

Reduction of Employment Protection in Europe: A Comparative Fuzzy-Set Analysis

Abstract

Since the middle of the 1980s many European countries have reduced the strictness of their employment protection mainly by relaxing it for temporary jobs. These countries are Belgium, Denmark, Germany, Greece, Italy, the Netherlands, Norway, Portugal and Sweden. This paper explores the conditions connected with the reduction of employment protection for temporary contracts in 14 European countries for the period 1985–2008, using an innovative method, fuzzy-set qualitative comparative analysis. This study shows that a combination of causal factors holds for most countries. Some nations facing rigidities have reduced their employment protection mainly due to the weakness of unions. Others with a strong international integration and adjustment capacity have overcome the resistance of insiders to employment protection reforms mainly by providing generous unemployment benefits and activating the unemployed in combination with social values favourable to job flexibility.

SER keywords: comparative politics, Europe, labour market institutions

JEL Code: J 63, J 65, J 68.

Reduction of Employment Protection in Europe: A Comparative Fuzzy-Set Analysis

1. Introduction

Employment protection (EP) is a highly relevant topic of economic policy. It can be an obstacle to structural change, which, in a globalised world is essential if countries wish to preserve their competitive edge and reduce their unemployment. A strict regulation can reduce productivity and impede economic growth.¹ On the other hand EP is legitimised by the need to protect workers. Finding a trade-off between allocating labour to its most productive use and job security is an important task of policy makers.

According to the OECD the strictness of EP is relatively high in Europe² with the exception of Denmark, Ireland, Switzerland and the United Kingdom. Since the middle of the 1980s many European countries have reduced the strictness of their EP. Most governments have pursued a selective approach. They have left existing provisions for permanent contracts practically unaltered (except for Austria, Finland, Portugal and Spain) and relaxed EP for temporary jobs. These countries comprise Belgium, Denmark, Germany, Greece, Italy, the Netherlands, Norway, Portugal and Sweden (Finland and Spain reduced EP for temporary jobs only slightly).

In this article we explore the conditions connected with the reduction of EP for temporary contracts (temporary EP). The analysis of the political economy of EP reforms has up to now focussed on EP for regular contracts (regular EP) while neglecting EP for temporary contracts. The determinants for the reduction of temporary EP are, however, different from those of the reduction of regular EP.

Furthermore, most quantitative macro-comparative studies on this and similar issues have used regression analysis as the analytical technique. Regression analysis assumes linear causation and estimates the average effect of a given variable net of all other vari-

ables. We, however, are interested in determining the interaction of causal factors and want to find out whether there are multiple pathways to reduce the strictness of EP for temporary contracts. We therefore use fuzzy-set qualitative comparative analysis (fs/QCA). This approach is more suited to reach our objectives.

We include in our fuzzy-set analysis 14 European countries³ and consider the period from 1985 to 2008. We focus on the political power of incumbent employees to resist EP reforms, the willingness of governments to implement EP reforms, the counterbalancing factors of the generosity of unemployment benefits and the activation of the unemployed, the degree of globalisation of the European economies and the perception of the importance of employment flexibility by the population.

The paper is structured as follows. Section two presents a definition of the OECD measure of EP and the extent to which the strictness of EP has been reduced since 1985. Section three gives an overview of the recent literature on the political economy of EP reforms. Section four introduces fuzzy-set theory and compares regression analysis and fuzzy-set analysis. Section five describes our model. Section six presents the calibration of fuzzy-set scores. Sections seven and eight assess the conditions for a reduction of temporary EP. Section nine concludes.

2. The reduction of employment protection from 1985 to 2008

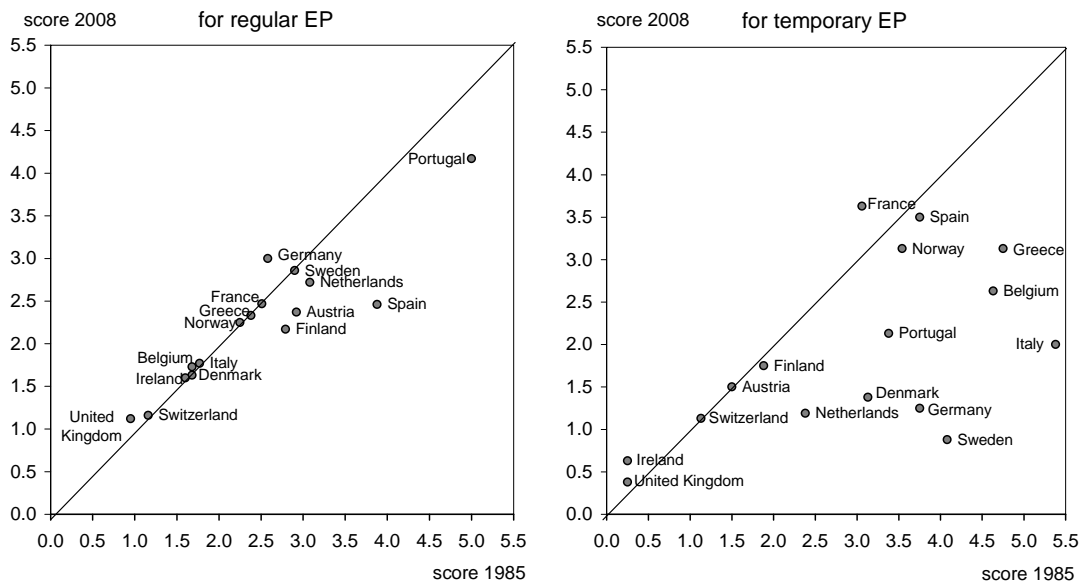
The term “employment protection” refers both to regulations concerning hiring as well as firing. In the first instance, the relevant regulations concern the conditions under which temporary contracts (fixed-term contracts and temporary agency work) may be concluded. Regulations with respect to dismissal affect the individual termination of a regular employment relationship. The protection of regularly employed workers against dismissal represents a restriction on employers, who are no longer free to give notice to their employees without justification. This restriction has been attained through two types of sanctions: the obligation to continue the employment relationship despite notice having been given or severance pay.

There are many different assessments for the strictness of EP. The most prominent one is the OECD measure of EP. By means of 17 single indicators EP of regular and of temporary workers is captured. The indicators are initially expressed in units of time (e.g., months of notice), as a cardinal number (e.g., maximum number of successive fixed-term contracts allowed), or as a score on an ordinal scale (0 to 2, 3, 4 or simply yes/no). These first-level measures are accounted for in comparable units and then converted into cardinal scores ranging from 0 to 6, with higher scores representing stricter regulation. The remaining steps consist in forming successive weighted averages, which measure the strictness of regular and temporary EP (OECD, 2004, p. 106 and Venn, 2009, pp. 38-42).

Although the OECD indicator of the strictness of EP is one of the best indicators available it has some weaknesses: It is mainly based on legislative provisions and neglects wage agreements. The extent to which legal rules are formally binding is not recorded. The enforcement of legislation receives too little attention. It provides no information on the proportion of employees that are covered by EP, etc.

In spite of these shortcomings we use the OECD measure to demonstrate how EP reforms reduced the strictness of EP in Europe since 1985. Figure 1 shows that these reforms left the existing regulations for regular contracts in most countries unaltered. They focussed instead on EP for temporary forms of employment. EP for temporary jobs has been relaxed primarily in Italy, Sweden, Germany, Belgium, Denmark, Greece, Portugal, the Netherlands and Norway. The most prevalent path of reform consisted in facilitating fixed-term contracts (FTCs) and/or hiring workers from temporary work agencies (TWAs). Belgium mainly liberalised FTCs. Denmark, Greece and Norway have put their main focus on making temporary workers attractive for hiring firms. Germany, Italy, the Netherlands and Sweden reduced the strictness of EP for both categories of temporary employment (Ochel, 2009, p. 238). Reforms of EP which ease the recourse to temporary forms of employment while not reducing the strictness of EP for permanent jobs are called two-tier reforms or reforms at the margin. In the following we focus on this kind of reforms.

Figure 1: Employment protection regulation 1985 - 2008



EP=Employment Protection.

Note: A high score means high EP strictness and vice versa.

Source: OECD (2009a), accessed at www.oecd.org/employment/protection on January 21, 2010.

3. The political economy of employment protection reforms at the margin

According to the theoretical literature interest groups, politicians (incl. the government), political institutions and social values have to be taken into account when analysing the political economy of EP reforms (Castanheira *et al.*, 2006).

The main interest group relevant for EP reforms comprises the incumbent employees and their unions who want to protect their jobs by a strict EP. When the amount of rents that can be appropriated is large and concentrated, workers will better organise themselves and are more determined to oppose EP reforms. Whereas workers fear being negatively affected by a reduction of the strictness of EP, the unemployed stand to benefit. Their chances of finding a job would increase. But workers have a higher propensity to dominate political decisions. They are politically better organised than the unemployed (Fernandez and Rodrik, 1991, p. 1146).

Saint-Paul (2000, pp. 227-253) assumes that the resistance of incumbent workers will be higher for EP reforms for permanent jobs and lower for EP reforms for temporary jobs. This is because incumbent workers are not directly affected by the latter reforms and potentially they are made better off indirectly. They can earn higher wages because labour market tightness increases due to the higher demand for temporary jobs. And if they lose their jobs they will benefit from the greater job-finding probabilities of the unemployed. The resistance to EP reforms at the margin should, however, not be negligible. Incumbent workers may recognise that two-tier systems could perhaps be used as an intermediate step towards a complete EP reform that they are not in favour of. Reforms at the margin gradually build up a stock of workers with temporary contracts. These workers have different interests than those who hold a fixed contract. They can be used as a “political constituency” to support subsequent reforms of core labour market EP that the government from the beginning may have intended to achieve (Saint-Paul, 1996, chap. 11; Dewatripont and Roland, 1992).

Apart from trade unions the strength of the labour movement may also be determined by the importance of left-wing parties (Emmenegger, 2009). Left-wing parties are generally supportive of strict job security regulations whereas conservative parties are not (Botero *et al.*, 2004). It is however not obvious that strong left-wing parties are an obstacle to reducing the strictness of EP and that strong conservative parties are a guarantee for reducing it. This may be due to the fact that EP reforms undertaken by a conservative government might be confronted by strong trade union opposition and demonstrations whereas a left-leaning government is perhaps more able to pre-emptively reduce opposition and avoid public protest from trade unions. This will especially be the case, if left governments pursue EP reforms at the margin. This phenomenon is known as the “Nixon goes to China” thesis (Ross, 2000, p. 162). Furthermore, it has been observed that left-wing parties have been moving rightwards towards market-liberal policy solutions and more flexible labour markets since the 1970s (Ross, 2000, p. 159).

Policy-makers that favour lower EP strictness can overcome insider resistance to EP reforms by offering compensating transfers to losers from the reform. Lower EP for

temporary contracts may be less worrying to insiders if unemployment benefits become more generous (Boeri *et al.*, 2003). An activation of the unemployed that increases their reemployment chances may also reduce the resistance of incumbent workers to EP reforms.

The lobbying activities of unions and the decisions of politicians are determined to a certain degree by the intensity of globalisation countries are confronted with. According to Sapir (2006), strong global competition and rapid technological change make it necessary for countries to become more flexible in order to avail the new opportunities globalisation brings. Theoretical models predict that globalisation leads to a reduction of EP. Fischer and Somogyi (2009) show empirically that a direct link between globalisation and EP exists.

The political economic literature has so far neglected the fact that the perception of EP by workers and the decisions of governments may be determined by more fundamental factors, such as prevailing social values. One of the social values that is directly associated with EP is the importance attributed to job security by the population. If good job security is considered to be unimportant (or if job flexibility is considered to be important) then it will be relatively easy for a government to reduce the strictness of EP.

The implementation of EP reforms will be easier for a government the stronger a government is. According to Henisz (2000) the strength of government is related to the number of independent branches of government (executive and legislative branches), the party composition of these branches, and the role of the “judiciary and sub-federal entities” as players. If the characteristics of the political system constrain the commitment of government to political change, it will be difficult for governments to overcome resistance of incumbent workers to EP. Broad coalition governments, for example, are considered to be an obstacle to EP reforms (Alesina and Drazen, 1991).

4. Fuzzy-Set QCA

Fs/QCA is different in several respects from conventional statistical methods (Ragin, 2000) and has obtained growing attention, especially in comparative research focused on country-level institutional conditions and categories of countries (Schneider and Wagemann, 2006). The method was developed by Ragin (1987) as an alternative to the commonly employed regression methods. Unlike regression analysis, fuzzy-set analysis provides analytical tools for comparing cases (e.g., countries) as configurations of qualitative attributes (e.g., institutions). Institutions are treated as sets and countries are viewed in terms of their multiple set memberships to show their similarities and differences (Pajunen, 2008).

The ambitious attempt of fs/QCA compared to regression analysis is to build a bridge between qualitative analysis, known as case-oriented analysis, and quantitative analysis, referred as variable-oriented analysis (Lee, 2008). Regression analysis is based only on quantitative analysis. Regression equations examine the effect of one explanatory variable on the outcome variable with controlling for other variables. So only one way exists for the outcome to be produced (Lee, 2008, p. 8). In fs/QCA there are several ways of generating an outcome. The results are interpreted in terms of necessary and sufficient conditions. A solution of sufficient conditions in fs/QCA shows which different paths count as alternatives for an outcome (Schneider and Wagemann, 2007b, p. 12). “In this sense, QCA moves away (...) from simplistic, probalistic causal reasoning; in its case-orientedness, it is more geared toward diversity” (Rihoux and Ragin, 2009, p. 9).

Fs/QCA consists of specifying a model, of calibrating fuzzy-set scores and of examining a “truth table”.

A model is understood in this context as a set of causal conditions. To generate the broadest range of solution sets, it is helpful to employ multiple models utilising various combinations of the included causal conditions (Epstein *et al.*, 2008, p. 74). The inclu-

sion of causal conditions is based on theoretical and empirical research results on the conditions of EP reduction.

Apart from model specification, fs/QCA requires the calibration of fuzzy-set scores. Whereas the older variant of QCA (Ragin, 1987) required a dichotomisation of the variables based on Boolean algebra, the more recent variant (Ragin, 2000) also allows values between the extremes of “0” and “1”. The so-called “fuzzy-set scores” describe the degree of membership for a given case in the category which is formed by the variable.

When examining the truth table, fs/QCA builds on a combination of the original Boolean variant and fuzzy-set theory (Schneider and Wagemann, 2004, p. 3). It can be applied in studies based on a small number of cases (Häge, 2007). The method is based on set-theoretic relations and focuses on explicit connections between conditions. The key set theoretic relation in the study of causal complexity is the subset relation. As discussed in Ragin (2000), there are cases that share several causally relevant conditions and uniformly exhibit the same outcome. These cases constitute a subset of instances of the outcome. The subset relation signals that a specific combination of causally relevant conditions may be interpreted as sufficient for the outcome. If there are other sets of cases sharing other causally relevant conditions and these cases also agree in displaying the outcome in question, then these combinations of conditions also may be interpreted as sufficient for the outcome (Ragin, 2008a, p. 42). Fs/QCA thus allows us to identify multiple pathways to an outcome (Epstein *et al.*, 2008, p. 85).

The analysis of causal necessity is another important step in fs/QCA. This procedure looks at which individual factors may be necessary for the outcome to occur, but its presence does not guarantee that occurrence (Rihoux and Ragin, 2009, p. 109). If a theoretically relevant causal condition is necessary, then it is present in all instances of an outcome (Ragin, 2000). That means that the membership score on the outcome is consistently lower than the membership score for the causal factor under consideration.

5. Model specification

The first step of fs/QCA consists in specifying a model. In our context a model is understood as a set of causal conditions.

Based on the results of theoretical research presented in section three we include the power of the incumbent workers and their unions to resist EP reforms at the margin in our model. Although the resistance of insiders to EP reforms will be higher in the case of a reduction in the strictness of EP for permanent jobs the resistance against EP for temporary jobs is not negligible. The power of unions to resist EP reforms cannot be easily measured. In this article we use a combination of union density and collective bargaining coverage as a proxy.

EP reforms at the margin may also be determined by the electoral strength of left-wing parties. Although it is often assumed that left-wing parties are not in favour of EP reductions the opposite may be true because of the “Nixon goes to China” phenomenon and the rightwards movement of left-wing parties. Italian governments in the second half of the 1990s and the SPD-Green coalition in Germany after 2002 show that left wing-parties governments may reduce the strictness of temporary EP.

Policy-makers that favour a reduction of EP strictness can offer compensating transfers in order to reduce the resistance of the reform losers. In this paper we measure the transfers by the generosity of unemployment benefits and the probability of qualifying for them.

The same effect can be produced by an activation of the unemployed that increases their reemployment chances. We use expenditure on active labour market policies (ALMP) as a percentage of GDP standardised according to the level of unemployment across time and nation states.

The activities of lobbying agents as well as the strategy of politicians are influenced by the international integration of a country. We use a broad concept for measuring globalisation including its economic, political and social dimensions. The economic dimension refers to international trade, foreign direct investment, etc. Key aspects of the political dimension are the membership in international organisations, the international coordination of activities, etc. The social dimension includes worldwide communication, exchange of ideas and homogenisation of local cultures (Dreher, 2007).

Finally we include the importance of job flexibility as seen by the population. We assume that the view on job flexibility can be deducted from the perception of job security which is measured by surveys. We are aware that this information will differ across contexts (e.g., ongoing public debates on the usefulness of job flexibility). This, however, is not a disadvantage but an advantage, since it is precisely the specific context of public discourse that is one of the major influences on public perception of job flexibility, which, when widely held, determines government policy.⁴

6. Calibration of fuzzy-set scores

The second step (after model specification) for analysing the causes for a reduction of temporary EP is to develop fuzzy-set scores. The function of fuzzy-set scores is to show the varying degree to which different cases belong to a set. According to Rihoux and Ragin (2009, p. 89) fuzzy sets extend Boolean sets by permitting membership scores in the interval between 0 and 1. The basic idea behind fuzzy sets is to permit the scaling of membership scores and thus allow partial or fuzzy membership. A membership score of 1 indicates full membership in a set; scores close to 1 (e.g., 0.8 or 0.9) indicate strong but not quite full membership in a set; scores less than 0.5 but greater than 0 (e.g., 0.2 and 0.3) indicate that objects are more “out” than “in” a set, but still weak members of the set; a score of 0 indicates full non-membership in the set. The 0.5 score is known as the “cross-over point” because it indicates the point of maximum ambiguousness (fuzziness) in the assessment of whether a case is more “in” or “out” of a set.

Calibration is necessary because after calibration it is possible to decide whether the used variables match or conform to external standards (Ragin, 2008a, p. 16). On the basis of these standards, measurements are directly interpretable (Byrne, 2002). Fuzzy-sets are calibrated using social knowledge, collective social scientific knowledge or the researchers' own accumulated knowledge, derived from the study of specific cases (Ragin, 2008b, p. 82).⁵ Fuzzy-scores do not simply show the relative positions of cases on a scale. The three anchors full-in, full-out and the cross-over point are qualitative anchors that map the link between specific scores on continuous variables and fuzzy-set membership (Rihoux and Ragin, 2009, p. 92).

There are two methods of calibration:

- Direct method: This method concentrates on the three qualitative anchors that structure fuzzy-sets,
- Indirect method: This method uses regression techniques to estimate the degree of the set membership based on a six-value coding scheme.⁶

The end-product of both methods are continuous fuzzy-sets which can take values anywhere in the interval between 0.0 and 1.0 (Ragin, 2008b, p. 85). In our analysis we use the direct method.

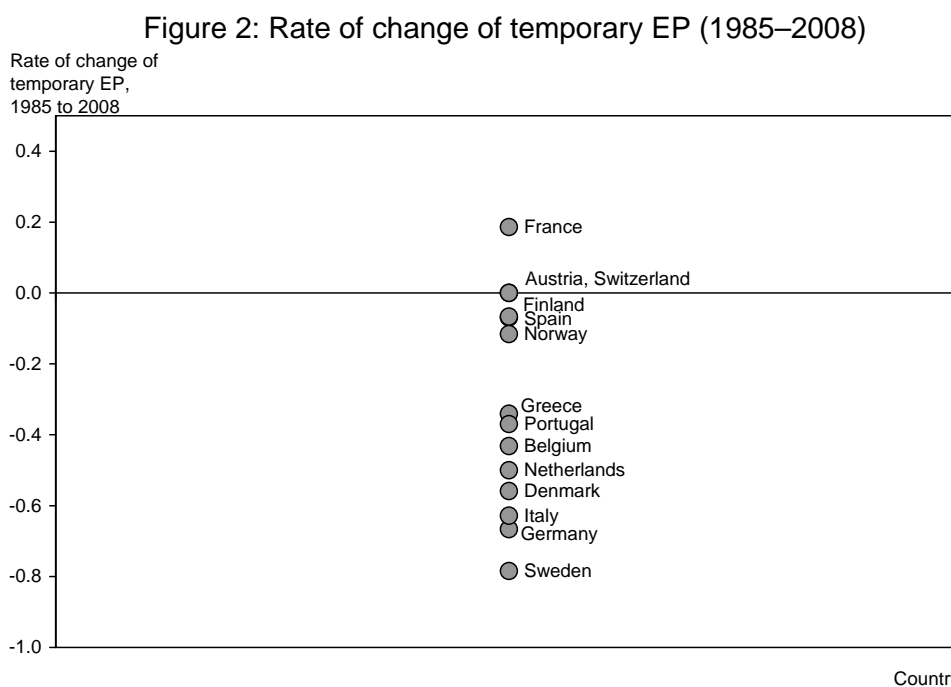
The direct method, as mentioned above, uses three important qualitative anchors to structure calibration: the threshold for full-membership (fuzzy-score = 0.95), the threshold for full-non-membership (fuzzy-score = 0.05) and the cross-over point (fuzzy-score = 0.5). In a first step the researcher has to determine these three anchors. On the basis of these benchmarks the researcher is able "to transform the original ratio or interval-scale values into fuzzy membership scores, using transformations based on the log odds of full membership" (Ragin, 2008a, p. 17).⁷

For our analysis it is important to code the causal conditions so that high membership scores are linked to high performance. This means that all causal conditions are expected to contribute to a reduction of temporary EP only when they are present.

6.1 Fuzzy-set scores for the reduction of temporary EP

The outcome we analyse is the reduction of temporary EP. We use the OECD indicator of EP strictness for temporary contracts as our output (OECD, 2009a). We measure changes in relative terms: (temporary EP rate in 2008 minus temporary EP rate 1985) divided by temporary EP rate 1985.⁸

As mentioned above, fs/QCA requires the use of set theoretic variables. Hence, we translate the EP rate of change into fuzzy-set scores. The first step is the determination of “good” EP change. Figure 2 shows the change of temporary EP in all 14 countries. The sharpest decline was experienced in Sweden (-0.78), followed by Germany (-0.67). As Germany’s reduction of temporary EP was smaller than that of Sweden we draw the membership line around the Swedish level, setting its fuzzy-score to “1”. This signifies full membership in the set of strong reduction of temporary EP.



EP=Employment Protection.

Note: Rate of change of temporary EP = (temporary EP 2008 minus temporary EP 1985) divided by temporary EP 1985.

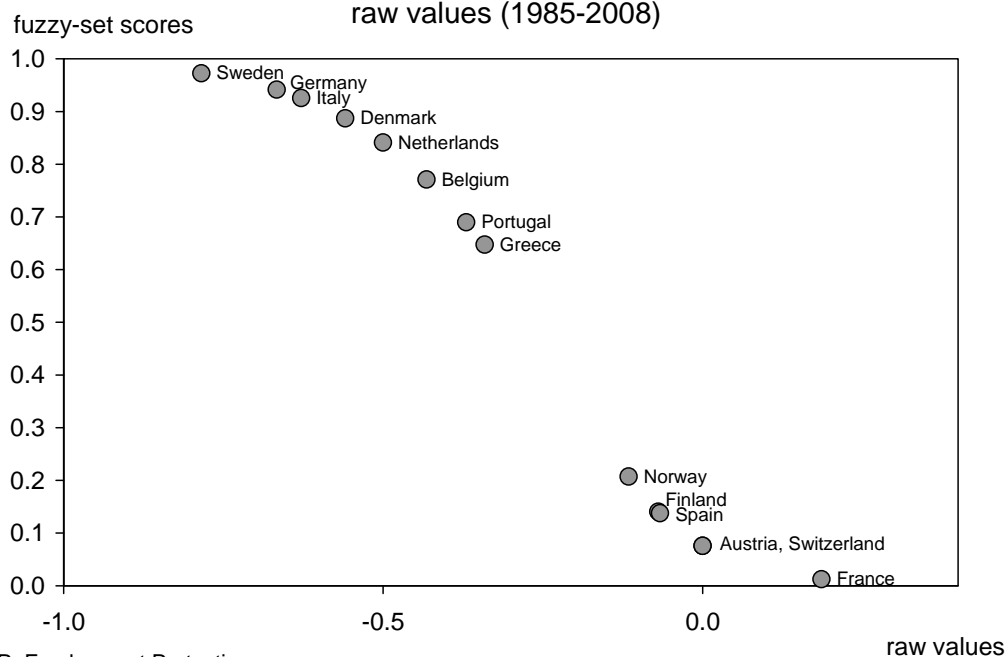
Source: Own calculations.

Similarly, at the other end of the distribution there is France which did not reduce but increased the strictness of temporary EP by 19 percent. It is therefore deemed fully out of the set and is coded zero.

The third anchor in determining fuzzy-scores is the cross-over point (0.5). This point separates cases that are more in the set than out from those that are more out than in (Epstein *et al.*, 2008, p. 71). The obvious breakpoint is between Greece and Norway.⁹

A simple rescaling of the values for the countries either fully in or fully out¹⁰ with the direct method of calibration captures this breakpoint and distributes the countries between the anchors. Figure 3 shows the fuzzy-set scores for the rate of change of temporary EP plotted against raw values.

Figure 3: Reduction of temporary EP fuzzy-set scores by reduction of temporary EP raw values (1985-2008)



EP=Employment Protection.

Note: Raw values = (temporary EP 2008 minus temporary EP 1985) divided by temporary EP 1985.

Source: Own calculations.

6.2 Fuzzy-set scores for causal conditions

Incumbent workers and their unions are not able to resist the reduction of temporary EP if they have little power. The *weakness of trade unions (WU)* is measured using data on union density and on collective bargaining coverage from Visser (2009). The union density is defined as net union membership¹¹ as a proportion of wage and salary earners in employment. Under collective bargaining coverage we understand the employees who are covered by wage bargaining agreements as a proportion of all wage and salary earners in employment with the right to bargaining (Visser, 2009, p. 15). For the calculation of the causal condition *weakness of trade unions* we weight union density by 1/3 and collective bargaining coverage by 2/3 assuming that the bargaining coverage is more influential for the strength of unions to oppose EP reforms.¹² The mean of the raw values for trade unions from 1985 to 2007 is transformed into fuzzy-set scores. Countries with low raw values (high weakness of unions) are attributed high fuzzy-set scores and vice versa. Our three anchors are between Switzerland and Portugal (full-in), between Italy and Denmark (cross-over point) and between Belgium and Sweden (full-out; see Table 1 and Annex A, Figures A1 and A2).

We assume that a *strong left-wing government (LG)* is more determined to reduce the strictness of EP than a right-wing government. Therefore left-wing governments obtain high fuzzy-set scores. We use *left-wing government* data from Armingeon *et al.* (2009). The variable left-wing government is defined as social-democratic and other left parties in percentage of total cabinet posts, weighted by days. We use the mean of the raw values from 1985 to 2007¹³ for the calculation of fuzzy-set scores. The full-in anchor lies between Sweden and Spain. The cross-over point is set between Norway and Belgium. For the full-out anchor we chose a value between Portugal and the Netherlands (see Table 1 and Annex A, Figures A1 and A2).

Incumbent workers may be more willing to accept a reduction in the strictness of temporary EP if they are compensated. Compensation may take place via generous unemployment benefits. The *generosity of unemployment benefits (UB)* is measured by the

Unemployment Benefit Indicator according to Allard (2005).¹⁴ This indicator is based upon the net replacement rate, the duration of benefits and the probability of qualifying for them. For the calculation of fuzzy-scores we use the mean of the raw values from 1985 to 2003. Our full-in anchor is chosen between Denmark and Germany. The cross-over point lies between Sweden and Switzerland. And for the full-out anchor we use a value between Greece and Italy (see Table 1 and Annex A, Figures A1 and A2). The aim was to attribute high fuzzy-set scores to a high unemployment benefit generosity.¹⁵

An *activation (AC)* of the unemployed, which increases their reemployment chances after having lost a job, may reduce the resistance of the incumbent workers to EP reforms too. Activation is measured by the total spending on ALMP as a percentage of GDP * 100 divided by the standard unemployment rate. The active spending per unemployed is a better measure of ALMP effort than the generally used ALMP spending relative to GDP. The reason is that spending on ALMP usually increases with a rising level of unemployment. Without a standardisation the indicator would not indicate the political will for activation by countries (Vis, 2007; Hudson and Kühner, 2009). OECD (2009c, 2009d) data are used to measure the expenditure on ALMP per GDP and the unemployment rates. Countries with high active spending per unemployed between 1985 and 2007 obtain high fuzzy-set scores and vice versa. The first breakpoint, full-in, is set between Sweden and the Netherlands. The cross-over point falls between Denmark and Norway. The third breakpoint, full-out, lies between Spain and Greece (see Table 1 and Annex A, Figures A1 and A2).

For the causal condition *strong globalisation (SG)* we use the annual KOF Globalisation Index developed by Dreher (2007), which measures the economic, social and political dimensions of globalisation on a scale from 1 to 100. Higher values denote greater globalisation.¹⁶ For the calculation of fuzzy-set scores we use the mean of raw values from 1985 to 2008 and define the following three anchors: Full-in is set between Switzerland and Sweden, the cross-over point lies between Norway and France and the full-out anchor is set between Italy and Greece. High raw values on globalisation obtain high fuzzy-set scores (see Table 1 and Annex A, Figures A1 and A2).

The social value that we include in our analysis is the *importance of job flexibility (IS)* as seen by the population. This indicator is taken indirectly from the World Value Survey (2009). We use the question: “How important is good job security in a job?” If the population considers job security to be unimportant (= job flexibility to be important), it will be relatively easy for a government to reduce the strictness of EP. The equivalence to such an attitude is high fuzzy-set scores (Table 1 and Annex A, Figures A1 and A2). The calculation of the fuzzy-set scores is based on the mean of raw values¹⁷ from 1989 to 2001 and is predicted on the choice of three anchors. For the full-in anchor we use a value between the Netherlands and France. The cross-over point is set between Denmark and Sweden. Germany and Norway are full-out of the set of *importance of job flexibility*.

Table 1: Fuzzy-set scores

	Strong reduction of temporary EP	Weakness of trade unions	Strong left-wing government	Generosity of unemployment benefits	Activation	Strong globalisation	Importance of job flexibility
Austria	0.08	0.12	0.16	0.26	0.18	0.86	0.06
Belgium	0.77	0.08	0.35	0.63	0.24	0.97	0.91
Denmark	0.89	0.27	0.07	0.99	0.87	0.84	0.66
Finland	0.14	0.09	0.21	0.73	0.20	0.42	0.19
France	0.01	0.62	0.31	0.73	0.12	0.49	0.94
Germany	0.94	0.86	0.15	0.86	0.26	0.16	0.04
Greece	0.65	0.68	0.86	0.13	0.03	0.02	0.13
Italy	0.93	0.60	0.09	0.02	0.08	0.09	0.08
Netherlands	0.84	0.68	0.05	0.83	0.94	0.97	0.98
Norway	0.21	0.61	0.77	0.18	0.44	0.70	0.04
Portugal	0.69	0.88	0.07	0.18	0.10	0.13	0.08
Spain	0.14	0.83	0.87	0.62	0.05	0.27	0.08
Sweden	0.97	0.03	0.98	0.61	1.00	0.91	0.40
Switzerland	0.08	0.98	0.07	0.37	0.35	0.96	0.15

Source: Own calculations.

7. Analysis

After model specification and calibration, the next step is the examination of a “truth table”. The truth table, according to Epstein *et al.* (2008, p. 74), is an analytic device that displays all logically possible combinations of causal conditions and indicates case distribution across these combinations.¹⁸ In fs/QCA terminology these combinations are called configurations.

The truth table consists of 2^k rows (where k represents the number of causal conditions). The researcher must begin to develop a rule for classifying some configurations as relevant and others as irrelevant. This is based on the number of cases residing in each sector of the vector space defined by the causal conditions. It is accomplished in two steps:

1. By selecting a frequency threshold based on the number of cases with greater than 0.5 membership in each configuration¹⁹ and
2. By distinguishing configurations that are consistent²⁰ subsets of the outcome from those that are not.^{21, 22}

Once this procedure has been accomplished, the fs/QCA program produces the truth table (Table 2). The “number” column denotes how many cases conform to the listed configuration. The “outcome” column tells us whether or not a particular causal configuration is treated as an instance of strong reduction of temporary EP based on our pre-decided assumptions. If the outcome denotes a one, we know that this combination is a consistent sufficient condition for the outcome.

Table 2: Truth table for the outcome “strong reduction of temporary EP”

Weakness of trade unions	Strong left-wing government	Generosity of unemployment benefits	Activation	Strong globalisation	Importance of job flexibility	Number	Outcome: strong reduction of temporary EP	Consist
1	0	1	0	0	0	1	1	0.95
0	0	1	1	1	1	1	1	0.91
1	0	0	0	0	0	2	1	0.90
1	0	1	1	1	1	1	1	0.90
0	1	1	1	1	0	1	1	0.89
1	1	0	0	0	0	1	0	0.78
0	0	1	0	1	1	1	0	0.76
0	0	1	0	0	0	1	0	0.68
1	1	0	0	1	0	1	0	0.64
1	1	1	0	0	0	1	0	0.64
1	0	0	0	1	0	1	0	0.62
1	0	1	0	0	1	1	0	0.61
0	0	0	0	1	0	1	0	0.56

Source: Own calculations.

After the construction of the truth table, the “Standard Analyses”, which is the recommended procedure, provides the user with the complex, intermediate and parsimonious solutions.²³ The output includes measures of coverage and consistency for each solution term and for the solution as a whole.

“Consistency measures the degree to which membership in each solution term is a subset of the outcome” (Ragin, 2008a, p. 86). In the simplest terms, low consistency means that there is no subset relation between a combination of case aspects and the outcome. As with the assessment of the consistency of truth table rows, scores closest to “1” represent the strongest connection (Epstein *et al.*, 2008, p. 79).

“Coverage measures the proportion of memberships in the outcome that is explained by the complete solution” (Ragin, 2008a, p. 86). Very low coverage scores indicate that even if a causal configuration is consistent with the outcome, it is substantively trivial. Coverage and consistency often are inversely related to one another, because very par-

ticular or exact explanations (which may be highly consistent) tend to be less representative.

“Raw coverage” measures the proportion of memberships in the outcome explained by each term of solution, while “unique coverage” measures the proportion of memberships in the outcome explained solely by each individual solution term (i.e., memberships that are not covered by other solution terms; Ragin, 2008a, p. 86).

8. Findings

In the following, we will present the results of the empirical analysis of the necessary and the sufficient conditions for the presence of a strong reduction of temporary EP.²⁴

8.1 Necessary conditions for the outcome “strong reduction of temporary EP”

A condition can be considered as necessary when it is always present when the outcome is present. Schneider and Wagemann (2007a, p. 213) recommend considering conditions to be necessary only if their consistency scores are very high. Table 3 displays the results of the analysis of the necessary conditions for the outcome “strong reduction of temporary EP”. As the consistency scores are rather low, no condition can be considered necessary for the presence of a strong reduction of temporary EP. An exception is *Activation* (AC) with a consistency score of 0.81.²⁵

Table 3: Analysis of the necessary conditions for the outcome “strong reduction of temporary EP”

Condition tested	Consistency	Coverage
WU	0.61	0.61
LG	0.61	0.42
UB	0.67	0.65
AC	0.81	0.54
SG	0.60	0.57
IS	0.72	0.46

Note: Capital letters indicate the presence of a concept, i.e., UB indicates a high generosity of unemployment benefits.

Source: Own calculations.

8.2 Sufficient conditions for the outcome “strong reduction of temporary EP”

Whereas a cause is defined as necessary if it must be present for an outcome to occur, it is defined as sufficient if by itself it can produce a certain outcome. Table 4 displays the results of the analysis of the sufficient conditions for the outcome “strong reduction of temporary EP”. Three (intermediate) solutions lead to an EP reduction:

- (a) A combination of low globalisation and a preference for job security with right-wing governments and weak labour unions,
- (b) Strong left-wing governments combined with strong globalisation, generous unemployment benefits and a strong activation of the unemployed, and
- (c) A population that considers job flexibility to be important combined with a strong globalisation, generous unemployment benefits and a strong activation of the unemployed.

The overall consistency of the solution is 0.91. This is a high consistency level and shows that our solution can explain the reduction of the strictness of temporary EP to a large extent. Solution (a) has a raw coverage of 0.42 and a unique coverage of 0.29. The consistency level accounts for 0.91. Solution (b) has a raw coverage of 0.24, a unique coverage of 0.03 and a consistency level of 0.88. Solution (C) has a raw coverage of 0.36, a unique coverage of 0.18 and a consistency level of 0.92.

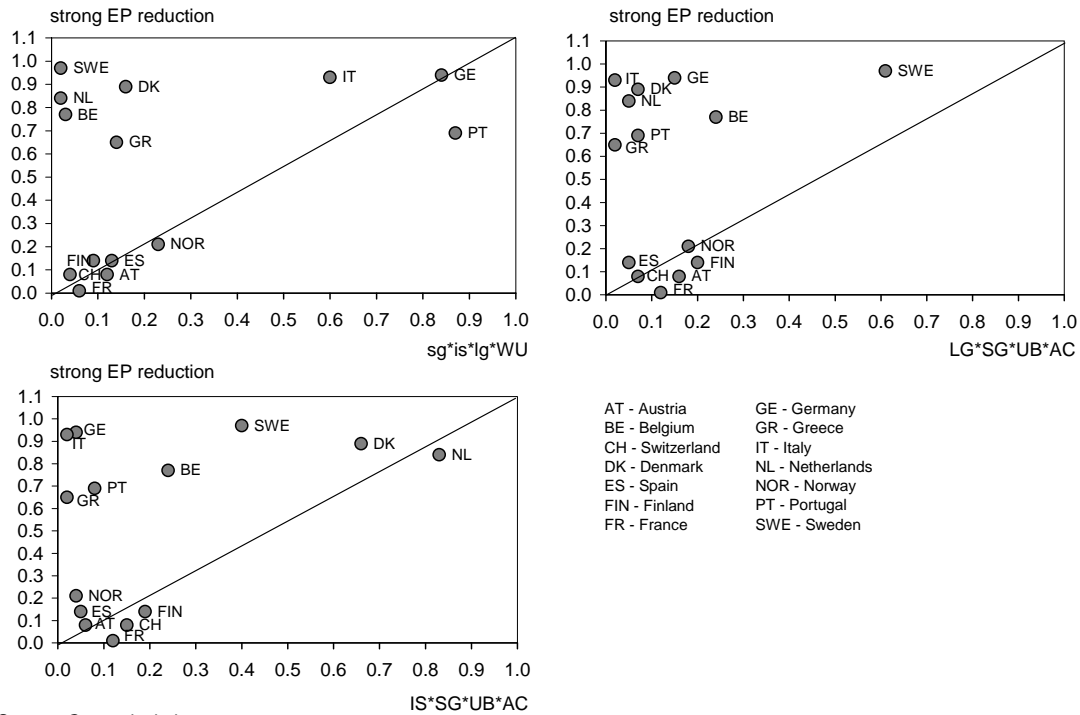
Table 4: Three causal pathways to “strong reduction of temporary EP”

	Coverage		Consistency
	Raw	Unique	
(a) sg*is*lg*WU	0.42	0.29	0.91
(b) LG*SG*UB*AC	0.24	0.03	0.88
(c) IS*SG*UB*AC	0.36	0.18	0.92
Solution coverage: 0.72 Solution consistency: 0.91			
Note: The frequency cutoff was set at 1.00 and the consistency cutoff was 0.89.			

Source: Own calculations.

Figure 4 shows three scatterplots, each with fuzzy EP reduction scores on the Y axis and one of the three solutions from Table 4 on the X axis. Every country is coded as its own fuzzy set for its membership in the three combinations of conditions. Each country’s score in each combination is determined by its weakest membership in the conditions that constitute the configuration (for further details see Rihoux and Ragin 2009).²⁶ We recognise that most of the cases (countries) are located above the diagonal line. Perfect causal sufficiency (consistency = 1.00) would, however, be in evidence if every case were located above the diagonal. Only then would fuzzy-set scores of the outcome be higher than the fuzzy-set scores of the combinations of conditions. Consequently a condition can be considered as sufficient. That is the case for our three configurations. No country lies far below the line (with Portugal being a borderline case in solution (a)).

Figure 4: "Strong reduction of temporary EP" by causal configurations



Source: Own calculations.

Cases above the diagonal line should be located close to the diagonal line. If this were the case, a perfect correspondence between cause and outcome would exist and the reduction of temporary EP would be explained quite well by the relevant solution. Figure 4 shows that all countries are covered by their best solution.

The scatterplots show us that configuration (a) fits best to Germany, Greece, Italy, Norway, Portugal and Spain. They receive higher scores for configuration (a) than for the other configurations. For Germany, Italy and Portugal the scores in configuration (a) are quite high, which implies that the degree of membership in this configuration is high.²⁷ This is not the case for Greece, Norway and Spain.²⁸ Focusing on the first three countries we identify important rigidities. Globalisation of their economies is relatively low (see Figure A1). The need for structural adjustments is therefore not as strong as in other European countries. The population is not in favour of labour market flexibility. A reduction of temporary EP strictness was, however, possible because unions are weak and did not oppose EP reforms at the margin effectively. Most EP reductions were executed by right-wing governments. In Germany FTCs were liberalised under the Kohl

government in 1997. In Italy the constraints imposed on FTCs were reduced in 2001 under Berlusconi. In Portugal right-wing governments enforced EP reforms in 2004. Some EP reductions were, however, implemented by left-wing governments. This was the case in Italy in the second half of the nineties and in Germany under the SPD-Green coalition of Chancellor Schröder after 2002 (Table 5).

Table 5: Sufficient conditions for the outcome “strong reduction of temporary EP” by country

	Countries
(a) sg*is*lg*WU	Germany, Greece, Italy, Norway, Portugal, Spain
(b) LG*SG*UB*AC	Austria, Finland, Sweden
(c) IS*SG*UB*AC	Denmark, Netherlands, Switzerland
Note: It has been shown in the text that the above-mentioned conditions cannot be considered sufficient for some countries. Belgium and France reach their highest scores for two of the three solutions (for configurations (b) and (c)). There is no single solution which suits them best. That is why they are not included.	

Source: Own calculations.

Configurations (b) and (c) appear likely to have been the key to a reduction of temporary EP in more flexible countries. The first group consists of Austria, Finland and Sweden. Denmark, the Netherlands and Switzerland belong to the second group. These countries receive higher scores for their configurations (b) and (c) than for configuration (a). The scores are especially high for Sweden, Denmark and the Netherlands which experienced a strong reduction in the strictness of temporary EP since 1985 (Figure 4). High scores imply a high degree of membership in configurations (b) or (c). In these economies globalisation is strong and the need for flexible adjustments high. Insider resistance to EP reforms at the margin is overcome by offering high unemployment benefits and by activating the unemployed with the aim of reintegrating them into the labour market. In Sweden left-wing governments have been a further causal condition for EP reduction. In Denmark and the Netherlands the positive perception of labour market flexibility on the part of the population has played a positive role (Table 5). This perception is an important prerequisite for successful reforms in both countries because reforms traditionally cannot be implemented without the approval of social partners (for more country-specific information on EP reform processes see Ochel, 2009).

In summary, the results of our analysis are consistent with the social policy models according to Boeri (2002). In the Mediterranean countries (Greece, Italy, Portugal and Spain), all grouped in configuration (a), the population is not in favour of labour market flexibility but labour unions have been too weak to resist EP reforms at the margin. The second large group consists of the Nordic Countries (Denmark, Finland and Sweden) plus the Netherlands, grouped in configurations (b) and (c). These countries are known for their high levels of social protection expenditures (unemployment benefits in our analysis) and an active intervention in labour markets.

9. Conclusions

Since the mid-1980s European countries have reduced the strictness of EP for temporary contracts. Fuzzy-set qualitative comparative analysis, used in this article, allows us to identify multiple pathways to this outcome. It has been shown that the Mediterranean countries Greece, Italy, Portugal and Spain as well as Germany and Norway face rigidities. Globalisation of their economies is relatively low and the population is not in favour of labour market flexibility. Nevertheless governments have been successful in realizing EP reforms at the margin because unions are weak and have not opposed these reforms effectively. Most EP reductions were executed by right-wing governments but some were implemented by left-wing governments. The role of governments in implementing two-tier EP reforms is ambiguous and should be analysed in more depth in the future.

In the Scandinavian countries as well as in Austria and Switzerland globalisation is strong and the need for flexible adjustments is high. A high generosity of unemployment benefits and the activation of the unemployed have reduced resistance of incumbent workers to EP reforms at the margin. In Sweden, Austria and Finland left-wing governments have supported the reduction of temporary EP strictness. In Denmark and the Netherlands the positive perception of job flexibility, which determines the social

dialogue, has helped to implement EP reforms at the margin. In Switzerland the perception of the job flexibility has played a less positive role.

The overall consistency of the solution is at 0.91. This is a relative high consistency level and shows that our solution can explain the reduction of temporary EP strictness to a large extent. The solution coverage is at 0.72.

Our analysis has limitations. It most probably suffers from the neglect of variables in our model. Furthermore fuzzy-set QCA is faced with the small-N problem. With a relatively small number of cases (14), only a limited number of causal conditions has been included in our analysis. Only part of all logically possible combinations of causal conditions relevant to our argument have been taken into consideration. Hence, we have attained results that should not be used mechanically but only with the application of theoretical and case knowledge.

References:

- Alesina, A. and Drazen, A. (1991) "Why are Stabilizations Delayed?" *American Economic Review*, **81**, 1170-88.
- Allard, G. (2005) *Measuring the Changing Generosity of Unemployment Benefits: Beyond Existing Indicators*, IE Working Paper WP 05-18, Madrid, Instituto de Empresa Business School.
- Armingeon, K., Engler, S., Gerber, M., Leimgruber, P. and Beyeler, M. (2009) *Comparative Political Data Set 1960-2007*, Institute of Political Science, University of Berne.
- Bassanini, A., Nunziata, L. and Venn, D. (2009) "Job Protection Legislation and Productivity Growth in OECD Countries", *Economic Policy*, **58**, 349-402.
- Boeri, T., Conde-Ruiz, J.I. and Galasso, V. (2003) *Protection Against Labour Market Risk: Employment Protection or Unemployment Benefits?*, IZA Discussion Paper No. 34, Bonn, Institute for the Study of Labor.

- Boeri, T. (2002) "Let Social Policy Models Compete and Europe Will Win", paper presented at a Conference hosted by the Kennedy School of Government, Harvard University, 11-12 April 2002.
- Botero, J.C., Djankov, S., La Porta, R., Lopez-de-Silanes, F. and Shleifer, A. (2004) "The Regulation of Labor", *Quarterly Journal of Economics*, **119**, 1139-1182.
- Byrne, D. (2002) *Interpreting Quantitative Data*, London, Sage Publications.
- Castanheira, M., Galasso, V., Carcillo, S., Nicoletti, G., Perotti, E. and Tsyganok, L. (2006) "How to Gain Political Support for Reforms". In Boeri, T., Castanheira, M., Faini, R. and Galasso, V. (eds.) *Structural Reforms without Prejudices*, Oxford, Oxford University Press, pp. 141-296.
- Dewatripont, M. and Roland, G. (1992) "Economic Reform and Dynamic Political Constraints", *Review of Economic Studies*, **59**, 703-30.
- Dreher, A. (2007) "Does Globalization Affect Growth? Evidence from a New Index of Globalization", *Applied Economics*, **38**, 1091-1110.
- Emmenegger, P. (2009) *Regulatory Social Policy, The Politics of Job Security Regulation*, Bern, Haupt Verlag.
- Epstein, J., Duerr, D., Kenworthy, L. and Ragin, C.C. (2008) "Comparative Employment Performance: A Fuzzy-Set Analysis". In Kenworthy, L. and Hicks, A. (eds.) *Method and Substance in Macro-Comparative Analysis*, Basingstoke, Palgrave Macmillan, pp. 67-90.
- Fernandez, R. and Rodrik, D. (1991) "Resistance to Reform: Status Quo Bias in the Presence of Individual Specific Uncertainty", *American Economic Review*, **81**, 1146-55.
- Fischer, J.A.V. and Somogyi, F. (2009) "Globalization and Protection of Employment", *KOF Working Papers* No. 238, Zurich, Swiss Federal Institute of Technology Zurich.
- Häge, F.M. (2007) "Constructivism, Fuzzy Sets and (Very) Small-N: Revisiting the Conditions for Communicative Action", *Journal of Business Research*, **60**, 512-521.
- Henisz, W.J. (2000) "The Institutional Environment for Economic Growth", *Economics and Politics*, **12**, 1-31.
- Hudson, J. and Kühner, S. (2009) "Towards Productive Welfare? A Comparative Analysis of 23 OECD Countries", *Journal of European Social Policy*, **19**, 34-46.

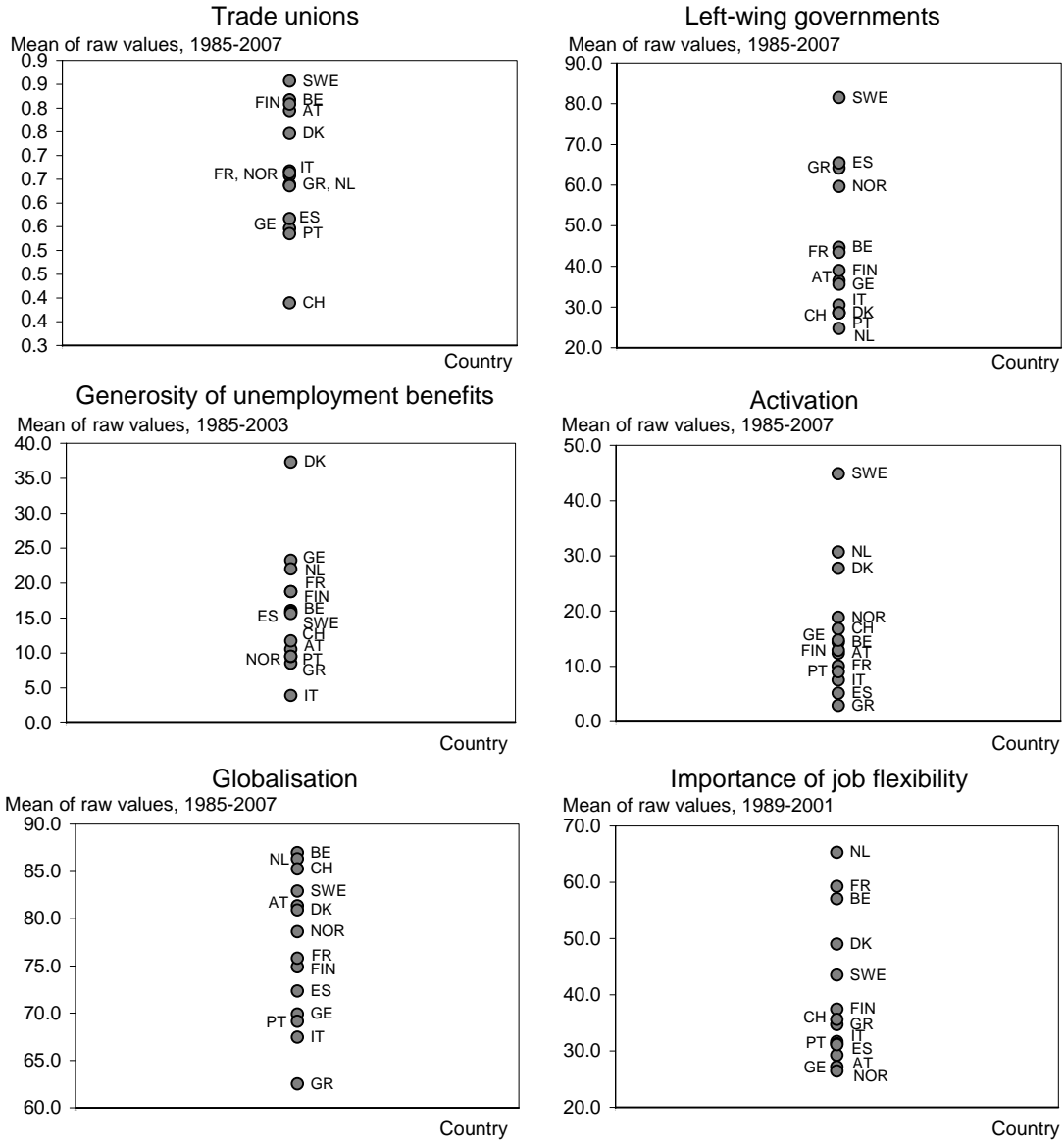
- Lee, S.S. (2008) *A Critique of the Fuzzy-set Methods in Comparative Social Policy: A Critical Introduction and Review of the Applications of Fuzzy-set Methods*, COMPASS Working Paper WP2008-53 accessed at <http://www.compass.org/pages/welcome.html> on March 04, 2010.
- Ochel, W. (2009) "The Political Economy of Two-tier Reforms of Employment Protection in Europe", *The International Journal of Comparative Labour Law and Industrial Relations*, **25**, 237-260.
- OECD (2004) *Employment Outlook*, Paris.
- OECD (2009a) "Indicators of Employment Protection", accessed at www.oecd.org/employment/protection on March 15, 2010.
- OECD (2009b) "Tax-Benefit-Models", accessed at <http://www.oecd.org/dataoecd/25/31/34008592.xls> on March 15, 2010.
- OECD (2009c) "Labour Market Programmes, Public Expenditures and Participation Stocks on LMP", accessed at <http://stats.oecd.org/index.aspx?r=642225> on January 21, 2010.
- OECD (2009d) "Labour Force Statistics, Main Economic Indicators", accessed at <http://stats.oecd.org/index.aspx?r=585841> on January 21, 2010.
- Pajunen, K. (2008) "Institutions and Inflows of Foreign Direct Investment: a Fuzzy-set Analysis", *Journal of International Business Studies*, **39**, 652-669.
- Ragin, C.C. (1987) *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategy*, Berkeley, CA, University of California Press.
- Ragin, C.C. (2000) *Fuzzy-Set Social Science*, Chicago, University of Chicago Press.
- Ragin, C.C. (2008a) *User's Guide to Fuzzy-Set/Qualitative Comparative Analysis 2.0*, Tucson, Arizona, Department of Sociology, University of Arizona.
- Ragin, C.C. (2008b) *Redesigning Social Inquiry, Fuzzy Sets and Beyond*, Chicago, The University of Chicago Press.
- Rihoux, B. and Ragin, C.C. (2009) *Configurational Comparative Analysis*, Thousand Oaks, Sage Publications.
- Ross, F. (2000) "Beyond Left and Right: The New Partisan Politics of Welfare", *Governance: An International Journal of Policy and Administration*, **13**, 155-183.

- Saint-Paul, G. (1996) *Dual Labor Markets: A Macroeconomic Perspective*, Cambridge, Ma, London, The MIT Press.
- Saint-Paul, G. (2000) *The Political Economy of Labour Market Institutions*, Oxford, New York, Oxford University Press.
- Sapir, A. (2006) “Globalization and the Reform of European Social Models”, *Journal of Common Market Studies*, **44**, 369-390.
- Schneider, C. and Wagemann, C. (2004) “The Fuzzy-Set/QCA Two-Step Approach to Middle-Range Theories“, paper presented at the Annual Meeting of the American Political Science Association (APSA), Chicago, 2.-5. September 2004.
- Schneider, C. and Wagemann, C. (2006) „Reducing Complexity in Qualitative Comparative Analysis (QCA): Remote and Proximate Factors and the Consolidation of Democracy“, *European Journal of Political Research*, **45**, 751-786.
- Schneider, C. and Wagemann, C. (2007a) *Qualitative Comparative Analysis (QCA) and Fuzzy Sets, Ein Lehrbuch für Anwender und jene, die es werden wollen*, Opladen and Framington Hills, Verlag Barbara Budrich.
- Schneider, C. and Wagemann, C. (2007b) *Standards of Good Practice in Qualitative Comparative Analysis and Fuzzy-Sets*, COMPASS Working Paper WP2007-51 accessed at <http://www.compass.org/pages/welcome.html> on March 04, 2010.
- Venn, D. (2009) *Legislation, Collective Bargaining and Enforcement: Updating the OECD Employment Protection Indicators*, OECD Social, Employment and Migration Working Papers No. 89, Paris.
- Vis, B. (2007) “States of Welfare or States of Workfare? Welfare State Restructuring in 16 Capitalist Democracies, 1985–2002”, *Policy & Politics*, **35**, 105-122.
- Visser, J. (2009) “The ICTWSS Database: Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 countries between 1960 and 2007”, accessed at <http://www.uva-aias.net/208> on March 05, 2010.
- World Value Survey (2009) accessed at <http://www.worldvaluessurvey.org/> on January 21, 2010.

ANNEX

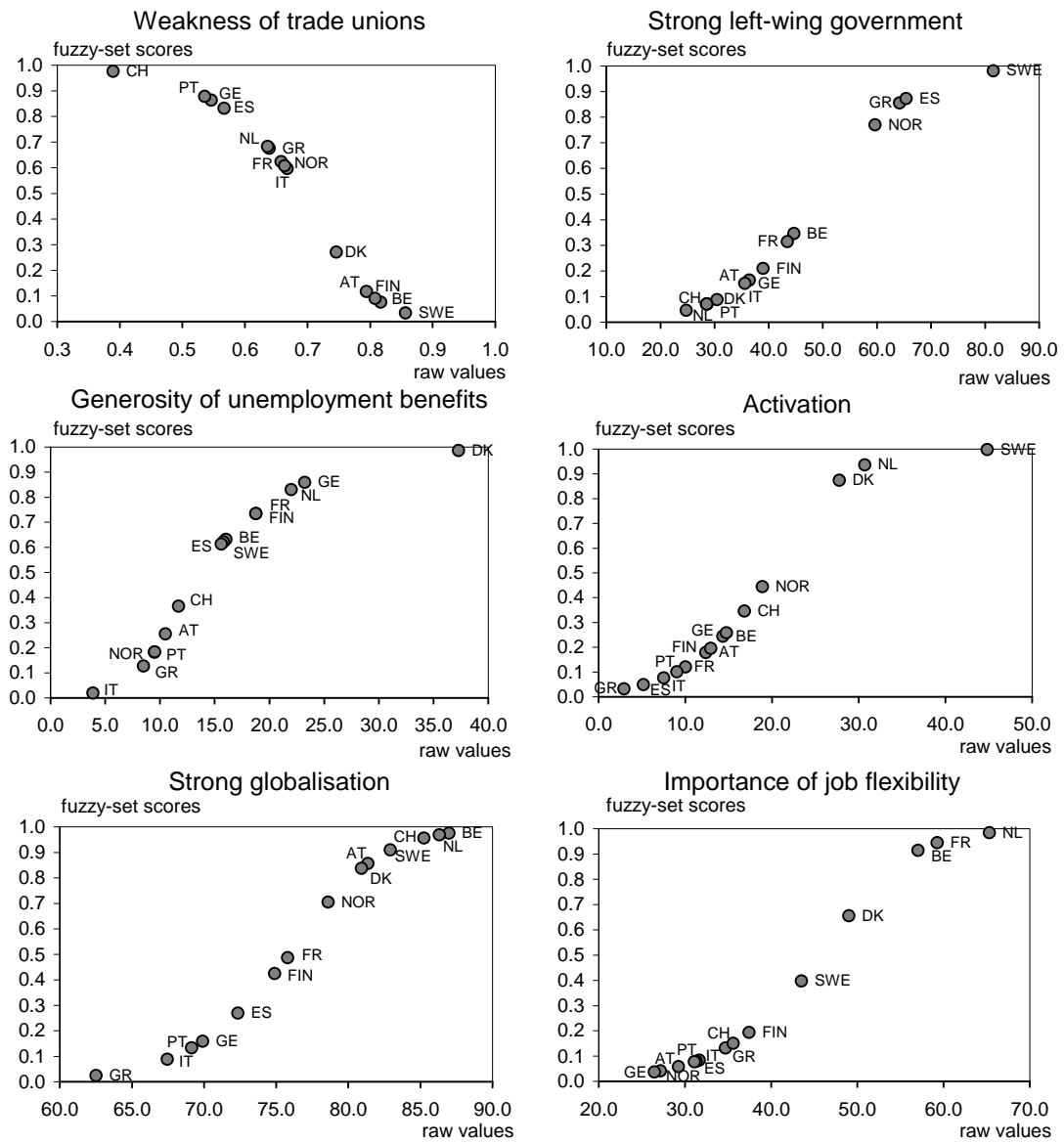
A. Figures

Figure A1: Raw values for causal conditions



Note: Descriptions of the original variables and data sources are in the text. For country abbreviations see Figure 4.
 Source: Own calculations.

Figure A2: Causal condition fuzzy-set scores by raw values



Note: Descriptions of the original variables and data sources are in the text. For country abbreviations see Figure 4.
 Source: Own calculations.

B. Analysis for the outcome “weak reduction of temporary EP”

B1. Necessary conditions for the outcome “weak reduction of temporary EP”

The results of the analysis of the necessary conditions for the outcome “weak reduction of temporary EP” are shown in Table B1. The causal condition “activation” seems to be necessary because of the high consistence value of 0.86. The other consistency scores are below 0.86 and cannot be considered as necessary conditions for the outcome “weak reduction of temporary EP”.

Table B1: Analysis of necessary conditions for the outcome “weak reduction of temporary EP”

Condition tested	Consistency	Coverage
wu	0.57	0.57
lg	0.71	0.52
ub	0.65	0.63
ac	0.86	0.63
sg	0.53	0.49
is	0.80	0.58

Note: Small letters indicate the absence of a concept, i.e., ub indicates little generosity of unemployment benefits.

Source: Own calculations.

B2. Sufficient conditions for the outcome “weak reduction of temporary EP”

Table B2 displays the results of the analysis of the sufficient conditions for the outcome “weak reduction of temporary EP”. Four (intermediate) solutions lead to the absence of an EP reduction:

- (a) A combination of strong trade unions, right-wing governments, a low degree of globalisation and a lack of activation,
- (b) High importance attributed to job flexibility combined with right-wing governments, a low degree of globalisation and a lack of activation,

(c) Low unemployment benefits combined with a preference of job security, a high degree of globalisation and a lack of activation,

(d) High unemployment benefits combined with a preference for job security, left-wing governments, a low degree of globalisation and a lack of activation.

The overall consistency of the solution is 0.91. The causal condition “activation” is included in all pathways. Our presumption of section B1 is therefore confirmed.

Table B2: Four causal pathways to “weak reduction of temporary EP”

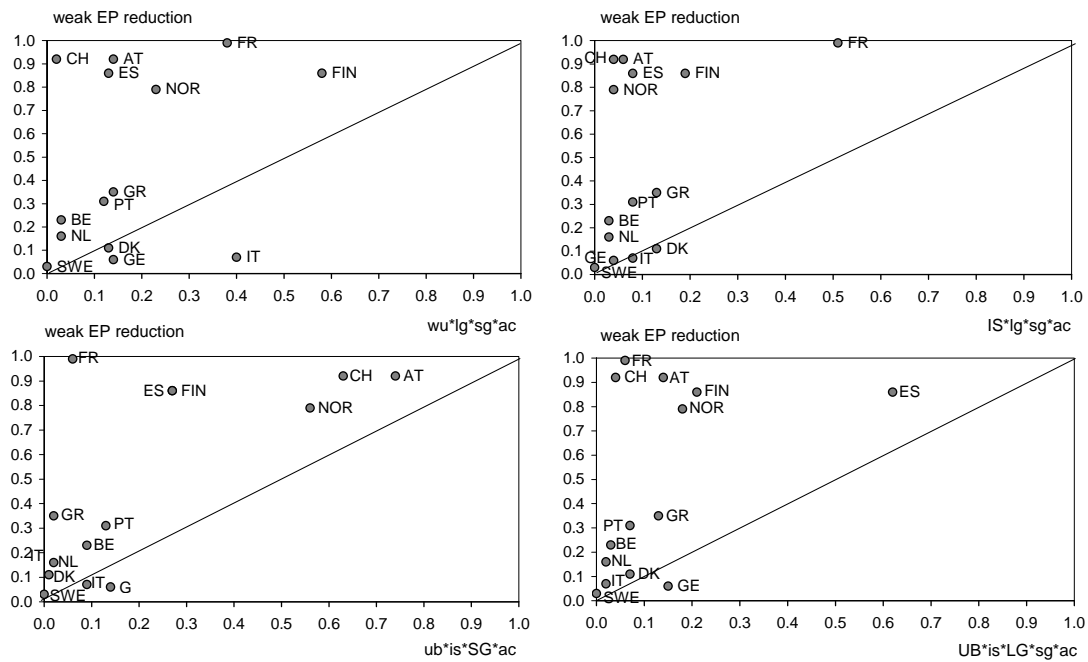
	Coverage		Consistency
	Raw	Unique	
(a) $wu*lg*sg*ac$	0.31	0.05	0.83
(b) $IS*lg*sg*ac$	0.21	0.02	0.98
(c) $ub*is*SG*ac$	0.44	0.24	0.97
(d) $UB*is*LG*sg*ac$	0.25	0.05	0.95
Solution coverage: 0.64 Solution consistency: 0.91			
Note: The frequency cutoff was set at 1.00 and the consistency cutoff was 0.94.			

Source: Own calculations.

Figure B1 shows four scatterplots, each with fuzzy-set scores for the absence of EP reduction for temporary contracts on the Y axis and one of the four solutions from Table B2 on the X axis. We recognise that most of the cases are located above the diagonal line. But there is one exception: Italy in configuration (a). In this case the conditions cannot be considered sufficient.

Cases above the diagonal line should be located close to it. If this were the case, a perfect correspondence between cause and outcome would exist. Figure B1 shows that all countries are covered by their best solution. The scatterplots show us that configuration (a) fits best to Finland, Greece and Italy. They obtain higher scores for configuration (a) than for the other configurations. Configuration (b) fits France best. Configuration (c) consists of Austria, Belgium, Norway, Portugal and Switzerland. Germany and Spain belong to configuration (d). Denmark and the Netherlands reach their highest scores for two solutions (configurations (a) and (b)). Sweden reaches its highest score for all four solutions. There is no single solution which suits best.

Figure B1: "Weak reduction of temporary EP" by causal configurations



Note: Descriptions of the original variables and data sources are in the text. For country abbreviations see Figure 4.
Source: Own calculations.

¹ See, e.g., Bassanini *et al.*, 2009.

² We include in our analysis the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. The middle and eastern European countries are excluded because of insufficient data availability.

³ Ireland and the United Kingdom are not included in our analysis due to low values on temporary EP in 1985, which limited the scope for a reduction of their strictness of EP. Of the remaining 14 countries Austria, France and Switzerland did not reduce the strictness of temporary EP between 1985 and 2008. The fact that these countries did not reduce their EP strictness does not exclude them from the analysis, because they might have reduced, but simply “chose” not to do so. Having good negative cases (which are also candidates for change, i.e., our three cases) increases the grounds for making claims of sufficiency (for more details on sufficiency see section 4).

⁴ In Section 3 we explained that policy constraints may have an impact on EP reduction. We, however, exclude this indicator from our analysis because we determined that it did not have this impact in our context.

⁵ With the calibration of fuzzy-sets a bridge between the two approaches of qualitative and quantitative measures is built. Fuzzy-sets are simultaneously qualitative and quantitative. “Full membership and full non-membership are qualitative states. In between these two qualitative states are varying degrees of membership ranging from more out (closer to 0.0) to more in (closer to 1.0)” (Ragin, 2008b, p. 82).

⁶ For further details on the indirect method, see Ragin, 2008b, pp. 94–97.

⁷ The procedure for calibrating fuzzy-set scores presented here is mathematically incapable of producing set membership scores of exactly 1.0 and 0.0. These two membership scores would correspond to positive and negative infinity, respectively, for the log of the odds. Instead, scores that are greater than 0.95 may be interpreted as full membership in the target set, and scores that are less 0.05 may be interpreted as full non-membership (Ragin, 2008b, p. 88).

-
- ⁸ We use as our outcome variable the rate of change of temporary EP in order to take into account that countries faced different levels of temporary EP in 1985 and that their scope for a reduction of temporary EP was different. But that does not mean that for countries with a high value of temporary EP it was easier to reduce the strictness of temporary EP because a high value indicates that strong impediments have prevented a reduction of the strictness of temporary EP up to that time.
- ⁹ Although Finland, Spain and Norway have reduced their strictness of temporary EP we decided that these countries are more out than in the set of countries which have reduced the strictness of temporary EP.
- ¹⁰ The rescaling method is described in detail in Ragin (2008b).
- ¹¹ Net union membership is the total union membership minus union members outside the active, dependent and employment labour force (i.e., retired workers, independent workers, students and unemployed). See Visser (2009, p. 15).
- ¹² If bargaining unions can articulate their ideas on temporary work and temporary agency work precisely and determine the content of individual contracts. The legislator cannot overlook these facts.
- ¹³ The mean captures to what extent a left-wing government was in power during the period under consideration. EP reforms are attributed to this mean. But even when high raw values indicate the dominance of left-wing governments it is possible that the reforms were implemented by a right-wing government which was in power only for a short time. This example shows that the use of the mean implicates classification problems. This fact is valid for all causal conditions.
- ¹⁴ An alternative to Allard is the OECD summary measure of gross unemployment benefit replacement rates (OECD, 2009b). The tax treatment of wages and unemployment benefits is not captured by gross rates. Taxes may, however, alter the net replacement rate and have an impact on the workers' decision whether or not to work.
- ¹⁵ A note has to be made for Norway: The unemployment benefit indicator yields low values for Norway compared with the other northern countries. This is because "Norway is a model of all-round strictness: the unemployed must generally accept shift and night work, be prepared to work anywhere in Norway ..., must be ready to accept any job they can do without reference to their previous occupation or wage level, and cannot refuse a job on religious or ethical grounds" (Allard, 2005, p. 17).
- ¹⁶ For a detailed description of the index see Dreher (2007).
- ¹⁷ For the calculation of the mean for *low importance of job security* we used only the first answer-option in the survey.
- ¹⁸ For conducting the fs/QCA we use the software program fs/QCA 2.0, accessed at <http://www.u.arizona.edu/~cragin/fsQCA/software.shtml> on March 15, 2010.
- ¹⁹ When the total N (number of cases) is relatively small, the frequency threshold should be 1 or 2. When the total N is large, a more substantial threshold should be used (Ragin, 2008a, pp. 77-78).
- ²⁰ The consistency ("Consist") score for a configuration is a measure of this subset relationship. It is thus a measure of the extent to which membership strength in the outcome set is consistently equal to or greater than membership in the causal configuration. For each configuration (row in the truth table), minimum membership scores (causal combination versus outcome) are added for all cases. This number is divided by the sum of all minimum membership scores in the causal combination. Formally, the calculation is: $\text{Consistency}(X_i < Y_i) = \frac{\sum (\min(X_i, Y_i))}{\sum (X_i)}$. When membership in outcome Y is less than membership in causal configuration X, the numerator will be smaller than the denominator and the consistency score will decrease. Consistency scores range from 0 to 1, with 0 indicating no subset relationship and a score of 1 denoting a perfect subset relationship (Rihoux and Ragin, 2009, p. 108).
- ²¹ Consistency values below 0.75 indicate substantial inconsistency (Rihoux and Ragin, 2009, p. 118).
- ²² In our analysis we select a frequency threshold of 1 and a consistency threshold of 0.85.
- ²³ In the complex solution all remainders are set to false. In the parsimonious solution any remainder is used that will help to generate a logically simpler solution, without any evaluation of its plausibility. In the intermediate solution only remainders are allowed that make sense given the researcher's substantive and theoretical knowledge. Remainders are combinations of causal conditions which are never almost present in the empirical world. Remainders are configurations with no cases in the data set.
- ²⁴ See annex for the empirical analysis of the outcome "weak reduction of temporary EP".
- ²⁵ In order to be a necessary condition *Activation* has to be always present when the outcome occurs. That is not the case as will be shown in section 8.2.

-
- ²⁶ The minimum membership score indicates the degree of membership of a case in a combination of sets. Its use follows “weakest link” reasoning. For example, if a country’s membership in the set of poor countries is 0.7 and its membership in the set of democratic countries is 0.9, its membership in the set of countries that are both poor and democratic is the smaller of these two scores, 0.7. A score of 0.7 indicates that this case is more in than out of the intersection (Rihoux and Ragin, 2009, p. 96).
- ²⁷ To define the best solution for each country we used the maximum of a case’s membership across the three solution terms: $sg*is*lg*WU$, $LG*SG*UB*AC$ and $IS*SG*UB*AC$.
- ²⁸ Note that when membership in the causal combination is high, membership in the outcome also must be high. However, the reverse does not have to be true. That is, the fact that there are cases with relatively low membership in the causal combination but substantial membership in the outcome is not problematic from the viewpoint of set theory because the expectation is that there may be several different causal conditions or combinations of causal conditions capable of generating high membership in the outcome. Cases with low scores in the causal condition or combination of conditions but high scores in the outcome indicate the operation of alternate causal conditions or alternate combinations of causal conditions (Rihoux and Ragin, 2009, p. 102).