Bruszt, L. 1998. *Post-Socialist Pathways. Transforming Politics and Property in East and Central Europe*. Cambridge: Cambridge University Press

Biographical Notes:

Katarzyna Piotrowska works at Kozminski University where she is a faculty member in the Department of Quantitative Methods and Information Technology. Amongst her main academic interests is the psychology of decision making—especially in the field of people's reactions after making decisions, as well as economic attitudes and behaviour. She belongs to the team working on and analysing the Balanced Development Index—BDI. She is also engaged in projects from other fields including marketing and medicine, in which she assists in developing and carrying out the methodology and statistical research. Ms Piotrowska is the co-author of five published articles from the list of JCR journals.

E-mail: kpiotrowska@kozminski.edu.pl

Gavin Rae, Ph.D., is a sociologist from Kozminski University in Warsaw. He specialises in areas such as the post-Communist transition, European Union enlargement and the welfare state. He has written two books: *Poland's*

Return to Capitalism. From the Socialist Bloc to the European Union and *Privatising Capital. The Commodification of Poland's Welfare State*.

E-mail: gavinrae@kozminski.edu.pl

Appendix One
The Results of the Comparisons Between the Clusters for all of the Variables (2004)

The F test (for symmetric distributions) and the Kruskal-Wallis test (when skewness exceeded |1|) were used to test for the differences between clusters in terms of every variable included in the cluster analysis.

	Cluster	Mean	N	SD	Median	test	p value
Total general government expenditure % of GDP	Social Democratic/Conservative	50.89	7	2.72	52.50	19.159[b]	0.000
	Post-Communist	35.35	6	1.98	34.50		
	Liberal/Mediteranian	43.23	15	4.11	43.60		
Final consumption expenditure of general government (Percentage of GDP)	Social Democratic/Conservative	21.89	7	2.63	22.00	6.146[b]	0.046
	Post-Communist	18.42	6	1.53	18.70		
	Liberal/Mediteranian	19.01	15	1.96	19.10		
Social benefits (other than social transfers in kind) paid by general government (% of GDP)	Social Democratic/Conservative	16.76	7	1.43	16.90	16.370[b]	0.000
	Post-Communist	10.00	6	1.37	9.45		
	Liberal/Mediteranian	12.97	15	2.14	12.80		
Investment by institutional sectors % of GDP (general government) eurostat	Social Democratic/Conservative	3.02	7	0.95	2.83	3.393[a]	0.050
	Post-Communist	3.46	6	0.56	3.50		
	Liberal/Mediteranian	4.09	15	1.01	3.94		
Total general government revenue % of GDP	Social Democratic/Conservative	49.83	7	4.01	49.00	40.549[a]	0.000
	Post-Communist	35.07	6	2.85	34.60		
	Liberal/Mediteranian	39.70	15	2.72	39.40		
Individual income tax rate (KPMG)	Social Democratic/Conservative	51.76	7	4.92	50.00	23.610[a]	0.000
	Post-Communist	28.67	6	7.23	27.50		
	Liberal/Mediteranian	40.87	15	6.01	40.00		
Net Social contributions % of GDP	Social Democratic/Conservative	11.87	7	6.51	15.30	2.082[b]	0.353
	Post-Communist	10.13	6	1.54	9.75		
	Liberal/Mediteranian	11.15	15	2.91	12.10		
Public health spending % GDP	Social Democratic/Conservative	7.60	7	0.84	7.79	17.730[b]	0.000
	Post-Communist	4.21	6	0.61	3.98		
	Liberal/Mediteranian	5.73	15	1.06	5.89		
Research and Development expenditure	Social Democratic/Conservative	2.52	7	0.61	2.42	35.485[a]	0.000
	Post-Communist	0.56	6	0.19	0.49		
	Liberal/Mediteranian	1.03	15	0.45	1.04		
Hospital beds	Social Democratic/Conservative	646.55	7	210.14	739.04	3.692[b]	0.158
	Post-Communist	677.46	6	77.02	681.77		
	Liberal/Mediteranian	534.51	15	153.30	479.92		
Unemployment Rate	Social Democratic/Conservative	7.84	7	1.83	8.40	6.023[b]	0.049
	Post-Communist	11.87	6	3.51	11.30		
	Liberal/Mediteranian	8.19	15	4.05	7.20		
GDP growth	Social Democratic/Conservative	2.57	7	0.83	2.39	7.940[2]	0.019
	Post-Communist	4.78	6	1.62	5.11		
	Liberal/Mediteranian	3.78	15	1.34	3.85		

	Cluster	Mean	N	SD	Median	test	p value
Employment Rate	Social Democratic/Conservative	71.53	7	4.51	69.60	2.158[a]	0.137
	Post-Communist	65.80	6	3.98	65.80		
	Liberal/Mediteranian	66.99	15	6.31	67.70		
Female Employment Rate	Social Democratic/Conservative	66.30	7	6.51	63.60	3.569[a]	0.043
	Post-Communist	61.03	6	4.92	60.45		
	Liberal/Mediteranian	56.71	15	9.21	56.20		
Infant Mortality Rate	Social Democratic/Conservative	3.90	7	0.53	4.00	13.464[b]	0.001
	Post-Communist	9.83	6	3.90	8.70		
	Liberal/Mediteranian	4.65	15	1.12	4.10		
Fertility Rate	Social Democratic/Conservative	1.68	7	0.21	1.75	8.321[b]	0.016
	Post-Communist	1.32	6	0.08	1.31		
	Liberal/Mediteranian	1.45	15	0.22	1.40		
Inflation Rate	Social Democratic/Conservative	1.43	7	0.78	1.80	11.022[b]	0.004
	Post-Communist	5.98	6	3.72	6.15		
	Liberal/Mediteranian	2.83	15	1.31	2.60		
Life expectancy	Social Democratic/Conservative	79.34	7	0.95	79.30	28.893[a]	0.000
	Post-Communist	72.23	6	1.14	72.20		
	Liberal/Mediteranian	78.00	15	2.24	79.00		
Age first child born	Social Democratic/Conservative	29.64	7	0.57	29.60	13.888[b]	0.001
	Post-Communist	27.00	6	0.81	27.35		
	Liberal/Mediteranian	29.30	15	1.10	29.20		
Voting turnout	Social Democratic/Conservative	77.89	7	10.90	80.11	3.042[a]	0.066
	Post-Communist	59.97	6	9.43	58.38		
	Liberal/Mediteranian	71.49	15	15.14	70.52		
Percentage of gross domestic product (GDP) spent on Education	Social Democratic/Conservative	5.66	7	0.94	5.60	1.095[a]	0.350
	Post-Communist	4.87	6	1.26	4.90		
	Liberal/Mediteranian	5.27	15	0.84	5.30		

[a] F test; [b] Kruskal-Wallis test (chi-square value).

Appendix Two
The Results of the Comparisons Between the Clusters for all of the Variables (2014)

The F test (for symmetric distributions) and the Kruskal-Wallis test (when skewness exceeded |1|) were used to test for the differences between clusters in terms of every variable included in the cluster analysis.

	Cluster	Mean	N	SD	Median	test	p value
Total general government expenditure % of GDP (ok)	Social democratic/conservative	52.41	9	4.90	52.70	12.590[a]	0.000
	Post Communist	41.15	10	5.10	41.85		
	Liberal/Mediteranian	46.34	9	4.61	46.80		
Final consumption expenditure of general government (Percentage of GDP)	Social democratic/conservative	23.33	9	3.03	24.40	11.040[b]	0.004
	Post Communist	18.07	10	1.90	18.60		
	Liberal/Mediteranian	18.54	9	1.50	19.40		
Social benefits (other than social transfers in kind) paid by general government (% of GDP)	Social democratic/conservative	16.86	9	2.81	17.30	8.216[a]	0.002
	Post Communist	12.38	10	1.74	12.60		
	Liberal/Mediteranian	15.82	9	2.96	15.70		

	Cluster	Mean	N	SD	Median	test	p value
Investment by institutional sectors % of GDP	Social democratic/conservative	3.59	9	0.97	3.69	8.828[a]	0.001
	Post Communist	4.25	10	0.63	4.20		
	Liberal/Mediteranian	2.69	9	0.81	2.21		
Total general government revenue % of GDP	Social democratic/conservative	50.14	9	4.86	50.10	16.465[a]	0.000
	Post Communist	38.67	10	4.18	38.75		
	Liberal/Mediteranian	41.72	9	4.39	41.00		
Individual income tax rate (KPMG)	Social democratic/conservative	50.40	9	4.09	50.00	47.163[1]	0.000
	Post Communist	22.10	10	8.84	21.50		
	Liberal/Mediteranian	43.26	9	5.77	43.00		
Net Social contributions % of GDP	Social democratic/conservative	12.82	9	6.19	15.40	4.304[b]	0.116
	Post Communist	11.41	10	2.39	11.65		
	Liberal/Mediteranian	10.29	9	2.98	11.70		
Public Health Spending % GDP	Social democratic/conservative	8.38	9	1.11	8.48	19.423[b]	0.000
	Post Communist	4.83	10	0.83	4.58		
	Liberal/Mediteranian	6.14	9	1.18	6.25		
Research and Development expenditure	Social democratic/conservative	2.70	9	0.44	2.84	42.399[a]	0.000
	Post Communist	1.03	10	0.46	0.92		
	Liberal/Mediter	1.16	9	0.39	1.24		
Hospital beds	Social democratic/conservative	534.70	9	191.20	485.92	10.261[a]	0.001
	Post Communist	633.14	10	69.71	651.81		
	Liberal/Mediteranian	370.33	9	91.79	341.67		
Unemployment Rate	Social democratic/conservative	7.74	9	1.78	7.90	3.966[b]	0.138
	Post Communist	10.04	10	3.42	9.85		
	Liberal/Mediteranian	13.68	9	7.69	12.70		
GDP growth	Social democratic/conservative	1.17	9	0.32	1.28	5.481[a]	0.011
	Post Communist	2.54	10	1.15	2.67		
	Liberal/Mediteranian	0.89	9	1.64	0.63		
Employment Rate	Social democratic/conservative	73.47	9	4.40	74.20	5.112[a]	0.014
	Post Communist	67.94	10	4.61	66.60		
	Liberal/Mediteranian	65.56	9	6.91	67.00		
Female Employment Rate	Social democratic/conservative	69.72	9	4.77	70.10	6.759[a]	0.005
	Post Communist	62.61	10	5.76	61.10		
	Liberal/Mediteranian	58.53	9	8.58	61.20		
Infant Mortality Rate	Social democratic/conservative	3.13	9	0.61	3.30	5.770[b]	0.056
	Post Communist	4.84	10	2.12	4.50		
	Liberal/Mediteranian	3.52	9	1.39	3.50		
Fertility Rate	Social democratic/conservative	1.70	9	0.18	1.71	7.871[b]	0.020
	Post Communist	1.50	10	0.10	1.53		
	Liberal/Mediteranian	1.47	9	0.25	1.37		
Inflation Rate	Social democratic/conservative	0.66	9	0.44	0.50	3.897[b]	0.143
	Post Communist	0.18	10	0.76	0.20		
	Liberal/Mediteranian	0.16	9	0.82	0.20		
Life expectancy	Social democratic/conservative	81.60	9	0.64	81.40	75.546[a]	0.000
	Post Communist	76.37	10	1.63	76.50		
	Liberal/Mediteranian	82.14	9	0.80	82.10		
Age first child born	Social democratic/conservative	30.62	9	0.35	30.50	19.597[b]	0.000
	Post Communist	29.01	10	0.91	29.30		
	Liberal/Mediteranian	31.04	9	0.61	31.10		

	Cluster	Mean	N	SD	Median	test	p value
Voting turnout	Social democratic/conservative	72.89	9	13.26	74.56	11.364[b]	0.003
	Post Communist	56.09	10	6.81	58.96		
	Liberal/Mediteranian	74.09	9	12.21	73.20		
Percentage of gross domestic product (GDP) General government Education	Social democratic/conservative	5.83	9	0.90	6.00	3.557[a]	0.044
	Post Communist	4.84	10	0.88	5.10		
	Liberal/Mediteranian	5.04	9	0.75	5.30		

[a] F test; [b] Kruskal-Wallis test (chi-square value).