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Long-term Resilient Labour Strategies to Deal with the Economic Crisis in Europe Using Qualitative Comparative Analysis (QCA)

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ABSTRACT

The crisis has had a negative impact on both European economies and labour markets with different effects among countries, raising the importance of analysing the labour market resilience. This paper seeks to identify which strategies and labour adjustments have led European labour markets to both resilient and non-resilient results by using Qualitative Comparative Analysis (QCA). The findings show two different configurations explaining 57% of the resilient cases and four configurations explaining 74% of the non-resilient cases. The results of this study revealed three important issues. First of all, the same strategy was found to have different results on labour markets. This fact stressed that the context in which different measures are imposed is a decisive factor in their success. Secondly, resilient strategies underlined the importance of "flexibility", by increasing temporary employment together with other conditions to escape from the crisis. Finally, the non-resilient results stress the importance of the imbalance between the flexicurity dimensions and the effect of the fall in economic activity on not being resilient in the long-term.

Keywords: resilience; labour market; crisis; Qualitative Comparative Analysis (QCA).

RESUMEN

La crisis ha tenido un impacto en la economía y en los mercados laborales europeos cuyo efecto se ha mostrado diferencial entre países. Este hecho ha aumentado la importancia del estudio de la resiliencia laboral. Este estudio busca identificar qué estrategias han conducido a un resultado resiliente y no resiliente en Europa mediante el uso del Análisis Comparativo Cualitativo (QCA). Los resultados han identificado dos configuraciones, explicando el 57% de los países resilientes y cuatro configuraciones que explican el 74% de los casos no resilientes. En primer lugar, los resultados han mostrado que una misma estrategia puede tener un impacto diferente subrayando la idiosincrasia de cada país como factor decisivo para la resiliencia. En segundo lugar, las estrategias resilientes destacaron la "flexibilidad", al aumentar el empleo temporal junto con otras condiciones, como factor clave para escapar de la crisis. Finalmente, los resultados no resilientes subrayaron el desequilibrio entre las dimensiones de flexiguridad y el efecto de la caída de la actividad económica como principales causas de un resultado negativo.

Palabras clave: resiliencia; mercado laboral; crisis; Análisis Cualitativo Comparativo (QCA)

1. Introduction

The financial crisis that hit the world economies in 2008 has had an overall negative effect across the spectrum of the European economies. The impact of the crash has been felt not only through the fall in GDP of European economics but also by the deterioration of the main labour market indicators (Brada & Signorelli 2012; Eichhorst et al. 2010; Lallement 2011; Marelli et al. 2012).

However, not all the European countries have been exposed to this impact with the same severity and intensity as some labour markets have been more able to withstand the economic downturn. This fact has revealed diverse territorial differences in labour outcomes and has displayed a diverse ability to recover from the crisis.

Given this differential impact on labour figures, the concept of resilience applied to the labour market has emerged as an important pillar to understand and explain the adaptation of labour markets during the crisis (Bigos et al. 2013; Fenger et al. 2014; OECD 2012). Overall, this concept is used to describe a positive feature through which a system can bounce back to a previously favourable state (Bahadur et al. 2010; Cuadrado-Roura & Maroto-Sánchez 2016). Although the term "resilience" has been applied to a large number of disciplines, three perspectives will be outlined in its study: the engineering, the ecological, and the adaptive approach. These approximations mainly differ in the way they understand the concept of "equilibrium". However, beyond their different conceptualisations of resilience, the key question of this research coming up in all of them is which factors lead to a resilient labour behaviour and which ones do not reinforce this ability. Accordingly, this paper seeks to answer the question of which policies and labour adjustments have been crucial in leading labour markets to a resilient or to a non-resilient result during the crisis until 2012 in European countries. Our starting point is that different labour adjustments based on flexibility, working time, temporary work levels, active labour market policies as well as the impact of the crisis in terms of GDP have led to different levels of success getting over the crisis. Aiming to shed light on this issue, Qualitative Comparative Analysis (QCA) has been used, as it allows identifying combinations of factors leading to a specific outcome. In particular, labour resilience has been studied under crisp-set QCA (csQCA).

This paper is structured in four sections. After the introduction, section 02 presents the theoretical framework of labour market resilience, with particular attention to different approaches to the concept of resilience. Specifically, in this paper labour market resilience has been studied under the engineering perspective, considering a unique equilibrium which a labour market is expected to return to in order to be considered as resilient. Therefore, this section offers a review of the main conceptualisations of resilience as well as the potential factors affecting resilient labour adjustments.

Hereafter, section 03 explains the basis of csQCA methodology and the conceptualisation and operationalisation of the variables considered in the model applied. Specifically, the model has been analysed in a sample of 26 European countries and it includes the following explanatory variables highlighted by the literature: labour flexibility, working time, temporary work levels, active labour market policies, and GDP.

Thereupon, section 04 presents the results obtained regarding both resilient and non-resilient labour market outcomes. Finally, this paper concludes in section 05 with a discussion of the factors leading to resilient or non-resilient outcomes and the implication of these findings for future policy strategies to overcome the crisis effects.

2. Theoretical Framework

This section goes through the main approaches of resilience from diverse fields of study and the different ways to operationalise labour market resilience according to the literature. Furthermore, the potential factors that might affect resilience and labour adjustments during the crisis are introduced.

2.1 Main Approaches, Definitions, and Operationalisation of Labour Market Resilience

Although the term "resilience" has been applied to a large number of disciplines, this concept is generally used to describe the ability of a system to bounce back to a previous favourable state after a shock (Bahadur et al. 2010; Cuadrado-Roura & Maroto-Sánchez 2016; Lisnyak 2015; Martin 2012; Martin & Sunley 2014; Simmie & Martin 2010). In this paper, the concept of resilience has been applied to analyse the different reaction capacity of European labour markets to deal with the crisis, in line with other previous research (Bigos et al. 2013; Chapple & Lester 2010; Diodato & Weterings 2015; Fenger et al. 2014; OECD 2012).

According to the literature, three approaches of resilience among all those available are the most widely accepted: the engineering, the ecological, and the adaptive perspective. The first of them, the *engineering approach,* is focused on the concept of "bounce back" and the premise of a unique equilibrium. Under this perspective, a resilient system will be able to return to its initial equilibrium levels after a shock (Folke et al. 2010; Martin & Sunley 2014; Pendall et al. 2009). This perspective is adopted in physical and engineering sciences to refer to the resilience of a material in the sense of how fast such material is able to return to its initial state after a shock. The second perspective, the *ecological approach,* is based on the idea of multiple equilibria. Thus, a shock might push the system into some other alternative equilibrium different from the pre-equilibrium by changing its structure and function (Berkes & Folke 1998; Martin & Sunley 2014; Rose 2009; Walker et al. 2006). Specifically, Holling (1973) used the term of resilience in order to understand how ecosystems can be self-regulating after a disturbance. Therefore, the concept of resilience within the ecological approach is based on the assumption that a system can achieve several different equilibria not returning to its pre-shock state (Bigos et al. 2013; Martin 2012; Pendall et al. 2009). Under this approach, a system would not be resilient if its post-shock equilibrium configuration is worse than the initial one (Martin 2012). Finally, the so-called *adaptive resilience* goes a step further by building upon the assumption of bounce forward. This approach has been adopted in Psychology so as to explain the capacity of individuals to deal with personal stress and trauma by adapting their coping skills (Martin & Sunley 2014). This perspective places particular emphasis not only on the absorption capacity of a system but also on how well it is able to adapt or recompose its structure, such as firms, industries, technologies and institutions, and functions, and it is reoriented after a shock to maintain an acceptable growth path (Boschma 2015; Bristow & Healy 2014; Christopherson et al. 2010; Martin & Sunley 2014; Simmie & Martin 2010). Thereby, this approach understands resilience as a dynamic process of constant change (Bigos et al. 2013).

Although in the recent years the concept of resilience has been studied from several different approaches and it has been applied across several fields –among them, it has also been used in Economy to explain how regions deal with economic recessions–, the concept of resilience applied to labour market is fairly recent and, indeed, there is no clear consensus on the features required for a resilient market. Even so, at least two ways of conceptualising the labour market resilience can be distinguished: *the worker perspective* (Diodato & Weterings 2015; OECD 2012) and *the labour market dynamics* perspective (Bigos et al. 2013; Chapple & Lester 2010; Fenger et al. 2014). In such a way, labour market resilience has been defined in terms of crisis effects on the workforce (Diodato & Weterings 2015; OECD 2012) whereas it has also been understood as the capacity not only to resist, withstand, or quickly recover but also to renew, adjust, or re-orientate (Fenger et al. 2014). In accordance with this later approach, some definitions have also added the capacity of a labour market to mitigate the impact on employment levels, specifically for vulnerable groups (Bigos et al. 2013).

Probably because of this lack of definition, there is no a clear way to operationalise this concept. This vagueness is even more important when the term of resilience refers to the ability of regions or countries to deal with economic shocks. Even so, employment figures, either alone or together with other variables, are commonly used to study and measure resilience to economic shocks (Di Caro 2014; Fingleton et al. 2012; Lungová 2013; Martin 2012). Thereby, employment figures seem to be a key factor as their recovery might be more critical and might be compatible with different dynamics of unemployment (Brada & Signorelli 2012; Lungová 2013; Martin 2012).

In the line with the aforementioned definitions, a resilient labour market would imply a labour market which is able to tackle GDP shocks by rapidly reabsorbing unemployed people, reducing both the crisis impact on workers and the time lag between the economic and job recovery (Cazes et al. 2009; Diodato & Weterings 2015; Fenger et al. 2014; Liebert 2010).

Building on this base, this paper is focused on labour market resilience from the labour market dynamics perspective, leaving out the worker perspective. The concept of resilience has been used to explain the different reactions of European labour markets, and the main purpose of this paper is to identify the factors or combinations of factors leading to labour market resilience by using crisp set Qualitative Comparative Analysis (csQCA). In this regard, according to previous studies, employment figures have been used as an indicator of which labour markets can be regarded as "resilient" or "non-resilient". To this end, the engineering approach of resilience offers a good starting point to study labour market resilience by using the Qualitative Comparative Analysis (csQCA) since this perspective allows to determine if a labour market was resilient or not.
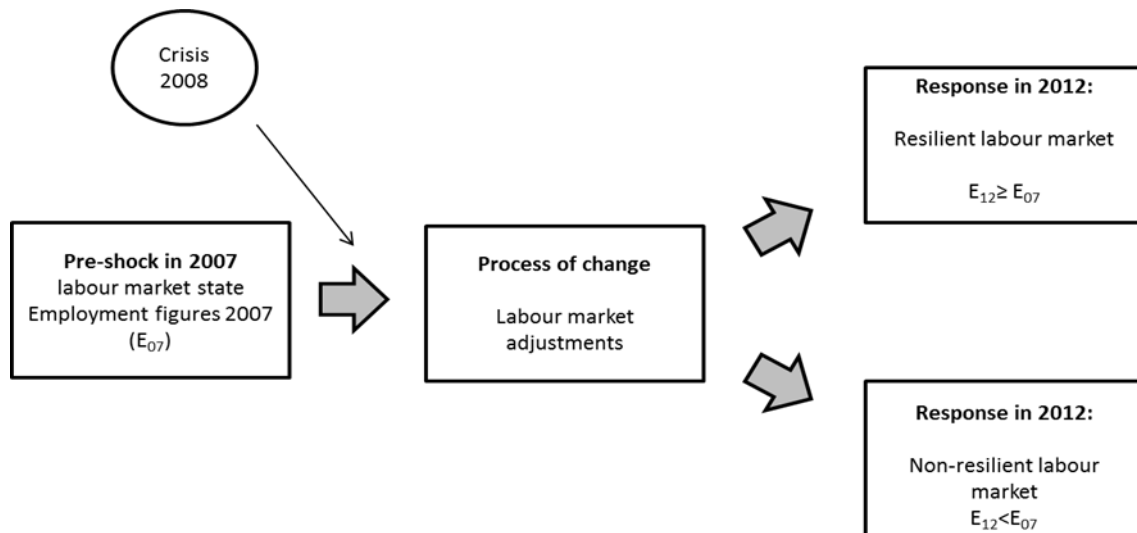
Figure 01: Conceptual model. Source: Authors' compilation

With the aim of identifying which long-term labour markets adjustments can lead to a resilient result, under the engineering approach, a labour market would be considered as resilient as long as it is able to reach its pre-crisis employment level in 2007 (E_{07}) in 2012 (E_{12}). Considering this timeframe, if the difference between the employment levels in 2012 and 2007 was positive or equal to 0 ($E_{12} \geq E_{07}$), that labour market has been regarded as resilient. However, if the employment rate in 2007 was lower than the employment rate in 2012 ($E_{12} < E_{07}$), that labour market would be considered as non-resilient.

2.2 Potential Factors Affecting Resilient Labour Adjustments During the Crisis

The current crisis has been characterised by a differential impact across countries, revealing that not all the European labour markets have had the same ability to deal with the consequences of the economic shock. In view of this fact, the question that arises is which factors might lead to a better labour market performance when a crisis hits. Therefore, the study of the labour market resilience entails the discussion about strategies or factors which can mitigate the crisis effects on labour markets.

According to OECD (2012), there is a relationship between good structural labour results and resilience. Hence, those policies and institutions that may lead to strong structural labour market outcomes would also promote labour market resilience. In this regard, literature has stressed the importance of employment protection legislation (EPL) in explaining the different labour responses during the crisis (Arpaia & Curci 2010; Bigos et al. 2013; Brada & Signorelli 2012; Duval et al. 2011; Eichhorst et al. 2010; OECD 2012). However, there is no clear consensus on EPL effects on labour market outcomes, in particular, on those policies enhancing labour market flexibility (Bernal-Verdugo et al. 2012; Guichard & Rusticelli 2010; Marelli et al. 2012; Tridico 2013). On the one hand, it has been stated that policies that improve the labour flexibility might reduce unemployment levels, being beneficial for labour markets (Bernal-Verdugo et al. 2012). Reinforcing this assumption, Guichard and Rusticelli (2010) observed that a stricter EPL is related to more lasting periods of unemployment and long-term unemployment. In this discussion, other studies have pointed out the importance of the timeframe, underlining that limited labour flexibility might help to protect short-term employment (Crescenzi et al. 2016).

Although European countries have strengthened their labour flexibility in the last years, this process has been done in a dissimilar way (Miguélez & Prieto 2009). In this regard, the European Commission, under the term of flexicurity, has urged in a strategy based on improving both flexibility and security in the labour market. However, some cross-national differences have been noticed, especially in regards to the security dimension that may lead to differences coping with the impact of the crisis (Heyes 2011). Indeed, heterogeneity in the labour adjustments has been observed during the crisis (European Central Bank 2012). Thereby, since flexibility is a multidimensional aspect, its effects on labour market may depend on its different modalities as well as the labour context and the

previous trajectory, highlighting the importance of different institutional frameworks in labour adjustments and outcomes (Barbieri 2009; Eichhorst et al. 2010; Heyes 2011; Miguélez & Prieto 2009).

By considering the number of employees in a company, functions, and wages, five types of *flexibility* stand out (Eichhorst et al. 2010): external or internal numerical flexibility, external or internal functional flexibility, and wage flexibility. Regarding the first of them, external numerical flexibility is based on the number of company's employees and it implies the possibility to adapt it by hiring or firing. On the other hand, the internal numerical flexibility is focused on numerical modifications among the workforce of a company through measures such as modifying the working-times schemes. As for the second one, the types of flexibility related to the potential functions developed by workers, the external functional flexibility refers to the potential functions that dismissed workers may develop in a new company once they are hired again. Thus, this measure requires skilled workforce so that, for example, they can develop another job in another sector. Similarly, flexibility based on internal functional flexibility implies qualified workforce so that the staff of a company can develop another position and functions within the same company. Finally, wage flexibility takes place when real salaries can be adjusted to the macroeconomic changes.

As mentioned above, different labour adjustments have been implemented throughout the crisis with divergent intensity and success. For instance, those adjustments based on internal numerical flexibility, such as the encouragement of part-time working schemes, have been a key factor limiting the deterioration of employment figures (Eichhorst et al. 2010; Marelli et al. 2012). Especially those adjustments based on *working hours* have been used as a temporary strategy by some companies and governments to maintain qualified workers until the crisis is over (Arpaia & Curci 2010; European Central Bank 2012). In particular, this measure has had a significant impact in some countries such as Germany, Austria, France, and the Czech Republic during the crisis. However, in applying this measure, expectations about the length and the intensity of the crisis, as well as institutional factors and policy decisions, might play an important role (European Central Bank 2012). Thus, as a temporary measure, after the impact of the crisis, countries would be able to increase the working hours (Barbieri 2009) and starting with a slight increase in the workforce as a sign of recovery. According to OECD (2012), coordinated wage-bargaining institutions have been an element facilitating adjustments based on part-time working schemes. However, in mitigating the impact of the crisis on employment levels, this measure could not have prevented all dismissals, leaving a significant role for policy makers by implementing other measures such as training programmes so as to support unemployed people (Cazes et al. 2009). In some cases, these part-time working schemes have been accompanied by some stimulus packages and strengthening the social safety so as to save jobs and make stronger demand (Liebert 2010).

On the contrary, adjustments based on external numerical flexibility, such as dismissals, have had a negative effect on the labour market results. Specifically, some countries with a high level of *temporary work* were more likely to adjust labour market by firing temporary workers. According to OECD (2012), the stringent employment protection for regular workers could have prompted the use of temporary contracts, increasing the unemployment response and deteriorating labour outcomes. Indeed, temporary workers have been one of the collectives more affected by the crisis (Heyes 2011; Marelli et al. 2012; OECD 2010; Sánchez 2009; Tridico 2013). A clear example is the Spanish case, in which the temporary employment level decreased almost 10 points from 2007 to 2012 (Eurostat 2015).

The level of expenditure on *active labour market policies* is, specifically, a key variable allowing external functional flexibility as it facilitates labour market transitions of workers into sectors, improving their employability (Heyes 2013). Accordingly, an increase in expenditure of active labour market policies might have a beneficial effect on the relocation of workers from hit sectors into others less affected sectors, and on the reduction in unemployment levels, on the whole, and, in particular, cyclical unemployment (Eichhorst et al. 2010; Gal & Theising 2015; Hijzen et al. 2017).

However, since the beginning of the crisis, the expenditure on ALMP has been cut down in several countries such as Sweden, Spain, Portugal, Lithuania, and Denmark among others (Eurostat 2015), showing probable dilemma between the investment in ALMP and the public finances. According to Cazes et al. (2009), the use of labour market policies during the crisis has been associated with the country income, displaying the financial limitation of governmental responses. This fact could have significant implications, as ALMP constitutes an element that reinforces the "security" dimension in labour markets through the prism of flexicurity. Therefore, active labour market policies might play a complementary role in responding to the crisis by improving job retention and job creation

and employability of the unemployed (Cazes et al. 2009). However, measures to improve labour market flexibility have been more often applied than measures focused on reinforcing job security leading to an unbalance between flexicurity dimensions (Loy 2017).

Since applying the concept of resilience only makes sense after a shock and, specifically, labour market resilience refers to the ability to tackle *GDP* shocks nature, the intensity and length of the shock on GDP might affect the labour market ability to absorb the shock and to recover. In fact, different recovery trajectories in terms of GDP speed of recovery and labour figures have been identified among European countries (Cuadrado-Roura et al. 2016; European Central Bank 2012; European Commission 2011). According to Diodato and Weterings (2015), if the disturbance is very intense and located, the labour market adaptation ability may be hampered. Similarly, higher losses of employment have been observed in those countries in which the shock has been more permanent (Fernández & Izquierdo 2013). According to the European Central Bank (2012), Spain, Ireland, Estonia, Finland, and the Netherlands were the top five countries presenting the highest elasticity to GDP of employment from 2007 to 2011. Moreover, Spain, Greece, and Ireland suffered the longest duration of the recession while Luxembourg, Germany, Slovakia, Belgium, and Malta displayed the lowest elasticity (European Central Bank 2012). In this way, sectorial specialization and initial economic strengths has been highlighted as a potential element affecting the response to the crisis (Tsiapa et al 2018). In fact, sectors such as manufacturing, production, and construction have been regarded as more cyclical sectors to the crisis (Barakat et al. 2010; Lungová 2013; Marelli et al. 2012; OECD 2010). However, whilst pre-crisis sector specialisation could be a relevant factor affecting the labour outcomes and resilience in a short-term, policy responses and labour adjustments might have a higher impact on long-term resilience (Martínez-Molina et al. 2016).

As it has been shown, labour adjustments and responses adopted during the crisis have been divergent, achieving different levels of success in getting over the crisis and, precisely, the study of resilience is focused on explaining the vulnerability of an economy to a crisis, its reaction and the adjustments occurs (Cueto et al. 2017). Giving that fact, the aim of this paper is to analyse the labour adjustments and measures that have led to a resilient labour result by considering the following key variables: labour flexibility, working time, temporary work level, active labour market policies, and GDP.

Therefore, in order to identify which policies and labour adjustments have led to a resilient and to a non-resilient labour market performance, flexibility, total work time, temporary work, active labour market policies, and GDP have been included in the model as explanatory factors according to the literature review. As mentioned before, labour resilience has been understood, under the engineering approach, as the ability of a labour market to bounce back to its pre-crisis level of employment after the crisis during the period from 2007 to 2012.

3. Methods

The sample includes all European countries with available data of the variables of interest provided by official databases, involving 26 countries: Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, and Norway.

The methodology used for the analysis has been crisp-set QCA (csQCA), a variant of Qualitative Comparative Analysis (QCA) based on the Boolean algebra, which includes two qualitative different states: true –or present–, represented by 01; and false –or absent–, represented by 0 (Ragin 1987). Its main aim is to identify sufficient and necessary conditions (Schneider & Wageman 2012) for a specific outcome. In this way, to consider a condition (the term used in QCA when referring to a variable) as *necessary*, it must be present for the outcome to occur (Ragin 1987). However, the condition may be present without leading to the outcome. On the other hand, one condition is considered as *sufficient* if the outcome occurs whenever the condition is present, although it may come from other conditions.

The main steps of QCA are the truth table and the Boolean minimization (Thiem & Duşa 2013). The *truth table* is performed from the raw data, and it is a table showing all the possible logical combinations of the conditions included in the analysis. Each row represents a different configuration, denoting a qualitative different combination of conditions (Schneider & Wagemann 2012), and there is a new column indicating the number of cases presenting this particular configuration. On the other hand, the *Boolean minimization* is a procedure for determining necessity and sufficiency and for reducing explanations to its minimum expression.

QCA provides three solutions: the complex solution, the parsimonious solution, and the intermediate one. The solution presented in this study is the parsimonious solution as, according to Baumgartner (2013), it is the only one representing causal structures. Each configuration or combination of sufficient conditions has two adjustment parameters, consistency and coverage. These two parameters of fit used by QCA underline the empirical importance of each solution. According to Ragin (2006a, p.2), "set-theoretic *consistency* assesses the degree to which the cases sharing a given condition or combination or conditions […] agree in displaying the outcome in question". On the other hand, set-theoretic *coverage* "assesses the degree to which a cause or causal combination accounts for instances of an outcome" (Ragin 2006a, p.2). All the analysis has been performed through the R software.

This study is framed within comparative research as, according to Ragin (2006b), in this kind of research investigators often search for causally relevant commonalities. In this way, the main aim of this paper is to identify common patterns by analysing which factors –or combinations of them– that led to a resilient or non-resilient labour market in 2012 by analysing the adjustments performed in some key variables between 2007 and 2012 in the European countries. These adjustments have not been studied in quantitative terms but in qualitative terms (presence or absence). Due to the complexity of the object of study, the exceptional feature inherent to the crisis situation, and the sample size –which has been imposed by the number of European countries with available data– the interest has been addressed to identify the presence of which factors can lead to a resilient outcome instead of measuring which quantity of change is necessary in a certain variable in order to lead to a resilient labour market. For these reasons, the use of quantitative methods is beyond the scope of this study and QCA has been considered as an adequate method in order to reach the stated goal of this study. In this way, QCA is a qualitative case-oriented method that allows performing a systematic causality analysis with a small and intermediate-size number of cases (Ragin 2006b; Rihoux 2006).

Regarding the advantages and limitations of QCA, the main advantage of using this method in this research is that it allows identifying different paths leading to the same outcome with a small or intermediate number of cases. Therefore, on the basis of the results obtained in this study, it will be possible to identify the different combinations of conditions that have allowed achieving a resilient (or non-resilient) outcome. On the other hand, QCA have some limitations such as the limited diversity, which means that if we introduce too many conditions in the analysis, there will not be enough cases to provide examples of all the possible configurations (Kane et al. 2014). For further information, there are some criticism papers (Hug 2013) and replies (Thiem 2014) related to the advantages and limitations of QCA.

As stated in the theoretical framework, labour resilience will be studied from the engineering approach. In this way, the outcome has been defined in terms of employment figures following previous studies (Di Caro 2014; Fingleton et al. 2012; Lungová 2013; Martin 2012), and the time frame has been defined from 2007 to 2012. Bearing in mind this time framework, if the difference in the employment rate between 2007 and 2012 was positive or zero, that country has been regarded as resilient and calibrated as 01. On the other hand, if the employment rate in 2012 was lower than in 2007, the country has been considered as not resilient and it calibrated as 0.

As the main objective of this paper is to identify which factors or combinations of them led to a resilient –or non-resilient– outcome in 2012 through the analysis of the variations in some key factors between 2007 and 2012 (Table 01), each condition has been considered as present (01) if it has remained stable or has increased from 2007 to 2012. Otherwise, they have been considered as not present and calibrated as 0.

4. RESULTS

In this section, the main findings of the study are presented starting from the following model:

Resilience= f (flexibility, total work time, temporary work, active labour market policies, GDP).

Even though QCA permits to perform two different analysis (of necessary and sufficient conditions), only the analysis of sufficiency has been performed. The reason is that a necessary condition does not ensure the outcome, as it can be present in the absence of that condition. In this sense, it is more convenient to focus on sufficient conditions, which actually lead to the expected result. Therefore, the analysis of sufficiency has been performed for both resilient and non-resilient outcomes.

Table 01. Description and calibration of the conditions

	Description	Indicator	Calibration
Labour resilience	Difference in the employment rate between 2007 and 2012.	Eurostat- Labour Force Survey- LFS (lfsa_ergan)	[1] = 2012 Employment rate – 2007 Employment rate ≥ 0 [0] = Rest of the cases
FLEX	Labour flexibility: Labour flexibility is a unique quantitative figure (index) which considers various aspects of the legal and regulatory framework of a country's labour market such as regulations concerning minimum wages, laws inhibiting layoffs, severance requirements, and measurable regulatory restraints on hiring and hours worked. The higher score implies the higher flexibility.	DICE Database (2014). (Labour freedom-Index of Economic Freedom)	[1] = if there is an increase between 2007 and 2012 [0]= Rest of the cases
WTT	Working time (total): Average of number of weekly working hours in the main job.	Eurostat- Labour Force Survey- LFS (lfsa_ewhuna and lfsa_ewhun2)	[1] = if there is an increase between 2007 and 2012 [0]= Rest of the cases
TEM	Temporary work: Temporary employees as a percentage of the total number of employees.	Eurostat- Labour Force Survey- LFS (lfsa_etpga)	[1] = if there is an increase between 2007 and 2012 [0]= Rest of the cases
ALMP	Expenditure on Active Labour Market Policies as a percentage of gross domestic product (GDP). Data on expenditure cover the direct costs of the following actions: training, employment incentives, supported employment and rehabilitation, direct job creation and start-up incentives.	Eurostat- Labour Force Survey- LFS ([lmp_expsumm and lfsa_ugan)	[1] = if there is an increase between 2007 and 2012 [0]= Rest of the cases
GDP	Gross Domestic Product: Main GDP aggregates per capita.	Eurostat-National Accounts (nama_10_pc)	[1] = if there is an increase between 2007 and 2012 [0]= Rest of the cases

Source: Eurostat (2015) and DICE Database (2015).

4.1 Analysis of the sufficient conditions leading to a resilient outcome

First, the analysis of the sufficient conditions leading to a resilient outcome was performed. In this way, 07 of the 26 countries studied achieved a resilient labour market in 2012 (Luxembourg, Czech Republic, Malta, Austria, Poland, Germany, and Romania) but, as shown in the truth table (Table 02), three of them –Poland, Germany, and Romania– show the same configurations as some non-resilient countries with a consistency lower than 0.75. Therefore, only 04 of the resilient countries –Luxembourg, Czech Republic, Malta, and Austria– were included in the solutions provided by the analysis of sufficiency.

Table 02. The truth table for the resilient cases

WTT	FLEX	ALMP	TEMP	GDP	OUT	n	inclincl.	PRI	cases
1	0	1	1	1	1	1	1,00	1,00	Luxembourg
0	1	1	1	1	1	4	0,75	0,75	Czech Republic,Estonia,Malta,Austria
0	0	1	0	1	0	2	0,50	0,50	Poland,Finland
1	0	1	0	1	0	2	0,50	0,50	Germany,Sweden
0	1	0	0	1	0	3	0,33	0,33	Bulgaria,Lithuania,Romania
0	0	0	1	0	0	3	0,00	0,00	Ireland,Italy,Netherlands
0	0	0	1	1	0	2	0,00	0,00	France,Latvia
0	0	1	1	1	0	2	0,00	0,00	Hungary,Slovakia
0	1	0	0	0	0	2	0,00	0,00	Spain,Slovenia
0	0	0	0	1	0	1	0,00	0,00	Denmark
0	0	1	1	0	0	1	0,00	0,00	Cyprus
0	1	1	0	1	0	1	0,00	0,00	Belgium
1	0	0	0	0	0	1	0,00	0,00	Portugal
1	0	0	0	1	0	1	0,00	0,00	Norway

Source: Authors' compilation

The solution (Table 03) explains 57% of the resilient cases. The symbol * represents the logical operator AND, so the conditions connected by this symbol conform to a sufficient configuration leading to the outcome when the solution provides good values in the parameters of fit (consistency and coverage). On the other hand, *upper-cases* mean the presence of the condition (the condition has remained equal or has increased between 2007 and 2012), and *lower-cases* mean the absence of the condition (it has decreased between 2007 and 2012). Finally, each row of the solution shows a configuration (combinations of conditions), also called *prime implicant*, leading to a resilient result.

Table 03. Analysis of sufficient conditions for the labour resilience: parsimonious solution

Causal configuration	Consistency	Raw coverage	Unique coverage
FLEX * TEMP	0.75	0.43	0.43
WTT * TEMP	1.00	0.14	0.14

Solution consistency: 0.80, Solution coverage: 0.57

Source: Authors' compilation.

The solution provides two different configurations (or prime implicants) leading to a resilient labour market:

The *first one* involves the cases of the Czech Republic, Malta, and Austria. Those countries have been resilient and they share an increase in the labour flexibility together with a rise in temporary work. This fact may imply that efforts to get away from the crisis by increasing flexibility and temporary employment have been successful. Indeed, Malta, and Austria showed a little decrease in employment levels in 2009, being recovered in 2010. However, there is also a non-resilient country involved within this prime implicant (Estonia), so this configuration is not completely sufficient for achieving labour market resilience.

The *second prime implicant* represents only the case of Luxembourg and it implies that an increase of both total working hours and temporary work between 2007 and 2012 led to a resilient result measured in 2012. In particular, Luxembourg has been a country with low elasticity to GDP of the employment and with a short duration of the crisis (European Central Bank 2012). In this way, the employment rate of Luxembourg in 2009 was already higher than its pre-crisis employment rate, showing signs of recovery (Eurostat 2015). Therefore, both increases in temporary employment and working hours might represent a sign of recovery. As previously mentioned, adjustments based on working hours have been used as a temporary strategy influenced somehow by the fall in production and the expectations about the length of the crisis. In such a way, those countries which might have understood the crisis as a short shock might have been more likely to implement temporary adjustments in working hours so as to keep jobs and qualified workers until the crisis is over (Arpaia & Curci 2010; European Central Bank 2012). However, once the crisis is finished, companies might have increased the working hours as sign of a recovery (Barbieri 2009) and starting with a slight increase in the workforce as the case of Luxembourg shows.

The solution provided by the analysis of sufficiency has a consistency equal to 0.80, indicating that not all the countries involved in this solution have been resilient (as mentioned before, Estonia shared the same configuration with the Czech Republic, Malta, and Austria). On the other hand, the solution has a coverage of 0.57, meaning that 57% of the resilient countries in the sample are represented within this solution, apart from Poland, Germany, and Romania. Therefore, the two different strategies to be resilient shown by the solution must be carefully considered. The latter represents the case of Luxembourg where its strategy to be resilient came from a country which had recovered from the crisis in 2012. The former combination belongs to a group of countries that have applied an increase in labour flexibility and external flexibility measures, such as temporary work. However, Estonia, which had an important impact on the employment sphere (European Central Bank 2012), applied the same adjustments with a non-resilient outcome. This result may reinforce the idea of flexibility as a multidimensional aspect whose labour outcomes may depend on the context where it takes place (Barbieri 2009; Eichhorst et al. 2010; Heyes 2011; Miguélez & Prieto 2009; Tsiapa et al. 2018) and the premise of different employment recovery and speed patterns across countries (European Commission 2011; Crescenzi et al. 2016).

4.2 Analysis of the sufficient conditions leading to a non-resilient outcome

Regarding the non-resilient countries, as stated in the truth table (Table 04), fourteen cases (Ireland, Italy, Netherlands, France, Latvia, Hungary, Slovakia, Spain, Slovenia, Denmark, Cyprus, Belgium, Portugal, and Norway) do not share their configuration with any resilient country. The other non-resilient countries (Bulgaria, Lithuania, Finland, Estonia, and Sweden) have the same configuration as some resilient countries with a consistency lower than 0.75 and, therefore, they have not been included in the solutions provided by the analysis of sufficiency.

As seen in Table 05, there is only one solution including four prime implicants leading to a non-resilient outcome in our study. This solution has a consistency equal to 01, meaning that every country showing one of the configurations included in the solution

have been non-resilient. In other words, no resilient country shows any of these configurations. Moreover, the solution coverage is reasonably good as this solution explains 74% of the non-resilient cases.

Table 04. The truth table for the non-resilient cases

WTT	FLEX	ALMP	TEMP	GDP	OUT	n	incl	PRI	cases
0	0	0	1	0	1	3	1,00	1,00	Ireland,Italy,Netherlands
0	0	0	1	1	1	2	1,00	1,00	France,Latvia
0	0	1	1	1	1	2	1,00	1,00	Hungary,Slovakia
0	1	0	0	0	1	2	1,00	1,00	Spain,Slovenia
0	0	0	0	1	1	1	1,00	1,00	Denmark
0	0	1	1	0	1	1	1,00	1,00	Cyprus
0	1	1	0	1	1	1	1,00	1,00	Belgium
1	0	0	0	0	1	1	1,00	1,00	Portugal
1	0	0	0	1	1	1	1,00	1,00	Norway
0	1	0	0	1	0	3	0,67	0,67	Bulgaria,Lithuania,Romania
0	0	1	0	1	0	2	0,50	0,50	Poland,Finland
1	0	1	0	1	0	2	0,50	0,50	Germany,Sweden
0	1	1	1	1	0	4	0,25	0,25	Czech Republic,Estonia,Malta,Austria
1	0	1	1	1	0	1	0,00	0,00	Luxembourg

Source: Authors' compilation

Table 05. Analysis of sufficient conditions for the absence of resilience: parsimonious solution

Causal configuration	Consistency	Raw coverage	Unique coverage
Gdp	1.00	0.37	0.11
flex * almp	1.00	0.42	0.11
FLEX * ALMP * temp	1.00	0.05	0.05
wtt * flex * TEMP	1.00	0.42	0.11

Solution consistency: 1.00; Solution coverage: 0.74

Source: Authors' compilation

The *first configuration* included in the solution involves the cases of Ireland, Italy, Netherlands, Spain, Slovenia, Cyprus, and Portugal, and it implies that a drop in the GDP is sufficient to lead to a non-resilient labour market result. This solution reinforces the idea that some labour markets have been highly sensitive to the drop in production. Indeed, this solution includes the cases of the Netherlands, Ireland, Cyprus, Portugal, and Spain, countries that were in the top ten countries that presented the highest elasticity to GDP of employment (European Central Bank 2012). Within these countries, Spain has especially suffered a long duration of the crisis, as the drop in GDP –in spite of not being especially deep– has been continuous since the beginning of the crisis (Eurostat 2015). This reinforces the idea that permanent shocks may have an important impact on employment losses (Fernández & Izquierdo 2013). Moreover, this solution reveals a strong connection between results in the economic sphere and the labour markets in this group of countries, which in some cases such as the Spanish one, are not necessarily connected to a large amount of the GDP fall.

The *second prime implicant* leading to a non-resilient outcome includes a drop in the flexibility of the labour markets together with a decrease in the expenditure on active policies. This prime implicant has been present in Ireland, Italy, the Netherlands, France, Latvia, Denmark, Portugal, and Norway. As mentioned before, in the last years, European countries have moved towards more flexible labour relations (Miguélez & Prieto 2009). In this context, the term of flexicurity has gained importance as a way to balance higher contractual flexibility and secure transitions between jobs by improving security dimension such as passive and active labour markets policy (Heyes 2011). Although there is not a clear effect of policies enhancing labour flexibility (Bernal-Verdugo et al. 2012; Crescenzi et al. 2016; Guichard & Rusticelli 2010; Marelli et al. 2012; Tridico 2013), the importance of the balance between the flexibility and security dimension has been stressed under the term of flexicurity. Indeed, our results have shown that the no strengthening of any of the potential dimensions of flexicurity can also lead to a non-resilient result in some countries.

The *third configuration* includes an increase in both labour flexibility and expenditure on active labour market policies together with a decrease in temporary work. This solution has been present only in Belgium. In this configuration, even though the two dimensions of the flexicurity have been reinforced, Belgium was not resilient. However, the employment rate of Belgium in 2012 was about its 2007 employment rate. Again, this solution may suggest the importance of the balance between the dimensions of flexicurity,

specifically when there is a lost in temporary employment, which may imply more dismissals and differences in the recovery rate across countries (Eichhorst et al. 2010; European Commission 2011; Gal & Theising 2015; Heyes 2013).

Finally, the *last configuration* leading to a non-resilient outcome includes a drop in both work time and labour flexibility while temporary employment increased between 2007 and 2012. This configuration covers the cases of Ireland, Italy, the Netherlands, France, Latvia, Hungary, Slovakia, and Cyprus. Coping with the crisis, several countries such as Italy, the Netherlands, and France have adopted measures based on part-time working schemes to stabilise the levels of employment (Heyes 2011). These countries have shown a downward trend in the total hours worked from 2007 to 2012, which may imply that they are recovering from the crisis as their level of working hours is not the same as their pre-crisis level (Barbieri 2009). However, this solution may suggest that successful measures such as part-time working schemes in combination with a drop in labour market flexibility might extend the recovery of employment figures even when there is an increase in temporary employment (European Central Bank 2012).

Therefore, combinations leading to a non-resilient result seem to highlight the importance of drops in the economic activity and the combination and balance between different dimensions of flexicurity.

5. Conclusions

Based on the concept of resilience, the objective of this research is to analyse which policies and labour adjustments have led labour markets to a resilient or to a non-resilient outcome during the crisis until 2012 by using Qualitative Comparative Analysis (QCA).

According to the engineering approach, labour market resilience is understood as the ability of a system to bounce back to the pre-shock equilibrium and it has been operationalised considering the employment levels from 2007 to 2012. In this way, if the difference in the employment rate within this time frame was positive or zero, that country has been regarded as resilient. On the other hand, those countries that were not able to bounce back to their pre-shock levels of employment in 2012 were considered as non-resilient.

In this regard, the model Resilience = f (flexibility, total work time, temporary work, active labour market policies, GDP) was applied to a sample of 26 European countries by using csQCA in order to find the causal configurations leading to resilient or non-resilient labour markets after the economic crisis. Each variable of this model has been considered as present if it has remained stable or it has increased from 2007 to 2012, or not present if it has decreased.

The analysis of sufficiency has provided one solution with two different configurations explaining 57% of resilient countries and one solution with four prime implicants explaining 74% of non-resilient countries. These results have illustrated that most of the European labour markets have been unable of dealing with the crisis as only seven countries were resilient from 2007 to 2012. However, the model only explains resilience in four countries. On the other hand, while the non-resilient solution has a convenient coverage, the results of the sufficient conditions leading to a resilient outcome must be taken with great caution since there is one non-resilient country showing the same configuration as some resilient countries.

Consequently, the findings of this paper have shown that the same strategy might have different results on labour markets as it has been illustrated in the case of Estonia (non-resilient country) and the group of countries made up of the Czech Republic, Malta, and Austria (resilient countries), as well as the case of Germany (resilient country) and Sweden (non-resilient country) which shared the same configuration. These findings highlight, on the one hand, the importance of the context in which measures are implemented in order to determine their success (Barbieri 2009; Eichhorst et al. 2010; Heyes 2011; Miguélez & Prieto 2009) and, therefore, the caution that must be taken by politicians in transferring policies among countries without considering the overall framework. On the other hand, the results of this research also stress that there is no single model or uniform prescription to achieve labour market resilience.

Thereby, the *resilient solution* has shown two different strategies to achieve a positive labour outcome. On the whole, both strategies have underlined the importance of "flexibility", by increasing temporary employment together with other conditions to get away from the crisis. This solution reveals that the crisis recovery has been characterised by applying measures towards labour flexibilisation, suggesting that quick changes in the economic field seem to call for more adaptable labour markets capable of facing economic shocks. Even though this result is in line with the diverse EU strategies and directives since the nineties, this could involve

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certain dangers if the trend towards making labour markets flexible is not accompanied by reinforcing the job security dimension. In this regard, taking "flexicurity" as the model, a trend towards flexible labour markets can be observed, but without the corresponding increase in job protection (Loy 2017). This fact underlines the balance between "flexibility" and "security" dimension so as to avoid negative results such as either the loss in employment quality or the dualisation of labour market in the long-term. Therefore, it entails a challenge for policy makers who should implement measures to guarantee the quality of jobs and labour rights of temporary workers in order to avoid labour market dualisation. In addition, a strategy based on increasing temporary employment should be applied together with an enhancement of active labour market policies so as to guarantee the quick labour market incorporation once they lose their job. As the non-resilient cases such as Italy, the Netherlands, France, Latvia, Denmark, Portugal and Norway showed, not reinforcing any of the flexicurity dimensions led to a non-resilient result. Therefore, although there is no unique model of flexicurity among European countries, this result highlights the need for labour policies of seeking a balance between these two components. Nevertheless, the appropriate balance requires a political commitment, especially in times of crisis since the "security" dimension has an impact on government budgets, implying an economic effort. Then, politicians should guarantee an economic effort in times of crisis enough to ensure employment rights and to avoid the precariousness of the labour force.

Regarding the *non-resilient* countries, the same reasoning is applied since there were several configurations leading to a non-resilient outcome, stressing the importance of a balance between the flexicurity dimensions and the effect of the fall in economic activity. In some countries, the mere fact that the levels of GDP are not recovered is a sufficient condition leading to a non-resilient result, underlining the negative effect of lasting persistent economic shocks on European labour markets (Fernández & Izquierdo 2013). This finding is a worrisome fact as it suggests that a decrease in the economic activity might have significant implications on labour markets. Thus, in these cases, the potential effects of the economic sphere on the labour market should be monitored in order to design proper measures to tackle the impact of economic crisis on labour outcomes. As mentioned before, due to the diversity of flexicurity models in Europe, more efforts should be more focused on evaluating the progress and effects of individual flexicurity features of each country on labour market resilience.

This study has some limitations mainly due to the scarcity of resilient cases and the low coverage and consistency of the model. As mentioned before, the number of non-resilient countries has been larger than the number of resilient ones in the European context until 2012. Moreover, resilience has been considered in the current research as the ability of a labour market to bounce back to its employment pre-crisis level without considering the starting employment figures. However, promoting and maintaining high levels of employment is a crucial aspect in the European labour policies that should be considered as a dimension of resilience. In this way, as the aim of this paper was to analyse labour markets resilience from the engineering perspective in a long-term from 2007 to 2012, considering the employment figures in absolute numbers was beyond the main purpose of this research, even though it is an important aspect to be considered in future studies about labour markets resilience.

Be that as it may, this paper has contributed to broadening knowledge of the conceptual framework of labour market resilience by identifying different configurations and labour adjustments performed by resilient and non-resilient countries during the crisis. In the view of the results obtained in this paper, future works should be focused on extending the knowledge about the components of the "ideal flexicurity model" to deal with economic downturns in Europe in order to compare the flexicurity model of each country to the ideal model so as to establish policy recommendations in each country.

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