

The Diversity and Causality of Pension Reform Pathways: A Fuzzy-set Qualitative Comparative Analysis

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Abstract

Pension reform is one of the top public policy priorities in advanced industrialized countries due to population ageing and the significant weight of pension spending in governments' budgets. As a result of these concerns European countries have engaged in varying degrees of pension reforms over the last three decades. The extant literature on pension reform focuses on structural, institutional and blame avoidance theories to explain how pension reform take place. Yet, how do different conditions combine to lead to significant pension reform outcomes? To answer this question we analyze a set of 48 pension reform cases in eight European countries since the late 1980s up until 2014 by using fuzzy set qualitative comparative analysis (fsQCA). Our main finding is that institutional, structural or blame avoidance theories cannot account by themselves for instances of significant pension reform. Rather, we find three pathways that combine structural and institutional conditions to lead to significant pension reform.

Keywords: pension policy; reform; fsqca; politics; institutions

Introduction

Pension reforms implemented since the early 1990s have been far from uniform in terms of their content and direction and have attracted scholarly attention on the ways in which different socio-economic, institutional and other factors affect reform processes and outcomes. While Bismarckian pension systems have been described as “frozen landscapes” (Esping-Andersen, 1990), a term used to denote their inertia, studies have shown “elephants to be on the move” (Hinrichs, 2000). In Italy, for example, socio-economic conditions, the EMU process through its impact on debt and deficit levels, concertation with the social partners and changes in the political landscape have combined during the 1990s to open a window of opportunity, absent until that point, that allowed the intro-

duction of path-departing pension reform through the adoption of a notional defined contribution system¹ (Natali, 2004). By contrast, Greece has been unable to introduce significant pension reforms as institutional legacies have proven far stronger than the EU pressure for change, leading to path-dependent reforms (Sotiropoulos, 2004).

In the case of pension systems in central and eastern European countries Müller (1999) has shown how reform outcomes have varied as a result of the differences in the structural setting and the constellations and interactions of relevant political actors. For example, in Hungary, the economic pressures (rise in unemployment and inflation) that arose during the transition from state socialism to market economy combined with institutional factors allowed the carving-out of a second mandatory pension pillar between 1998 and 2004 (Müller, 1999). Following the 2008 crisis, the need to reduce pressure on finances and the European Commission's negative response to the Hungarian and other European countries' request to exclude transition costs of pension privatization from debt and deficit accounts, along with favorable institutional factors, led to the elimination of the second pillar (Simonovits, 2011). Other EU countries subject to adjustment programmes, such as Portugal, Greece, Cyprus, and Ireland, have witnessed during the crisis the increase of EU intrusiveness in welfare state reform (Theodoropoulou, 2014).

Motivated by the fact that significant pension reforms are potentially complex and result from the combination of different causes, we explore the conditions that must be present for significant pension reforms to occur. Our specific focus is on the impact of reforms on the architecture of the retirement system as a whole (Hinrichs and Kangas, 2003). Thus, "significant pension reform" (SPR) is defined in this paper as a reform entailing the introduction or elimination of a mandatory second pillar of private pension accounts that results in what Hall (1993) terms "paradigmatic change". Using fuzzy-set Qualitative Comparative Analysis (fsQCA) we show that significant pension reform is the result of three different pathways that combine significant unemployment with either the absence of legislative fragmentation, significant government deficit levels or a strong labor movement.

Through the analysis of pension reforms using fsQCA, we aim to contribute to the literature on the methods and approaches that can be used for the study of welfare state and pension politics while also acknowledging some of its limitations. Furthermore, we aim to show how our findings may challenge or, at least, complement, some of the assumptions of well-established theories.

The politics of pension reform

Welfare state (and pension) reforms since the mid 1980s have sparked the attention of scholars and have led to a vast literature seeking to explain the mechanisms and

content of such reforms. In terms of reform content, while initial attention focused on retrenchment (Pierson 1994, 1996) a more refined approach highlighted three dimensions of welfare restructuring: cost-containment, recalibration and recommodification (Pierson, 2001). While cost-containment is associated with cutbacks, recalibration entails updating “to adapt to changing norms and demands” and/or rationalization (“modification of programmes in line with new ideas about achieving established goals”). By contrast, recommodification focuses on enhancing active labor force participation. According to Pierson (2001) each welfare regime follows a different route in the face of intense pressures for austerity. The liberal focuses on cost-containment and recommodification, the social democratic on cost-containment and recalibration (rationalization) and the conservative on cost-containment and recalibration (updating of old programmes).

Social policy scholars have also used Hall’s framework to assess the degree of innovation introduced in specific reforms and thus the extent to which reforms affect the instruments and/or the overall logic of the system. The proposed framework distinguishes between three types of changes (Hall, 1993). The first type involves changes in the setting of instruments (such as an increase in social contributions or a decrease of benefit levels). The second type entails the introduction of new instruments, such as new rules for the calculation of benefits, while the third type (paradigmatic changes) involves the introduction of new goals. As pointed out by several scholars (Bonoli and Palier, 2007; Hinrichs and Kangas, 2003) path-dependent changes (such as second types ones) may nonetheless lead to a paradigm shift as their effects take years to materialize.

Turning to the factors driving pension reforms, the neo-functionalist approach highlights socio-economic factors like deepening economic integration, demographic pressures, and unemployment. Yet, while all Western European countries are faced with significant demographic changes, these have not translated to similar reform outcomes (cf. cases of Italy and Greece cited in the introduction). The pressure on the financing of public pension systems as a result of the industrial reconversion and the rise of unemployment has led Huber and Stephens (2001) to argue that unemployment is a stronger explanatory factor of welfare and pension reform compared to demographic change. But as their impact on the timing and extent of reforms is still debated, socio-economic changes are seen more as the triggers of reform processes in turn mediated by political-institutional factors (Rodrik, 1996; Starke, 2006). In his seminal work, Paul Pierson (1996, 2001) showed how what he terms “irresistible forces” (changes in the global economy, population ageing and the expansion of welfare states) meet with the “immovable objects” (popular support of programmes and institutional stickiness related to veto points within formal institutions and path-dependent processes) to make severe obstacles to the dismantling of the welfare state. Pierson showed that reform is possible in such

context through a strategy based on compromise and leading to the restructuring (rather than dismantling) and modernization of the welfare state. To avoid blame for unpopular policies, policymakers may resort to compensation and obfuscation strategies. For example, Bonoli and Palier (2007) highlighted the importance of sequencing such as the introduction of long-phasing in periods and the gradual shift towards funding.

Focusing on the role of institutions Bonoli (2000) explains that institutional settings that provide power concentration to the executive and fewer veto points for opponents facilitate reforms. However, he points out that the impact of political institutions is mediated by electoral results and the mobilization of strong societal groups like labor unions. Readapting the institutional approach, Immergut *et al.* (2007) explain the adoption of pension reforms despite the existence of a significant number of veto players by reference to political competition. When the latter is intense (because, for example, the electoral system provides ways for voters potentially affected by the reform to vote against the government), policy makers will either seek consensus for the proposed measures or withdraw them.

For scholars studying the role of institutions, the structure of the pension system is an equally important aspect in shaping reform outcomes. The crowding-in thesis postulates that mature Bismarckian pension systems leave little room for the development of private occupational pensions as they provide sufficient earnings-related benefits. At the same time, social partners are already involved in pension systems' administration and as such not interested in setting additional pension schemes. By contrast, Beveridge basic pension type systems are expected to provide more room for the introduction of occupational pensions (Hinrichs, 2000, Myles and Pierson, 2001). As more recent analyses have shown, reform of public pension systems has been facilitated by the introduction of occupational pensions in Bismarckian systems (Ebbinghaus, 2011). In the case of mature multi-pillar systems as those of the UK and the Netherlands, changes have been described as "path-dependent incremental adaptations to the changing socio-economic environment" (Ebbinghaus, 2011).

The power resources theory has in turn placed focus on the role of class struggle and political mobilization, usually led by strong labor unions, in the expansion of the welfare state, (O'Connor and Olsen, 1998). As rightly pointed out though, the emergence and maturation of welfare states has created at the same time groups benefiting from them such as pensioners, in addition to those associated with its expansion like political parties and workers' movements. As Pierson (1996) puts it "maturing social programs develop new bases of organized support that have substantial autonomy from the labor movement". While Pierson highlights the emergence of new beneficiaries, like the American Association of

Retired Persons, to support the decline of the role of trade unions, this does not seem to be the case in Continental Europe. On the contrary, trade unions in European countries have played an important role in negotiated reforms (social pacts) in advancing unpopular reforms through a trade-off strategy (Ebbinghaus, 2011, Natali and Rhodes, 2007). Gelepithis' (2018) study on the ways of achieving more encompassing private pensions argued that unions' demands can come about through different pathways: collective self-regulation and top-down regulation in Continental Europe; top-down regulation in Anglophone countries. Korpi and Palme (2003) have shown that partisan politics still matters in understanding welfare reform in the context of austerity. In this context, Green-Pedersen (2003) showed in his study on welfare reforms in Denmark and the Netherlands how party politics affected the establishment of broad political agreement on socioeconomic policy that also encompassed welfare state reforms.

Abou-Chadi and Immergut (2018) examine electoral competition stressing that welfare state politics now involve trade-offs between "new" versus "old" social rights (or social investment versus social consumption). Studying 10 OECD countries between 1980 to 2011 the authors find that when electoral competition intensifies left governments are willing to prioritize social investment to the expense of pension right generosity to be able to expand programmes for new social risks. Meanwhile centre-right governments avoid retrenchment on pension rights and pension expenditure. The emphasis on electoral competition allows the authors to show how parties can depart from their traditional policy positions depending on the degree of competition.

The recent crisis has also revived the interest on the role of international organizations in the pension reform process. Orenstein (2005, 2011) showed the role of international organizations (primarily the World Bank's) in the diffusion of pension privatization ideas worldwide starting in the 1990s. Other scholars (Beland, 2009, Schmidt, 2003, Schmidt and Radaelli, 2004) stressed the role of ideas in the construction of the issues and problems that enter the policy agenda, by shaping the economic and social assumptions that legitimize or challenge existing institutions and policies. Yet the influence of ideas is at most indirect in shaping national reform processes. Following the 2008 crisis, EU countries that required financial assistance, have witnessed an increase of international actors' intrusiveness. Yet, related studies have shown that the degree of intrusiveness has been far from uniform (Hick, 2017, Theodoropoulou, 2014). For the rest of the EU countries the need to abide by the new economic governance framework puts further pressure on member states and prohibits reforms with a negative impact on debt and deficit levels.

To sum up, there seem to be three broad hypotheses on pension reform coming out from theoretical approaches that have focused on structural factors, class struggles and institutions:

H1: Following the analyses on structural and socio-economic conditions, significant pension reforms are expected in situations in which a country faces negative socio-economic conditions such as high unemployment and weak government finances.

H2: The expectation of the institutional analyses is that a strong government and a weak labor movement should make significant pension reforms more likely. This also aligns with the expectation of the power resource theory.

H3: By contrast, the literature on the “new politics of the welfare state” expects significant pension reforms to be easier in settings where there is a weak government and a weak labor movement as it could be easier to “hide” and “distribute” the blame for cost-cutting significant pension reform.

The above review on welfare and pension reform suggests that pension reform processes are complex phenomena affected by the interaction of socio-economic, institutional, and political mobilization conditions. Significant pension reform is expected to be met in different ways as a result of the different socio-economic and institutional context in which they take place and in which party politics may differ. So far, comparative studies have been good in describing how different conditions may combine to explain significant reform. Nonetheless these analyses tend to be highly descriptive and focused on few cases. Against this background, we aim to account for the possible multiple causes that may combine in different ways to explain pension reform in a more systematic way.

Research design, method and data

As pension reforms are complex phenomena and as such are expected to be met in different ways, we analyze them using Fuzzy Set Qualitative Comparative Analysis. Fuzzy set Qualitative Comparative Analysis (fsQCA) has been proposed by many scholars in public policy analysis as an alternative to case-oriented and quantitative regression-based approaches, as it can handle research designs with a relatively small number of observations while still providing parsimonious results and acknowledging the complexity of each case (Rihoux and Ragin, 2009). Critically for our research, fsQCA assumes cases as combinations of different values for the outcome of interest and the causal conditions. fsQCA can also account for *causal complexity*, which is given by the fact that a combination of different causes may lead to an outcome of interest (Ragin, 2000, Ragin, 2008, Rihoux and Ragin, 2009). Furthermore, fsQCA can account for *equifinality*, i.e. a situation in which an outcome may follow from different combinations of causal conditions, that is, from different causal “recipes” (Ragin, 2008, p.23). Causal complexity and equifinality are important aspects

to be considered when comparing cases of pension reforms as it has been shown that they are likely to be the result of complex combinations of conditions (Gelepithis, 2018). Yet, as pointed out by Rihoux and Ragin (2009), fsQCA does not make a statement on the causal process but rather on the causes or combination of them that must be present for an outcome to occur. It is then up to the investigator to use substantive knowledge on each case to identify the causal mechanism at play.

In contrast to quantitative regression-based techniques, fsQCA is grounded in set theory. Cases are understood as combinations of different set theoretic values for the outcome of interest and for the causal conditions. The outcome to be explained and the different causal conditions are assumed to range from no membership to full membership in a given set condition. Full membership is denoted by a value of 1 and no membership with a value of 0. Partial membership in a set condition is denoted by a value between 1 and 0. Membership scores greater than 0.5 indicate that a case is “more in than out” in the set condition, scores close to 1 indicate that a case is “mostly in” a set condition, scores close to 0 indicate that a case is “mostly out”, and so on. Full membership (1) and full non-membership (0) are understood as qualitative states, not arbitrary values (i.e., the highest and lowest observed scores). Thus, the calibration of membership in a fuzzy set involves both quantitative and qualitative assessments and must be grounded in theoretical and substantive knowledge of the cases being analyzed (Ragin, 2008).

Once the researcher has coded all the cases as combination of values for the outcome and the causal conditions, they can be analyzed using the fsQCA software. fsQCA identifies necessary and sufficient conditions by using the concepts of sets and subsets. A necessary condition represents a condition that, if the outcome of interest is present, the condition must also be present. Thus, if a condition is necessary, it implies that it contains the outcome of interest (the outcome is a subset of the cause). If a condition (or combination of conditions) is sufficient, it means that the condition must be present for the outcome to take place. In this case, the outcome contains the cause (the cause is a subset of the outcome). fsQCA accounts for the complexity of social phenomena by identifying the different necessary conditions and the combination of different causes that may be sufficient to observe an outcome of interest (Ragin, 2008).

Cases, outcome and calibration

We look at 48 instances of pension reform in eight European countries (Greece, Germany, Hungary, Italy, the Netherlands, Switzerland, Sweden and the United Kingdom) between 1986 and 2014. From a comparative point of view the countries under study are all broadly similar in that they are all advanced industrialized and in Europe. At the same time, they belong to different “worlds of welfare capitalism” (Esping-Andersen, 1990). More importantly, the eight

countries have implemented reforms over this period that have ranged from parametric ones, where parameters of the system are changed such as the benefit indexation mechanism or the retirement age, to paradigmatic ones entailing the introduction or elimination of a mandatory second pillar of private accounts, resulting in a change of the system architecture (Immergut *et al.*, 2007). Thus, understanding the causal complexity behind instances of pension reform can yield interesting insights to understand pension reforms in other industrialized countries.

Each case is composed of a specific fuzzy set value for the outcome and the causal conditions outlined further below, which are based on the theoretical expectations analyzed in the previous section. The total number of cases is 48, which provides a good degree of analytical leverage given the variation in the causal conditions.

The outcome of interest is defined as significant pension reform (SPR). The extant literature on pension reform has distinguished between parametric and paradigmatic / structural reforms (Bonoli and Palier, 2007; Hill, 1993; Hinrichs and Kangas, 2003; Myles and Pierson, 2001; Brooks, 2009; Immergut *et al.*, 2007). Parametric reforms typically include changes such as the retirement age or the benefit indexation formula. By contrast structural reforms may include a change in the architecture of the system through the introduction of new goals such as in our case the introduction or removal of an existing pillar.

We build on this categorization to define and calibrate SPR. Namely, we define significant pension reform (SPR) as one that changes the architecture of the current system (Hinrichs and Kangas, 2003) so that the components of retirement income are altered altogether, via the introduction or elimination of a mandatory private pillar. Thus, the cut-off for determining full membership in the set of significant pension reform is given by whether a reform entails the introduction or the elimination of a mandatory private pillar. These cases are given a fuzzy set value of 1. The cut-off for non-membership in this set is given by whether a reform entails only administrative changes or benefit indexation changes. These cases are given a fuzzy set value of 0.

To further construct the remaining fuzzy set values for SPR we consider key policy components of pension reforms that may be subject to change. These include changes to: retirement age, minimum contribution levels and the funding principle. Table A1 in the online appendix summarizes the full fuzzy set calibration for the outcome. As can be seen, we do not include a 0.5 membership, which would be neither in nor outside of the set of significant pension reform. This is because, as indicated by the literature, we believe that pension reforms will always either *tend* to be of a structural or parametric nature. In fuzzy set terms, reforms with a structural tendency will be “mostly in the set” (0.75) or “in the set” (1) of significant pension reform. These cases will include instances of reforms that introduce or eliminate a mandatory pillar

(which receive a fuzzy set value of 1) or instances of reforms that change the funding principle of the first public pillar (as in Italy in 1995) or aim to increase participation in a non-mandatory private pillar: for example, via automatic enrolment as in the UK since 2008 (which receive a fuzzy set value of 0.75). The underlying logic to calibrating these reforms as “mostly significant” is that the composition of income in retirement is likely to be altered to a large extent, even if a new mandatory pillar is not introduced or eliminated. For example, in Italy future pensioners will have their pension benefit from the public pillar calculated in a new way that is likely to result in less adequate pensions than under previous rules (Natali and Rhodes, 2007). In the UK the proportion of retirement income from private pensions for future pensioners will increase to a large extent as a result of automatic enrolment and low opt-out rates (PPI, 2014). Parametric reforms will be mostly out (0.25) or definitely out of the set of significant reform (0). These will include cases of reforms that increase the retirement age or contribution levels (0.25) or instances of reforms that include administrative changes or changes to benefit indexation (0).

Causal conditions

We have selected causal conditions that take into consideration key institutional and structural socio-economic factors highlighted in the literature. Regarding institutional factors, scholars agree that the strength of key veto players in pension reforms such as the government and the labor movement may affect pension reform outcomes. Therefore, we have built two causal conditions: strong labor movement (SL) and significant legislative fragmentation (LF). To capture the expectations from structuralist and neo-functional analysis we have built two other causal conditions: significant unemployment (SU) and significant government deficit (GD). The coding and calibration of these four causal conditions are explained in the online appendix (Eurostat, 2017; Gallagher, 2017; IMF, 2017; Pensions Policy Institute – PPI, 2014; Visser, 2009, 2016).

Analysis

The fsQCA software (<http://www.compass.org>) is used to find out the conditions or combination thereof that are sufficient for the outcome to occur, i.e. conditions that must be present for the outcome to occur. This analysis involves two steps. In the first step, a ‘truth table algorithm’ (Ragin, 2005) is used to transform the fuzzy-set membership scores for each case into a truth table. This algorithm uses the direct link between the rows of the truth table and the corners of the property space, whereby the latter is the multidimensional space consisting of the logically possible combinations of causal conditions. If there are k conditions, the property space has 2^k corners. In this article, the property space has 2^4 (= 16) corners.

TABLE 1. Truth Table

Causal conditions						
LF	GD	SU	SL	Outcome SPR	<i>N</i>	Consistency
0	0	1	0	1	1	0.94
1	1	1	0	1	1	0.93
0	0	1	1	1	1	0.88
1	0	1	1	1	3	0.87
1	1	1	1	1	2	0.84
0	1	1	0	1	2	0.83
0	1	1	1	1	3	0.82
1	1	0	1	0	3	0.75
0	0	0	0	0	4	0.74
0	1	0	0	0	4	0.62
0	1	0	1	0	4	0.55
1	0	0	1	0	13	0.47
1	0	0	0	0	6	0.41
0	0	0	1	-	0	
1	0	1	0	-	0	
1	1	0	0	-	0	

In the second stage, the researcher examines the distribution of cases across the corners of the property space (the resulting rows of the truth table) and establishes the degree to which membership in a corner is a subset of the outcome – that is, to what extent a case’s placement in a specific combination of conditions is sufficient for the outcome (significant pension reform) to occur (see Ragin, 2006: 96). Table 1 Shows the resulting truth table.

In this phase, the researcher must look at the “Number” column, which indicates how many cases accord to a specific combination. The researcher must then set a frequency threshold. The present analysis uses a frequency threshold of 1. Combinations with 0 number of cases are discarded. Subsequently the researcher must look at the consistency column and decide on a threshold to set out which combinations are a subset of the outcome (sufficient) and thus will receive a value of 1 in the outcome column. Consistency ranges from 0 to 1 and it measures the degree to which a causal combination is a subset of the outcome (sufficient) (Rihoux and Ragin, 2009). In general consistency values below 0.8 denote high inconsistency (Rihoux and Ragin, 2009, p. 118). Thus, we choose a consistency cut-off of 0.8 for our analysis.

As a result of this step the software will simplify, using Boolean algebra, the combinations that are a subset of the outcome and produce a simplified solution with a number of combinations or “routes” for our outcome of interest. The software produces a complex, parsimonious and intermediate solution. In our analysis we use only the complex solution as it is the only one that does not make simplifying assumptions. Simplifying assumptions are statements

TABLE 2. fsQCA solution

	Raw Coverage	Unique Coverage	Consistency
UN* ~LF	0.459	0.038	0.837
UN*GD	0.437	0.025	0.756
UN*SL	0.500	0.088	0.816

solution coverage: 0.658solution consistency: 0.789

about the hypothetical outcome of the logical remainders, which are the combinations that may be possible but for which there are no cases. Table 2 reports the fs/QCA software solution.

The fsQCA analysis provides values of consistency and coverage for each term of the solution and for the solution as a whole. The fsQCA output also produces an estimate of coverage. Coverage indicates the proportion of membership in the outcome explained by the whole solution or by each term of the solution. As such, the coverage coefficient bears some resemblance to the R^2 (coefficient of determination) in regression analysis. The overall coverage of our model is over 0.65, which indicates that more than 65 percent of instances of the outcome are explained by the four combinations identified in the solution. The software also provides a coverage value for each combination, which includes raw and unique coverage. Raw coverage measures the proportion of memberships in the outcome explained by each term of the solution. Unique coverage measures the proportion of memberships in the outcome explained solely by each individual solution term (memberships that are not covered by other solution terms). Thus, unique coverage is always lower than raw coverage as it is a more restrictive measure.

The results indicate that significant unemployment is a necessary condition, as it features in all three combinations of causes. Thus, all instances of significant pension reform feature significant unemployment. This lends some support to the literature that focuses on structural socio-economic conditions to explain significant economic and pension reform and argues that unemployment features prominently in instances of pension reform (Huber and Stephens, 2001). The results also indicate that unemployment by itself does not lead to significant pension reform as it must be combined with other causal conditions to be sufficient for significant pension reform to occur.

Overall, the results indicate that significant pension reform is a complex phenomenon as it is present when conditions combine in different ways. The fact that unemployment must be combined with other conditions to lead to significant pension reform illustrates the concept of multiple conjunctural causation. The results also illustrate the concept of equifinality as there are three different solutions or “routes” that lead to significant pension reform.

The first solution indicates that unemployment must be combined with the absence of legislative fragmentation to lead to significant pension reform. This provides some support to institutional “veto player” analyses that argue that a less fragmented political system may be more conducive to significant reform (Natali, 2004; Orenstein, 2000). Yet it also illustrates that a strong government will be compelled to introduce a significant reform if facing a deteriorating structural economic situation marked by persistently high unemployment levels. This corroborates some scholars’ views that socio-economic changes can act as triggers to structural reforms but tend to be mediated by institutional conditions (Rodrik, 1996; Starke, 2006). The second solution illustrates the “structural economic” route to pension reform more clearly, as it combines significant unemployment with high government deficit levels. Finally, the third route illustrates that governments are successful in introducing significant pension reform when facing a strong labor movement and a deteriorating economic situation marked by high unemployment. This seems to contradict the assumptions of the power resource theory, which argued that a strong labor movement will typically resist structural reforms. Yet, when combined with a deteriorating structural economic situation, a strong labor movement may be instrumental in supporting significant reform in exchange for specific concessions (Natali and Rhodes, 2007).

How well do the three combinations identified in this analysis cover the cases of significant pension reform? To illustrate this Table 3 below shows the fuzzy scores for the outcome and the three casual combinations for each case.

Instances of the outcome (values over 0.5, indicating reforms that are mostly significant or significant) are marked in bold in the first column.² Solutions that are a subset of the outcome (sufficient) and are equal or less than the value of the outcome are also marked in bold. However, it should be noted that a high difference between the value of the outcome and a given sufficient causal combination denotes high inconsistency (Ochel and Rohwer, 2009, 23; Ragin, 2006).

In the case of the Hungarian reform of 1997 that introduced a new mandatory private pillar, we observe that this is explained by the combination of high unemployment and the absence of legislative fragmentation. This is consistent with analyses that have pointed out how, in the context of high unemployment in the 1990s as a result of the transition from state socialism to capitalism, the strong government – led by Fidesz (which had a near majority in Parliament itself) and allies – pushed for the reform as part of the package of market-oriented reforms (Müller, 1999).

In 14 out of 20 instances of the outcome we identify more than one combination as sufficient, meaning that the outcome can be explained by more than one combination. Using substantive knowledge, we can identify the

TABLE 3. Membership scores of cases

CASE	Outcome: SPR	UN* ~LF	UN*GD	UN*SL
GR1990	0.25	0.25	0.25	0.25
GR1991	0.25	0.25	0.25	0.25
GR1992	0.25	0.25	0.25	0.25
GR1999	0	1	0.75	1
GR2002	0.75	0.75	0.75	0.75
GR2008	0.25	0.25	0.25	0.25
GR2010	0.75	0.75	1	0.75
GR2011	0.25	0.75	1	0.25
GR2012	0.75	0	1	0.25
ITA92	0.75	0	0.25	0.25
ITA95	0.75	0	0.75	0.75
ITA97	0.25	0	0.75	0.75
ITA04	0.75	0	0.25	0.25
ITA09	0.25	0.25	0	0.25
ITA10	0.25	0.25	0.25	0.25
ITA11	0.75	0.25	0.25	0.25
HU97	1	0.5	0.25	0.25
HU10	0.75	0.75	0.25	0
HU11	1	0.75	0.75	0
SWE92	0	0	0	0
SWE94	1	0.25	0.25	0.25
SWE98	0.25	0.25	0	0.25
SWE01	0	0	0	0
GER97	0.75	0.25	0.25	0.75
GER98	0.75	0.25	0	0.75
GER01	0.75	0.25	0	0.25
GER04	0.75	0.25	0.25	0.75
GER07	0.25	0	0	0.25
GER09	0	0	0	0.25
SWZ94	0	0	0	0
SWZ95	0.25	0	0	0
SWZ03	0.25	0	0	0
SWZ10	0	0	0	0
NL87	0	0.25	0.25	0.25
NL92	0	0	0	0
NL94	0.75	0.25	0	0.25
NL97	0	0	0	0.25
NL04	0.25	0	0	0
NL06	0	0	0	0
UK86	0.75	0.75	0	0.75
UK95	0.25	0.25	0.25	0.25
UK99	0.75	0	0	0
UK04	0	0	0	0
UK07	0.25	0	0	0
UK08	0.75	0	0	0
UK11	0.25	0.25	0.25	0
UK13	0.25	0.25	0.25	0
UK14	0.75	0.25	0.25	0

combination of causal conditions that is more relevant for each case. In the case of the Hungarian reform of 2011, which eliminated the private pillar introduced in 1997, both the combination of significant unemployment with either the lack of legislative fragmentation or high government deficit levels are sufficient to explain this reform. While the absolute majority enjoyed by Fidesz in Parliament cannot be disregarded, scholars have pointed out how the need to reduce pressure on finances coupled with the European Commission's negative response to Hungarian and other European governments' request to exclude the transition costs of pension privatization from debt and deficit accounts led the government to eliminate the private pillar and switch those funds to the Treasury as a "quick fix" to improve its financial position (Simonovits, 2011; Datz and Dancsi, 2013). Thus the combination of significant unemployment and government deficit seems to better apply to this case.

In the case of the Greek pension reform of 2010, which changed the funding principle of the first public pillar by introducing a sustainability factor, the combination of unemployment with either the lack of legislative fragmentation or the existence of a strong labor movement are sufficient to lead to this outcome. A closer look at this case shows that majoritarian electoral rules, which provide a 50 seat bonus to the first party, played a significant role in securing Government's support in Parliament. This is consistent with analyses of this reform that showed that there was not much resistance in Parliament to support this package (Gemenis and Nezi, 2015).

The Italian pension reform of 1995 changed the benefit calculation of the first pillar by introducing a system of notional accounts where contributions will still be used to pay current pensioners; however, the benefit will now be calculated based on the amount of contributions made while working and life expectancy at retirement, among other conditions. The results show that the combination of significant unemployment with either government deficit or a strong labor movement is sufficient to explain this outcome. Yet, previous analyses have shown that negotiation with the strong labor movement (whose protests led to the resignation of the previous Berlusconi government) was key to reach a consensus for this reform. This was facilitated through specific concessions for the labor movement regarding the administration of the system and the exclusion of older workers from the reform (Natali and Rhodes, 2007).

The results in Table 3 also highlight that a combination of causes may be sufficient but highly inconsistent. For example, the UK reform of 2008 that introduced automatic enrolment into private pensions could be explained by any of the three causal combinations. However, there is maximum difference between the value of the outcome and the value of each causal combination, which denotes high inconsistency. Similarly, in the case of the Swedish reform of 1994 that introduced a mandatory private pillar, all the three combinations

are sufficient. We conclude that other combinations of causes not captured in this study may better explain this reform.

Discussion and conclusions

Pension reforms have attracted scholarly attention and have produced a vast literature based on different theories (new politics of the welfare state, power resources, structural-neofunctionalism) that has identified the factors that may be linked to significant reform. The related literature has also hinted that pension reform processes are complex and may be the result of the combination of different factors (Natali, 2004; Anderson and Immergut, 2007; Hinrichs, 2005). Yet, such analyses have tended to focus on a small number of cases and their explanations are complex.

We have used fsQCA to find out more systematic explanations on the specific combination of causes that may lead to significant pension reform. Our results show three pathways: 1) the presence of significant unemployment combined with the absence of significant legislative fragmentation; 2) the presence of significant unemployment with significant government deficit levels; and 3) the presence of significant unemployment with the presence of a strong labor movement.

Our analysis indicates that while structural socio-economic conditions (such as unemployment) may act as triggers, they need to be combined with other specific factors in order to lead to significant pension reform. Certainly, this case has been made before (Rodrik, 1996; Starke, 2006). Yet, the specific combinations of conditions found in our analysis seem to challenge or, at least complement, some of the assumptions of the main theories on pension reform processes. For example, according to the power resource theory only a weak labor movement would allow the introduction of significant pension reform. As our analysis has shown, facing significant high unemployment levels, a strong labor movement may consider lending support to the introduction of paradigmatic changes. This could be as part of a trade-off strategy. The reform adopted in Italy in 1995 (mostly significant according to our analysis) is a good example: the change in the funding principle of the first pillar from defined benefit to notional defined contribution has been made possible through a trade-off strategy between the government and trade unions, with the latter obtaining concessions such as a long phase-in period of the new system so as to protect older workers, on whose support they mainly rely (Natali and Rhodes, 2004).

Furthermore, the finding that unemployment must be combined with the absence of legislative fragmentation, puts into question some of the assumptions of the New Politics of the Welfare state literature, which argued that weak governments may be more successful at passing significant reforms by hiding the blame for their costs. By contrast, our finding seems to indicate that, facing high

unemployment levels, strong governments may have it easier to justify significant reforms. This is illustrated by the case of Hungary in 1997, where a fairly strong government introduced a mandatory private pillar as part of the package of market-oriented reforms designed to develop capital markets and address stagnant economic growth and high unemployment in the 1990s. In this way, this finding complements the insights of the “veto player” perspective (Tsebelis, 2002) which expects strong governments to be able to pass significant reforms

Finally, the expectations of structural economic theories are further complemented by our finding that the combination of significant high unemployment and government deficit levels leads to significant pension reforms. The elimination of the private pillar in Hungary in 2011 illustrates this finding, albeit we acknowledge that we arrive at this conclusion by using substantive knowledge on this case. All in all, we acknowledge the limitations in our analysis so further qualitative and quantitative research would be necessary to explore the extent to which the assumptions of well-established theories can be challenged and complemented, to better understand instances of significant pension reform.

Accounting for multiple conjunctural causation has been a significant motivation for this analysis. Indeed, our analysis has shown that pension reform is the result of the combination of different causes. However, fsQCA is just one method by which we can gain a better understanding of how different causal conditions may combine to explain complex social phenomena. Furthermore, fsQCA is not without its limitations, most notably how to consistently calibrate a complex outcome and a set of causal conditions consistently. Using cases’ substantive knowledge is key to address this major concern. We have also shown that fsQCA is not a deterministic method (Schneider and Wagemann, 2012]:316). With the introduction of parameters of fit such as consistency, we have shown that while solutions may be sufficient, they may not be consistent. This may mean that further qualitative research is needed to understand cases covered by inconsistent sufficient combinations. As we discussed in the case of the significant Swedish 1994 reform and the (mostly significant) UK 2008 pension reforms, all three solutions, while sufficient, are highly inconsistent, thus they cannot properly account for those cases.

Overall, our analysis shows that pension reform is a complex phenomenon. This is consistent with other empirical studies which have found that welfare reforms are explained by the combination of specific conditions (Vis, 2009; Gelepithis, 2018). As such, our analysis provides support and evidence on the insights of other scholars who advanced the need to consider the combination of different conditions to explain episodes of significant pension reform (Natali, 2004; Anderson and Immergut, 2007; Hinrichs, 2005). We conclude that future pension reform research could gain from the insights of our analysis while also considering the limitations of fsQCA and the ways in which these can be addressed.

Supplementary material

To view supplementary material for this article, please visit <https://doi.org/10.1017/S0047279419000679>

Notes

- ¹ Notional defined contribution (NDC) systems mimic a funded system of individual accounts, yet with a PAYG financing structure (where workers pay contributions that are used to finance current pensioners). In NDC systems contributions are tracked in accounts which earn a rate of return which is set by the government and is not the product of investment return as accounts are notional. Upon reaching pension age, accumulated contributions and notional returns are converted into an annuity.
- ² This approach to interpreting the results is consistent with other fsQCA analyses; see for example Vis (2009)

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