Rethinking the Typology of Western European Welfare States

Marietta Kiss [1]

The newest, quadripartite typology of Western European welfare states needs some modifications nowadays. The Nordic and the Southern model have remained intact but the Continental and the Anglo-Saxon types have significantly converged (regardless of the economic crisis) that can be explained partly by some countries that have picked up some characteristics of another type and partly by the shift of the whole types themselves. Therefore the view that the types of welfare states are resistant to the changes and survive parallel in the long run is not true.

Keywords: welfare state types, cluster analysis, convergence of welfare regimes, economic crisis, government policy

JEL Classifications: H50, H75, I38

Typologies of Welfare States in the Literature

One of the most famous typology of welfare states in the welfare literature distinguishes between three types of them (Esping-Andersen, 1990): liberal, corporatist-statist (or conservative) and social democratic. The liberal group used to include Anglo-Saxon states (e.g. United States, Canada, Australia), the corporatist-statist type incorporates the European continental states (e.g. France, Germany,

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Italy, Austria), and the Scandinavian states (especially Sweden) are social democratic regimes.

The newest typology of (Western European) welfare states deals with four groups instead of Esping-Andersen's classical three types, dividing the corporatist-statist type into two clusters. According to this classification we distinguish between Nordic (e.g. Denmark, Finland, Sweden), Anglo-Saxon (Ireland, United Kingdom), Continental (e.g. Austria, Belgium, France, Germany), and Southern or Mediterranean or Latin (Greece, Italy, Portugal, Spain) regimes.[2]

The Newest Typology and Its Rethinking

The aforementioned quadripartite typology can be expressively introduced if we put the welfare states in a coordinate system with the two dimensions of efficiency and equity (see Figure 1). According to Sapir (2005) a model can be regarded as efficient if it provides enough incentives to work and hence shows relatively high employment rates; while it can be equitable if it keeps the risk of poverty[3] at a low level.

The situation in the early 2000s fits fully to this quadripartite typology. Both Nordic and Continental states were above average pertaining likelihood of avoiding poverty, while all Anglo-Saxon and Mediterranean countries were below the average. Concerning efficiency Nordic and Anglo-Saxon states performed well, while Continental and Southern countries operated with low efficiency.

Figure 1 also shows the sustainability of the models. Non effective models are not sustainable because of the increasing tension between the expenditure and the revenue side of the government budget that originates from globalization, technological changes and ageing of the

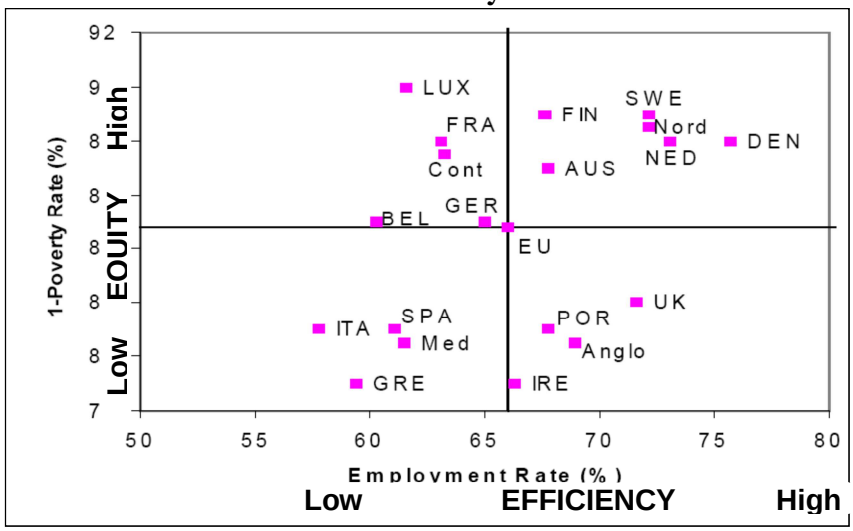
[2] For more details see e.g.: Abrahamson, 1991, Ferrera, 1996, Bonoli, 1997, Boeri, 2002, Sapir, 2005.

[3] Probability of escaping poverty can be measured by (1 – poverty rate), where poverty rate is the share of persons in the population living under 60% of the national median disposable income.

population[4]. On the other hand, the models that are not equitable can be perfectly sustainable if they are efficient. The reason is that the equity of a social model shows a viable political choice (Sapir, 2005). This suggests that both the Nordic and the Anglo-Saxon models were sustainable, while the Continental and the Mediterranean ones were not and needed reforms to increase their efficiency by the reduction of counter incentives to work and growth. At the same time we have a priori no reason to assume that these reforms go hand in hand with changes in equity. It is possible (and in fact it has occurred – however, in the latter case in the opposite direction than expected) that the Continental model becomes similar to the Nordic and the Mediterranean becomes similar to the Anglo-Saxon type. Yet, we can not reject the possibility that the reform can cause changes in equity if the move to the direction of efficiency affects the political status quo.

[4] There are several signs that the least efficient Continental and Mediterranean states have faced several sustainability constraints. One of these is the government debt to GDP ratio that was much higher in the Continental and Mediterranean states (79% and 81%, respectively) than in the Anglo-Saxon and Nordic ones (36% and 49%, respectively).

Figure 1
Employment rates and probability of escaping poverty in the early 2000s



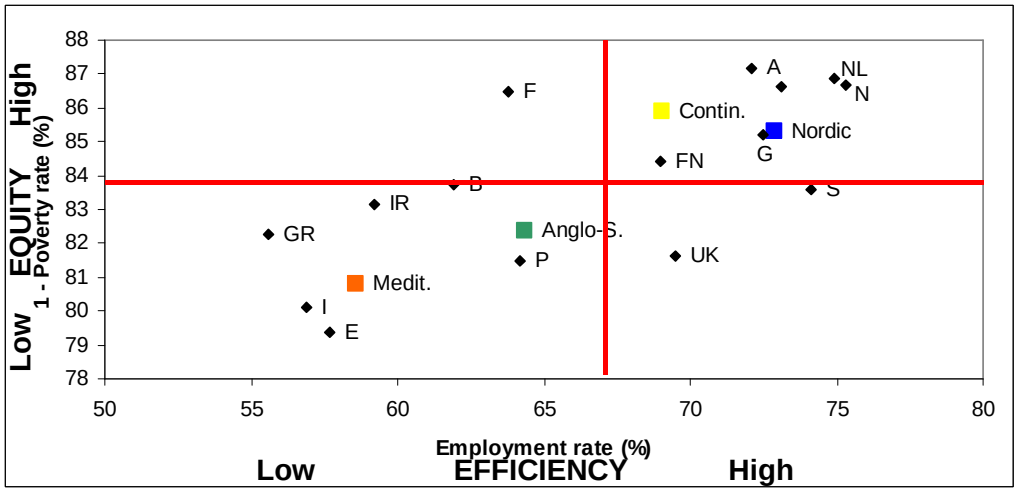
Source: Based on Sapir, 2005, p.8.
Notes: ITA = Italy, GRE = Greece, SPA = Spain, MED = Mediterranean type, BEL = Belgium, GER = Germany, FRA = France, LUX = Luxembourg, AUS = Austria, Cont = Continental type, FIN = Finland, SWE = Sweden, DEN = Denmark, NED = Netherlands, Nord = Nordic type, UK = United Kingdom, POR = Portugal, IRE = Ireland, Anglo = Anglo-Saxon type.

Figure 2 shows the actual efficiency/equity coordinate system. This figure indicates that Nordic and Southern models have kept their previous position: the former is still both efficient and equitable, while the latter show neither efficiency nor equity. The position of ***Anglo-Saxon countries*** has deteriorated and they ***have shifted towards the Southern countries*** (however, they show a more advantageous position than the Mediterranean states in both dimensions). At the same time ***Continental states have approached the Nordic countries***, they have not entered fully, however, the most advantageous cell. Regarding only the efficiency dimension, ***the Anglo-Saxon and the Continental types have converged***;

moreover, they have switched position: Continental countries are more effective now than Anglo-Saxon ones.[5]

Figure 2

Employment rates and probability of escaping poverty in the late 2000s and early 2010s



Source: Own calculation based on Eurostat, 2012, OECD, 2012a.
Notes: I = Italy, GR = Greece, E = Spain, B = Belgium, G = Germany, F = France, A = Austria, FN = Finland, S = Sweden, D = Denmark, NL = Netherlands, UK = United States, P = Portugal, IR = Ireland, Contin. = Continental type, Medit. = Mediterranean type, Anglo-S. = Anglo-Saxon type, Nordic = Nordic type.

A Different Way to Rethink Typology

However, changes can be explained in two ways. One of them is the previous logic: we assume that the Sapirian typology is still valid, only the types have changed with time. However, there is another possible explanation: borders of the types have changed, the previous types are not valid any more – or only partly –, and we should think about the

[5] We also have to note that the standard deviation within the different types is much greater, and between the types is much less now than one decade ago that means that within group heterogeneity and between group homogeneity has increased.

welfare states' efficiency/equity coordinate system in another typology.[6]

The quadripartite typology was originally based on the qualitative examination of social security policies but its validity was quantitatively proved by several authors[7], among others by Saint-Arnaud and Bernard (2003) for the years 1980s and 1990s. The authors made cluster analysis with variables[8] of social situation, public policies and political participation to validate the qualitative typology and the 'resilience' of welfare regimes (i.e. their persistence for a long period of time). Their model proved to be stable; the analysis made with the full set and with each group of variables resulted in the same typology.

By repeating the analysis with newer data we can answer the question above: ***is the quadripartite typology valid yet? Can the same countries still be classified into their original type?*** To solve this dilemma hierarchical cluster analysis is the most appropriate quantitative analytical tool because it allows us to classify similar countries according to several variables.

In the beginning I used the same 20 countries[9] and the same variables as Saint-Arnaud and Bernard (2003) to be able to compare my results to theirs[10]. Because of the scales with different magnitude, variables

[6] This can so much the more be assumed as a regrouping can increase within group homogeneity and between group heterogeneity.

[7] See e.g. Obinger & Wagschal, 2001.

[8] For the list of the originally used variables see the Annex.

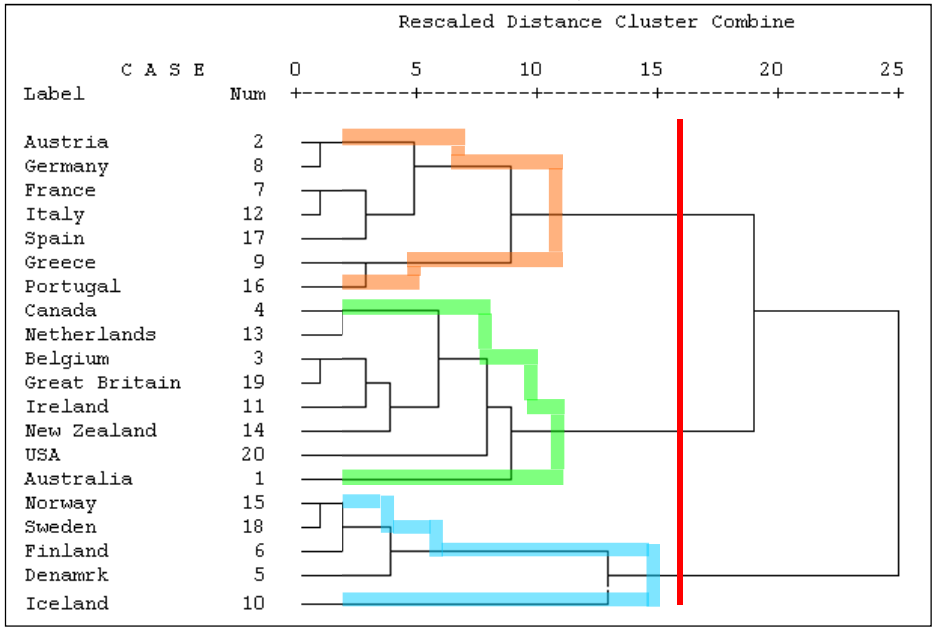
[9] Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Great Britain, Greece, Iceland, Italy, Ireland, New Zealand, Norway, Portugal, Spain, Sweden, The Netherlands, USA.

[10] I excluded the variable which showed very strong (higher than 0.9) correlation with an other one (correlation between female labour participation rate and overall participation rate is 0.976 at 1% significance level) because without this exclusion one given factor could be taken into account with double weight. Furthermore because of the missing data in case of some countries I had to omit the variables of subsidies and investments as % of total government outlays, public expenditure on training as % of GDP, daily newspaper read per 1000 people, and number of years since the first law

had to be standardized[11]. I made agglomerative cluster analysis[12], and I used the most widely accepted Ward method which proved to be the most reliable empirically[13].

Figure 3

Dendrogram of the hierarchical cluster analysis (20 countries, 30 variables)



Source of data: OECD, 2012b, World databank, 2012, GESS, 2012, Eurostat, 2012, OECD, 2012c, OECD, 2012d, Social Security…, 2010, Social Security…, 2011, Social Security…, 2012, OECD, 2012e, OECD, 2012f, Eurostat, 2012e, Statistics Iceland, 2012, UNECE, 2012, Li, Z. – McNally,

on family allowances. However, because Saint-Arnaud and Bernard (2003) proved the robustness of their model in case of any randomly omitted variable, this reduction does not affect the final result of the analysis. For the list of variables see Appendix 2.

11 For standardization I used Z scores: $Z = \frac{x - \mu}{\sigma}$.

12 In agglomerative method each case forms one unique cluster in the beginning and in each step we aggregate the nearest clusters.

13 This method measures the similarity of clusters with the square of the Euclidian distance and within the cluster it minimizes this distance so maximizes the homogeneity of the clusters (Sajtos & Mitev, 2007).

L. – Hilder, L. – Sullivan, E. A., 2011, Statistics New Zealand, 2006, Statistics Canada, 2012, IDEA, 2012, World Values Survey, 2012, Worker-participation.eu, 2012, AIAS, 2011, New-Zealand Government, 2010, BLS, 2012.

This time coefficients do not provide a clue for deciding where to stop in the aggregation process, according to the previously introduced theoretical considerations I looked for 3-4 clusters[14]. The dendrogram in Figure 3 shows the created clusters. It is worth stopping after step 16 when 3 clusters are formed (if we stopped before this step, one or more clusters would contain only one element). One of the three clusters is fully identical to the social-democratic type (Norway, Sweden, Finland, Denmark, and Iceland). However, the other two clusters do not exactly correspond to Esping-Andersen's other two types. ***The Netherlands and Belgium exited the corporatist-statist type and entered the liberal type***. Therefore the former group contains Austria, Germany, France, Italy, Spain, Portugal, and Greece, while the latter includes Canada, the Netherlands, Belgium, Great Britain, Ireland, New Zealand, the USA, and Australia.

To use the results of cluster analysis for rethinking the original quadripartite classification, I have also made a second cluster analysis when I excluded states outside Europe as the original efficiency/equity coordinate system contained only European welfare states. Because of

[14] In hierarchical cluster analysis there are no absolute rules for deciding at how many clusters the aggregation should stop. Instead of these rules, decisions are used to be made upon certain rules of thumb. We can identify the number of clusters according to theoretical or practical evidences, and according to the aggregation schedule. In this latter case we should stop when the coefficient suddenly increases (or in other words, where we can find a sharp break [called elbow] in the curve of coefficients as a function of the number of clusters). Moreover we have to take into account that clusters with few elements are only meaningful in justified cases.

the same reason I excluded Iceland, too[15]. I used the same variables in this analysis as in the previous one[16].

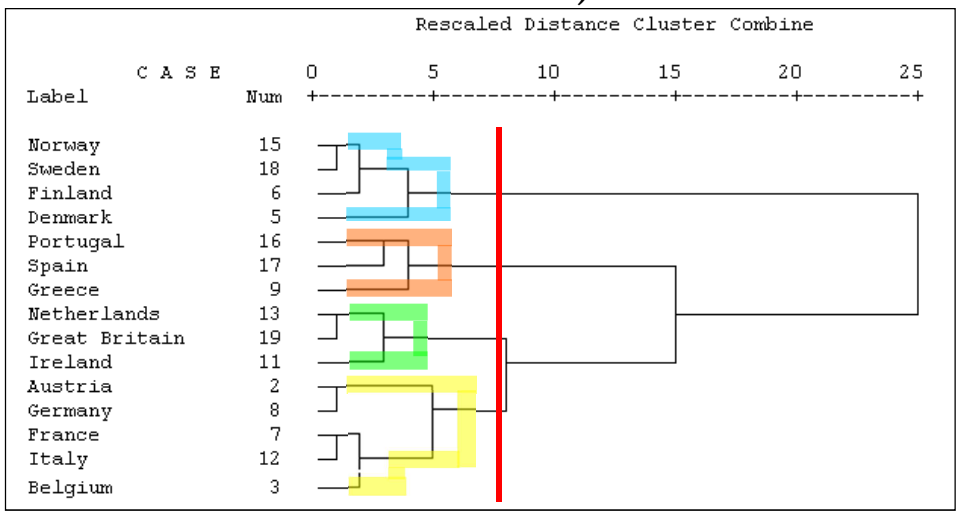
The dendrogram in Figure 4 shows the created clusters. We should stop after step 11 when 4 clusters are formed (if we stopped before this step, some clusters with 2-3 elements theoretically difficult to support would be created). If we went on by one step, we would get three clusters, and interestingly ***Continental*** (supplemented by Italy) ***and Anglo-Saxon type would form one cluster***. So ***the convergence of these two types*** demonstrated in the previous simple efficiency/equity model ***exists examining a broader set of variables***, too.

One of the re-created four clusters is fully identical to the Nordic type (Norway, Sweden, Finland, and Denmark). ***Italy*** exited the Southern type (Portugal, Spain, and Greece remained there) and ***moved into the Continental type*** (beside Austria, Germany, France, and Belgium). Finally, ***the Netherlands moved into the Anglo-Saxon type*** from the Continental type (beside Great Britain and Ireland).

[15] Countries included in the analysis: Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Italy, Ireland, Norway, Portugal, Spain, Sweden, The Netherlands.

[16] Again, I had to exclude female labour participation rate (correlation between female labour participation rate and overall participation rate is 0.974 at 1% significance level), but due to the broader availability of data for European states, because of missing data I only had to exclude the variable of public expenditure on training as % of GDP, and daily newspaper read per 1000 people. For the list of variables see Appendix 3.

Figure 4
Dendrogram of the hierarchical cluster analysis (15 countries, 33 variables)



Source of data: OECD, 2012b, World databank, 2012, GESS, 2012, Eurostat, 2012, OECD, 2012c, OECD, 2012d, Social Security…, 2010, OECD, 2012e, UNECE, 2012, IDEA, 2012, World Values Survey, 2012, Worker-participation.eu, 2012, AIAS, 2011, BLS, 2012.

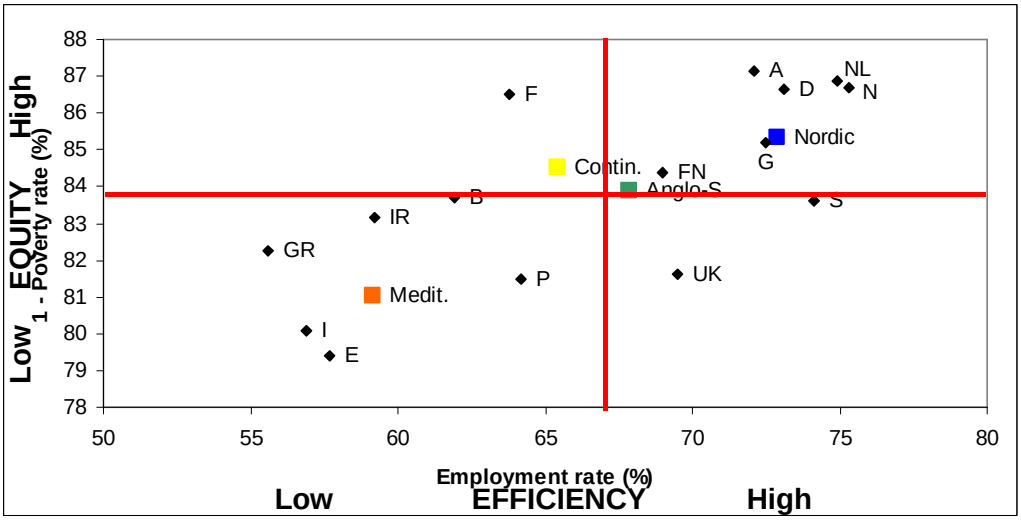
However, the question still remains: Can this convergence be explained by the rearrangement of countries between groups or the convergence of the groups as a whole? The answer can be given only if we redraw the efficiency/equity coordinate system with the four newly created types. Figure 5 shows the country averages after the reclassification. Comparing this figure to Figure 3 we can notice that ***the position of the Nordic and the Southern type have remained intact***, while that of ***the other two groups*** have not. Both of them have remained in their original Sapirian quadrant, however, they ***have converged according to both dimensions*** compared to their position one decade ago (see Figure 1).

Based on these findings, we can conclude again that ***the Continental and the Anglo-Saxon type have converged in terms of both efficiency and equity***. ***Regarding efficiency*** before the regrouping,

the Continental type has surpassed the Anglo-Saxon type (see Figure 2) that ***was dampened by the relocation of two countries*** (see Figure 5). This way the Anglo-Saxon type has remained more efficient than the Continental type but the difference is not as high as a decade ago. Contrary, ***regarding equity the convergence was entirely caused by the regrouping*** as according to the original classification differences in equity have remained intact.

Figure 5

Employment rates and probability of escaping poverty in the late 2000s and early 2010s (new typology)



Source: Own calculation based on Eurostat, 2012, OECD, 2012a.
Notes: See the notes of Figure 2.

Typology after Eliminating the Effects of the Economic Crisis

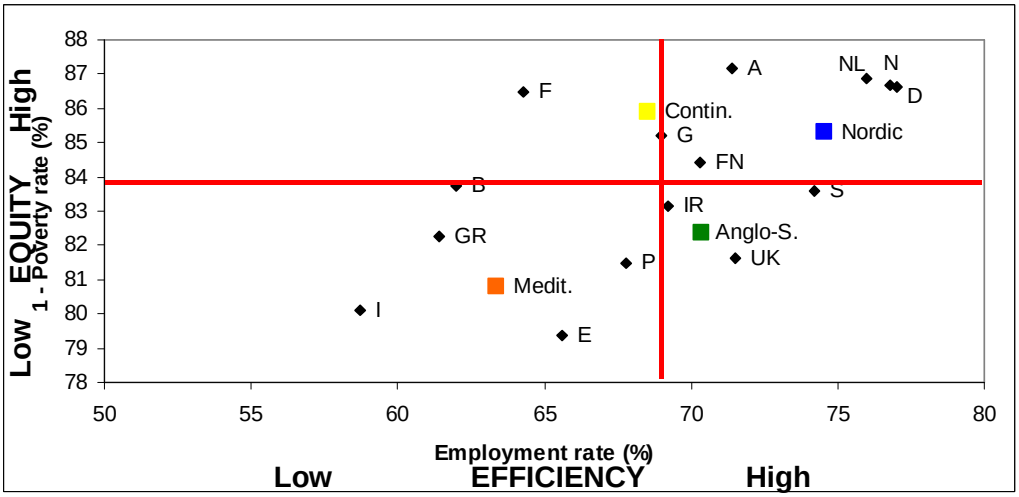
The economic crisis might have affected the results discussed above so it is worth filtering out this special – and likely temporary – effect to identify the more permanent tendencies. This is why I repeated the previously introduced analyses with data before the crisis (for 2007). The question is: ***is the quadripartite typology still valid and do the***

same countries belong to the original type regardless of the crisis?

Figure 6 shows the position of the European welfare states according to the employment and (1 – poverty rate) coordinates. This figure clearly demonstrates that Sapir's (2005) typology is still valid; in case of Continental and Anglo-Saxon types, however, we can see significant shifts regarding efficiency. In sum, ***in case of the Continental model the improvements of efficiency, and in case of the Anglo-Saxon model the efficiency deterioration is not only the effect of the economic crisis but are more lasting tendencies***.

Figure 6

Employment rates and probability of escaping poverty in 2007



Source: Own calculation based on Eurostat, 2012, OECD, 2012a.
Notes: See the notes of Figure 2.

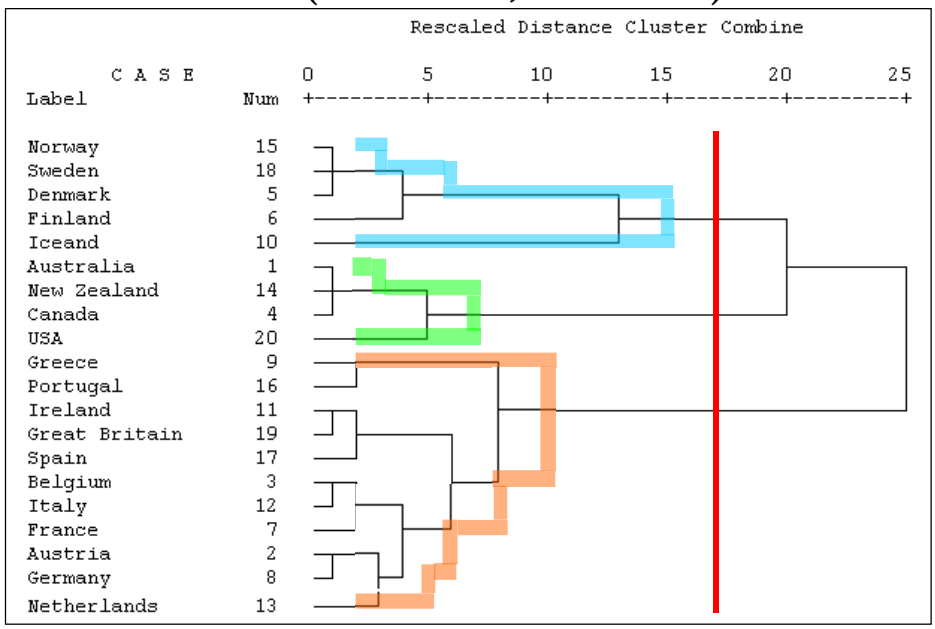
It is also an interesting question again that to what extent these shifts could be affected by the possible rearrangement of the countries. To

answer this question I made cluster analyses again. First I involved the previously used 20 countries into the analysis[17].

The dendrogram in Figure 7 shows the created clusters. Again, it is worth stopping after step 16 when 3 clusters are formed. One of the three clusters is fully identical to the social democratic type again (Norway, Sweden, Finland, Denmark, and Iceland). The other two clusters do not exactly corresponds to Esping-Andersen's other two types this time, too, and also show some difference compared to their composition in the late 2000s and early 2010s. ***Great Britain and Ireland exited Esping-Andersen's liberal group and entered corporatist-statist type***. So the former group contains Australia, Canada, New Zealand, and the USA; while the latter includes Austria, Germany, France, the Netherlands, Belgium, Italy, Spain, Portugal, Greece, Great Britain, and Ireland.

[17] I made agglomerative hierarchical cluster analysis again with standardized data, using Ward method with the same 30 variables as previously in the first analysis. For the list of variables see Appendix 4. Countries involved in the analysis: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Great Britain, Greece, Iceland, Italy, Ireland, New Zealand, Norway, Portugal, Spain, Sweden, The Netherlands, USA.

Figure 7
Dendrogram of the hierarchical cluster analysis before the crisis (20 countries, 30 variables)



Source of data: OECD, 2012b, World dataBank, 2012, GESS, 2012, Eurostat, 2012, OECD, 2012c, OECD, 2012d, Social Security…, 2008, Social Security…, 2009a, Social Security…, 2009b, OECD, 2012e, Statistics Iceland, 2012, UNECE, 2012, Li, Z. – McNally, L. – Hilder, L. – Sullivan, E. A., 2011, Statistics New Zealand, 2006, Statistics Canada, 2012, IDEA, 2012, World Values Survey, 2012, Worker-participation.eu, 2012, AIAS, 2011, New-Zealand Government, 2010, BLS, 2012.

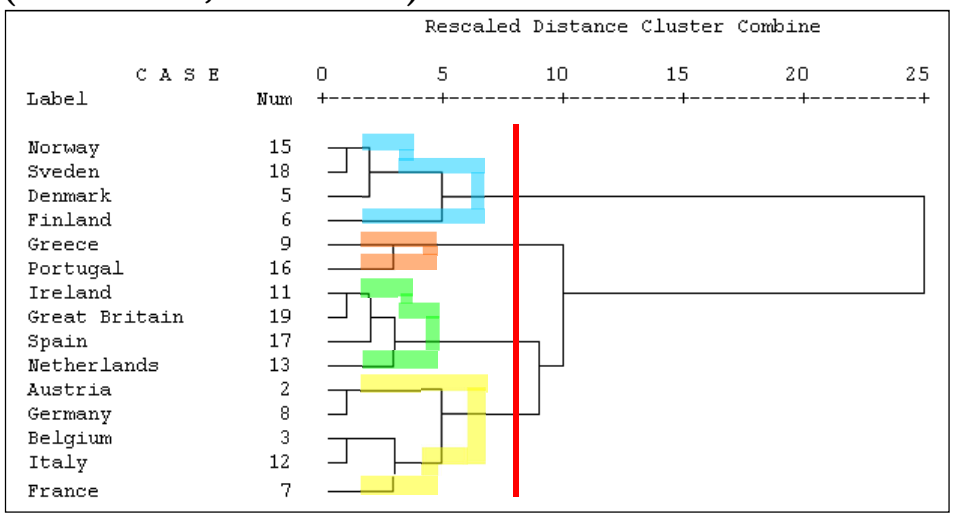
To compare the results of cluster analysis to the original classification, I have also made a narrower analysis including the previous 15 countries with data before the economic crisis[18].

[18] I made agglomerative hierarchical cluster analysis again with standardized data, using Ward method with the same 33 variables as in the previous analysis with 15 countries. For the list of variables see Appendix 5. Countries included in the analysis: Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Italy, Ireland, Norway, Portugal, Spain, Sweden, The Netherlands.

The dendrogram in Figure 8 shows the created clusters. We should stop after step 11 when 4 clusters are formed. If we went on by one step, we would get the same result as in the previous cluster analysis: ***Continental*** (supplemented by Italy) ***and Anglo-Saxon type would form one cluster***. So we can see that ***the convergence of these two types*** also ***exists examining a broader set of variables and regardless of the economic crisis***, too.

Figure 8

Dendrogram of the hierarchical cluster analysis before the crisis (15 countries, 33 variables)



Source of data: OECD, 2012b, World dataBank, 2012, GESS, 2012, Eurostat, 2012, OECD, 2012c, OECD, 2012d, Social Security…, 2008, OECD, 2012e, UNECE, 2012, Li, Z. – McNally, L. – Hilder, L. – Sullivan, E. A., 2011, IDEA, 2012, World Values Survey, 2012, Worker-participation.eu, 2012, AIAS, 2011, BLS, 2012.

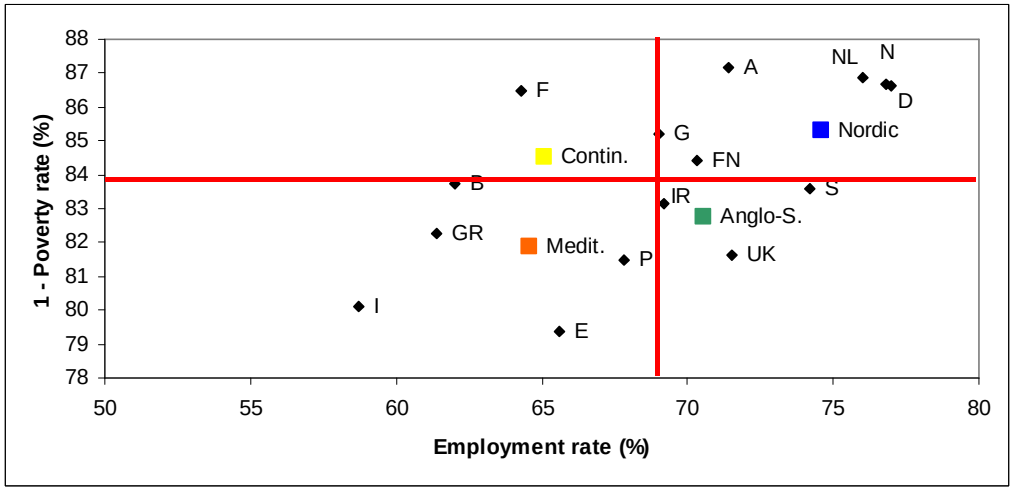
One of the re-created four clusters is fully identical to the Nordic type again (Norway, Sweden, Finland, and Denmark). ***Italy and*** this time ***Spain*** exited the Southern type (Portugal and Greece remained there) and ***the former moved into the Continental type*** (beside Austria, Germany, France, and Belgium), while ***the latter moved into the Anglo-Saxon type*** (beside Great Britain and Ireland). Finally, ***the***

Netherlands shifted to the Anglo-Saxon type from the Continental type.

Re-classified four clusters of the European welfare states regarding before crisis data are located in the coordinate system of employment and (1 – poverty rate) as Figure 9 shows. We can notice again that the position of the Nordic and the Southern model have not changed, and ***the Continental and the Anglo-Saxon type have converged regarding efficiency; regrouping***, however, ***has dampened this*** tendency already visible before the regrouping. In this way the Anglo-Saxon type has remained more efficient than the Continental type but the difference is not as significant as in the late 1990s. Contrary, ***regarding equity, convergence is fully caused by the regrouping before as well as after the crisis,*** as according to the original classification equity differences have remained at the same level.

Figure 9

Employment rates and probability of escaping poverty in 2007 (new typology)



Source: Own calculation based on Eurostat (2012), OECD (2012a).
Notes: See the notes of Figure 2.

Conclusion

The newest, quadripartite typology of Western European welfare states that is based on and complementing Esping-Andersen's classical tripartite classification needs some modifications in the late 2000s and early 2010s. Nordic and Southern model in the original typology can still be characterized with high equity – high efficiency, and low equity – low efficiency, respectively. But the Continental and the Anglo-Saxon types have shown significant changes.

If we keep the original classification of the countries, the Continental type has surpassed the Anglo-Saxon one regarding efficiency, and while the former approached the Nordic type, the latter approached the Mediterranean model. However, the question arises that to what extent these changes might be due to some countries not belonging to their original group any more.

To answer this question I made hierarchical cluster analysis, and according to its results I classified two countries to other types than they originally belonged to. Remaking the separation based on the dimensions of equity and efficiency I experienced that, however, drastic changes in efficiency have been dampened (i.e. this time the Continental type has not surpassed the Anglo-Saxon type regarding efficiency), they did not fully disappear, and the two types have still converged compared to their status one decade ago. Moreover, according to the new classification we also notice a similar convergence regarding equity.

A further problem arises as to what extent the economic crisis – as a most likely temporary phenomenon – is responsible for the changes above, and to what extent the revealed tendencies can be regarded as enduring. To answer this question I made the same analysis with data before the crisis as with the newest available data. Based on these examinations we can conclude that although the crisis strengthened the convergence of the Continental and the Anglo-Saxon type, this shift could have already been identified before the crisis. Before the

crisis, regarding efficiency, according to the original typology a greater, while after relocating three countries a smaller approach can be detected. Regarding equity the Continental and the Anglo-Saxon type have already converged before the crisis that can be explained by the regrouping.

In sum, we can conclude that in fact the previous quadripartite typology is not fully valid nowadays. The Continental and the Anglo-Saxon type have significantly converged (regardless of the crisis) that can be explained partly by some countries that have picked up some characteristics of another type (i.e. they have belonged to another type than originally) and partly by the shift of the whole types themselves. Therefore the view – expressed in the previous decades by several authors[19] – that the types of welfare states are resistant to the changes and survive parallel in the long run, is not true.

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Annex 1

Originally used variables by Saint-Arnaud & Bernard (2003)

Characteristics of governmental programs	**Social situation variables**
General governmental total outlays (% of GDP)	Unemployment rate
Final consumption expenditure (as % of total governmental outlays)	Incidence of long-term unemployment (as % of total unemployed)
Social security transfers (as % of total governmental outlays)	GDP annual growth rate in %
Subsidies (as % of total governmental outlays)	General government employment (as % of total employment)
Investments (as % of total governmental outlays)	Average annual rate of inflation in %
Debt interest payment (as % of total governmental outlays)	Overall participation rate
General government receipts (% of GDP)	Female labour participation rate
Income tax of unmarried individual workers as percent of gross earnings	Infant mortality rate (per 1000 live births)
Social security contributions on income of individuals as percent of gross earnings (based on average single wage of unmarried worker)	Total fertility rate
Contribution of employers to social security for the average unmarried single-waged worker	Life expectancy at birth
Public expenditure on health as % of all public expenditures	Average age of women at the birth of their first child
Public expenditure on health as % of GDP	R&D scientists and technicians (per 1000 people)
Number of physicians for 1000 persons	**Political participation variables**
Public expenditure on education as % of GDP	Voter turnout at latest parliamentary elections
Public expenditure on training as % of GDP	Level of trust
Number of years since the first law on	Daily newspaper read per 1000 people

old age, disability and death	
Number of years since the first law on sickness and maternity	Union membership
Number of years since the first law on unemployment	
Number of years since the first law on work injury	
Number of years since the first law on family allowances	

Annex 2

Variable averages for the clusters in the first cluster analysis (Figure 3)

	Averages		
	Social democratic	**Conservative (new)**	**Liberal (new)**
Characteristics of governmental programs			
General governmental total outlays (% of GDP) (2011)	50.83	49.36	45.97
Final consumption expenditure (as % of total governmental outlays) (2010)	50.81	42.25	47.00
Social security transfers (as % of total governmental outlays) (2010) [a]	38.89	40.75	38.00
Debt interest payment (as % of total governmental outlays) (2011) [c]	4.13	7.51	4.70
General government receipts (% of GDP) (2011) [d]	52.12	44.30	39.53
Income tax of unmarried individual workers as percent of gross earnings (2010)	20.16	10.86	16.08
Social security contributions on income of individuals as percent of gross earnings (based on average single wage of unmarried worker) (2010)	7.32	12.03	9.23
Contribution of employers to social security for the average unmarried single-waged	14.91	26.36	10.70

worker (2010)			
Public expenditure on health as % of all public expenditures (2010) [d]	15.43	15.05	16.83
Public expenditure on health as % of GDP (2010) [d]	7.78	7.41	7.71
Number of physicians for 1000 persons (2010) [e]	3.60	4.20	2.74
Public expenditure on education as % of GDP (2010) [f]	7.16	5.10	5.98
Number of years since the first law on old age, disability and death	96.80	96.00	101.38
Number of years since the first law on sickness and maternity	89.80	98.14	77.25
Number of years since the first law on unemployment	88.00	80.71	82.00
Number of years since the first law on work injury	109.40	112.86	109.00
Social situation variables			
Unemployment rate (2011)	6.66	11.51	7.76
Incidence of long-term unemployment (as % of total unemployed) (2011) [h]	22.58	43.80	30.40
GDP annual growth rate in % (2008-2010 average) [i]	-1.35	-0.85	-0.35
General government employment (as % of total employment) (2008) [j]	23.32	12.70	14.26
Average annual rate of inflation in % (2011)	2.89	2.95	3.30
Overall participation rate (2009)	67.10	57.17	64.00
Infant mortality rate (per 1000 live births) (2010)	2.48	3.36	4.44
Total fertility rate (2010)	1.97	1.48	1.94
Life expectancy at birth (2010)	80.57	80.65	80.35
Average age of women at the birth of their first child (2005-2011) [k]	27.94	28.64	28.00
R&D scientists and technicians (per 1000 people) (2009) [l]	14.53	8.15	7.05
Political participation variables			

Voter turnout at latest parliamentary elections (2007-11)	80.02	71.31	72.07
Level of trust (2006) [m]	60.24	25.36	41.00
Union membership (2011) [o]	68.88	21.30	26.81

Source of data: OECD, 2012b, World databank, 2012, GESS, 2012, Eurostat, 2012, OECD, 2012c, OECD, 2012d, Social Security…, 2010, Social Security…, 2011, Social Security…, 2012, OECD, 2012e, OECD, 2012f, Eurostat, 2012e, Statistics Iceland, 2012, UNECE, 2012, Li, Z. – McNally, L. – Hilder, L. – Sullivan, E. A., 2011, Statistics New Zealand, 2006, Statistics Canada, 2012, IDEA, 2012, World Values Survey, 2012, Worker-participation.eu, 2012, AIAS, 2011, New-Zealand Government, 2010, BLS, 2012.

Notes:

[a] New Zealand, Australia, Canada, USA: data for 2007.

[b] Without Australia, Canada, New Zealand and the USA.

[c] New Zealand: data for 2007, Australia: data for 2009, Canada and USA: data for 2010.

[d] New Zealand, Australia, Canada, USA: data for 2009.

[e] Australia, Belgium, Denmark, Finland, Germany, Greece, Italy, Norway, USA: data for 2009, Canada, Netherlands, Sweden: data for 2008.

[f] Australia: data for 2009, Canada, USA: data for 2008.

[g] Without Iceland.

[h] Australia, Canada, New Zealand, USA: data for 2010.

[i] New Zealand: data for 2008-09.

[j] In case of Australia, Austria, Belgium, Sweden, USA: own estimation based on data for 2005.

[k] Austria, Denmark, Finland, Netherlands, Portugal, Sweden: data for 2005, Belgium, France, Iceland, Spain, Great Britain, USA, New Zealand: data for 2006, Canada, Greece, Italy: data for 2007, Ireland: data for 2008, Australia: data for 2009, Germany: data for 2010, Norway: data for 2011.

[l] Australia: data for 2008, Canada, New Zealand and USA: data for 2007.

[m] Austria, Belgium, Denmark, Greece, Iceland, Ireland, Portugal: data for 1999, New Zealand: data for 2004, Australia, Finland, Italy: data for 2005, Norway, Spain: data for 2007.

[n] Without Greece and Portugal.

[o] Iceland: data for 2008, Australia, Canada: data for 2009, New Zealand: data for 2010.

Annex 3
Variable averages for the clusters in the second cluster analysis (Figure 4)

	Averages			
	Nordic	**Continental (new)**	**Anglo-Saxon (new)**	**Southern (new)**
Characteristics of governmental programs				
General governmental total outlays (% of GDP) (2011)	52.03	51.13	48.74	47.35
Final consumption expenditure (as % of total governmental outlays) (2010)	49.42	42.69	47.96	42.89
Social security transfers (as % of total governmental outlays) (2010)	42.54	41.71	35.39	37.64
Subsidies (as % of total governmental outlays) (2011)	3.57	3.82	1.61	1.38
Investments (as % of total governmental outlays) (2010)	5.56	3.65	6.63	7.22
Debt interest payment (as % of total governmental outlays) (2011)	2.67	6.34	5.83	9.15
General government receipts (% of GDP) (2011)	54.73	47.76	40.67	40.23
Income tax of unmarried individual workers as percent of gross earnings (2010)	19.50	14.80	14.17	7.87
Social security contributions on income of individuals as percent of gross earnings (based on average single wage of unmarried worker) (2010)	8.15	13.70	12.50	9.60
Contribution of employers to social security for the average unmarried single-waged worker (2010)	14.48	26.48	12.93	25.64

Public expenditure on health as % of all public expenditures (2010)	15.00	15.21	17.14	14.80
Public expenditure on health as % of GDP (2010)	7.75	7.76	8.33	7.00
Number of physicians for 1000 persons (2010)[a]	3.57	3.68	2.92	4.67
Public expenditure on education as % of GDP (2010)	6.88	5.36	6.30	5.07
Number of years since the first law on old age, disability and death	95.25	107.20	106.33	82.67
Number of years since the first law on sickness and maternity	93.25	111.00	94.33	83.33
Number of years since the first law on unemployment	96.00	93.80	88.33	62.67
Number of years since the first law on work injury	115.00	118.00	113.67	103.00
Number of years since the first law on family allowances	63.75	71.80	69.33	66.00
Social situation variables				
Unemployment rate (2011)	6.55	7.10	8.97	17.43
Incidence of long-term unemployment (as % of total unemployed) (2011)	22.25	43.10	42.13	46.47
GDP annual growth rate in % (2008-2010)	-0.90	-0.40	-1.54	-1.27
General government employment (as % of total employment) (2008)[b]	26.75	14.36	14.93	10.77
Average annual rate of inflation in % (2011)	2.61	2.81	3.13	3.39
Overall participation rate (2009)	64.50	55.78	63.97	58.27
Infant mortality rate (per 1000	2.70	3.38	3.80	3.37

live births) (2010)				
Total fertility rate (2010)	1.92	1.61	1.93	1.38
Life expectancy at birth (2010)	80.35	80.68	80.47	80.35
Average age of women at the birth of their first child (2005-2011)[c]	28.33	28.46	29.27	28.63
R&D scientists and technicians (per 1000 people) (2009)	13.87	8.52	7.33	7.56
Political participation variables				
Voter turnout at latest parliamentary elections (2007-11)	78.74	76.45	70.56	68.71
Level of trust (2006)[d]	64.85	29.82	39.03	19.97
Union membership (2011)	66.25	28.42	28.00	19.67

Source of data: OECD, 2012b, World databank, 2012, GESS, 2012, Eurostat, 2012, OECD, 2012c, OECD, 2012d, Social Security…, 2010, OECD, 2012e, UNECE, 2012, IDEA, 2012, World Values Survey, 2012, Worker-participation.eu, 2012, AIAS, 2011, BLS, 2012.
Notes:

[a] Belgium, Denmark, Finland, Germany, Greece, Italy, Norway: data for 2009, Netherlands, Sweden: data for 2008.

[b] In case of Austria, Belgium, and Sweden own estimation based on data for 2005.

[c] Austria, Denmark, Finland, Netherlands, Portugal, Sweden: data for 2005, Belgium, France, Spain, Great Britain: data for 2006, Greece, Italy: data for 2007, Ireland: data for 2008, Germany: data for 2010, Norway: data for 2011.

[d] Austria, Belgium, Denmark, Greece, Ireland, Portugal: data for 1999, Finland, Italy: data for 2005, Norway, Spain: data for 2007.

[e] Without Greece and Portugal.

Annex 4

Variable averages for the clusters in the third cluster analysis (Figure 7)

	Averages		
	Social democratic	**Conservative (new)**	**Liberal (new)**
Characteristics of governmental programs			
General governmental total outlays (% of GDP) (2007)	46.53	45.24	37.12
Final consumption expenditure (as % of total governmental outlays) (2007)	50.13	44.30	47.93
Social security transfers (as % of total governmental outlays) (2007)	36.93	36.42	46.03
Debt interest payment (as % of total governmental outlays) (2007)	3.21	5.68	4.28
General government receipts (% of GDP) (2007)	53.62	43.78	38.27
Income tax of unmarried individual workers as percent of gross earnings (2007)	25.52	15.24	20.17
Social security contributions on income of individuals as percent of gross earnings (based on average single wage of unmarried worker) (2008)[b]	6.76	12.24	3.60
Contribution of employers to social security for the average unmarried single-waged worker (2008)[b]	14.31	22.10	6.48
Public expenditure on health as % of all public expenditures (2007)	15.24	15.33	17.81
Public expenditure on health as % of GDP (2007)	7.03	6.92	6.62
Number of physicians for 1000 persons (2007)[c]	3.60	3.70	1.98

Public expenditure on education as % of GDP (2007)	6.52	5.07	5.22
Number of years since the first law on old age, disability and death (2007)	91.80	95.27	90.00
Number of years since the first law on sickness and maternity (2007)	84.80	93.91	49.25
Number of years since the first law on unemployment (2007)	83.00	78.82	69.75
Number of years since the first law on work injury (2007)	104.40	107.73	100.50
Social situation variables			
Unemployment rate (2007)	4.30	6.56	4.68
Incidence of long-term unemployment (as % of total unemployed) (2007)	13.80	39.87	9.73
GDP annual growth rate in % (2005-2007)	3.77	2.91	2.70
General government employment (as % of total employment) (2005)[e]	22.72	14.63	13.39
Average annual rate of inflation in % (2007)	3.34	2.37	4.08
Overall participation rate (2007)	67.66	58.57	66.50
Infant mortality rate (per 1000 live births) (2007)	2.84	3.93	5.35
Total fertility rate (2007)	1.91	1.61	1.96
Life expectancy at birth (2007)	79.97	79.85	80.02
Average age of women at the birth of their first child (2007)[f]	27.88	28.80	27.13
R&D scientists and technicians (per 1000 people) (2007)[g]	14.14	7.42	6.50
Political participation variables			
Voter turnout at latest parliamentary elections (2004-2007)	78.93	73.97	71.98
Level of trust (2006)[h]	61.74	28.58	44.85
Union membership (2007)	68.66	25.76	19.63

Source of data: OECD, 2012b, World dataBank, 2012, GESS, 2012, Eurostat, 2012, OECD, 2012c, OECD, 2012d, Social Security…, 2008, Social Security…, 2009a, Social Security…, 2009b, OECD, 2012e, Statistics Iceland, 2012, UNECE, 2012, Li, Z. – McNally, L. – Hilder, L. – Sullivan, E. A., 2011, Statistics New Zealand, 2006, Statistics Canada, 2012, IDEA, 2012, World Values Survey, 2012, Worker-participation.eu, 2012, AIAS, 2011, New-Zealand Government, 2010, BLS, 2012.

Notes:

[a] Without Australia, Canada, New Zealand, and the USA.

[b] Canada, USA: data for 2008.

[c] Australia, Belgium, Canada, Greece, Iceland, Italy, Sweden: data for 2006, Portugal: data for 2005, USA: data for 2004, Great Britain: data for 2003.

[d] Without Iceland.

[e] Greece: data for 2006.

[f] Austria, Denmark, Finland, Netherlands, Portugal, Sweden: data for 2005, Belgium, France, Iceland, Spain, Great Britain, USA, New Zealand: data for 2006, Australia: data for 2009.

[g] Australia: data for 2006.

[h] Austria, Belgium, Denmark, Greece, Ireland, Portugal: data for 1999, Finland, Italy: data for 2005, Norway, Spain: data for 2007.

[i] Without Greece and Portugal.

Annex 5
Variable averages for the clusters in the fourth cluster analysis (Figure 8)

	Averages			
	Nordic	**Continental (new)**	**Anglo-Saxon (new)**	**Southern (new)**
Characteristics of governmental programs				
General governmental total outlays (% of GDP) (2007)	47.59	48.13	41.25	45.99
Final consumption expenditure (as % of total governmental outlays) (2007)	48.34	41.84	48.97	41.08
Social security transfers (as % of total governmental outlays) (2007)	41.13	40.08	33.14	33.84
Subsidies (as % of total governmental outlays) (2007)	3.49	3.56	2.10	1.01
Investments (as % of total governmental outlays) (2007)	5.66	4.07	8.46	6.61
Debt interest payment (as % of total governmental outlays) (2007)	2.76	6.27	3.76	8.05
General government receipts (% of GDP) (2007)	55.10	47.08	41.08	40.95
Income tax of unmarried individual workers as percent of gross earnings (2007)	25.22	19.38	13.90	7.58
Social security contributions on income of individuals as percent of gross earnings (based on average single wage of unmarried worker) (2008)	7.45	13.66	10.94	11.28
Contribution of employers to social security for the average unmarried single-waged worker (2008)	14.55	26.90	15.70	22.93

Public expenditure on health as % of all public expenditures (2007)	14.61	15.57	15.64	14.12
Public expenditure on health as % of GDP (2007)	6.92	7.48	6.46	6.46
Number of physicians for 1000 persons (2007) [a]	3.55	3.79	3.24	4.40
Public expenditure on education as % of GDP (2007)	6.13	5.00	5.20	5.00
Number of years since the first law on old age, disability and death (2007)	90.25	102.20	98.00	72.50
Number of years since the first law on sickness and maternity (2007)	88.25	106.00	86.50	78.50
Number of years since the first law on unemployment (2007)	91.00	88.80	84.50	42.50
Number of years since the first law on work injury (2007)	110.00	113.00	108.25	93.50
Number of years since the first law on family allowances (2007)	58.75	66.80	65.50	57.00
Social situation variables				
Unemployment rate (2007)	4.80	6.92	5.33	8.15
Incidence of long-term unemployment (as % of total unemployed) (2007)	15.25	44.26	30.05	48.55
GDP annual growth rate in % (2005-2007)	3.21	2.41	3.71	2.57
General government employment (as % of total employment) (2005) [b]	27.27	14.76	14.90	13.75
Average annual rate of inflation in % (2007)	2.76	2.19	2.18	3.19
Overall participation rate	64.85	55.76	62.25	58.25

(2007)				
Infant mortality rate (per 1000 live births) (2007)	3.05	3.70	4.30	3.75
Total fertility rate (2007)	1.86	1.58	1.76	1.37
Life expectancy at birth (2007)	79.69	80.23	79.87	78.88
Average age of women at the birth of their first child (2007)[c]	28.25	28.64	29.25	28.30
R&D scientists and technicians (per 1000 people) (2007)	13.22	8.05	7.44	5.80
Political participation variables				
Voter turnout at latest parliamentary elections (2004-2007)	77.76	78.16	71.10	69.20
Level of trust (2006)[d]	66.90	29.88	32.83	16.85
Union membership (2007)	65.98	28.76	23.58	22.65

Source of data: OECD, 2012b, World dataBank, 2012, GESS, 2012, Eurostat, 2012, OECD, 2012c, OECD, 2012d, Social Security…, 2008, OECD, 2012e, UNECE, 2012, Li, Z. – McNally, L. – Hilder, L. – Sullivan, E. A., 2011, IDEA, 2012, World Values Survey, 2012, Worker-participation.eu, 2012, AIAS, 2011, BLS, 2012.

Notes:

[a] Belgium, Greece, Italy, Sweden: data for 2006, Portugal: data for 2005, Great Britain: data for 2003.

[b] Greece: data for 2006.

[c] Austria, Denmark, Finland, Netherlands, Portugal, Sweden: data for 2005, Belgium, France, Spain, Great Britain: data for 2006.

[d] Austria, Belgium, Denmark, Greece, Ireland, Portugal: data for 1999, Finland, Italy: data for 2005, Norway, Spain: data for 2007.

[e] Without Greece and Portugal.