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Non-standard employment among young people in the European Union: precariousness, multiple jobholding and unpaid overtime

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VNiVERSiDAD D SALAMANCA

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Empleo no estándar entre los jóvenes de la Unión Europea: precariedad, pluriempleo y horas extra no remuneradas

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Tesis Doctoral

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Que el trabajo doctoral realizado bajo mi dirección por Guillermo Órfão e Vale Tabernero titulado "NON-STANDARD EMPLOYMENT AMONG YOUNG PEOPLE IN THE EUROPEAN UNION: PRECARIOUSNESS, MULTIPLE JOBHOLDING AND UNPAID OVERTIME", reúne las condiciones de originalidad requeridas para optar al grado de Doctor en la línea de Economía Aplicada por el programa de Ciencias Sociales de la Universidad de Salamanca.

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   Guillermo Orfao[1], Alberto del Rey[1], Miguel Ángel Malo[2].
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ABSTRACT: This doctoral thesis sets out to analyse the precariousness of employment among young people in EU-28 member states following the Great Recession. This involves studying non-standard employment as the linchpin of the growing deregulation of labour markets and a key factor informing their greater precariousness. The research adopts three main approaches to the analysis of the drivers of precariousness and the impact that non-standard employment has on young people in EU-28: the similarities and differences in the levels of precariousness among young people across member states, the determinants of their multiple jobholding, and the effect that non-standard employment has on their unpaid overtime.

The research focuses on young wage earners between the ages of 15 and 34 in EU-28 member states over the period following the Great Recession until 2019. The database used is the European Union Labour Force Survey, which allows for a comparative analysis to be conducted with a uniform and harmonised sample for all the member states. This database has been used in the first chapter to develop an adjusted multidimensional precariousness rate, together with the estimation of sundry econometric models throughout this doctoral thesis, such as logistic and multilevel regression with both fixed and random effects.

The results reveal a high level of precariousness in Mediterranean countries, followed by the Netherlands and Denmark, and a low rate and intensity in Continental and Anglo-Saxon countries, and Central and Eastern Europe, with low wages being the common denominator of precariousness. The second chapter finds that part-time work has a positive effect on the decision to hold a second job, with the third chapter reporting a positive effect of temporary employment and, especially, working from home on unpaid overtime among young people. Finally, there are statistically significant differences between these results depending on several sociodemographic variables, first job characteristics, type of working day, and the institutions and contexts of Europe's labour markets.

Keywords: Europe, multiple jobholding, non-standard employment, precariousness, unpaid overtime, young people.

RESUMEN: El objetivo de esta tesis doctoral es analizar la precarización del empleo entre los jóvenes de los países miembro de la EU-28 tras la Gran Recesión. Para ello, se estudia el empleo no estándar como eje de la creciente flexibilización de los mercados laborales y determinante del proceso de precarización del empleo. Se abarcan tres vértices esenciales en la investigación sobre los determinantes de la precarización y la influencia del empleo no estándar en los jóvenes de la EU-28: las similitudes y diferencias en la precarización del empleo entre los países europeos, los determinantes del segundo empleo en jóvenes pluriempleados y el efecto del empleo no estándar sobre la realización de horas extra no remuneradas.

La investigación se centra en el estudio de los jóvenes asalariados de entre 15 y 34 años pertenecientes a los países miembros de la EU-28 para el periodo posterior a la Gran Recesión hasta 2019. La base de datos utilizada es la Encuesta de Población Activa de la Unión Europea, lo que permite un análisis comparativo con una muestra homogénea y armonizada para todos los países miembro de la EU-28. Utilizando esta base de datos se ha desarrollado en el primer capítulo un indicador multidimensional ajustado de precariedad, al igual que se han estimado diversos modelos econométricos a lo largo del trabajo doctoral como son modelos de regresión logística o modelos de regresión logística multinivel tanto con efectos fijos como aleatorios.

Los resultados muestran una elevada precarización del empleo en los países Mediterráneos seguidos de Países Bajos y Dinamarca, y una baja incidencia e intensidad de la precariedad en los países Continentales, Anglosajones y del Centro y Este de Europa, siendo los bajos salarios el principal factor determinante de la precariedad. El segundo capítulo revela un efecto positivo del empleo a tiempo parcial sobre la propensión a obtener un segundo empleo, al igual que el tercer capítulo muestra un efecto positivo del empleo temporal y, especialmente, del teletrabajo sobre la realización de horas extra no remuneradas por parte de los jóvenes. Finalmente, se observan diferencias estadísticamente significativas sobre estos resultados en función de diferentes variables sociodemográficas, del primer empleo, de la jornada laboral y de las instituciones y contextos de los mercados laborales europeos.

Palabras clave: Europa, pluriempleo, empleo no estándar, precariedad, horas extra no remuneradas, jóvenes.

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Glossary of abbreviations

AT: Austria.

BE: Belgium.

BG: Bulgaria.

CBR-LRI: Centre for Business Research Labour Regulation Index Dataset.

CY: Cyprus.

CZ: Czech Republic.

DE: Germany.

DK: Denmark.

EE: Estonia.

ES: Spain.

EU: European Union.

EU-LFS: European Union Labour Force Survey.

EWCS: European Working Conditions Survey.

FI: Finland.

FR: France.

GDP: Gross domestic product.

GR: Greece.

HR: Croatia.

HU: Hungary.

ICTWSS: Wage Setting, State Intervention and Social Pacts.

IE: Ireland

ILO: International Labour Organization.

IT: Italy.

LT: Lithuania.

LU: Luxembourg.

LV: Latvia.

MISSOC: Mutual Information System on Social Protection.

MT: Malta.

NL: Netherlands.

OECD: Organisation for Economic Co-operation and Development.

PL: Poland.

PT: Portugal.

RO: Romania.

SE: Sweden.

SI: Slovenia.

SK: Slovakia.

UK: United Kingdom.

INTRODUCTION

1. Research purpose and contribution

This doctoral thesis seeks to investigate the precarious labour status of young wage earners in the European Union (EU), paying particular attention to the issue of non-standard employment. The research revolves around three main focal points. The initial focus is on the precariousness of employment and the part played by each one of the dimensions it involves. The second focus involves multiple jobholding as a strategy that young people use to deal with the lack of security and precarious conditions associated with some non-standard forms of employment. The final focus is on the relationship between unpaid overtime and different kinds of non-standard employment, highlighting the influence that insecurity and the domestic context in each country have on this practice among young people.

One of the characteristics of precarious employment is that it is defined in juxtaposition to what is considered a standard job (Rodgers, 1989), with the latter involving a permanent, full-time contract according to due and proper labour terms and conditions. The corresponding literature contains several studies that have addressed the influence that precariousness has on young people, and among the studies that analysis the population as a whole, scholars such as Gutiérrez-Barbarrusa (2016) and Kretsos & Livanos (2016) have considered the specific case of EU-15 member states[1]. An array of approaches has been used to measure precariousness, yet there is still no agreement on how to measure its component dimensions. Furthermore, we have been unable to find any comparative analysis on the rate and intensity of precariousness among young people across all EU-28 member states[2].

The ongoing flexibility's process that has been promoted and implemented across EU countries has led to an increase in certain kinds of non-standard employment, such as temporary or part-time employment (European Commission, 2009). These more flexible

[1] EU-15 refers to the following countries that were already members until 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom (UK).

[2] EU-28 involved the following members until 2020: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.

forms of employment have been linked to an increase in precariousness, especially among young workers because of their greater vulnerability in the labour market (Green & Livanos, 2017). The recent 2008 financial crisis has heightened the insecurity associated with this process of flexibilisation at the same time as it led not only to a rise in unemployment but also in non-standard employment (European Commission, 2009).

The first chapter of this doctoral thesis analyses the trend in precariousness following the 2008 financial crisis by estimating a novel adjusted multidimensional precariousness rate for measuring both its rate and intensity. The estimation of this indicator includes all the dimensions involved in precariousness, as are the following: wages, type of contract, type of working day, lack of security, and employee empowerment. The chapter presents a comparative analysis of precariousness among young people across all EU-28 member states, focusing on the individual contribution that each of these dimensions makes. This is followed by an estimation of different econometric models for studying the impact that certain sociodemographic and labour characteristics have on the likelihood of young people being in precarious employment.

The process of deregulation embraced by EU countries in an attempt to introduce the so-called flexicurity policies has led not only to an increase in the different non-standard forms of employment, but also to an increase in the number of individuals working in these kinds of jobs against their will, and especially young people (Mills, 2004). The reason for this is that, in practice, the partial implementation of these policies has indeed increased flexibility, but not so the security associated with this kind of employment. Eurofound (2007) has reported that deregulation per se does not trigger insecurity, but it may do so when a job is accepted unwillingly.

Multiple jobholding is one of the responses or strategies individuals use to cope with greater insecurity, low wages, or fewer hours worked (Birch & Preston, 2020; Koumenta & Williams, 2019). In particular, young people make up a significant share of the workforce in multiple jobholding, as they use this strategy not only for financial reasons to augment their low wages, but also for non-financial ones such as the accumulation of human capital or work experience (Osborne & Warren, 2006). Considering the current context, in which there has been a sharp increase in non-standard employment and job insecurity, it is important to focus on young people because, as noted earlier, they constitute one of the more vulnerable segments of the population and are more likely to have to deal with precarious terms of employment and find themselves in

non-standard employment against their will (Green & Livanos, 2017; Mills, 2004). They may therefore use multiple jobholding as a strategy against the lack of security associated with certain kinds of non-standard employment such as temporary and part-time employment, especially the latter because of the limited number of hours worked in the first job.

Only a handful of studies thus far have studied the specific role that the different non-standard forms of employment play in the propensity toward holding a second job. Dickey *et al*. (2015) and Livanos & Zangelidis (2012) have studied the influence of certain non-standard forms of employment, such as temporary or part-time employment, on multiple jobholding focusing on a few European countries. In turn, Zangelidis (2014) has analysed the determinants of multiple jobholding in the EU as a whole. These studies report an increase in the propensity toward multiple jobholding due to the lack of security associated with non-standard employment. Nevertheless, there is yet no comparative analysis for all the EU-28 member states on the impact that different types of non-standard employment have among young people.

The second chapter here addresses these issues, shedding further light on the role played by multiple jobholding regarding the lack of security and the uneven implementation of job flexibility across the EU. Moreover, studying young people provides a unique opportunity to discover whether multiple jobholding acts as a valid strategy for labour integration, as this segment of the population is taking its first steps in labour markets plagued by insecurity and uncertainty (Hardgrove *et al*., 2015). This has involved conducting a comparative analysis of all EU-28 member states for 2019, as this is the last year providing data that are unaffected by an economic cycle, nor by the COVID-19 pandemic. The chapter makes a further contribution by studying the effect of certain sociodemographic variables and revealing whether multiple jobholding is a matter of choice among young people. The study goes on to investigate multiple jobholding among over-qualified young people and the part it plays as a strategy they use to transition to a new job.

Just as multiple jobholding is sometimes used to combat a certain lack of security or precarious conditions, another tactic adopted for the same purpose involves unpaid overtime, which young people have used as a way of signalling, investment in human capital or deferred investment (Bell & Hart, 1999; Eurofound, 2022; Papagiannaki, 2014). The latest evidence, nonetheless, reveals that unpaid overtime tends to respond to

employer pressure or a degree of insecurity (Eurofound, 2022; Ioannides & Mavroudeas, 2018). Non-standard employment is once again a crucial factor, as it is associated with greater employer pressure (Gallie, 2005) and employees' loss of power in their everyday work due to the reduction in their protection and working rights (Eurofound, 2020).

The literature contains studies on the isolated impact that certain non-standard forms of employment have on the propensity toward working unpaid overtime, such as part-time work and working from home (Chung & Van der Horst, 2020; Conway & Sturges, 2014; Zapf & Weber, 2017). Moreover, the effects of these two non-standard forms of employment are ambiguous. These studies have focused on specific European countries, such as Germany and the UK. There is no study, however, that analyses the influence that all types of non-standard employment have on unpaid overtime among young people, including temporary employment, temporary employment agencies, or on-call jobs. Neither is there a comparative analysis of all EU-28 member states.

The third chapter here presents a comparative analysis of the relationship between unpaid overtime and non-standard employment among young wage earners across the EU-28 countries. One of the contributions this chapter makes involves studying how the context, domestic institutions, and certain features of European labour markets affect the propensity toward working unpaid overtime among young people. These features include expenditure on unemployment, employment protection against dismissal, the level and extension of collective bargaining agreements, and the rate of involuntary non-standard employment. This analysis is conducted on the influence that both individual and country level aspects have on the likelihood of working unpaid overtime.

This research has been based on the EU Labour Force Survey (EU-LFS) because this database provides a broad, uniform, and harmonised sample for comparing all EU-28 member states. The survey allows studying the three focal points that orchestrate this thesis, bearing in mind the role that non-standard employment plays as a decisive factor. In addition, other supplementary databases have been used to gather information as detailed in the section on data and methodological approach, and throughout the three chapters of this doctoral thesis.

2. Socioeconomic background

2.1. Labour market flexibility

Labour market flexibility is defined as the ability firms have to adjust to the economic cycle and its requirements, favouring recruitment and redundancies through a decrease in the associated costs. This flexibility involves several measures, such the ease to adapt working hours to the specific needs of both employers and employees, or the reduction in the costs and procedures for hiring and firing workers. One of the criticisms levelled at this deregulation involves the loss of workers' labour rights and security, and specifically so for young people (O'Reilly *et al*., 2018). Faced with these issues, member states, backed by the European Commission, have committed to a policy of deregulation accompanied by an increase in job security (Bekker & Mailand, 2019; Juncker *et al*., 2015), with their reference point being the flexicurity model introduced in certain Nordic countries, such as Denmark.

In recent years, EU economies have adopted these deregulation policies by prompting a convergence of social welfare policies toward a reduction in workers' job security (Heyes, 2011). In practice, this liberalisation of labour markets has led to an increase in non-standard employment (European Commission, 2009), as this enables firms to better adjust to the economic cycle and their specific circumstances. What's more, the 2008 financial crisis has not only increased unemployment in some EU countries but has also expedited this process (Green & Livanos, 2017), particularly among young people (Choudhry *et al*., 2012). The concept of flexicurity that the European Commission has sought to promote has, therefore, only been partially successful, failing to protect workers. This has led to a context of insecurity in Europe's labour markets that especially affects young people, who also must cope with the additional challenge of precarious working conditions (Nielsen *et al*., 2019).

The non-standard forms of employment brought about by this deregulation involve those jobs that differ from those considered in standard employment, namely, a permanent, full-time position in which the worker is entitled to a series of rights. The International Labour Organization (ILO) has grouped these kinds of jobs into the following categories: temporary employment, part-time work, on-call employment, working from home, dependent self-employment, multi-party employment relationships, and digital platform employment. These non-standard forms of employment are, in turn,

linked to such aspects as lower wages, weaker protection against dismissal, or limited access to labour rights (Davia & Hernanz, 2004; Fernández-Kranz *et al*., 2015; Hirsch, 2005), which are some features or dimensions of precariousness. The evidence shows that recent years have witnessed a rise in precariousness in EU labour markets due the increase in their flexibility (Kretsos & Livanos, 2016; Rubery *et al*., 2016).

As regards the dimensions of precariousness, the ILO singles out the following: (i) low wages, (ii) weak protection against dismissal or termination (iii) lack of access to welfare benefits or protection (generally associated with standard full-time employment), and (iv) limited access to labour rights (ILO, 2012; ILO, 2016a, 2016b). As noted earlier, non-standard employment is related to the greater presence of these dimensions. It is therefore crucial to identify the uneven way in which EU countries have implemented flexibility in order to understand the impact this has had on the incidence of non-standard employment and job precariousness among young people.

One of the difficulties involved in comparing all EU-28 member states is precisely their large number, so we have simplified and facilitated the process by classifying them according to the nature of their welfare systems and their geographical location (Bonoli, 1997). Using these criteria as a yardstick, Kretsos & Livanos (2016) and Sapir (2006) have grouped EU-15 members states, while Laužadytė-Tutlienė *et al*. (2018) have done so for all the other member states. In our case, we have separated EU-28 member states into the following six groups: (i) Anglo-Saxon (Ireland and the UK), (ii) Continentals (Austria, Belgium, France, Germany, and Luxemburg), (iii) Mediterranean (Greece, Italy, Portugal, and Spain), (iv) Nordic (Denmark, Finland, the Netherlands, and Sweden), (v) Central European (Croatia, Hungary, Poland, Slovakia, Slovenia, and the Czech Republic), and (vi) Eastern Europe (Bulgaria, Estonia, Latvia, Lithuania, and Romania). Malta and Cyprus have not been included in any of these groups because of their specific idiosyncrasies and characteristics, whereby they need to be analysed separately.

Although all these countries have their own characteristics and there are differences between them even within each one of the established groups, there are certain similarities between neighbours, such as the state of their labour markets, the economy, and the institutional context (Esping-Andersen, 1990; Sapir, 2006). For example, Anglo-Saxon countries focus on union rights, the scope of active policies to improve employability and reduce wage gaps. Other countries, such as the so-called Continental ones, are turning their attention to, among other aspects, pensions, and unemployment

benefits. The model in the Mediterranean countries focuses on pensions and an unequal distribution of income. By contrast, the Nordic model involves strong welfare protection. Finally, the labour markets in Central and Eastern Europe are defined by their inflexibility. The first and second chapters here will delve further into each one of these groupings.

Taking as our reference certain flexicurity indexes, such as the one proposed by Tangian (2007), we have analysed OECD data on protection against both individual and collective dismissal, and Eurostat data on the rate of non-standard employment in 2019. Figure I.1 reveals a low level of job protection in Nordic and Anglo-Saxon countries, with a high incidence of non-standard employment (mainly part-time). In this case, the Nordic countries have opted for a flexicurity system characterised by a less rigid approach to entering and leaving the labour markets. Although there has been an increase in non-standard employment, and this may impact negatively on people's wellbeing, these countries have chosen to support other protection mechanisms such as greater welfare benefits and the use of active employment policies designed to reintroduce jobseekers into the labour market.

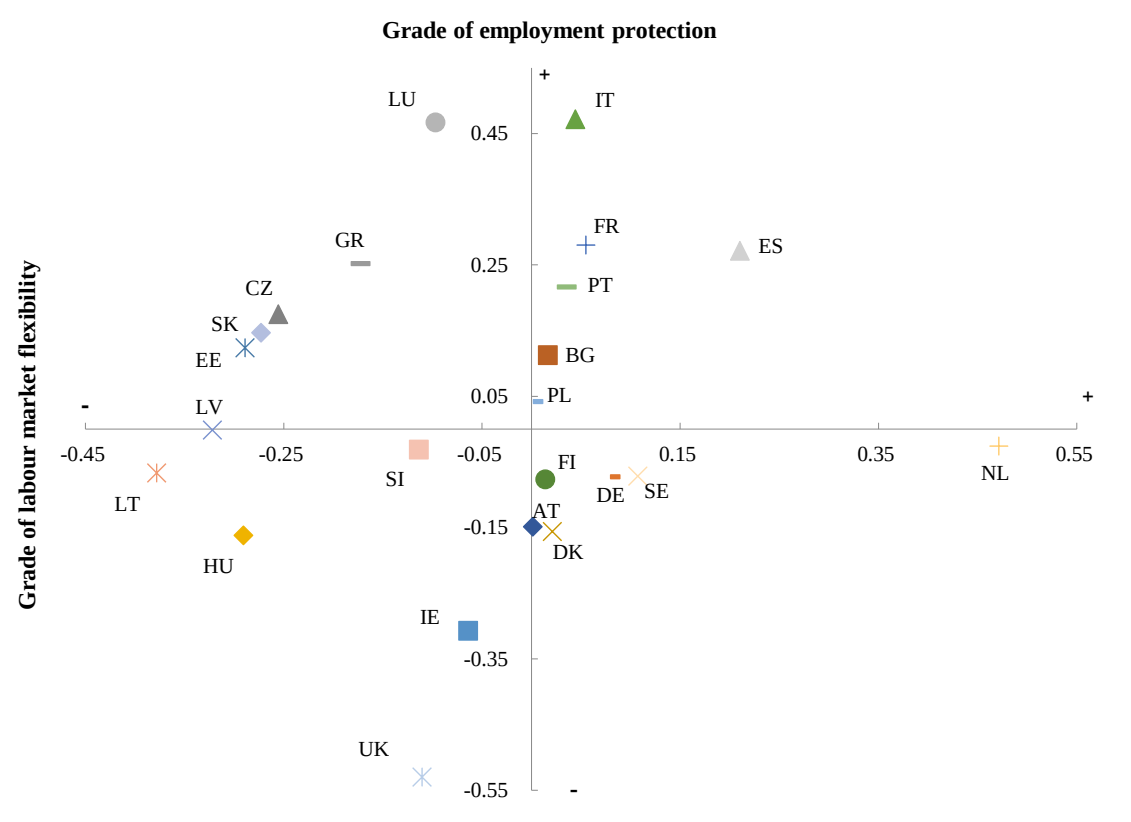

Figure I.1. Flexicurity implementation according to the employment protection legislation and rates of non-standard forms of employment by country, 2019. *Source*: Author's estimations based on OECD and Eurostat data.

By contrast, the Mediterranean countries record a high level of non-standard employment and strong protection, reflecting a segmentation of the labour market (Cahuc *et al.*, 2016). These countries have a significant imbalance between labour rights and the welfare benefits linked to the type of employment, that is, between a permanent or full-time job and temporary or part-time employment. This situation is compounded by a more rigid labour market due to the higher costs associated with recruitment and severance. The outcome is that individuals not only have to cope with segmented labour markets, but also with high levels of unemployment.

The Continental countries occupy the middle ground, with their protection of the labour market lying between the Nordic and Mediterranean countries and with a moderate incidence of non-standard employment, as we shall see in due course. Finally, the countries in Central and Eastern Europe record very low rates of non-standard employment, reflecting their low levels of labour flexibility. In some of these countries, such as Estonia and Slovakia, this inflexibility is accompanied by high job protection, which leads to high rates of long-term unemployment. This contrasts with countries such as Hungary and Lithuania, where the protection of jobs against dismissal is lower.

The two most common forms of non-standard employment in Europe are temporary and part-time employment. Figure I.2 shows the trend in the rate of part-time employment from 2000 through to 2019 for all EU-28 member states. As for the current situation, the rate of this type of employment is high, especially in the Nordic countries, with a highlight being the case of the Netherlands where it was as high as 50% in 2019. The Continental and Anglo-Saxon countries, post lower figures for part-time employment, but they are still high. Part-time employment has been used in these countries to satisfy the needs of both employers and employees for striking the right work-life balance. We should stress that this kind of employment has been widely used by women in certain countries (e.g., the Netherlands) to combine their work with childcare (Booth & Van Ours, 2013). Finally, the Mediterranean countries record a moderate rate for this type of employment, followed by countries in Central and Eastern Europe, where there is almost no part-time employment; this is explained by the scarce use of this type of employment and the low flexibility of their labour markets.

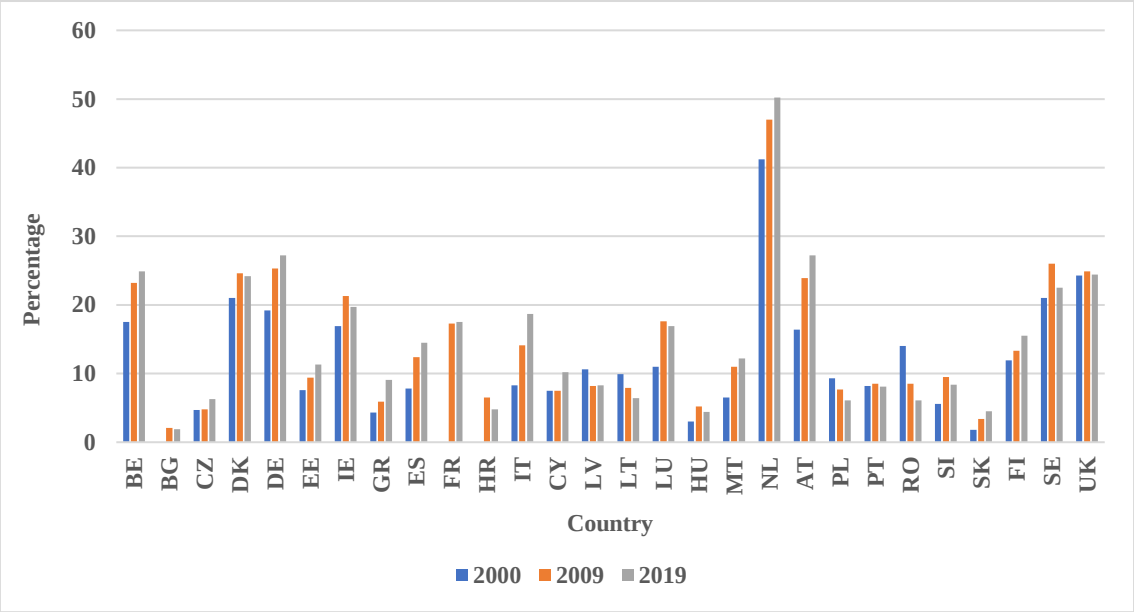

Figure I.2. Part-time employment rate measured as percentage of total employed population (15-64) by EU-28 member states, 2000, 2009 and 2019. *Source*: Author's elaboration based on Eurostat data.

Following our consideration of the current levels of part-time employment, a study of its development over the past twenty years (2000-2019) reveals a similar growth rate for a large number of EU-28 member states. In most of the countries or groups thereof, the rate of part-time employment has steadily increased over this time, which reflects the EU's institutional support for greater flexibility. Some countries, such as Ireland, Luxemburg, and Sweden recorded an increase in this rate during the first decade of this century, with a subsequent drop in the second due to the economic crisis. Nevertheless, even in these countries, the levels of part-time employment at the end of the period under analysis are higher than at the start. This therefore confirms the increase in part-time employment in most EU countries with the exception of certain ones in Central and Eastern Europe, such as Lithuania and Romania.

Part-time employment is just one of the indicators of the deregulation of European labour markets. Temporary employment is another kind of non-standard employment that has been especially favoured in certain economies. Before comparing the evolution of this type of employment, it is important to stress that the 2008 financial crisis, which we will be returning to in due course, destroyed employment, and especially temporary employment, over the first years of the crisis in certain countries, due to the lower associated redundancy costs.

Figure I.3 presents both the current situation and the evolution in the rate of temporary employment over the past twenty years for all EU-28 member states. The

levels of temporary employment are high in the Mediterranean countries, followed by their Nordic counterparts. Amongst the former, Spain stands out with a rate of temporality that exceeds 20% during the timeframe in question. Although this rate is particularly high in the Nordic countries, special mention should be made of their greater cover in terms of welfare protection compared to the Mediterranean ones. The rate of temporary employment is moderate in the Continental countries, and particularly low in most of Central and Eastern Europe, with the exception of Slovenia and Poland. Here again, there is a low incidence of non-standard employment in these two groups of countries.

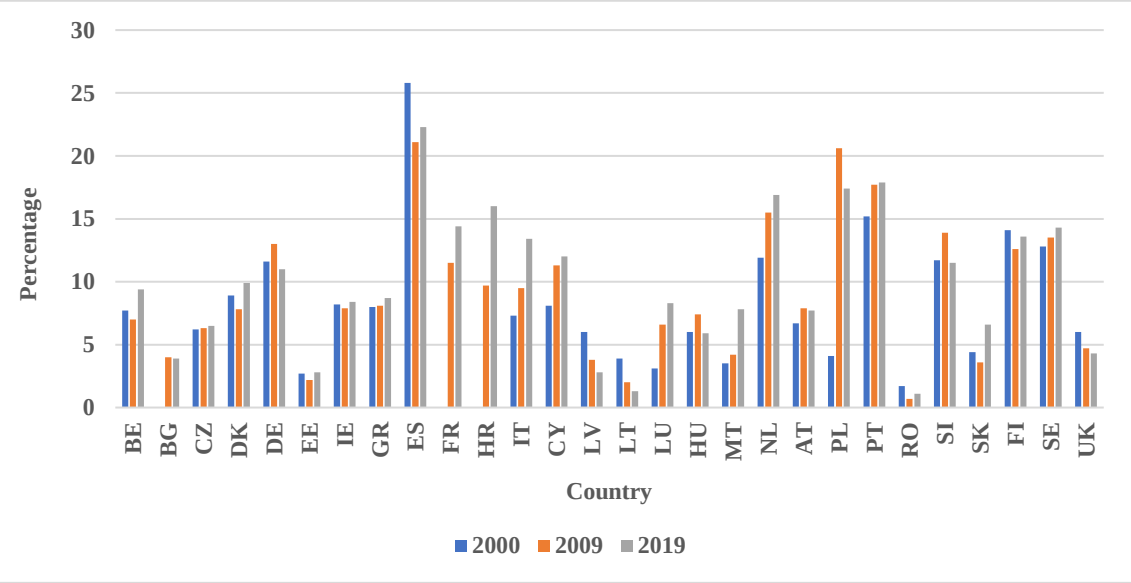

Figure I.3. Temporary employment rate measured as percentage of total employed population (15-64) by EU-28 member states, 2000, 2009 and 2019. *Source*: Author's elaboration based on Eurostat data.

Figure I.3 interestingly reveals two tendencies in Europe. On the one hand, and as with part-time employment, most countries have recorded an increase in temporary employment over the past twenty years. There has been a significant increase in this kind of non-standard employment in some countries (e.g., Italy, the Netherlands, and Poland), where the temporality rate has risen by more than five percentage points over the period in question. On the other hand, there are the notable examples of Denmark, Slovakia, Spain, and Finlandia, which have recorded a drop in temporary employment during the Great Recession, followed by an increase through to 2019. In these countries, the use of temporality fell during the crisis due to the greater facility for destroying this type of employment on the back of lower redundancy costs; nonetheless, most of these cases recorded a higher rate in 2019 than at the start of the 21st century.

The increase in these two types of employment, which as we have seen have occurred in most EU countries, may prompt an increase in job insecurity and

precariousness due to their associated factors. As noted in the ILO report (ILO, 2016b), this is because temporary employment is not the situation of choice for individuals and is associated with, among other aspects, lower wages (Davia & Hernanz, 2004; De la Rica, 2004; Hernanz & Toharia, 2006). Furthermore, part-time employment is associated with fewer opportunities for promotion (Russo & Hassink, 2008), fewer welfare benefits (Houseman & Machiko, 1998; O'Connell & Gash, 2003), weaker job stability (Fernández-Kranz *et al*., 2015), and lower wages (Hirsch, 2005). Chapter I that follows provides further detail on the relationship between non-standard employment and precariousness.

Scholars such as Gutiérrez-Barbarrusa (2016) and Kretsos & Livanos (2016) have noted the importance of the voluntary acceptance of these kinds of employment and its impact on precariousness. It has already been stated here that flexibility does not necessarily imply an increase in insecurity or precariousness, but it does so when it comes involuntarily (Eurofound, 2007). It is therefore vital not only to analyse the incidence of these forms of employment, but also an individual's willingness to accept these jobs. There now follows an analysis of this decision using EU-LFS data, as this dataset used extensively throughout this doctoral thesis enables us to estimate the rates of involuntary part-time and temporary employment through two items on the reasons individuals accept these jobs. Further detail is provided in due course on the definition of the variables used to identify involuntary non-standard employment.

Figure I.4 shows the trend in the rate of involuntary part-time employment according to the different groups of EU countries from 2000 to 2019. Although these rates generally do not exceed 5% over this time in almost all countries, there is a particularly high rate in France, Romania, Sweden, and the Mediterranean countries. Involuntary part-time employment records very low levels in most countries in Central and Eastern Europe, as well as in several Continental countries such as Austria and Luxemburg. Nevertheless, both in Ireland and in the Mediterranean countries, and especially so in Spain and Italy, the 2008 financial crisis triggered a sharp increase in the proportion of workers that have unwillingly accepted this non-standard form of employment. This effect has also been detected, albeit lesser so, in Latvia, the Netherlands, and the UK.

In spite of the fall in the rate of involuntary part-time employment in most EU countries following the Great Recession, some of them have not managed to return to pre-crisis levels. For example, between 2008 and 2013 this rate in Ireland rose from 2% to

10% due to the financial crisis, with this figure subsequently falling to 2% in 2019. By contrast, Figure I.4 shows how the rate of involuntary part-time employment has increased significantly in France and the Mediterranean countries since 2000, which have been unable to reduce this rate to pre-crisis levels. Particular mention should be made of Spain and Italy, where this rate has soared over the past twenty years, increasing 6% and 8.7%, respectively.

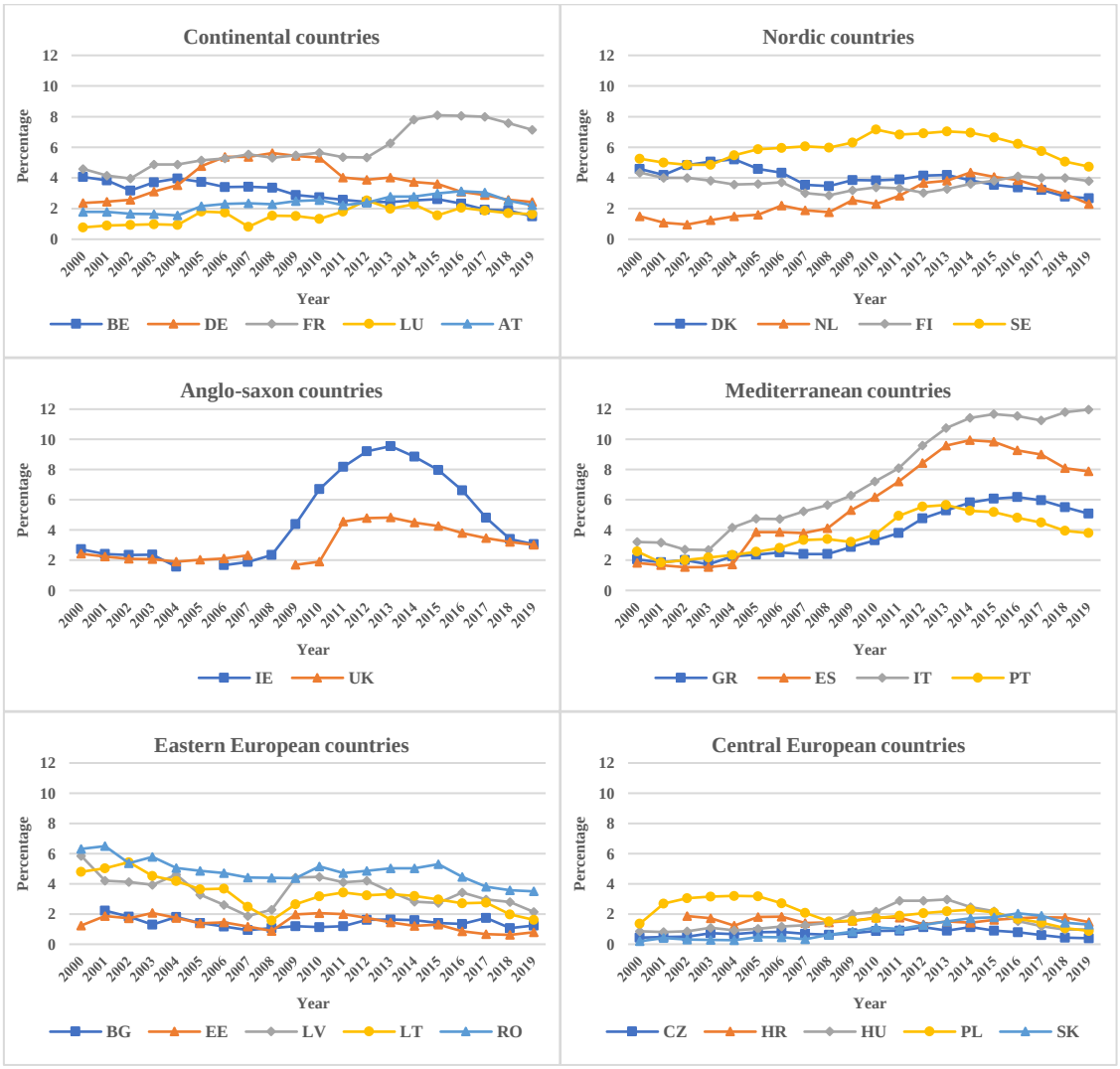

Figure I.4. Involuntary part-time employment rate measured as percentage of total employed population (15-64) by groups of EU-28 member states, 2000-2019. *Source*: Author's estimations based on EU-LFS data.

As in the case of involuntary part-time employment, the rate of involuntary temporary employment has evolved unevenly in the different groups of EU countries (Figure I.5). Firstly, an analysis of this rate reveals that two Mediterranean countries, Spain and Portugal, followed by Poland, record the highest levels of this type of employment, which is consistent with prior studies such as the one by Green & Livanos (2017). These countries record rates of more than 15% during some of the years analysed.

The widespread use of temporary employment and the rigid nature of their labour markets may have favoured the high rate of involuntary temporary employment observed. Secondly, the rates for this kind of employment are low in most Continental, Nordic, and Central European countries, and especially so in Anglo-Saxon countries and Eastern Europe, remaining constant over these past twenty years. Particular note should be taken of Italy, Belgium, France, and Hungary, recording a moderate rate of involuntary temporary employment, with a slight post-crisis increase.

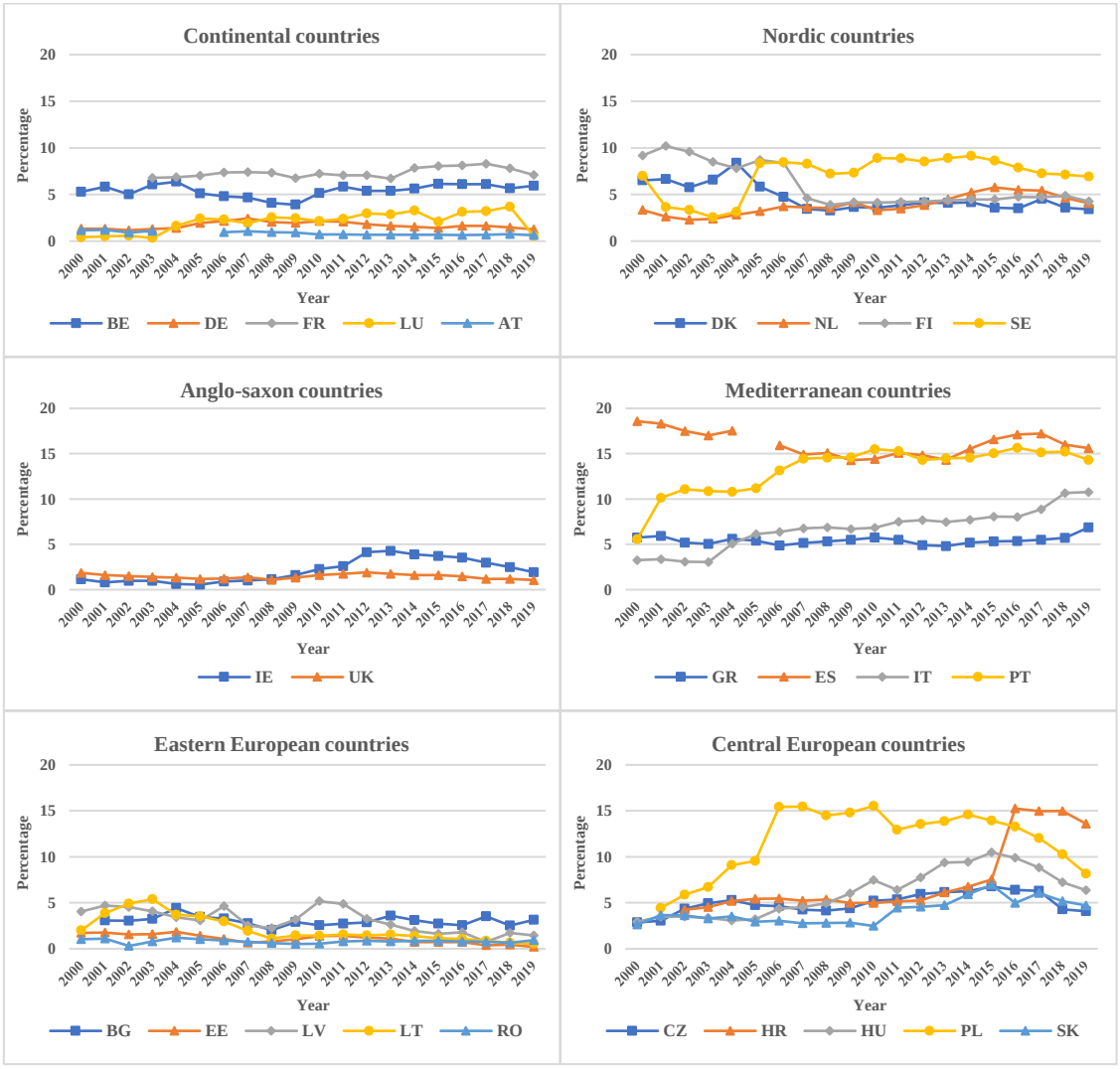

Figure I.5. Involuntary temporary employment rate measured as percentage of total employed population (15-64) by groups of EU-28 member states, 2000-2019. *Source*: Author's estimations based on EU-LFS data.

The varying incidence in involuntary non-standard employment in EU-28 member states is a key aspect when comparing the evolution of precariousness, as two of its dimensions are intrinsically related to these kinds of employment. This is particularly important among young people because of their greater propensity toward forcibly having to accept these kinds of non-standard employment (Green & Livanos, 2017). An analysis

will therefore be conducted in due course on the specific situation of young people and the evolution of non-standard employment over the past twenty years, considering the factor of its voluntary nature[3].

2.2. The Great Recession

The Great Recession or 2008 financial crisis was a global event caused by the overvaluation of financial products that began in the US with the collapse of the Lehman Brothers bank. This had a knock-on effect throughout the world, and especially in certain regions such as Europe. The high levels of public debt in some of Europe's sovereign nations, mainly in Southern Europe, prolonged and heightened the negative effects of the crisis, with an unequal impact on the recovery in Europe (Pissarides, 2013). Although the crisis was triggered mainly in the financial sector, it had a direct impact on European labour markets, as reflected in the main aggregate variables, such as unemployment, labour force participation, and the rate of employment.

Together with its impact on aggregate variables in EU labour markets, and like other economic downturns, the Great Recession involved a prolonged period of deteriorated labour conditions and lower wages (Bachmann *et al*., 2015; O'Higgins, 2012). Furthermore, the crisis had an uneven impact on different segments of the population, having a more negative effect particularly on men and young people (Bachmann *et al*., 2015). Studying the effects of the crisis calls for an analysis of a sufficiently long timeframe that enables us to compare the pre-crisis situation to the period of recession itself and the ensuing recovery. We have therefore examined the evolution of the main aggregate variables for EU labour markets for the 2000-2019 period.

Figure I.6 presents the trend in the employment rate as a percentage of the working-age population for this timeframe. With a view to facilitating a comparison and interpretation of the results by countries, and as explained earlier, these have been grouped according to their welfare systems, the nature of their labour markets, and their geographical location. An initial perusal reveals that both levels of employment and the effects of the economic crisis vary considerably across the different groups of countries. The employment rates in the Nordic and Continental countries and the UK fell slightly

[3] The appendix contains the tables with the annual rates for voluntary and involuntary non-standard forms of employment, and the main aggregate variables for European labour markets, both for the overall population and for young people aged 15-34, for all EU-28 member states for the 2000-2019 period.

between 2008 and 2010 because of the crisis, following which they recovered quickly and returned to the prior trend, even managing to record levels of employability that outstripped those before the crisis. The growing tendency in Continental countries compared to their Nordic neighbours may be due to, among other aspects, their lower employment rates in the first decade of this century. Therefore, although we are basing ourselves solely on a descriptive approach, there seems to be some convergence between these two groups over the timeframe analysed.

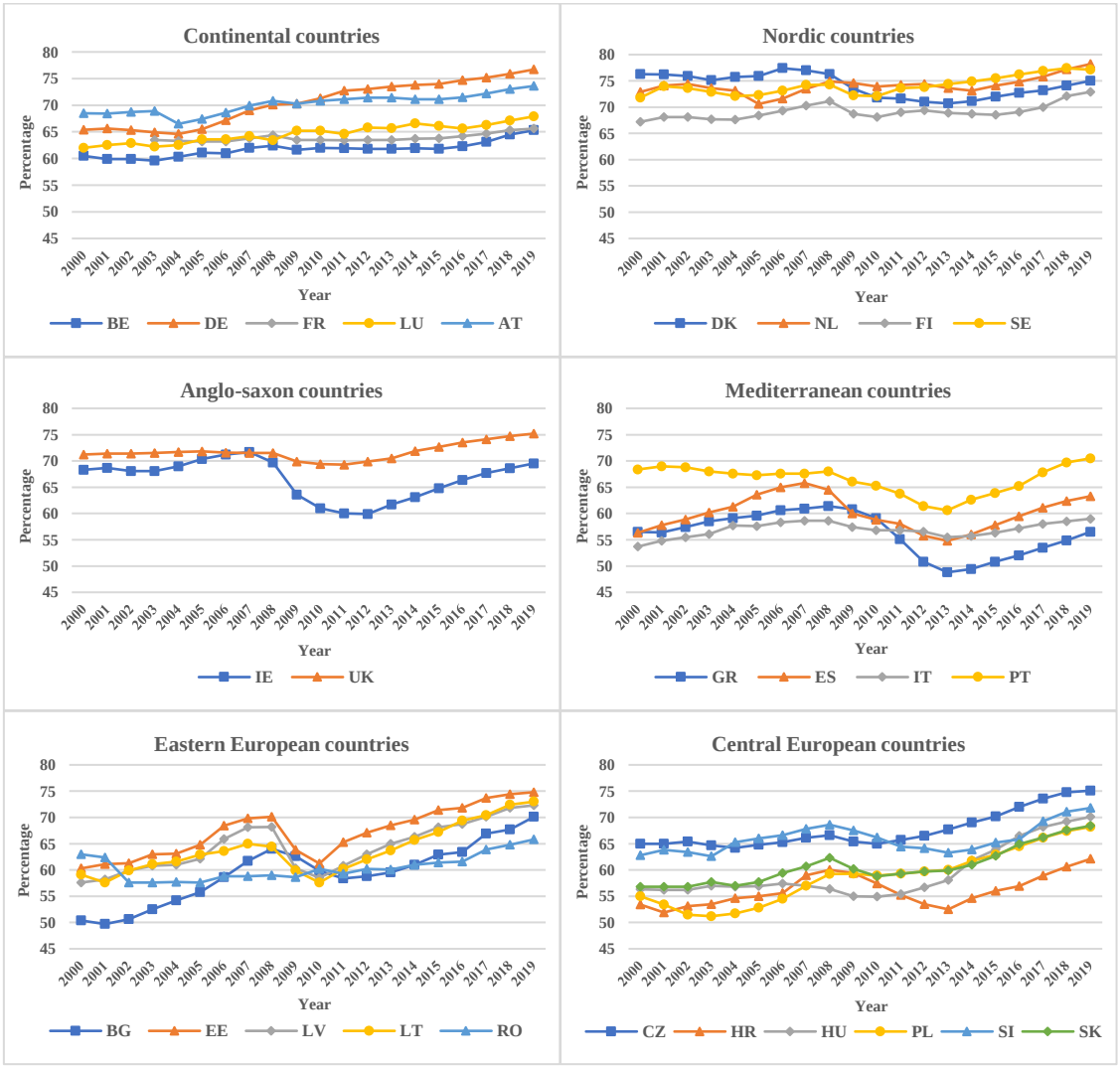

Figure I.6. Employment rate measured as percentage of total working age population (15-64) by groups of EU-28 member states, 2000-2019. *Source*: Author's elaboration based on Eurostat data.

Most of the other EU countries record a bigger and longer lasting impact of the financial recession on the employment rate. On the one hand, the trend in Central and Eastern European countries involves a growing rate of employment over the past twenty years, although this pattern was interrupted between 2008 and 2010 due to the negative effects of the crisis. It is important to note the differences between the countries within

these groups, with examples being Croatia and Slovenia in Central Europe, where the fall in the employment rate lasted until 2013. On the other hand, the Great Recession had a major impact on the Mediterranean countries and Ireland, where the employment rates only began to recover as from 2013, and in some of them, such as Spain and Greece, even by 2019 they had still not returned to pre-crisis levels.

The destruction of employment was one of the repercussions that the financial crisis had on EU-28 members states especially between 2008 and 2010. Although this scenario had negative consequences for all employees, both those with permanent contracts and temporary ones, certain scholars such as Bentolila *et al*. (2012), for Spain and France, and Bachmann *et al*. (2015) for the EU as a whole, report how temporary employment was affected more. As mentioned, temporary employment fell during the crisis, especially in Spain, Finland, and Denmark. Nevertheless, following this period of recession, non-standard employment has not stopped growing. Although there has been a noticeable recovery in levels of employment in the wake of the Great Recession, a large share of the jobs created have been temporary or part-time. It is therefore to be expected that precariousness would have increased in step with each other, at least as far as type of contract and working day are concerned. The first chapter here addresses this issue, identifying the evolution of precariousness in each country in order to compare the asymmetric effects the crisis has had.

A further factor associated with precariousness involves the lack of job security individuals perceive, which is linked to other variables such as unemployment, and like the flexibility of labour markets they affect the incidence of precariousness in EU countries (Gutiérrez-Barbarrusa, 2016). Unemployment in EU-28 member states has evolved at the same pace as the employment rate, albeit in the opposite direction (Figure I.7). Whereas the unemployment rate has changed little in Nordic and Continental countries and the UK, it rose sharply in Mediterranean, Central and Eastern European Countries, and Ireland between 2008 and 2013. In contrast to the employment rate, the first group of countries recorded low levels of unemployment throughout the period analysed, while the second group posted a higher unemployment rate. Some Mediterranean and Central and Eastern European countries, such as Greece, Spain and Latvia, together with Ireland, saw their unemployment rate double in just two years, reflecting a drastic change in their domestic labour markets. Furthermore, these markets

have not yet managed to fully recover, and even in 2019 their unemployment rates were higher than in 2000.

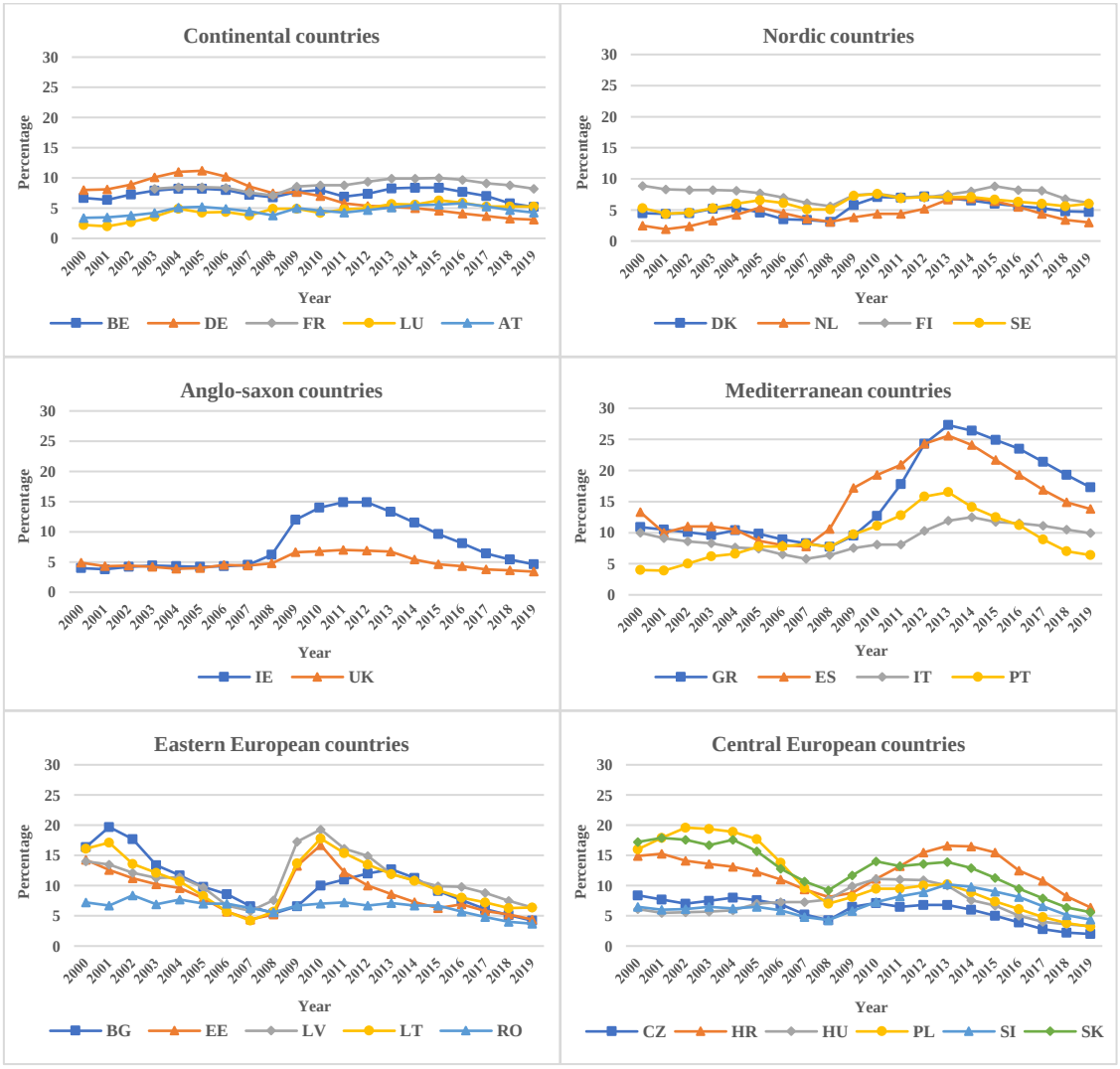

Figure I.7. Unemployment rate measured as percentage of total working age population (15-64) by groups of EU-28 member states, 2000-2019. *Source*: Author's elaboration based on Eurostat data.

Unemployment rose sharply in Europe following the financial crisis, which together with the spread of non-standard employment has created a suitable environment of insecurity and instability for favouring an increase of precariousness. Scholars such as Hardgrove *et al.* (2015) have studied young people's transition from education to the labour market in recent times in the UK, highlighting the presence of this insecurity and uncertainty in their labour trajectories. Unemployment has already been shown to have a negative impact on people's labour trajectories, and especially so among young people, which means that particular attention needs to be paid to long-term unemployment, as this might aggravate their situation. As time passes, unemployed jobseekers find it increasingly more difficult to re-join the labour market (Heyma *et al.*, 2014). Bejaković

& Mrnjavac (2018) report that long-term unemployed jobseekers are at greater risk of, among other things, earning lower wages and having a less promising future in their careers. In addition, they stress the possibility that their human capital will deteriorate or become obsolete the longer they remain inactive.

The empirical evidence shows that long-term unemployment has evolved in an analogous way to the unemployment rate (Figure I.8). As with the unemployment rate in Nordic and Continental countries and the UK, the long-term rate started off low, and the effects of the financial crisis, besides being slight, were resolved between 2008 and 2010. By contrast, this rate in all the other EU countries rose sharply from 2008 through to 2013. This involved a devastating increase in Spain, Ireland, and Portugal, for example, where the rate of long-term unemployment rose above 10%, and in the particular case of Greece it almost reached 20%. Considering the drawbacks facing long-term unemployed jobseekers and their difficulty in rejoining the labour markets (Heyma *et al*., 2014), we may affirm that the Great Recession had a particularly damaging impact on Mediterranean, Central and Easter European countries, and Ireland.

In short, the Great Recession of 2008 had an impact on Europe's labour markets that had not been seen since the long European recession in the 1980s or the Great Depression triggered by the Wall Street Crash of 1929 (Pissarides, 2013). This impact is reflected both in the fall in the employment rate and in the parallel rise in short- and long-term unemployment. Moreover, these effects have perdured over the years, especially in some countries that have still not managed to return to their pre-crisis levels of employment. Pissarides (2013) specifically maintains that prior experience in terms of unemployment during the upheavals in the 1980s and the Great Depression are a clear example of how the effects of a crisis may be prolonged in terms of unemployment in some countries. Bachmann *et al*. (2015) contend that young people make up one of the segments of the population most affected by the recession in Europe, evidencing the serious consequences that factors such as long-term unemployment may have on the cohorts joining the labour market during that period. These generations are not only more likely to have to deal with precarious conditions (Nielsen *et al*., 2019), but they have been jeopardised when accessing the labour market and permanently held back in their work and life trajectories.

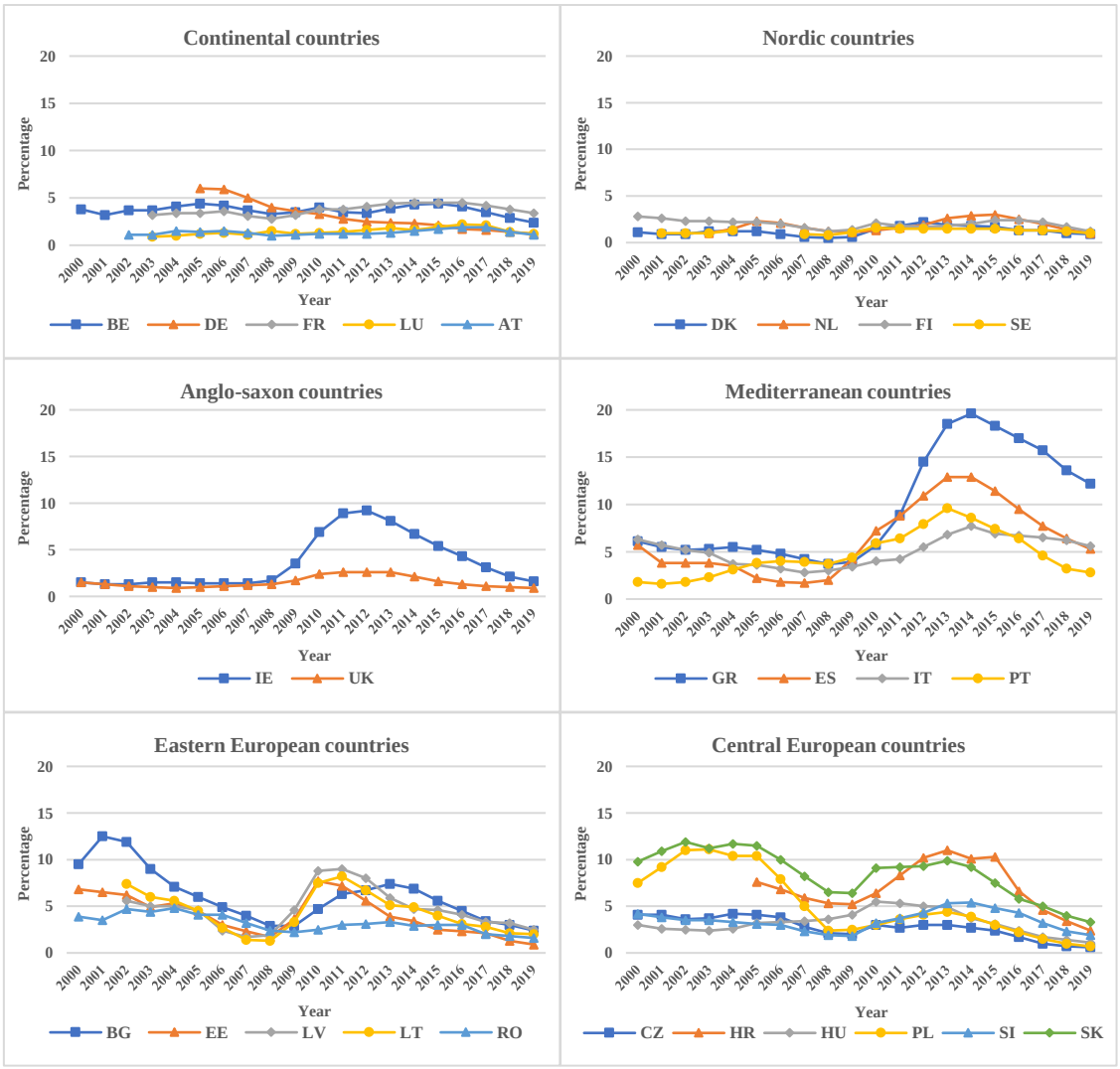

Figure I.8. Long-term unemployment rate measured as percentage of total working age population (15-64) by groups of EU-28 member states, 2000-2019. *Source*: Author's elaboration based on Eurostat data.

2.3. Young people in the labour market

Young people are a cohort of interest when analysing certain labour dynamics because of their unique circumstances and the transition they undergo from education to the labour market (O'Reilly *et al*., 2018). Nevertheless, there is a lack of consensus in the literature on the upper age limit for considering an individual to be young (Simms *et al*., 2018). Eurofound has provided a fluid definition, whereby youth is the period that falls between childhood and adulthood. We may therefore consider youth to be the period elapsed between the time individuals are legally allowed to work through to the consolidation of their personal and working lives.

Based on the Eurofound definition, the lower age threshold for young people has been set at 15, as this is the minimum legal age for working in the EU, as established by

Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work. The upper threshold has been set at the age of 34, as some countries, such as Spain, Greece, and Italy, are characterised by young people's delayed entry and consolidation in the labour market (Scarpetta *et al*., 2010). Despite this upper threshold being set at 34, the different chapters will study age in five-year brackets with a view to comparing the effects across different EU countries. It should be noted that part of the literature considers other age ranges: for example, Choudhry *et al*. (2012) and Kretsos (2010) consider youth to fall between the ages of 15, and 24 and 29 respectively.

As already noted, young people have to take their first steps in labour markets characterised by the insecurity and uncertainty caused by far-reaching flexibility policies and the 2008 financial crisis (European Commission, 2009). In addition, they must face more precarious working conditions compared to the rest of the population (Nielsen *et al*., 2019). This is compounded by the fact that young people are one of the more vulnerable segments in the labour market (Green & Livanos, 2017), which poses an added difficulty for them when finding their feet in labour markets that differ across EU countries.

Before analysing the precariousness of employment among young people, it is essential to understand their point of departure in relation to the main aggregate variables in EU labour markets. This means it is important to analyse both rates of employment and unemployment and the evolution of the different non-standard forms of employment because of the impact these variables have on precariousness. Based on the premise that youth unemployment is considered to be the main cause of the differences between EU countries in terms of unemployment (Boeri & Jimeno, 2015), it is to be expected that the economic effects of the Great Recession will have affected particularly young people in those countries with the highest unemployment.

Figures I.9 and I.10 reveal that the rates of both youth employment and unemployment differ from the figures for the overall working-age population. Likewise, these rates also differ considerably across the groups of EU countries studied here. Figure I.9 shows that most of the countries, including the Anglo-Saxon and Mediterranean ones, and those in Central and Eastern Europe, record rates of youth employment that are 10%-15% lower than the rates for the overall population. By contrast, the gap in employment between young people and the whole population is narrower in the Nordic and some

Continental countries, such as Austria and Germany, and the difference is under 5% for most of the 2000-2019 period.

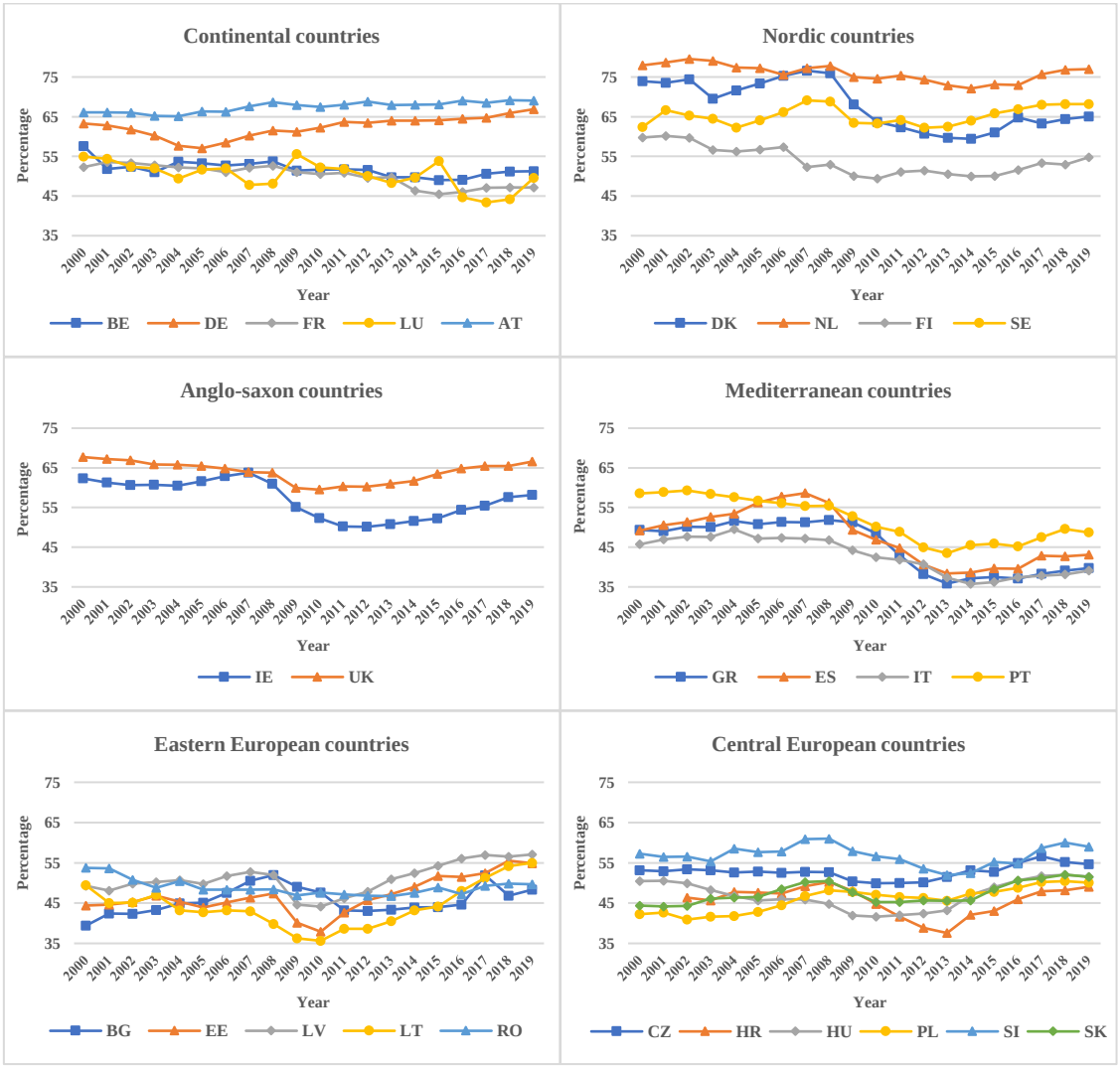

Figure I.9. Youth employment rate measured as percentage of total young population aged 15-34 by groups of EU-28 member states, 2000-2019. *Source*: Author's estimations based on EU-LFS data.

The rates of youth employment are high in the Nordic countries, followed by their Continental and Anglo-Saxon counterparts, whereas the Mediterranean and Central and Eastern European countries record rates below 50%, and even less than 40% in some years in Greece, Italy, and Latvia. Like these rates for the overall population, the financial crisis had a particular impact on young people in the Mediterranean countries and Ireland. In contrast to the rates for the overall working-age population, the ones for young people, even in some Nordic countries (e.g., Denmark), were negatively affected by the Great Recession, with this negative effect lasting until 2019. The rates of youth employment have not recovered and have not managed to recoup their pre-crisis levels in most EU-28 member states, whereas they have for the overall population. The evidence on rates of

youth employment suggests that the crisis had a particular impact on this cohort, hindering their labour integration and access to the labour market.

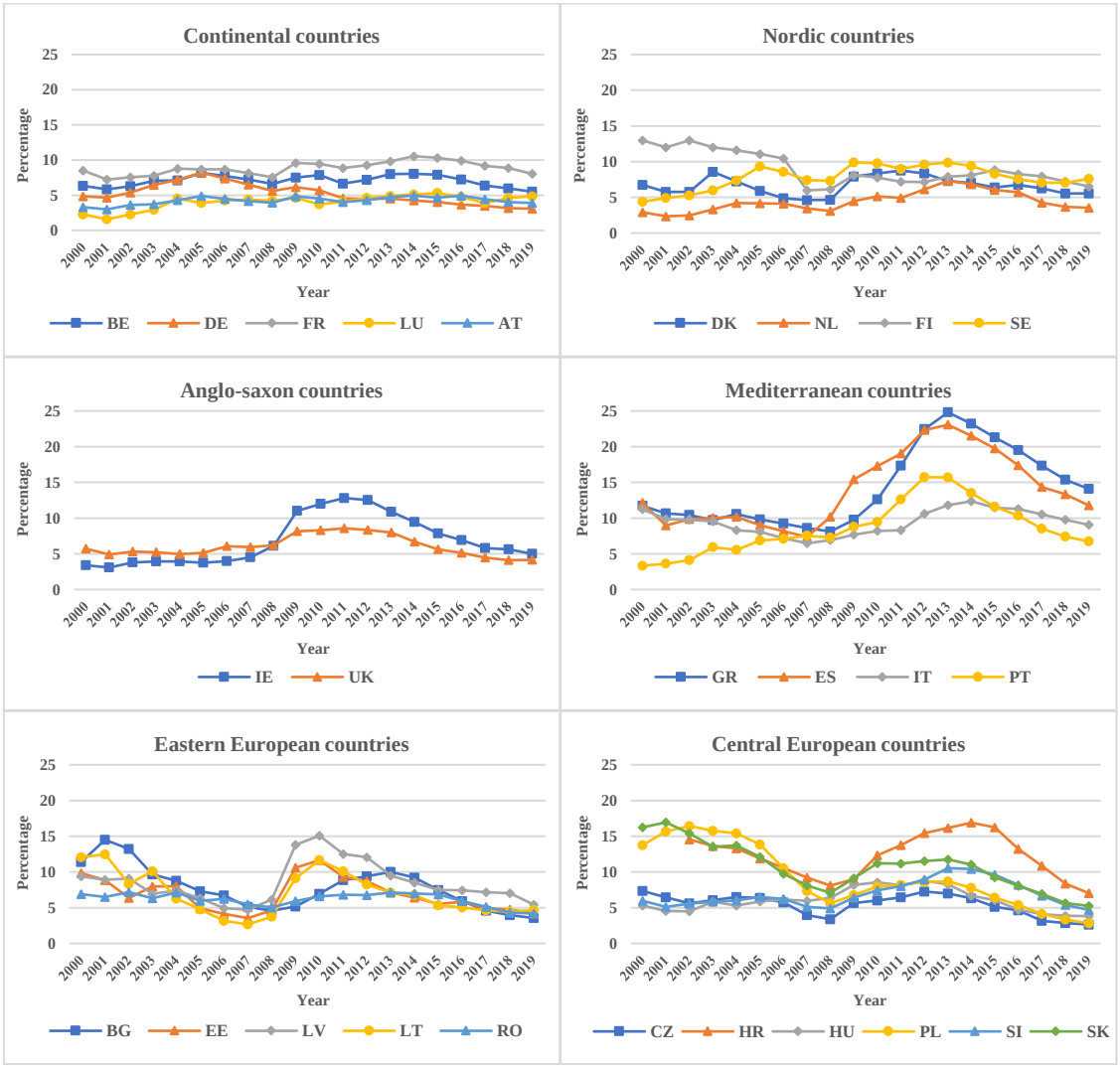

Figure I.10. Youth unemployment rate measured as percentage of total young population aged 15-34 by groups of EU-28 member states, 2000-2019. *Source*: Author's estimations based on EU-LFS data.

Figure I.10, shows that the rates of youth unemployment, as opposed to youth employment, have evolved in tandem with unemployment rates for the overall working-age population. Boeri & Jimeno (2015) report that youth unemployment is the main reason for the differences in unemployment across Europe. This is reflected in the low rates of youth unemployment in the Nordic and Continental countries, with figures below 10% for most of the 2000-2019 period, followed by some countries in Central and Eastern Europe, such as Slovenia, Hungary, the Czech Republic, and Romania. Other countries in the group, such as Croatia, Slovakia, and Latvia, record moderate rates of youth unemployment. These rates fell gradually from 2000 through to 2008, but on the back of

the crisis they rose to levels of close to 15% in 2013, whereupon they began to fall steadily through to 2019.

By contrast, young people in the Mediterranean countries have been particularly hard hit by the financial crisis in terms of unemployment. Starting in 2008, there has been a sharp increase in the rate of youth unemployment, rising above 20% in 2013 in Spain and Greece. Although youth unemployment has slowly fallen through to 2019 in these countries, it has still not recovered pre-crisis levels. Finally, mention should be made of Ireland, a country with a youth unemployment rate of less than 5%, yet which in the 2008-2013 period drew close to 15%. The high rate of youth unemployment in these countries is one of the factors with a bearing on young people's delayed consolidation in the labour market (Scarpetta *et al*., 2010). Furthermore, recent studies on young people's transition from education to work stress that their high levels of unemployment reflect a deficit in the institutions responsible for promoting this transition (O'Reilly *et al*., 2018).

Youth unemployment and the number of young long-term unemployed jobseekers are intrinsically linked. Figures I.10 and I.11 show that the evolution and levels of these two macroeconomic variables are similar for all EU-28 member states. According to Boeri & Jimeno (2015), youth unemployment varies across countries because of institutional factors, including the following: collective bargaining agreements, wage-adjustment mechanisms, labour protection legislation, and employment regulations. The Continental and Nordic countries and the UK have a very low rate of long-term unemployment among young people. Nevertheless, the rigidity of certain EU labour markets, defined by factors such as a high level of protection against dismissal, favours high rates of long-term youth unemployment in some Mediterranean and Central and Eastern European countries, such as Spain, Greece, Croatia, and Slovakia. Figure I.11 also shows how the 2008 recession increased the rates of long-term unemployment in these countries and in Ireland, with levels soaring in Spain and Greece.

The evolution of unemployment is a key factor when analysing job precariousness, as it is associated with a higher level of insecurity perceived by workers (Famira-Mühlberger & Fuchs, 2013; Nichols & Sugur, 2004). This insecurity may lead to the acceptance of precarious working conditions or non-standard employment. O'Reilly *et al*. (2018) report that young people face labour markets with a growing number of short-term, unstable, and poorly paid jobs. The 2008 crisis together with the

deregulation of EU labour markets has increased the share of non-standard jobs (Green & Livanos, 2017), especially among young people (Choudhry *et al*., 2012).

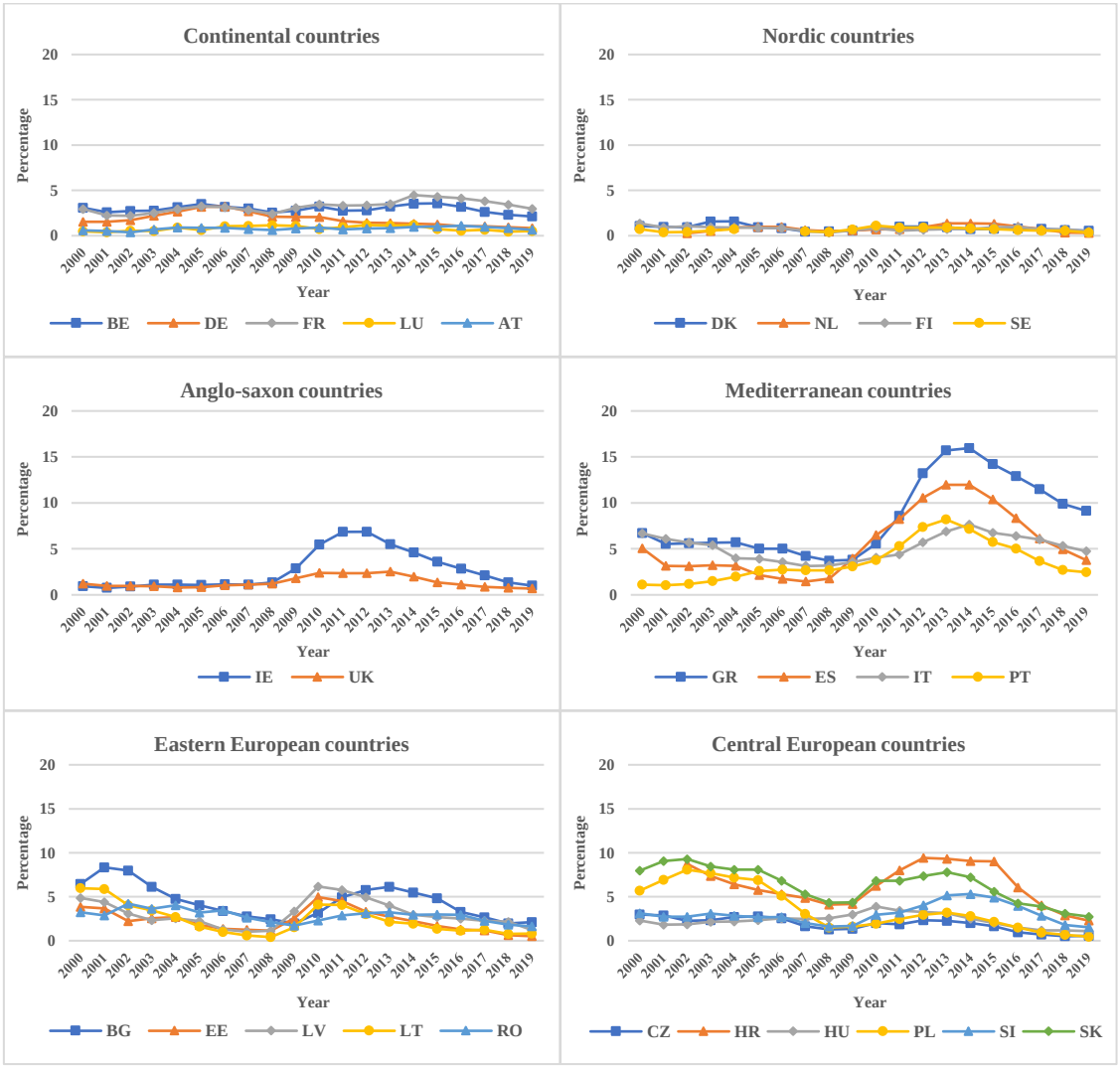

Figure I.11. Youth long-term unemployment rate measured as percentage of total young population aged 15-34 by groups of EU-28 member states, 2000-2019. *Source*: Author's estimations based on EU-LFS data.

This increase in the forms of non-standard employment and in the lack of security associated with unemployment is related to an increase in multiple jobholding (Dickey *et al*., 2015), and unpaid overtime (Famira-Mühlberger & Fuchs, 2013; Nichols & Sugur, 2004), as these are strategies used to cope with precarious working conditions. As noted earlier, the types of non-standard employment such as temporary or part-time employment entail, among other aspects, a reduction in rights and welfare benefits (O'Connell & Gash, 2003), less job stability (Fernández-Kranz *et al*., 2015), and lower wages (Davia & Hernanz, 2004; Hernanz & Toharia, 2006; Hirsch, 2005).

As with the overall population, Figure I.12 reveals the sustained growth of part-time employment among young people under the age of 34 over the past twenty years in

EU-28 member states, with the exception of Central and Eastern European countries. Nonetheless, the rates of part-time employment among young people are higher in almost all EU countries compared to the levels for the overall working-age population. These rates are especially high in the Netherlands and Denmark, rising above 60% and 50% respectively. The Mediterranean, Continental and Anglo-Saxon countries record moderate rates of between 20% and 25%, with the downside being the post-crisis increase in this type of employment in Austria, Spain, Italy, and Ireland, for example. Finally, the rates of part-time employment among young people are low in Central and Eastern European counties because of their labour market inflexibility.

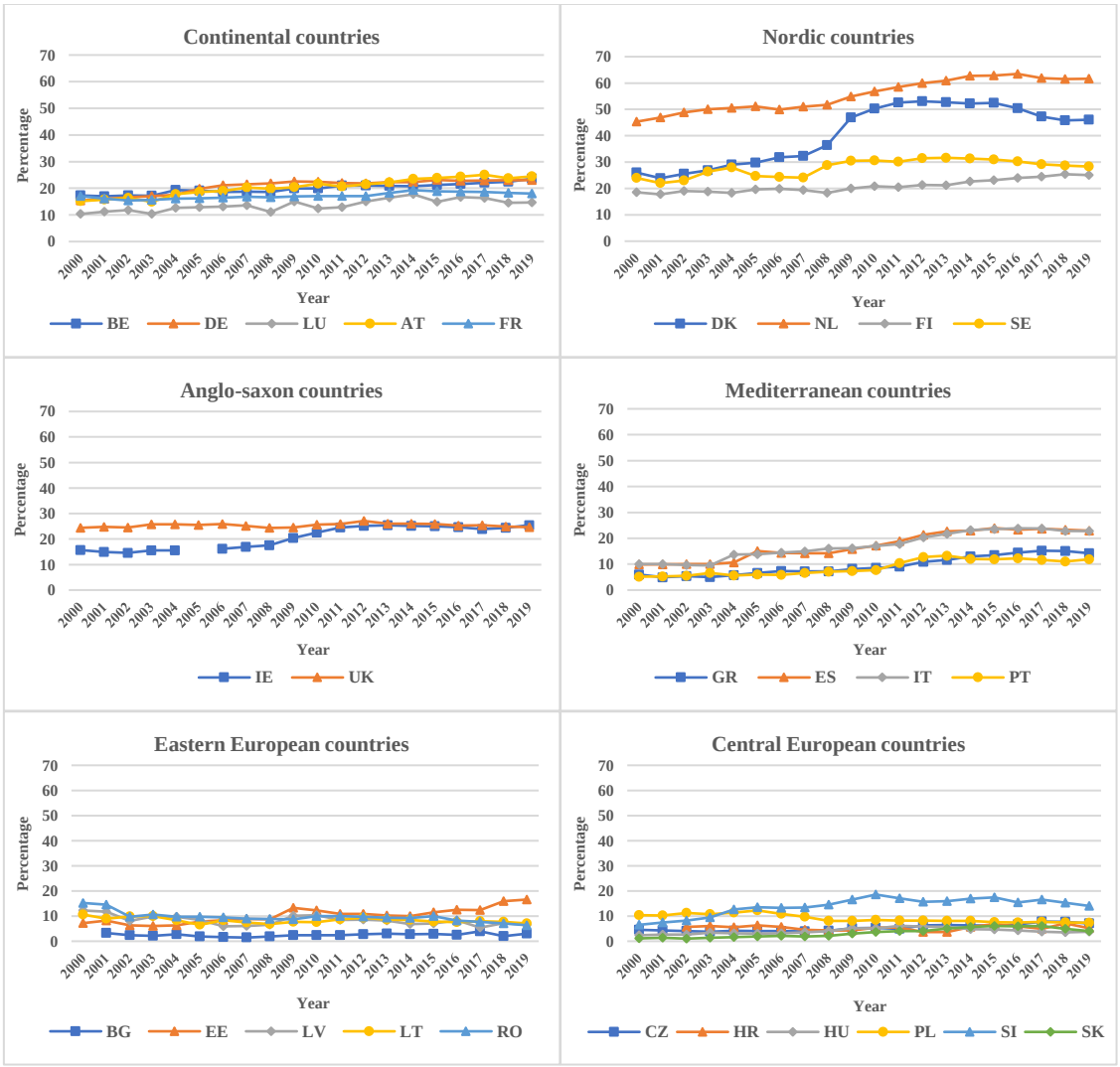

Figure I.12. Part-time employment rate among young workers (15-34) measured as percentage of total employed young population aged 15-34 by groups of EU-28 member-states, 2000-2019. *Source*: Author's estimations based on EU-LFS data.

Although the trend for temporary employment among young people is similar to that for the overall population, Figure I.13 shows that levels of temporality among young people are higher in all EU-28 member states in 2019. Consistent with the findings

reported by Green & Livanos (2017), there are proportionally more young people in temporary and part-time employment. On the one hand, the rate of temporary employment is low in Eastern European countries, the UK, and in certain Central European countries, such as Slovakia, Hungary, and the Czech Republic. On the other hand, this rate is high in certain Mediterranean countries (Spain, Italy, and Portugal), Continental ones (Germany and France), Nordic ones (Finland, the Netherlands, and Sweden), and in Eastern Europe (Croatia, Slovenia, and Poland). Some of these, such as Spain and Portugal, record a rate of temporary employment among young people that exceeds 40% in some of the years analysed here.

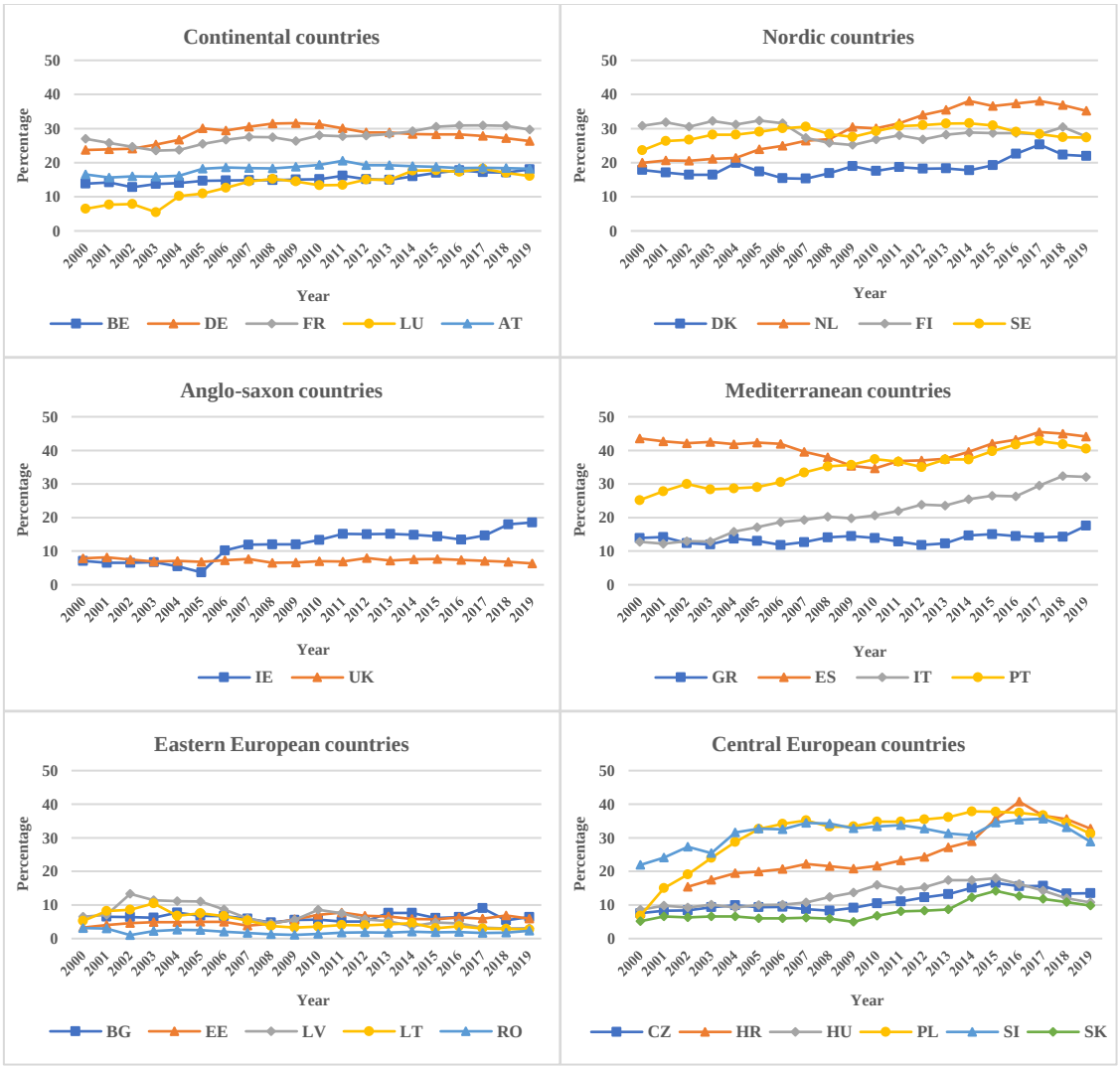

Figure I.13. Temporary employment rate among young workers (15-34) measured as percentage of total employed young population aged 15-34 by groups of EU-28 member-states, 2000-2019. *Source*: Author's estimations based on EU-LFS data.

As already noted, Gutiérrez-Barbarrusa (2016) and Kretsos & Livanos (2016) have highlighted the importance of the willingness to accept non-standard employment and its relationship with precariousness. It is true to say that non-standard employment

has certain drawbacks, such as the lower level of protection against dismissal or access to rights; nevertheless, these kinds of jobs may suit those young people seeking to reconcile work and their personal lives (Beham *et al.*, 2019). For example, young people may want a part-time job to work while studying or training (Nicolaisen *et al.*, 2019). This is an aspect that has not been widely explored in the literature when measuring precariousness, although the data available in the EU-LFS provide an opportunity to study it accordingly.

Figure I.14 shows the evolution of involuntary part-time employment among young people as a percentage of the overall number of young wage earners over the past twenty years. Firstly, these rates are extremely low in most Central and Eastern European countries, with the exception of Romania, which records a moderate rate of 6%-8% over the period analysed (Figure I.14). Secondly, moderate rates of this kind of involuntary employment are found in Continental and Nordic countries, Portugal, and the UK. Finally, all the other Mediterranean countries, France, Ireland, and Sweden post high rates, especially Spain and Italy, where the corresponding rates rocketed following the 2008 crisis.

When compared to involuntary part-time employment, the rates of involuntary temporary employment among young people are higher and vary considerably across countries within each one of the groups defined here (Figure I.15). The lowest rates correspond to Anglo-Saxon and Eastern European countries, as well as to certain Continental ones such as Germany, Austria, and Luxemburg. The Nordic countries have undergone a constant evolution over the past twenty years, recording values of between 5% and 10%, with the exception of Sweden, with a rate of more than 15%. Similar levels of involuntary temporary employment are recorded in Greece, Belgium, France, and Italy, although this last country has recorded a continuous increase, with rates exceeding 20% in 2018 and 2019. Finally, these rates of involuntary temporary employment have surpassed 25% in Spain, Portugal, and Poland. Moreover, the trend has been rising in Italy and Spain since 2008.

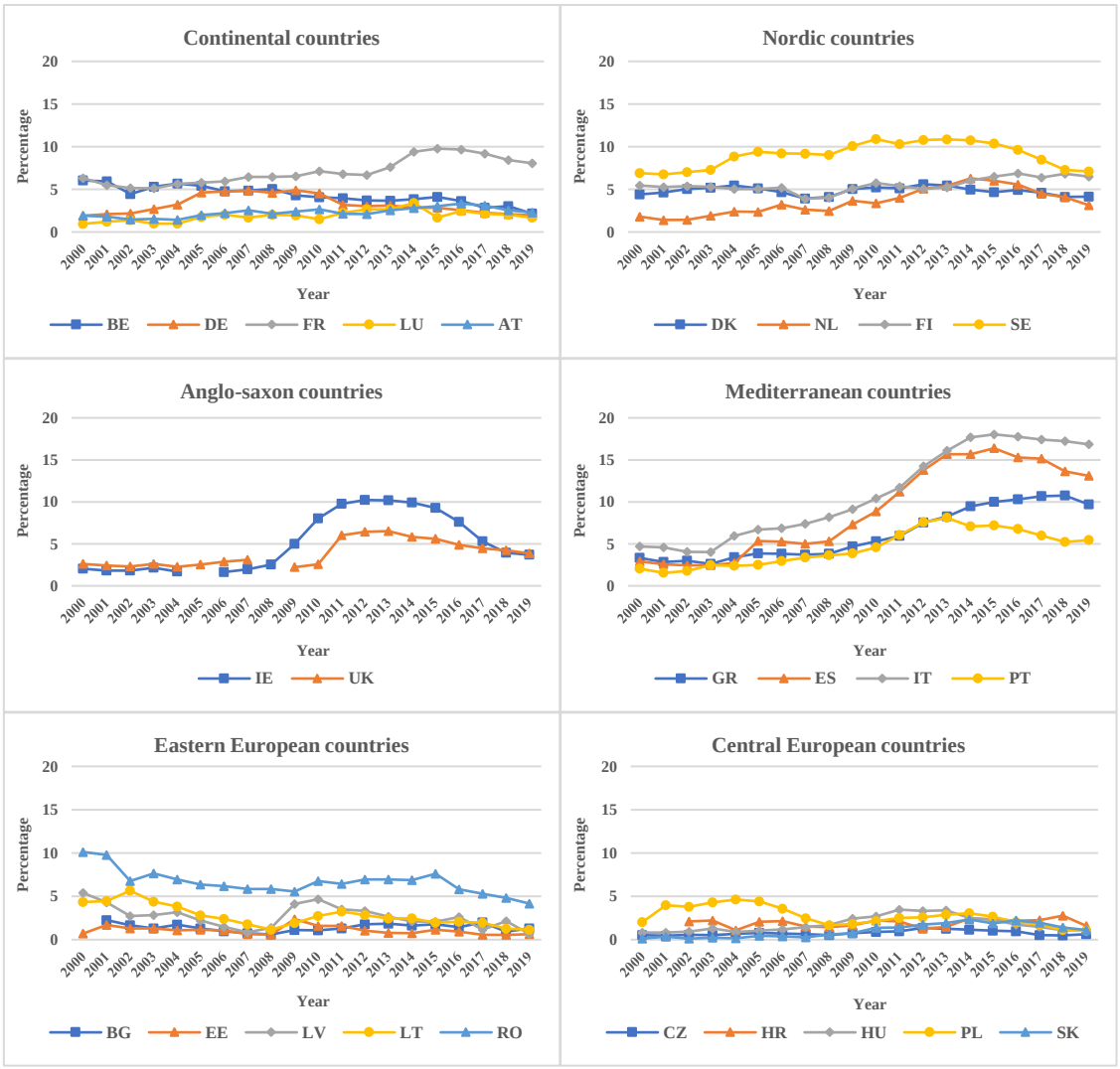

Figure I.14. Involuntary part-time employment rate among young workers (15-34) measured as percentage of total employed young population aged 15-34 by groups of EU-28 member-states, 2000-2019. *Source*: Author's estimations based on EU-LFS data.

The incidence of involuntary non-standard employment among young people is higher than for the overall population in almost all EU-28 members, coinciding with the findings reported by Green & Livanos (2017). The growing trend in the types of both voluntary and involuntary non-standard employment suggests that precariousness might have increased in Europe over the past fifteen years, especially following the 2008 crisis. As we have seen, there have been major differences across Europe. The incidence of non-standard forms of employment is low in most Central and Eastern European countries, whereas the rates are very high in Mediterranean countries and Ireland, and even in certain Nordic countries such as the Netherlands and Denmark, where the rate of part-time employment among young people exceeds 50%.

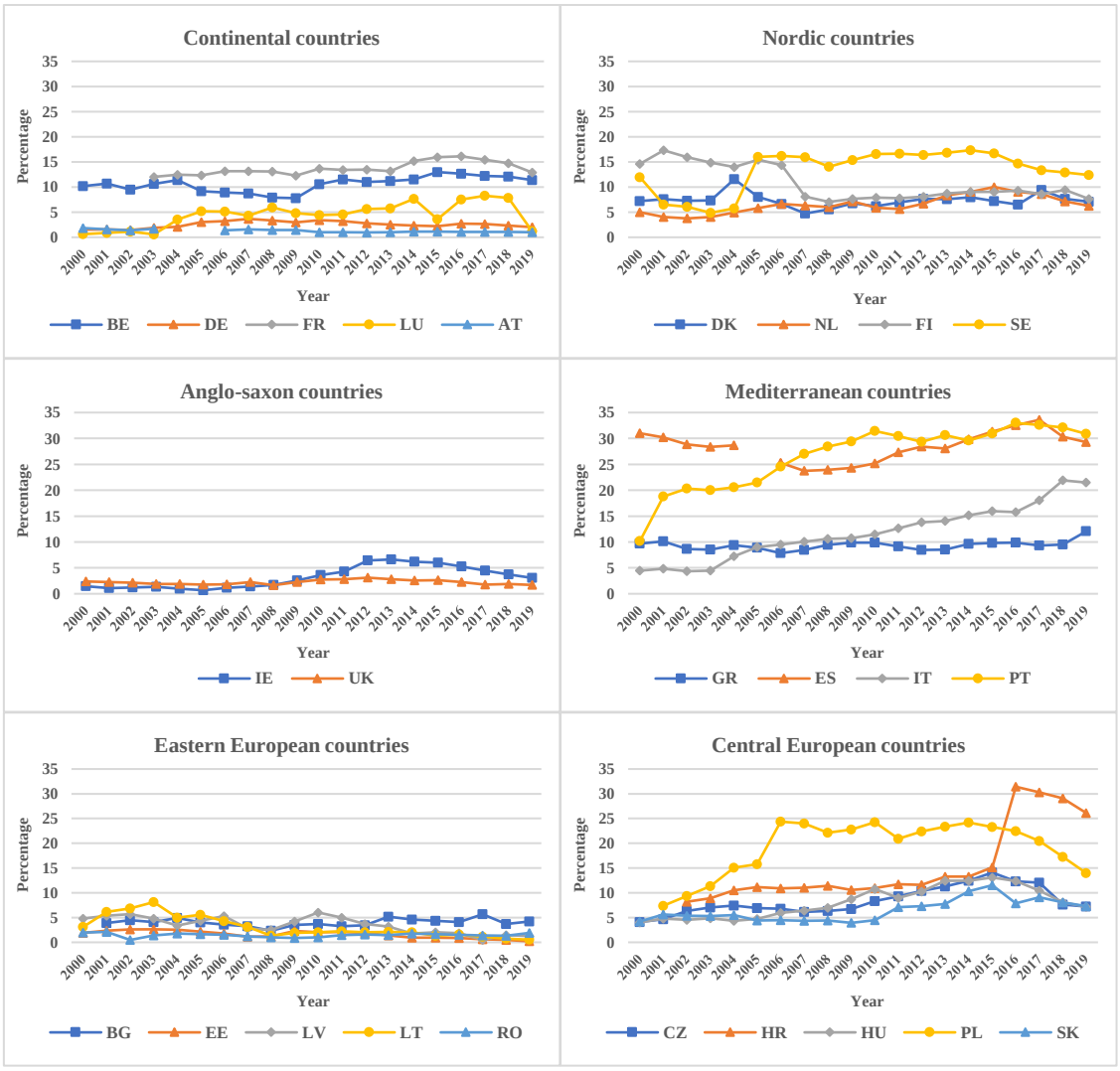

Figure I.15. Involuntary temporary employment rate among young workers (15-34) measured as percentage of total employed young population aged 15-34 by groups of EU-28 member-states, 2000-2019. *Source*: Author's estimations based on EU-LFS data.

In sum, Europe's labour markets have evolved on a par with greater flexibility, at the same time as social welfare policies have converged toward less job security for employees. This evolution has created an environment that is conducive to precariousness in the labour markets in which young people, exposed to greater vulnerability and less job experience, take their first steps. This is compounded by the fact that EU countries have been affected by the Great Recession, which has promoted a sharp increase in unemployment and has hindered young people's transition from education to work. Accordingly, and considering that labour markets differ considerably across EU-28 member states, it is essential to conduct a Europe-wide comparative analysis of employment precariousness among young people. It is also important to study the main strategies young people use to tackle precariousness, and whether multiple jobholding or unpaid overtime is used within contexts defined by job insecurity.

3. Data and methodological approach

3.1. Database

3.1.1. European Union Labour Force Survey

The three chapters that make up this doctoral thesis use the EU-LFS dataset provided by Eurostat because it contains highly detailed information on both the workforce participation of people over the age of fifteen and on those outside the labour market. This enables us to analyse the employment status of young people throughout the EU, while at the same time studying the main aggregate variables for the labour markets. Although Eurostat publishes both annual and quarterly data, this thesis uses solely the files containing annual microdata. A feature of this database is the availability of very broad samples for all EU-28 member states over a very long timeframe; in particular, it contains data on some European countries dating back to 1983. Each one of the three chapters here provides a detailed description of the available sample of young people and the years studied according to the set objectives.

One of the advantages the EU-LFS provides for conducting a comparative analysis of employment precariousness among young people across all EU-28 member states is the availability of a uniform and homogenised sample. All the member states apply the same concepts and definitions when gathering data: ILO criteria are followed, the same series of items are covered in each country, and common classifications are established for sectors, occupations, regions, etc. This database is therefore ideal for a country-level comparison of employment precariousness or the relationship between non-standard employment and multiple jobholding or unpaid overtime.

A further advantage of EU-LFS is that it provides highly detailed information on certain individual characteristics, such as sociodemographic data (age, gender, level of education, and country of birth or nationality). This, together with the broad sample of individuals aged between 15 and 34 for all EU-28 member states enables us, for example, to analyse age in five-year brackets and compare the effects of non-standard employment according to this variable across the different countries. As noted, the delay in joining the labour market among young people in certain countries means that age may be a decisive factor informing the differences between countries.

This dataset contains information on the first and second jobs, thereby providing a unique opportunity to study multiple jobholding, among other matters. Furthermore, we

have accurate information on the different types of non-standard employment, such as part-time, temporary jobs, on-call work, jobs arranged through temporary employment agencies, and working from home, which favours the study of their role, and the strategies young people use to cope with precarious conditions. In relation to unpaid overtime, it should be stressed that we have access to data on this unpaid work as defined by the individual, which means we can measure this matter accurately. This is crucial to the drafting of the third chapter, as other databases, such as the European Working Conditions Survey (EWCS), do not permit the precise measurement of unpaid overtime because they do not differentiate between paid and unpaid overtime hours.

Finally, this database has a differentiating aspect, namely, the ability to identify individuals' willingness to accept non-standard employment. This information can be used to study involuntary non-standard employment and its impact on our three focal points. We can also analyse the wish to change jobs among young people, as we also have variables on the search for employment and the reasons for doing so, which include aspiring to better working conditions.

This database's main limitation is the lack of longitudinal information, which restricts the possibilities of studying young people's labour trajectories and the impact of non-standard employment on these. This is particularly important when studying topics such as multiple jobholding, as we cannot study whether this strategy is successful among young people as a way of transitioning to a new job or whether it might even impair their work trajectories. It would also be particularly interesting to investigate the careers of young people that face precarious working conditions or who find themselves in non-standard employment, as we could study whether this type of employment may act as a bridge between education, unemployment or inactivity and a standard employment.

One problem we encounter is the lack of information on incomes prior to 2009 and subsequent to 2016 for some EU countries. Nevertheless, this period allows us to analyse the effect that the financial crisis had on the precariousness of employment across the EU. A further aspect to be considered is our lack of data on involuntary non-standard employment in Slovenia, whereby we have been unable to include it in a large part of the analysis conducted over the three chapters. Note should also be taken of the small sample of individuals born outside the countries analysed, which means we cannot make a detailed differentiation of the effect of country of birth according to the place of provenance.

This database has the disadvantage that it does not allow differentiating between self-employment and dependent self-employment, and it lacks information on employment involving digital platforms, as this latter kind of work is the outcome of a process of change and adjustment brought about by recent developments in new technologies. Hence the reason these two non-standard forms of employment have not been studied and we have focused solely on young wage earners when considering the effects of all the other types of non-standard employment. In turn, in the case of relations of multi-party employment, we have data solely on temporary employment agencies.

3.1.2. Other supplementary databases

Although the EU-LFS is the main database used here, others have been consulted to verify the robustness of the results and gather data related to EU labour markets and national contexts. The EWCS was one such database used to compare the effects of Europe-wide unpaid overtime, as it contains highly detailed information on people's working conditions. Nevertheless, the variable in the database that provides information on overtime does not allow distinguishing between paid and unpaid work. This database had therefore to be discarded when studying unpaid overtime in the third chapter.

As mentioned in the first section of the introduction, supplementary databases have been used to gather information on certain country-level variables, including the Eurostat database (Eurostat, 2020) for expenditure on unemployment and per capita gross domestic product (GDP). In turn, the OECD database has been used to compare legislation on the protection against dismissal in European countries (OECD, 2019), and both the Wage Setting, State Intervention and Social Pacts (ICTWSS) (Visser, 2019) and the Centre for Business Research Labour Regulation Index Dataset (CBR-LRI) (Adams *et al*., 2016) have been used to analyse the extension and level of collective bargaining agreements. Likewise, the Mutual Information System on Social Protection (MISSOC) database has provided information on social protection systems in Europe and the minimum guaranteed wage, with a view to complementing the analysis of precariousness.

More detailed information on the set of variables used throughout this thesis appears in each chapter depending on the requirements of the analysis and the variables of interest. There now follows a brief description of the main indicators and econometric models estimated throughout this text.

3.2. Adjusted multidimensional precariousness rate

The lack of consensus in the literature on how to measure precariousness and the dimensions that should be considered is the main problem we face when studying the precariousness of employment among young people. According to the ILO definition, precariousness involves low wages, weak protection against dismissal or the termination of a contract, a lack of access to welfare benefits and protection, and limited access to labour rights (ILO, 2012; ILO, 2016a, 2016b). Furthermore, Gutiérrez-Barbarrusa (2016) highlights the importance of the insecurity perceived by workers as a determinant of job precariousness, so we have taken these five dimensions into account here. Referring to the literature, García-Pérez *et al*. (2017) propose a multidimensional indicator that allows for measuring both the rate and intensity of precariousness at the same time, with the advantage of assigning a specific weight to each dimension and analysing its contribution to precariousness.

The first chapter here uses this novel multidimensional indicator to conduct a comparative analysis of all EU-28 member states for the 2009-2016 period. It should be stressed that this indicator enables us to compare the evolution of precariousness and identify those dimensions that contribute to it the most in each country. In addition, and besides comparing the degree of precariousness, this indicator enables us to break precariousness down into several components or for specific subpopulations. In this case, we may compare the rate of precariousness and the mean dimensions in which we encounter it (weighting each dimension) for the cohort of young people aged between 15 and 34 across all EU countries.

3.3. Econometric models

Each one of the three chapters here provides a detailed explanation of the analysis techniques and methodological approach used; nevertheless, the research method applied includes the estimation of sundry multivariate econometric models. The EU-LFS has been used to estimate bivariate logistic models to understand the influence of certain sociodemographic and first job variables on young people's propensity to hold a precarious job. Likewise, this type of model has been used to study the relationship between non-standard employment and multiple jobholding, considering the influence of

certain sociodemographic and first job variables. An analysis has also been conducted of the decision to seek for another job in order to identify young people's desire or willingness to be in multiple jobholding.

Finally, the third chapter here estimates several multilevel logistic regression models whose binary dependent variable is the performance, or not, of unpaid overtime. These models have involved studying the probability of working unpaid overtime according to sundry individual and country-level characteristics, such as unemployment expenditure, the extension and level of collective bargaining agreements, and the degree of protection against dismissal. The multilevel models estimated include those with both fixed and random effects, depending on the nature of the variables of analysis. This choice is explained in the methodology section in the third chapter. In general, all three chapters present and conduct robustness tests to corroborate the results obtained.

4. Structure of the thesis

Following a contextualisation of the issue of precariousness, highlighting the role of non-standard employment across EU labour markets, and stressing young people's state of vulnerability in them, the research is structured into three independent chapters. Each one of these three chapters has its own theoretical framework, preparation of the database, methodological approach, results, discussion, and conclusions on the main findings. These three chapters are defined forthwith.

The first chapter analyses precariousness among young people across all EU-28 member states from 2009 through to 2016. This involves estimating a novel adjusted multidimensional precariousness rate that allows comparing both the incidence and intensity of precariousness throughout the EU. The use of this indicator caters for the inclusion of all the dimensions of precariousness: low wages, type of contract, type of working day, the insecurity perceived by workers, and their empowerment in their jobs. A further contribution is the estimation of the effect that certain sociodemographic and first job characteristics, such as age, level of education, country of birth, and hours worked, have on the probability of being in precarious employment.

The second chapter addresses the relationship between multiple jobholding and the different non-standard forms of employment, once again involving young people across all EU-28 member states. This chapter seeks to discover whether multiple

jobholding is a strategy that young people use to cope with job insecurity and the precarious conditions associated with non-standard employment. The novelty here involves an analysis of the influence of the condition of over-qualification when obtaining a second job, and whether it is used as a means of transitioning to new employment. In addition, an estimation is made of the effect that the different types of non-standard employment and multiple jobholding have on the search for another job in order to understand whether multiple jobholding is a situation that young people want.

The third chapter contains a multilevel analysis of the relationship between unpaid overtime and the different non-standard forms of employment among young people across all EU-28 member states. This involves studying the effect of sundry individual-level variables such as sociodemographic and first job characteristics, which include non-standard forms of employment, and country-level variables like expenditure on unemployment, the extension and level of collective bargaining agreements, and the degree of protection against dismissal, among others. One of the main contributions this chapter makes is its analysis of the impact that domestic institutions and the different contexts of EU labour markets have on unpaid overtime among young people.

The penultimate section discusses the text's main findings and summarises the three chapters, together with the results' implications in terms of socioeconomic policy. This section reflects upon the research's possible limitations and the steps to be taken in the future to overcome some of them. Finally, the text ends with a final section including the conclusions drawn from the analysis made.

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CHAPTER I: A MULTIDIMENSIONAL APPROACH TO PRECARIOUS EMPLOYMENT AMONG YOUNG WORKERS IN EU-28 COUNTRIES[4]

Abstract

This article uses a new multidimensional indicator to measure precariousness among young workers across all EU-28 countries. This indicator measures both the incidence and intensity of precariousness. The analysis has involved five dimensions: wages, type of contract, type of working day, disempowerment, and job insecurity. Our database is the European Union Labour Force Survey for the period 2009-2016. The main indication of precariousness is low wages. We find high rates of precariousness for Mediterranean countries (because of low wages and temporary contracts), Denmark (low wages), and the Netherlands (expansion of involuntary part-time jobs). Central European countries have moderate rates, and most Continental and Eastern countries have low rates. We also find that a higher level of education is related to a lower probability of having a precarious job. Finally, we find a greater probability of having a precarious job among women in most countries, and non-statistically significant differences by country of birth.

1. Introduction

The objective here is to analyse the evolution of precariousness among young workers in all EU-28 countries between 2009 and 2016, the aftermath of the economic crisis. The flexibilisation policies adopted in recent years have increased both part-time and temporary work in European countries (European Commission, 2009). At the same time, this contract flexibilisation has been associated with precariousness, particularly among young workers because of their greater vulnerability when entering the labour market. This precariousness at a young age (15-34) partially reflects the use of flexible contracts as a screening device (Faccini, 2014). In this context, the Organisation for Economic Co-operation and Development (OECD) has recently focused on the quality of jobs (OECD, 2015), stressing the importance of the study of precariousness and its impact on an individual's welfare.

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A characteristic of precarious employment is that it is defined in comparison to a reference job, which is usually referred to as standard employment (Rodgers, 1989). There are some studies that have focused on the influence of precariousness among the young population (Kretsos, 2010), and there are also previous studies that compare precariousness in EU-15 countries (Gutiérrez-Barbarrusa, 2016; Kretsos & Livanos, 2016). However, there is no consensus in the literature on how to measure precariousness, and the number of dimensions that should be included when so doing. Furthermore, and to the best of our knowledge, no study has compared precariousness among the young population at EU-28 level, and certainly not in recent years.

This study focuses on precariousness among young workers and proposes using the adjusted multidimensional precariousness rate developed by García-Pérez *et al*. (2017). This indicator allows breaking down the relative contribution different dimensions make to overall precariousness. Five dimensions of precariousness have been included in the analysis: wages, type of contract, type of working day, disempowerment, and job insecurity. The inclusion of all these dimensions, besides being novel, is crucial when analysing young workers because precariousness may affect them all. The adjusted multidimensional precariousness rate allows us to measure both the incidence and intensity of precariousness. We may therefore analyse not only the number of young workers it affects, but also the degree to which it does so. In addition to comparing precariousness across countries, we study the influence that level of education, gender and country of birth have on the probability of precarious employment among young individuals. The study of these socio-economic characteristics provides relevant information about how precariousness affects young workers in European labour markets.

The analysis is based on data from the European Union Labour Force Survey (EU-LFS) provided by Eurostat, comparing all EU-28 countries using a large-scale dataset that ensures harmonisation and sample homogeneity. Furthermore, the use of this database allows comparing our results with previous studies on EU-15 countries. The main contribution here is the use of a novel multidimensional indicator to measure precariousness among the young population at EU-28 level in recent years. A further contribution this article makes through the database is the inclusion of the voluntary acceptance of a job when measuring precariousness, due to its relationship with insecurity.

2. Literature review

Flexibilisation may be understood as the capacity businesses have to adapt to the economic cycle by adjusting their labour force faster and at a lower cost through different measures, such as reducing hiring and firing costs, adjusting the hours worked, etc. Flexibilisation has therefore followed different paths in each European country, as some have encouraged temporary jobs (Mediterranean countries), others part-time jobs (Nordic countries), and others have even rolled out a combination of different measures including a shorter working-day (Germany and Austria). The abundance of flexible contracts in Mediterranean countries partially reflects employment protection legislation that dualises the labour market (Cahuc *et al*., 2016). Some of these measures have had a negative impact on workers' welfare, whereby some countries, such as the Netherlands and Denmark, have developed a combination of flexibilisation and security practices, leading to what is known as flexicurity. It is important to remember that flexibility does not generate precariousness in itself, although its involuntary nature does (Gutiérrez-Barbarrusa, 2016).

Precariousness has grown in European labour markets due to the increase in flexibilisation in recent years (Kretsos & Livanos, 2016; Rubery *et al*., 2016). Although precariousness began to receive much more attention after the onset of the economic crisis in 2007, there are previous studies in the economic literature that have sought to measure precariousness and how it affects different segments of the labour force (Rodgers, 1989; Rubery, 1989). A characteristic of precarious employment is that it is measured against a yardstick, a vector with parameters of what we consider to be standard employment (Fudge *et al*., 2002; Rodgers, 1989; Vosko, 2002, 2006). The problem with measuring precariousness is that there is no consensus on its dimensions (Laparra, 2006).

According to the International Labour Organization (ILO), four of these dimensions are as follows: (i) low wages, (ii) poor protection from termination of employment, (iii) lack of access to social protection/benefits (usually associated with full-time standard employment), and (iv) limited access to rights at work (ILO, 2012; ILO, 2016a, 2016b). Several authors have focused on measuring these dimensions (García-Pérez *et al*., 2017; Kretsos & Livanos, 2016; Vives *et al*., 2010).

The ILO stresses that precariousness is characterised by the heterogeneity of the forms it can take (ILO, 2012). We should therefore consider those dimensions that may be the key determinants of precariousness. Temporary contracts are associated with a

higher probability of redundancy than open-ended contracts (Holmlund & Storrie, 2002), increasing the risk of insecurity for employees. Temporary contracts are also related to lower wages, another key determinant of precariousness (Davia & Hernanz, 2004; De la Rica, 2004; Guadalupe, 2003; Hernanz & Toharia, 2006). These factors make temporary jobs a non-standard form of employment that can be considered precarious, which is reinforced by the fact that most workers in these jobs are not there out of choice, as they would prefer a permanent job, particularly in Mediterranean countries (ILO, 2016b). Another form of non-standard employment involves a part-time job, as it is associated with fewer opportunities for advancement (Russo & Hassink, 2008), lower social benefits (Houseman & Machiko, 1998; O'Connell & Gash, 2003), lower job stability (Fernández-Kranz *et al*., 2015), and lower wages (Hirsch, 2005).

A further key determinant of precariousness involves employment relationships (Scott, 2004), as a dimension that has been included by some scholars (Jonsson *et al*., 2019; Vives *et al*., 2010). Employment relationships may be included in the dimension of disempowerment, which may be observed, for example, in such variables as unpaid overtime. Another crucial dimension is the level of income associated with wages. The payment of low wages has been widely studied by different scholars (Olsthoorn, 2014), and especially its influence on precariousness (Rodgers & Rodgers, 1989). These four determinants of precariousness are particularly important for young workers, as they have little or no experience in the labour market and are more likely to accept jobs with these characteristics.

Fullerton *et al*. (2011) suggest that flexible practices do not necessarily make workers feel insecure in their jobs. Some scholars have included the involuntary nature of a job as an important factor when determining precariousness among non-standard forms of employment (Gutiérrez-Barbarrusa, 2016; Kretsos & Livanos, 2016). Other scholars have studied how the need to take a temporary job may restrict the chances of climbing up the career ladder (Amuedo-Dorantes, 2000).

This article's purpose is to measure precariousness among young workers across EU-28 countries. The literature stresses that several groups of individuals have higher levels of precariousness (Mckay *et al*., 2012); these groups are young workers (Bradley & van Hoof, 2005; Kretsos, 2010), migrants (Bhalla & McCormick, 2009; Porthé *et al*., 2009; Pradella & Cillo, 2015), older workers (D'Amours, 2009), and women (Fudge & Owens, 2006; Jonsson & Nyberg, 2009).

Another aspect to be considered is the importance of the economic and political context of precariousness (Fullerton *et al*., 2011). Accordingly, Gutiérrez-Barbarrusa (2016) suggests that the different degrees of precariousness in European countries are determined by insecurity and poverty levels. Precariousness therefore depends on the degree of "flexibilisation" and the level of social protection. Differences across groups of European countries depend on the different implementation strategies involving flexicurity policies. Particularly, precariousness is the outcome of a partial implementation of flexicurity policies, resulting in a labour market characterised more by contract flexibility and less by job and labour income security. Our analysis of the evolution of precariousness in EU-28 will take into account certain studies on EU-15 (Gutiérrez-Barbarrusa, 2016; Kretsos, 2010; Kretsos & Livanos, 2016) as a reference for comparing the results, studying five dimensions that determine precariousness: wages (low wages), type of contract (temporary jobs), type of working day (part-time), disempowerment (unpaid overtime), and job insecurity (looking for another job because of the risk or certainty of redundancy or looking for better working conditions). There are differences between the methodology used and contractual flexibility indices already proposed in the literature (Gialis & Taylor, 2016; Grekousis & Gialis, 2019).

We assume that precariousness is a structural process that depends on each country's specific characteristics. Furthermore, we assume that those countries where the economic crisis has had a bigger impact will record a higher rate of precariousness. This effect will appear after the crisis, as the first jobs to be destroyed are usually the precarious ones, which may reduce the prevailing rate. Considering the results obtained for EU-15 countries by Kretsos & Livanos (2016), on the one hand we expect Mediterranean countries to have higher rates of precariousness among young workers. At the same time, high rates are expected for the Netherlands and Denmark due to the flexibilisation of their labour markets. Furthermore, an upward trend in the rate of precariousness is expected in these countries, particularly Mediterranean ones, as a consequence of the impact of the crisis. On the other hand, we also expect Nordic, Anglo-Saxon and Continental countries to record low rates among young workers. We adopt the conclusions of Laužadytė-Tutlienė *et al*. (2018) as a reference for our analysis. We therefore expect an increasing rise in the rate for Central European countries, especially after the crisis, as they are more like Mediterranean countries. In the case of Eastern European countries, we expect a different trend, as they have a completely different model of welfare state. Furthermore,

when comparing precariousness by level of education and gender, we expect higher rates among young workers with lower levels of education, and among women, respectively (Fudge & Owens, 2006; Jonsson & Nyberg, 2009). According to country of birth, we expect a higher probability of precarious employment among those individuals from outside EU-28 compared to those born within it.

3. Methodology

This section describes the methodology used to identify precariousness across EU-28 countries. The adjusted multidimensional precariousness rate developed by García-Pérez *et al*. (2017) has been taken as the benchmark, with some adjustments to analyse the EU-LFS data used. This indicator is calculated on a counting basis and has several advantages, such as the possibility of breaking down the relative contribution to total precariousness made by different dimensions. Using this adjusted multidimensional precariousness rate, we can analyse both the intensity and the incidence of precariousness across European countries.

We use a double threshold to measure precariousness. First, a threshold needs to be established for each dimension, identifying the type of job that can be considered precarious in a particular dimension. We then define a second threshold for a new variable, P, summarising the five dimensions used.

If we consider X_{ij} to be the observation of dimension j for individual i, where $j = 1, \dots, 5$ and Z_j is the threshold established for dimension j, we will consider that employee i is facing precariousness in dimension j when $X_{ij} \leq Z_j$. In this case, the five dimensions analysed are, as already noted: wages, type of contract, type of working day, disempowerment, and job insecurity.

We take low wages to be those under 60% of the median, using as our reference the study by García-Pérez *et al*. (2017) and bearing in mind that Eurostat considers low wages to be those amounting to less than two thirds of the national median. Temporary and part-time jobs are considered precarious for type of contract and type of working day, respectively, but only those jobs chosen on an involuntary basis have been included, as done before by Green & Livanos (2017). As regards disempowerment and job insecurity, we have focused on disempowerment within the labour market and on the risk of unemployment, respectively. Jacobs (2007) suggests that economic insecurity may be

understood as the intersection between perceived and actual risk. In order to measure these dimensions, we have used two variables from the EU-LFS database: the number of unpaid hours worked per week and job-seeking, respectively. In terms of the number of unpaid weekly hours, the threshold established is one hour. The threshold for job-seeking is related to the risk of unemployment perceived by young workers. A job is therefore considered to be precarious if the reasons include the risk or certainty of redundancy and seeking better working conditions. This second condition has been included because we assume that if an individual is looking for another job with better conditions, it means they are not matched with their optimal job. It is worth mentioning that the unemployment benefit in terms of the probability of being a recipient and the amount of the subsidy were considered as proxy for disempowerment, but the results show few variations.

Once the threshold has been defined for each dimension, a new variable P has been created to measure which job can be considered precarious by taking into account the number of dimensions in which that job exceeds each threshold. For individual i, this variable is calculated as follows:

$$P_i = \sum_{j=1}^{5} w_j I_{\{x_{ij} \leq Z_j\}} \qquad \text{i} = 1, \ldots, \text{n}$$

where $I_{\{B\}}$ is the indicator function of set B, w_j is the weight assigned to each dimension, and n is the total number of individuals. In this case, we have assigned the same weight to each dimension, assuming that they all have the same influence on precariousness, as we cannot affirm that one dimension has more influence than another[5]. This variable will have values between 0 and 5, where 0 means that an individual's job is not precarious in any dimension, and 5 identifies a precarious job in all five dimensions being measured.

The second threshold allows us to classify a precarious job depending on the value of variable P for each individual i. In this case, we have considered a job as precarious if $P_i \geq 1$, which means it reflects precariousness in at least one dimension.

After these two thresholds have been defined, we are going to measure both the incidence and the intensity of job precariousness among young people. It is interesting to

[5] Different weights have been tested for all the dimensions to analyse non-uniform weighting schemes. As each dimension's individual contribution can be analysed, if a higher weight is given to the dimensions with a higher contribution, M_0 will be higher, and vice versa for the dimensions with a lower contribution. However, the results obtained in non-uniform weighting schemes have fewer variations compared to those presented in the analysis. These results are available upon request.

analyse intensity, as we assume that the situation of young workers is qualitatively different as the number of precarious dimensions increases. This is reflected by the fact that when the number of precarious dimensions increases, the risk of being in poverty or socially excluded also increases (Malo & Moreno, 2018). The rate of precariousness allows us to measure its incidence among young workers using the information from variable P. In this case, we have defined this rate as H, where,

$$H = \frac{\sum_{i=1}^{n} I_{\{P_i \geq 1\}}}{n} = \frac{q}{n}$$

q reflects the number of jobs we have considered precarious with the established threshold ($P_i \geq 1$). Intensity has been measured by first calculating the average value of P among precarious jobs, and then standardising this value with the number of dimensions we have included, obtaining what we have called value A,

$$A = \frac{\mu_p^q}{D} \qquad \text{where } \mu_p^q = \frac{\sum_{i=1}^{n} P_i I_{\{P_i \geq 1\}}}{\sum_{i=1}^{n} I_{\{P_i \geq 1\}}}$$

Value A allows us to measure intensity, but for measuring both intensity and incidence at the same time, we are going to use the adjusted multidimensional precariousness rate developed by García-Pérez *et al*. (2017). This measure is defined as M_0,

$$M_0 = \frac{\sum_{i=1}^{n} P_i I_{\{P_i \geq 1\}}}{nD} = H \times A$$

The adjusted multidimensional precariousness rate allows us to compare both the incidence and intensity of precariousness among young workers in EU-28 countries. This comparison is made in a standardised way, as we consider the number of dimensions we have included when measuring precariousness.

In order to complement this analysis, each country's social protection system is compared using guaranteed minimum income (GMI) as reference. These data are obtained from the Mutual Information System on Social Protection (MISSOC) database, which allows us to compare European countries. In addition, a logit model has been estimated to analyse the influence of level of education, gender, and country of birth over precariousness. As a robustness check, an analysis has been made of the influence of the age profile of young workers by five-year age brackets and the number of working hours over precariousness.

4. Data

The database used for the analysis is the EU-LFS, provided by Eurostat. This article analyses the trend in precariousness among young workers from 2009 to 2016 for all EU-28 countries. The database contains only those individuals aged between 15 and 34. The database has different groups of variables, including demographic background, labour status, employment characteristics of the main job, hours worked per week, and job-seeking. These groups provide us with a wide range of possibilities for measuring precariousness both rigorously and accurately. The main advantage of using this database is that the information available is harmonised for all European countries, with a broad sample for each year and country. Its only disadvantage is that there is no information available on wages for Slovenia and Sweden. Furthermore, data on wages are missing for some years in several countries.

The analysis of each country's social context has involved the use of the MISSOC database, which contains detailed information on the GMI system each country has used. Furthermore, this database provides harmonised information on all European countries.

The analysis has been simplified by classifying European countries into six different groups according to geographical location and the nature of the welfare state (Bonoli, 1997), as done previously for EU-15 countries by Kretsos & Livanos (2016) and Sapir (2006), and for new EU member states by Laužadytė-Tutlienė *et al*. (2018). These groups are as follows: the Anglo-Saxon (United Kingdom and Ireland), Continental (Austria, Belgium, France, Germany and Luxembourg), Mediterranean (Spain, Portugal, Italy and Greece), Nordic (Denmark, the Netherlands, Finland and Sweden), Central European (Czech Republic, Croatia, Poland, Slovenia, Slovakia and Hungary), and Eastern European (Lithuania, Latvia, Estonia, Bulgaria and Romania). Although each country has its own characteristics and there are differences between the countries in each group, there are certain similarities across neighbouring countries, such as the state of the labour market, the economy, and the institutional context. The Anglo-Saxon model relies on active policies aiming to improve the employability of the unemployed, wage disparities, and weak trade unions. Continental countries pay considerable attention to old-age pensions and unemployment benefits. The Mediterranean model relies on old-age pensions and a poor redistribution of income. The Nordic model focuses on high social protection and an active policy of reducing unemployment. The Central European welfare model is similar to the Mediterranean one. Finally, the Eastern European welfare

model is characterised by low labour market flexibility and high gender inequality in terms of unemployment (Esping-Andersen, 1990; Kretsos & Livanos, 2016; Sapir, 2006). Malta and Cyprus have not been included in this classification because of their specific characteristics, whereby they should be analysed separately.

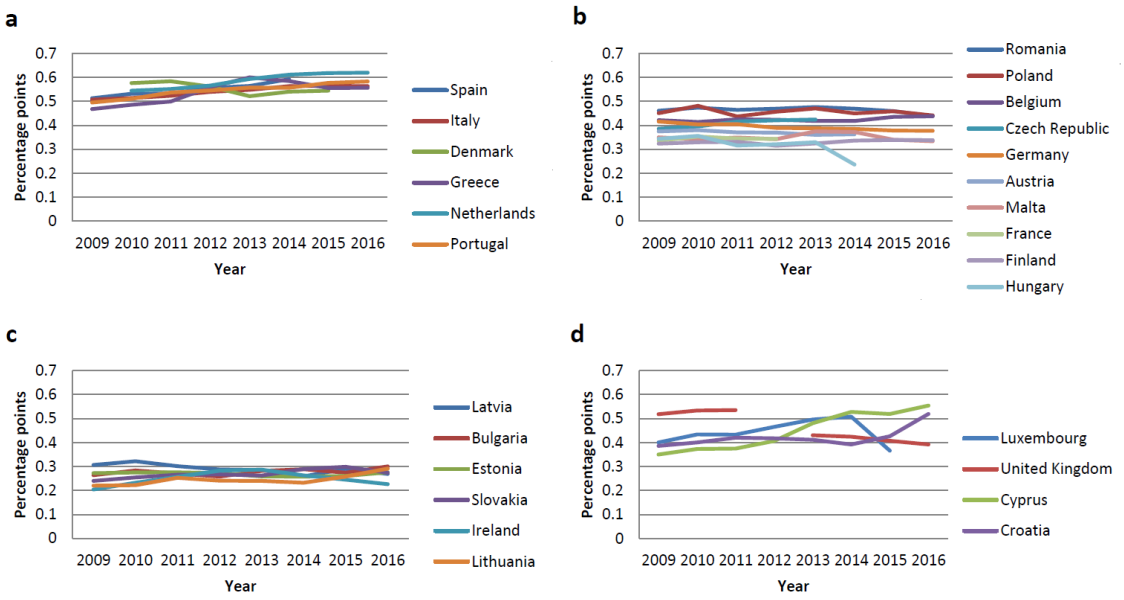

Figure 1.1. Evolution of the Precariousness Ratio (H) per group of countries measured as percentage points (2009-2016). Panel a) contains the countries with higher rates, panel b) the countries with moderate rates, panel c) the countries with lower rates, and panel d) shows the countries with different rate trends. *Source*: Authors' calculations using EU-LFS data.

5. Results

This section groups the analysis into three subsections: rate of precariousness, adjusted multidimensional precariousness rate, and logit model. The first subsection analyses the incidence of precariousness among young workers across all EU-28 countries. The second subsection compares the adjusted multidimensional precariousness rate, the influence of the five dimensions included in the analysis, and each country's social welfare system. Finally, the third and last subsection uses a logit model to analyse the influence on the rate of certain socio-economic characteristics, such as level of education, gender and country of birth[6].

[6] Results at country-group level are shown in the Appendix.

5.1 Rate of Precariousness

This section compares the rate of precariousness for all EU countries over the period from 2009 to 2016. The analysis allows us to compare precariousness in a first stage when the countries face an economic crisis, and in a second stage of economic growth or recovery after the crisis. Furthermore, this helps us identify the quality of the new jobs created in the wake of the crisis.

We have classified the countries into three different groups to analyse the results obtained after applying the methodology explained above, identifying those jobs that can be considered precarious according to the five dimensions included in our analysis (Figure 1.1). First of all, there are some countries with a rate of precariousness of over 50% for young workers. This group contains all the Mediterranean countries, in addition to two Nordic countries characterised by their flexicurity practices, namely, the Netherlands and Denmark. These countries record very high rates that are maintained throughout the period, and even increase after the economic crisis, with the exception of Denmark, where the precariousness rate decreased considerably. This shows that the new jobs created after the crisis were mostly precarious in the Netherlands and Mediterranean countries. The prior literature evidences the high rates of precariousness among Mediterranean countries (Kretsos & Livanos, 2016). Therefore, the high rates of precariousness among young workers suggest that it is a structural process. The high rate of precariousness in Mediterranean countries is informed by low wages and the high number of temporary jobs. The case of the Netherlands is very peculiar, as the high rate is due to the large number of part-time contracts among the young; this evidence has also been reported in the literature (Kretsos, 2010). We should note that we apply the term precarious solely to those part-time jobs accepted out of necessity. Flexibilisation in the Netherlands has therefore been accompanied by an increase in the rate of precariousness among the young, a population that needs more full-time jobs. In Denmark, low wages are the main cause of the high rate of precariousness.

The second group consists of a wide variety of countries that have a rate of precariousness of between 30% and 50%. On the one hand, there are Continental countries with a moderate rate of precariousness that remains constant throughout the period analysed. These countries, therefore, were only slightly impacted by the crisis in terms of precariousness among the young, with low wages being the main factor involved. In turn, most Central European countries and others such as Malta and Finland follow a

different trend. With a figure very close to 30%, Finland has a low rate that remains constant throughout the period. The major influence of low wages on these moderate rates of precariousness may be due to the age factor, as young workers lack experience and may not yet have had the opportunity to advance in their careers.

The third group includes those countries with a low rate of precariousness among young workers, recording a figure under 30%. This group contains most of the Eastern European countries (Bulgaria, Latvia, Lithuania and Estonia), as well as Ireland and Slovakia. Despite the low rates in this group, it is important to highlight the growing dynamic for most of the Central and Eastern European countries after the crisis. The trend is quite different for Ireland, as the rate of precariousness among young workers decreased after the crisis to 22.6% in 2016, reflecting the good situation of young workers there compared to other European countries. It is also important to mention that Ireland has one of the highest youth employment rates in Europe (Kretsos, 2010). The evidence therefore shows that those countries in which the labour market depends more on the economic cycle and where the economic crisis had a higher impact seem to record an upward trend in the rate of precariousness after the crisis. This is not the case for either Ireland or Continental countries because of their economic or welfare models.

Apart from these three groups, it is worth mentioning the evolution of four countries that have varied considerably during the period analysed, namely, the UK, Croatia, Cyprus, and Luxembourg, where the rates of precariousness have altered significantly during the period in question due to several political and legislative changes (Figure 1.1).

5.2 Adjusted Multidimensional Precariousness Rate

The following studies the incidence and intensity of precariousness at the same time by comparing the adjusted multidimensional precariousness rate (M_0) that takes values between 0 and 1. Before conducting the comparison, it is important to note that a value for this multidimensional rate under 0.09 can be considered low, while a value over 0.12 may be considered high. This classification reveals that countries with low values of incidence ($H < 0.3$) and intensity ($A < 0.25$) will score under 0.09, while countries with high values ($H > 0.5$ and $A > 0.25$) will score over 0.12 for M_0. A greater intensity means jobs that are precarious in more dimensions at the same time.

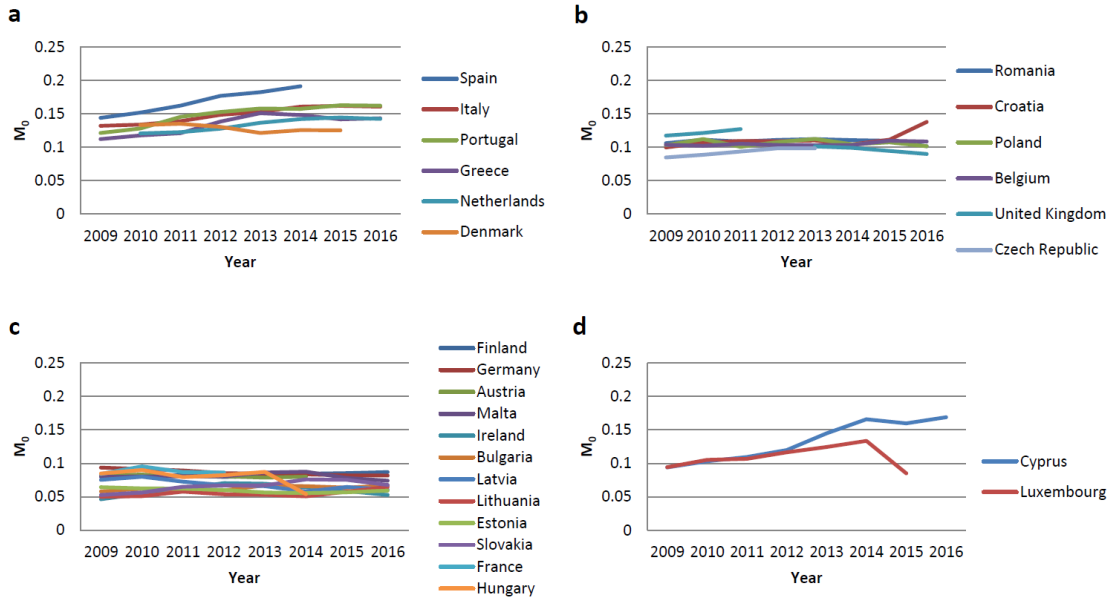

Figure 1.2. Evolution of the adjusted multidimensional precariousness rate (M0) by groups of countries, (2009-2016). Panel a) contains the countries with higher rates, panel b) the countries with moderate rates, panel c) the countries with lower rates, and panel d) shows the countries with different rate trends. *Source*: Authors' calculations using EU-LFS data.

When analysing the adjusted multidimensional precariousness rate for European countries, we can identify three groups: a first group with high rates over 0.12, a second with moderate rates between 0.12 and 0.09, and a third one with low rates under 0.09 (Figure 1.2). The first group consists of the same countries that had a higher rate of precariousness. Nevertheless, there are major differences in this group because the inside distribution is quite different. First of all, it is important to mention that there is an increasing trend across all the Mediterranean countries, as well as in the Netherlands, which was not clear in the analysis of the rate of precariousness. This means intensity has increased sharply between 2009 and 2016, particularly after 2013, in part due to the decrease in terms of employment protection. The strictness of employment protection index elaborated by the OECD reflects a continuous decrease in terms of employment protection in all Mediterranean countries during this period, and particularly in 2013. Despite this trend, the evidence shows that the adjusted multidimensional precariousness rate in the Netherlands is below the Mediterranean countries, which means that intensity is lower in the Netherlands. In turn, Mediterranean countries have a high incidence and intensity due to their presence in all the dimensions analysed. It is important to highlight the case of Spain, where the rate is clearly higher than elsewhere, reflecting the high rate of precariousness. Even without information for the last two years, the rising trend reflects the effects of the economic crisis that have not yet been resolved. The last country in this

group is Denmark, where the rate decreases slightly after the crisis, recording a value of 0.1254, which means that despite a high rate of precariousness, its intensity is quite low. The situation of young workers in Mediterranean countries, therefore, is clearly worse, as they are affected by precariousness in more dimensions.

The second group of countries with a moderate adjusted multidimensional precariousness rate has also varied slightly compared to the results obtained for the rate of precariousness. This group consists of Central European countries (Poland, Croatia and the Czech Republic), as well as Belgium and Romania. The UK is another country that may be included in this group that has evolved differently. In turn, the situation is similar to the rate of precariousness for Belgium, Romania and Central European countries, with low variations during the period analysed, which means that the economic crisis has not had a high impact in terms of precariousness. The rates among young workers are still high, reflecting the problems this population faces when entering the labour market. The UK records the opposite trend, as the rate fell from 0.118 in 2009 to 0.09 in 2016, as the transition to regular employments is supported by the labour institutions, as in Ireland (Sapir, 2006). However, there are major wage differences among young workers in these countries, with low wages constituting the main reason for precariousness. It is therefore important to note that the low rate of precariousness in some of these countries is due to the few cases of involuntary part-time and temporary jobs.

The third and final group also has a different composition when measuring the adjusted multidimensional precariousness rate, and two subgroups can be identified. On the one hand, there are most of the Continental countries, together with Finland, Hungary and Malta, and on the other hand, we encounter most of the Eastern European countries, along with Ireland and Slovakia. Although the first subgroup is defined by moderate levels of precariousness, their intensity of precariousness is very low. It is also important to note that the main reason for precariousness among young workers in these labour markets is the existence of low wages, something that may reasonably be expected because we are analysing young workers. In these countries, therefore, public institutions should focus on reducing the prevalence of low wages among young workers in order to decrease precariousness. On the other hand, the second group is characterised by having both a low incidence and intensity, which reflects the good situation of young workers. Although there are changes in the evolution of some of these countries, the economic crisis has had no noticeable effect on the adjusted multidimensional precariousness rate.

To conclude the analysis of the adjusted multidimensional precariousness rate in European countries, it is important to highlight the situations of Cyprus and Luxembourg (Figure 1.2). In the case of Cyprus, the evidence shows a continuous increase in this rate throughout the period analysed, reaching one of the highest values of 0.169 in 2016, outpacing Portugal, Greece, Italy and the Netherlands. This reflects the high intensity of precariousness among young workers and the bad conditions they have to face. The intensity of precariousness is low in Luxembourg, and the evolution of the adjusted multidimensional precariousness rate is marked by a significant decrease after 2014, influenced mainly by the incidence rate.

Once the adjusted multidimensional precariousness rates of EU-28 countries have been compared, it is interesting to check whether or not these differences are correlated with some type of national GMI. Those countries with higher rates of precariousness might have implemented more robust GMI systems to deal with the problems related to precariousness. However, it may also be the case that those countries with stronger GMI systems give young workers more opportunities to choose between different jobs, reducing the incidence of precariousness. We therefore want to discover whether there is any relation between these two factors.

In order to compare each country's GMI, incomes have been transformed into units of purchasing power parity. GMI has been correlated as a percentage of the guaranteed minimum wage with the adjusted multidimensional precariousness rate for 2016.

The relationship between GMI and the adjusted multidimensional precariousness rate has been studied by estimating a linear model and Pearson`s correlation test considering a 95 percent confidence interval. The results show that there is no linear relation between these two variables (Figure 1.3). However, we can classify several groups of countries that seem to have different characteristics. Firstly, some Nordic, Anglo-Saxon and Continental countries provide a high coverage through their GMI systems, which gives the young unemployed security. These countries record low rates of precariousness, with the exception of the Netherlands, where the adjusted multidimensional precariousness rate is particularly high, which may be due to the flexicurity practices put in place. Secondly, some Continental countries and all the Mediterranean ones provide a moderate coverage in terms of GMI. However, the rates of precariousness are higher for Mediterranean countries than for Continental ones. Thirdly,

although the incidence of precariousness is low in most Central and Eastern European countries, their GMI systems provide little coverage, which may generate insecurity among young people. In this case, there are different degrees of coverage between each country, and we encounter very different rates of precariousness.

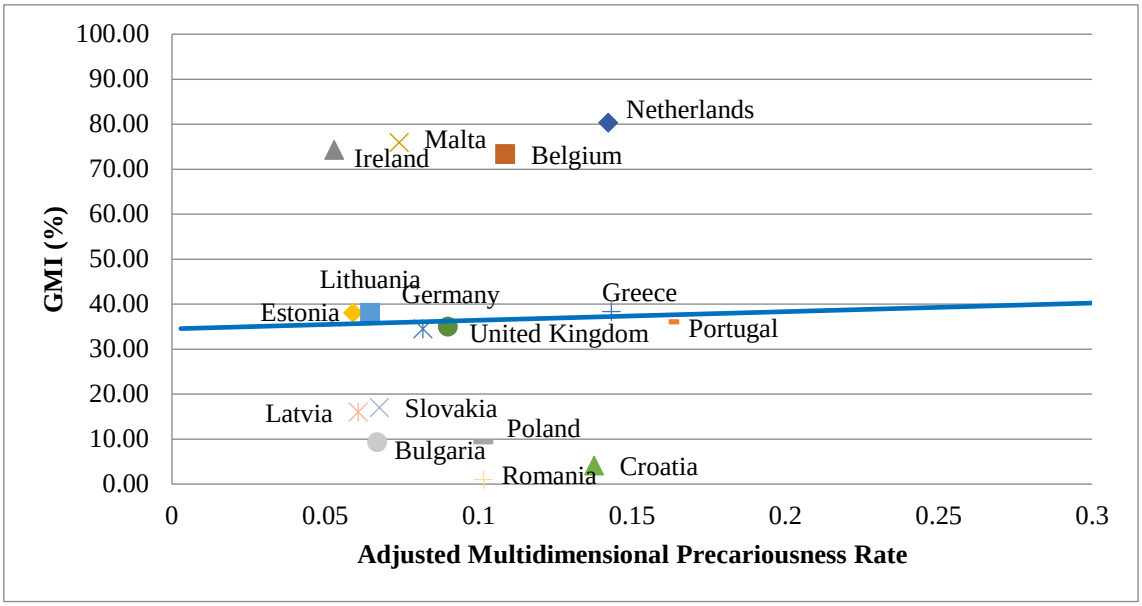

Figure 1.3. Relationship between GMI as a percentage of the minimum wage and the adjusted multidimensional precariousness rate by country for 2016. The calculations related to the rates of precariousness are similar to the ones presented for the adjusted multidimensional precariousness rates. *Source*: Authors' calculations using the data from Eurostat (Minimum wages), MISSOC (GMI), and the adjusted multidimensional precariousness rates.

5.3 Logit model: precariousness among young workers according to their level of education, gender and country of birth

Following this comparison of the incidence and intensity of precariousness across European countries, the next step involves analysing whether there are differences among young workers according to certain socioeconomic characteristics, such as their level of education, gender and country of birth. On the one hand, it is expedient to study the influence of level of education, as we assume that more education helps workers to find better jobs. On the other hand, it is also interesting to analyse whether there is a gap between young workers according to gender or country of birth, as we assume that these variables should not generate differences in terms of precariousness.

A logit model has been used to analyse these differences. We have compared three categories for level of education: a low level, which includes lower or compulsory secondary; a medium level, which includes upper secondary or the sixth form, and a third

level that corresponds to higher education. As regards country of birth, a comparison will be made between young workers born in each country and those born in other EU-28 countries or elsewhere. The aim of comparing men and women is to discover whether overall gender differences in precariousness reported in the literature (Fudge & Owens, 2006; Jonsson & Nyberg, 2009) also hold for young workers. The reference categories are as follows: the highest level of education, those born in the country of study, and men. The results are presented as the odds ratios between the probabilities of a precarious job in the category analysed and the reference category.

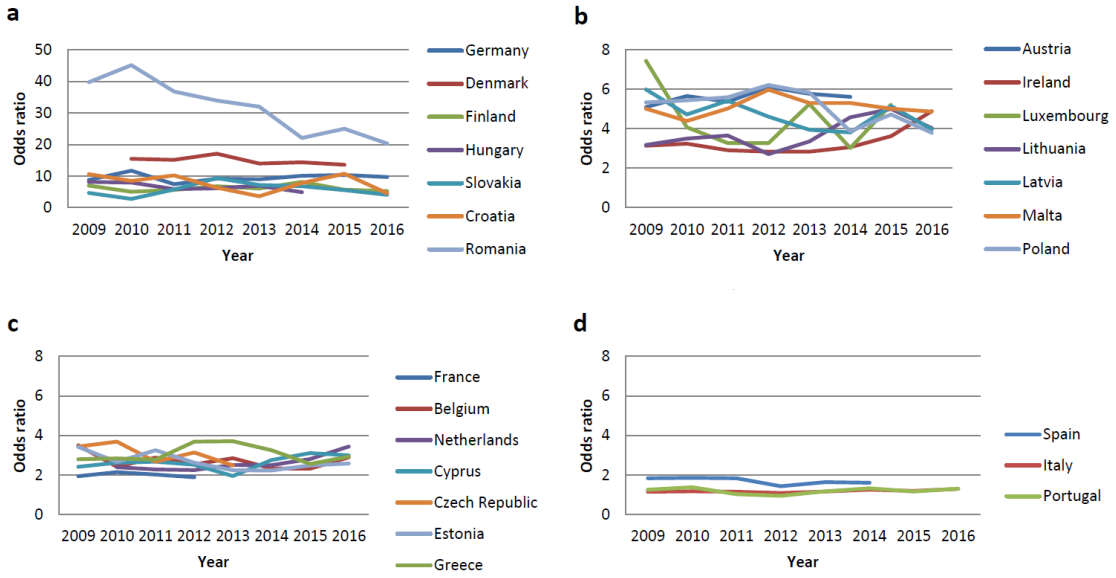

Figure 1.4. Evolution of the odds ratio for young workers with a low level of education by country (reference category: high level of education). Panel a) contains the countries with very high odds ratios, panel b) the countries with high odds ratios, panel c) the countries with moderate odds ratios, and panel d) shows the countries with low odds ratios. *Source*: Authors' calculations using EU-LFS data.

In terms of educational level, the results are significantly different between young workers with a high level of education and those with low and medium levels (Figure 1.4 and Figure 1.5, respectively). For individuals with a low level, the odds ratios for most of the countries are very high, especially Romania, Denmark and Germany (Figure 1.4). These countries record odds ratios higher than 10, whereby young workers with little education are ten or more times more likely to have a precarious job than young workers with a high level. Some countries, such as Austria, Ireland, Luxembourg and Lithuania, have high odds ratios, albeit with values between 4 and 10. These results indicate that higher education makes a big difference for the young population in these countries.

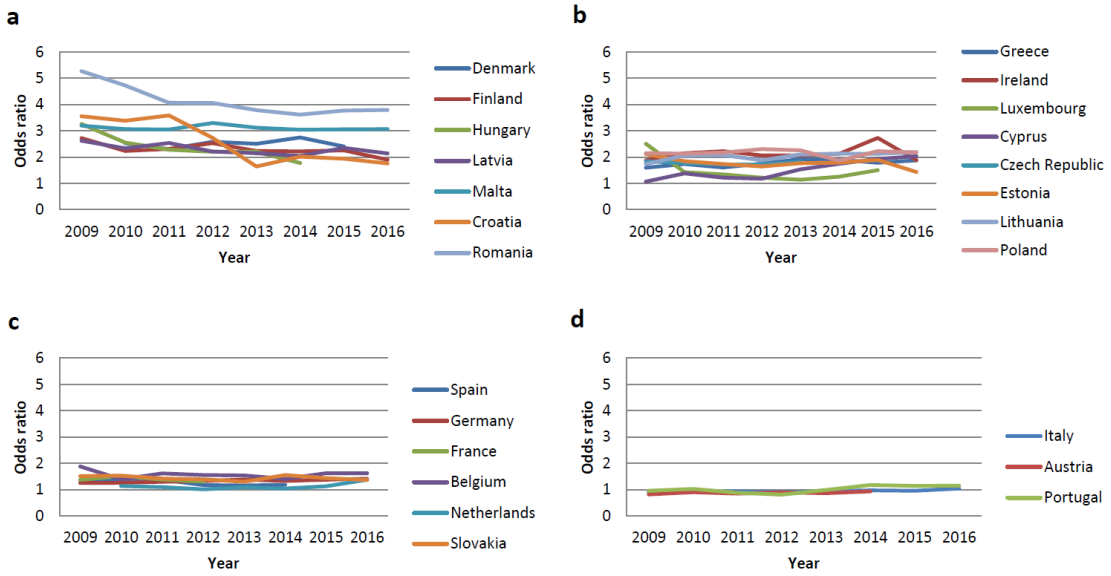

Figure 1.5. Evolution of the odds ratio for young workers with a medium level of education by country (reference category: high level of education). Panel a) contains the countries with higher odds ratios, panel b) the countries with moderate odds ratios, panel c) the countries with lower odds ratios, and panel d) shows the countries with odds ratios below 1. *Source*: Authors' calculations using EU-LFS data.

Another group we have identified comprises countries with moderate ratios, such as Belgium, France, the Netherlands and Greece, where we encounter ratios of between 2 and 4, indicating that the probability of a precarious job between young workers with low and high levels of education is still high, but significantly lower than in other European countries. Finally, Mediterranean countries have lower ratios. It is important to emphasise that these countries have the highest rate of precariousness, with a very small difference between young workers with high and low levels of education. We may therefore anticipate that these countries have a high level of precariousness in the jobs obtained by young workers with high levels of education. Furthermore, we can affirm that higher education does not guarantee young workers quality jobs when entering the labour market. The results have been analysed for the entire period between 2009 and 2016, and the evidence shows that there are no major differences in the trend for all these countries, with the exception of Romania, where there is a sharp drop in the odds ratio.

Following the previous results, the odds ratios for individuals with a medium level of education are somewhat lower than for individuals with a low level (Figure 1.5). First, we can distinguish a group of countries with the highest odds ratios of between 2 and 6 (Romania, Croatia, Hungary and Denmark), with major differences between individuals with medium and high levels of education. These countries are characterised by having the greatest differences between individuals with low and high levels. Young workers in

these countries with the highest level of education are scarcer and less likely to have a precarious job. The second group of countries is characterised by moderate odds ratios between 1.5 and 2.5. Among other countries, this group includes Ireland, Greece, Luxembourg, Lithuania and Poland, where there is still a significant difference between medium and high levels of education, with the probability of a precarious job being greater for individuals with a medium level.

Contrasting with the above countries, some Continental countries (Germany, France and Belgium) and Spain have odds ratios of between 2 and 1, evidencing a higher probability of a precarious job among those young workers with a medium level of education compared to those with a high level. It is important to highlight the case of the Netherlands, where the odds ratio for the period analysed is very close to 1, reflecting only small differences between these two groups of young workers. The last three countries that should be mentioned are Italy, Portugal and Austria, where the probability of a precarious job is greater for individuals with a high level of education than for those with a medium level. This situation may be due to the late entry into the labour market of young workers with a higher level, as in other Mediterranean countries where the odds ratios are also low. Young workers with a medium level of education may have had more time to look for a job or have more experience in the labour market, which enables them to find a better job. Nevertheless, the situation of young workers with higher education is difficult in Mediterranean and Continental countries. This evidence makes sense when comparing individuals with high and low levels of education, as Mediterranean countries had the smallest differences.

As regards the gender analysis, it should be noted that the prior literature has emphasised the higher levels of precariousness among women (Fudge & Owens, 2006; Jonsson & Nyberg, 2009). In order to discover whether these gender differences persist among young workers, we have classified the countries into four different groups according to the odds ratios obtained with the aforementioned logit model (Figure 1.6).

The first group consists of Austria, Belgium, Finland, Cyprus and Estonia, with odds ratios over 2, which means that the probability of a precarious job for women is at least twice that for men. These results reveal significant gender differences that need to be reduced, and which may be due to, for example, existing wage gaps. The second group, composed by countries such as Spain, Germany, Denmark and Croatia, is characterised by odds ratios of between 1.5 and 2. This group therefore records major gender

differences, albeit slightly less so than for the previous group. Nonetheless, women have a higher probability of a precarious job than men, a situation that needs to be redressed through public policies. The third group also records significant differences between men and women, with the probability of a precarious job being higher for women. This group contains a wide range of countries, such as France, Greece, the Netherlands, Lithuania and Romania, with odds ratios between 1 and 1.5, and smaller but still significant gender differences. The fourth and final group consists of Ireland and Slovakia, two countries with a greater probability of a precarious job for men than for women throughout almost the entire period from 2009 to 2016. The gender differences are therefore small for these two countries.

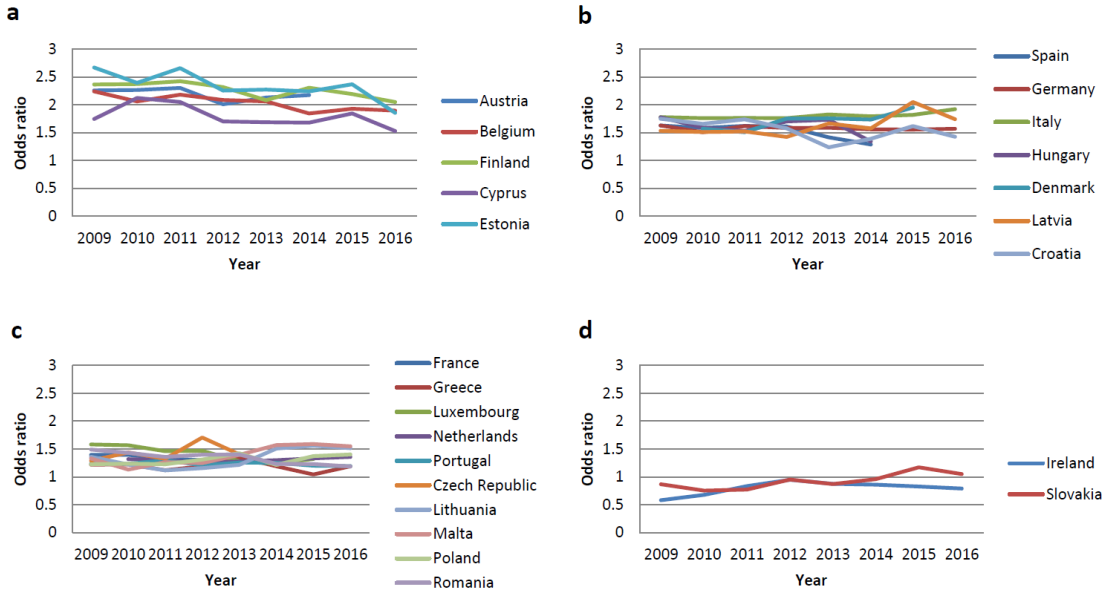

Figure 1.6. Evolution of the odds ratio by gender for EU-28 countries (reference category: men). Panel a) contains the countries with higher odds ratios, panel b) the countries with moderate odds ratios, panel c) the countries with lower odds ratios, and panel d) shows the countries with odds ratios below 1. *Source*: Authors' calculations using EU-LFS data.

In relation to the influence of country of birth over precariousness, most countries do not record any statistically significant differences between young host country nationals (HCNs) and EU and non-EU migrants. Regarding the differences between young HCNs and young EU-28 workers, there are two Continental countries (Austria and Belgium) in which the probability of a precarious job is higher for young workers born in other EU-28 countries (Figure 1.7). Finally, we should highlight the situation in Ireland because the values obtained are near 0.5, whereby the probability of a precarious job among young HCNs is higher than for those born in EU-28 countries.

When comparing the probability of having a precarious job between young HCNs and non-EU workers, most countries record statistically non-significant odds ratios. However, the odds ratios in Spain, Belgium and Cyprus are positive for the entire period analysed, with values of close to 1.5 for Spain and Belgium, and between 2.5 and 4.5 for Cyprus, reflecting the higher probability of a precarious job among young non-EU workers compared to HCNs.

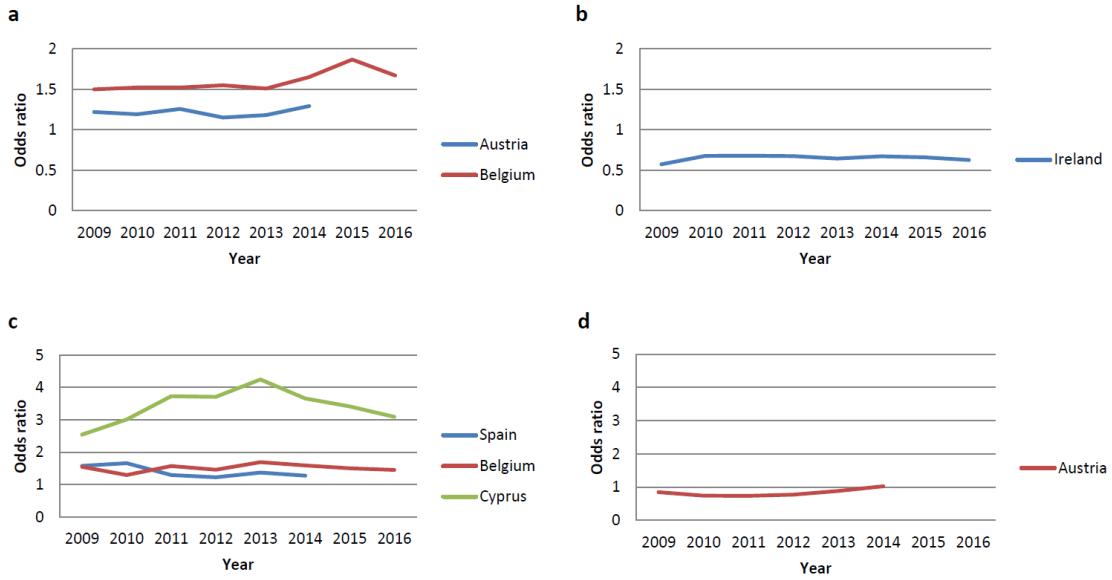

Figure 1.7. Evolution of odds ratios according to country of birth for EU-28 and non-EU-28 young workers (reference category: HCNs), 2009-2016. Panel a) contains the countries with odds ratios above 1 for EU migrants, panel b) the countries with odds ratios below 1 for EU migrants, panel c) the countries with odds ratios above 1 for non-EU migrants, and panel d) the countries with odds ratios below 1 for non-EU migrants. *Source*: Authors' calculations using EU-LFS data.

Finally, some robustness checks have been made taking into consideration the age profile of the precariousness rate and the number of working hours (Appendix). Statistically significant differences are observed by five-year age brackets related to the probability of having a precarious job for all countries. As age increases, the probability of having a precarious job decreases, which is in concordance with the vulnerability of young workers (Bradley & van Hoof, 2005; Kretsos, 2010). Related to the number of working hours, the probability of having a precarious job decreases as the number of working hours increases, showing consistent results for the impact of non-standard forms of employment on the precariousness rate.

6. Discussion and conclusions

This study aimed at analysing the evolution of precariousness among young workers in EU-28 countries. This has involved using the adjusted multidimensional precariousness rate and a logit model to compare the countries and the influence of different variables during and after the great recession. The analysis has focused on five dimensions in which precariousness is present: wages, type of contract, type of working day, disempowerment, and job insecurity. The following conclusions have been reached:

1. In terms of precariousness, the evidence reveals major differences across all the countries, reflecting the diversity of the labour market conditions that young workers face in each case. The adjusted multidimensional precariousness rate is very high among young workers in Mediterranean countries, Denmark and the Netherlands between 2009 and 2016. The intensity of precariousness is very high for Mediterranean countries due to its high levels in all the dimensions analysed. It is important to note that the high precariousness rate in the Netherlands is due to the large number of involuntary part-time jobs. Furthermore, as regards the Netherlands and Denmark, it is important to stress that the high rates are due to the flexicurity practices implemented in recent years. Compared to these countries, we find moderate rates that remain constant over the period analysed in Central European countries, which have some similarities with their Mediterranean counterparts. Continental, Eastern European and Anglo-Saxon countries record lower rates. However, there are also differences between these groups, as both the intensity and incidence of precariousness is low in Eastern European countries and Ireland, while the incidence is moderate in Continental countries. Despite this classification, it is important to highlight the intra-country differences in each one of these groups. Finally, we should note that the dimension of low wages is the main one that generates precariousness across the board, albeit with some exceptions, such as Mediterranean countries and the Netherlands, where other dimensions have a major impact.
2. The analysis shows that a higher level of education reflects a lower probability of a precarious job for young workers across the cohort analysed, with the exception of Austria, Italy and Portugal. It is important to highlight the major

differences in the influence that the level of education has over precariousness between each country. For example, having a high level of education in Romania, Croatia and Denmark considerably reduces the probability of a precarious job, while in other countries, such as Spain, Italy and Portugal, the differences between each educational level are quite small. It is important to mention the major differences between each country within the same group.

3. When differentiating the probability of a precarious job by gender, the results obtained show an important gap, with this probability being higher for women. There are two exceptions: Ireland for the entire period analysed, and Slovakia for just part of it, where this probability is higher for men. This situation reflects major gender differences among young workers that need to be reduced. However, there are no significant differences between each group of countries, and there are no major gender differences in Eastern European countries.
4. Regarding the influence of country of birth over the rate of precariousness, most countries record statistically non-significant differences between young HCNs and EU and non-EU migrant workers. However, there are some differences between young HCNs and migrant workers. On the one hand, in some countries, such as Austria, Belgium, Spain and Cyprus, the evidence shows that EU and non-EU migrants are more likely to have a precarious job than young HCNs. On the other hand, the probability of a precarious job in Ireland is lower for EU migrants than for HCNs. Nevertheless, it would be interesting to conduct a more thorough analysis in the future, as most of the countries do not record statistically significant values, which may be attributed to the diversity of migrant groups or, in other cases, to the small sample size.
5. The differences between EU countries persist in the field of social welfare. A comparison of GMI as a percentage of the minimum wage reveals that Central and Eastern European countries have weaker welfare systems than EU-15 countries, which provide greater protection outside the labour market. This reflects the importance of the context and each country's specific conditions when analysing precariousness. Although Eastern European countries have low rates of precariousness, social welfare is also very low. The influence of the context is also apparent in those countries in which political and regulatory steps have led to changes in rate over the period analysed.

It is important to bear in mind that the period analysed here is defined by the ongoing flexibilisation of European labour markets. Although flexibilisation does not in itself imply an increase in precarious jobs (Fullerton *et al*., 2011), we have analysed some countries where it has led to an increase in precariousness among young workers. This increase is due to the involuntary nature of flexibility, which may be considered a negative working condition (Eurofound, 2007). The liberalisation in the Croatian labour market confirms this evidence. Public institutions should therefore focus on how flexibilisation is addressed. For example, precariousness in the Netherlands affects young workers principally because of the high number of involuntary part-time jobs.

This article's main contribution is the use of a novel multidimensional indicator to measure both the incidence and intensity of precariousness, taking into account the contribution made by each dimension included in the analysis. A further contribution is the comparison between all EU countries, revealing significant differences among groups of countries, which in part are due to different approaches to flexibilisation. The partial implementation of flexicurity policies in some countries has prompted different levels of precariousness. What's more, almost all the countries record gender differences. There are also differences in educational level in almost all the countries, constituting a good predictor of less precarious work conditions. This means that a higher level of education helps young workers to find a higher quality job. No statistically significant differences between medium and high education were found in Austria, Italy and Portugal, probably because of the small sample sizes. However, these countries have lower differences between low and high education, reflecting that higher education has a small impact on reducing the probability of having a precarious job. There are some limitations to the data, as sample sizes are small for some countries and there are no data on wages for Slovenia and Sweden. Furthermore, the data do not allow making a longitudinal analysis considering, for example, the probability of moving to a permanent job as an outcome of interest.

It is essential to discuss the policy implications of these findings. Within the EU proposal on the push for flexicurity (Bekker & Mailand, 2019; Juncker *et al*., 2015), all member states should work together to reduce precariousness among young workers, especially in those countries with higher rates. Policies need to be adapted to each situation depending on the country. Furthermore, it is important to highlight the gender gap that needs to be closed, and the importance of quality education, as a higher level

reduces the probability of a precarious job. As future steps, it would be interesting to analyse whether the skills mismatch is a source of precariousness comparing each occupation and education level.

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8. Appendix

Table 1.1. Marginal effects by five-year age brackets over the probability of having a precarious job by country (reference category: 15-19 years old), 2009-2016.

Marginal effects									
Country	**Age classes**	**Year**							
		2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Spain	21-25	-0.133***	-0.162***	-0.18***	-0.169**	-0.062	-0.122	-	-
	26-30	-0.214***	-0.282***	-0.327***	-0.336***	-0.215***	-0.292***	-	-
	31-35	-0.255***	-0.335***	-0.364***	-0.399***	-0.288***	-0.378***	-	-
Germany	21-25	-0.337***	-0.304***	-0.213***	-0.309***	-0.308***	-0.337***	-0.32***	-0.344***
	26-30	-0.471***	-0.419***	-0.344***	-0.424***	-0.438***	-0.468***	-0.456***	-0.481***
	31-35	-0.473***	-0.455***	-0.342***	-0.436***	-0.453***	-0.489***	-0.488***	-0.508***
Italy	21-25	-0.163***	-0.128***	-0.131***	-0.104***	-0.081***	-0.104***	-0.102***	-0.155***
	26-30	-0.246***	-0.217***	-0.23***	-0.215***	-0.185***	-0.214***	-0.2***	-0.248***
	31-35	-0.278***	-0.255***	-0.262***	-0.26***	-0.237***	-0.275***	-0.252***	-0.3***
France	21-25	-0.436***	-0.423***	-0.366***	-0.378***	-	-	-	-
	26-30	-0.555***	-0.554***	-0.503***	-0.504***	-	-	-	-
	31-35	-0.564***	-0.558***	-0.508***	-0.518***	-	-	-	-
Austria	21-25	-0.318***	-0.308***	-0.307***	-0.322***	-0.301***	-0.282***	-	-
	26-30	-0.328***	-0.332***	-0.331***	-0.349***	-0.345***	-0.333***	-	-
	31-35	-0.306***	-0.332***	-0.334***	-0.346***	-0.336***	-0.318***	-	-
Belgium	21-25	-0.268***	-0.251***	-0.266***	-0.251***	-0.274***	-0.257***	-0.226***	-0.233***
	26-30	-0.375***	-0.354***	-0.371***	-0.344***	-0.391***	-0.36***	-0.332***	-0.379***
	31-35	-0.383***	-0.384***	-0.402***	-0.364***	-0.421***	-0.407***	-0.368***	-0.424***
Denmark	21-25	-	-0.275***	-0.245***	-0.245***	-0.337***	-0.255***	-0.195***	-
	26-30	-	-0.492***	-0.458***	-0.45***	-0.592***	-0.447***	-0.381***	-
	31-35	-	-0.522***	-0.512***	-0.507***	-0.687***	-0.497***	-0.443***	-
Finland	21-25	-0.353***	-0.348***	-0.315***	-0.288***	-0.299***	-0.261***	-0.17**	-0.39***
	26-30	-0.47***	-0.507***	-0.479***	-0.44***	-0.418***	-0.376***	-0.319***	-0.518***
	31-35	-0.527***	-0.501***	-0.504***	-0.488***	-0.456***	-0.447***	-0.379***	-0.542***
Greece	21-25	-0.261***	-0.268***	-0.264***	-0.328***	-0.3***	-0.235***	-0.117**	-0.27***
	26-30	-0.349***	-0.361***	-0.35***	-0.412***	-0.415***	-0.35***	-0.226***	-0.354***
	31-35	-0.366***	-0.392***	-0.399***	-0.447***	-0.46***	-0.406***	-0.289***	-0.409***
Ireland	21-25	-0.198***	-0.229***	-0.246***	-0.222***	-0.229***	-0.249***	-0.247***	-0.24***
	26-30	-0.249***	-0.319***	-0.342***	-0.346***	-0.338***	-0.3***	-0.262***	-0.29***
	31-35	-0.234***	-0.32***	-0.344***	-0.358***	-0.359***	-0.343***	-0.291***	-0.302***
Luxembourg	21-25	-0.315***	-0.54***	-0.334***	-0.368***	-0.444***	-0.588***	-0.431***	-
	26-30	-0.444***	-0.731***	-0.481***	-0.477***	-0.532***	-0.713***	-0.59***	-
	31-35	-0.531***	-0.801***	-0.543***	-0.537***	-0.583***	-0.752***	-0.638***	-
Netherlands	21-25	-	-0.46***	-0.521***	-0.536***	-0.47***	-0.494***	-0.484***	-0.469***
	26-30	-	-0.578***	-0.645***	-0.658***	-0.596***	-0.632***	-0.62***	-0.582***
	31-35	-	-0.602***	-0.651***	-0.676***	-0.629***	-0.658***	-0.651***	-0.632***
Portugal	21-25	-0.227***	-0.231***	-0.153***	-0.158***	-0.139***	-0.128***	-0.115**	-0.125***
	26-30	-0.357***	-0.388***	-0.303***	-0.309***	-0.304***	-0.293***	-0.273***	-0.238***
	31-35	-0.414***	-0.43***	-0.376***	-0.37***	-0.376***	-0.379***	-0.36***	-0.343***
Cyprus	21-25	-0.169***	-0.158***	-0.296***	-0.342***	-0.383***	-0.317***	-0.451***	0.008
	26-30	-0.218***	-0.258***	-0.363***	-0.462***	-0.529***	-0.47***	-0.604***	-0.276***
	31-35	-0.216***	-0.283***	-0.417***	-0.507***	-0.591***	-0.575***	-0.718***	-0.416***
Czech Republic	21-25	-0.14***	-0.171***	-0.143**	-0.12*	-0.136*	-	-	-
	26-30	-0.219***	-0.255***	-0.227***	-0.229***	-0.237***	-	-	-
	31-35	-0.218***	-0.264***	-0.229***	-0.237***	-0.243***	-	-	-
Estonia	21-25	-0.1*	-0.114*	-0.123*	-0.099*	-0.039	-0.132***	-0.09*	-0.072*
	26-30	-0.099*	-0.102	-0.176**	-0.179***	-0.094*	-0.177***	-0.157***	-0.129***
	31-35	-0.068	-0.099	-0.173**	-0.13**	-0.056	-0.152***	-0.135***	-0.114**

(Continued)

Table 1.1. Continued.

Hungary	21-25	-0.105***	-0.091***	-0.015	-0.085***	-0.001	-0.108*	-	-
	26-30	-0.189***	-0.206***	-0.124***	-0.19***	-0.095***	-0.171***	-	-
	31-35	-0.206***	-0.215***	-0.135***	-0.21***	-0.133***	-0.151**	-	-
Lithuania	21-25	-0.18***	-0.156**	0.036	-0.08	-0.138***	-0.084	-0.107*	-0.054
	26-30	-0.21***	-0.207***	-0.003	-0.106*	-0.147***	-0.093	-0.123**	-0.092*
	31-35	-0.161***	-0.157**	0.003	-0.129*	-0.174***	-0.101	-0.11*	-0.072
Latvia	21-25	-0.042	-0.133*	-0.215***	-0.101*	-0.102*	-0.084	-0.082	-0.128**
	26-30	-0.057	-0.197***	-0.252***	-0.14**	-0.144**	-0.112*	-0.153***	-0.159***
	31-35	0.013	-0.17**	-0.253***	-0.115*	-0.132**	-0.122**	-0.13**	-0.153**
Malta	21-25	-0.161***	-0.141***	-0.143***	-0.168***	-0.174***	-0.139***	-0.147***	-0.148***
	26-30	-0.192***	-0.228***	-0.245***	-0.278***	-0.257***	-0.216***	-0.222***	-0.226***
	31-35	-0.208***	-0.18***	-0.183***	-0.259***	-0.29***	-0.24***	-0.206***	-0.173***
Poland	21-25	-0.24***	-0.197***	-0.235***	-0.248***	-0.244***	-0.304***	-0.17***	-0.19***
	26-30	-0.311***	-0.284***	-0.309***	-0.356***	-0.38***	-0.39***	-0.28***	-0.286***
	31-35	-0.361***	-0.327***	-0.354***	-0.405***	-0.434***	-0.435***	-0.322***	-0.31***
Slovakia	21-25	-0.106***	-0.143***	-0.154***	-0.183***	-0.133*	-0.068	-0.109	-0.059
	26-30	-0.144***	-0.219***	-0.212***	-0.248***	-0.182**	-0.159**	-0.178**	-0.077
	31-35	-0.09**	-0.206***	-0.167***	-0.234***	-0.185**	-0.141*	-0.168**	-0.065
Croatia	21-25	-0.131**	-0.121*	-0.318***	-0.138*	-0.421***	-0.145*	-0.059	-0.065
	26-30	-0.192***	-0.161**	-0.355***	-0.186**	-0.563***	-0.259***	-0.124*	-0.139*
	31-35	-0.238***	-0.172***	-0.383***	-0.206**	-0.555***	-0.288***	-0.198**	-0.277***
Romania	21-25	-0.268***	-0.295***	-0.266***	-0.2***	-0.182***	-0.194***	-0.262***	-0.219***
	26-30	-0.355***	-0.387***	-0.371***	-0.31***	-0.295***	-0.322***	-0.381***	-0.327***
	31-35	-0.383***	-0.424***	-0.398***	-0.33***	-0.329***	-0.366***	-0.397***	-0.369***

* p<0.05, ** p<0.01, *** p<0.001. *Source*: Authors' calculations using EU-LFS data.

Table 1.2. Marginal effects of the number of hours worked over the probability of having a precarious job by country, 2009-2016.

Marginal effects								
Country	**Year**							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Spain	-0.008***	-0.009***	-0.011***	-0.011***	-0.012***	-0.01***	-	-
Germany	-0.016***	-0.014***	-0.014***	-0.015***	-0.016***	-0.016***	-0.017***	-0.017***
Italy	-0.009***	-0.01***	-0.012***	-0.014***	-0.013***	-0.013***	-0.012***	-0.013***
France	0.003***	0.003***	0.002***	0.003***	-	-	-	-
Austria	-0.014***	-0.016***	-0.015***	-0.017***	-0.02***	-0.019***	-	-
Belgium	-0.007***	-0.007***	-0.006***	-0.007***	-0.006***	-0.006***	-0.007***	-0.007***
Denmark	-	-0.014***	-0.012***	-0.013***	-0.01***	-0.016***	-0.018***	-
Finland	-0.007***	-0.008***	-0.007***	-0.01***	-0.011***	-0.011***	-0.01***	-0.011***
Greece	0.002***	0.003***	0.002***	0	0	0	-0.001**	-0.002***
Ireland	-0.012***	-0.013***	-0.014***	-0.015***	-0.013***	-0.013***	-0.012***	-0.012***
Luxembourg	-0.008***	-0.011***	-0.009***	-0.01***	-0.01***	-0.014***	-0.006***	-
Netherlands	-	-0.01***	-0.011***	-0.009***	-0.01***	-0.01***	-0.009***	-0.009***
Portugal	-0.003***	-0.005***	-0.006***	-0.006***	-0.007***	-0.005***	-0.006***	-0.008***
Cyprus	-0.01***	-0.01***	-0.015***	-0.012***	-0.014***	-0.017***	-0.014***	-0.016***
Czech Republic	0	0	0	-0.004***	-0.005***	-	-	-
Estonia	-0.019***	-0.018***	-0.012***	-0.01***	-0.012***	-0.013***	-0.012***	-0.009***
Hungary	-0.007***	-0.007***	-0.008***	-0.007***	-0.007***	-0.009***	-	-
Lithuania	-0.009***	-0.008***	-0.01***	-0.008***	-0.009***	-0.009***	-0.008***	-0.007***
Latvia	-0.011***	-0.016***	-0.017***	-0.015***	-0.016***	-0.016***	-0.015***	-0.018***
Malta	-0.009***	-0.014***	-0.016***	-0.016***	-0.016***	-0.015***	-0.015***	-0.015***
Poland	-0.001**	-0.001**	-0.001***	-0.001**	0	0	0.001**	0.001*
Slovakia	0.008***	0.008***	0.003***	0.003**	-0.004***	-0.007***	-0.007***	-0.007***
Croatia	-0.006***	-0.005***	-0.005***	-0.008***	-0.1***	-0.01***	-0.01***	-0.007***
Romania	-0.014***	-0.015***	-0.015***	-0.016***	-0.016***	-0.015***	-0.015***	-0.015***

* p<0.05, ** p<0.01, *** p<0.001. *Source*: Authors' calculations using EU-LFS data.

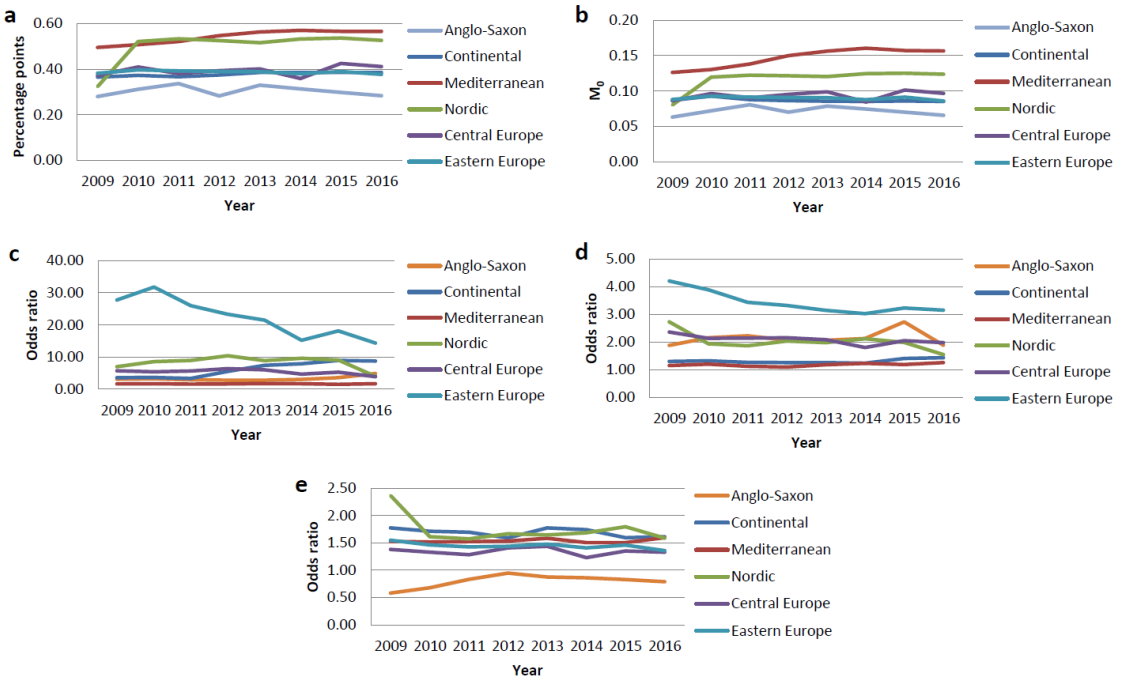

Figure 1.8. Results at country-group level. Panel a) contains the evolution of the precariousness ratio (H), panel b) the evolution of the adjusted multidimensional precariousness rate (M_0), panel c) the odds ratios differences between low and high education levels, panel d) the odds ratios differences between medium and high education levels, and panel e) the evolution of gender differences as odds ratios. Calculations related to the country of birth are not provided, as no statistically significant differences are found for most countries. *Source*: Authors' calculations using EU-LFS data.

CHAPTER II: MULTIPLE JOBHOLDING AND NON-STANDARD EMPLOYMENT AMONG YOUNG WORKERS: A COMPARATIVE ANALYSIS OF EU-28 MEMBES STATES[7]

Abstract

This article presents a comparative analysis of multiple jobholding and non-standard employment among young people in EU-28 member states. This work contributes to the understanding of multiple jobholding among youth by connecting the empirical work to the issues of labour market flexibilisation in Europe. The database used is the European Union Labour Force Survey for 2019. Non-standard forms of employment have a positive effect on the likelihood of secondary jobholding, especially part-time work. There is a high rate of multiple jobholding in Nordic countries, whereas it is low in Mediterranean, Central and Eastern European countries, where the time spent in second jobs is high. Finally, there are statistically significant differences in the propensity toward multiple jobholding according to level of education, gender, age, and country of birth, while there is no noticeable effect of over-qualification, although there is on the search for another job.

1. Introduction

This article carries out a comparative analysis of multiple jobholding (MJH) among young people in EU-28 member states and studies the influence of non-standard forms of employment over the decision on secondary jobholding. The objective here is to analyse whether MJH depends on the way flexibility has been developed in Europe. This article's main contribution involves a country-level comparison of the specific cohort of young wage-earners and an analysis of the influence of certain first-job and socio-demographic characteristics over MJH. Furthermore, the results clarify the role that MJH has among youth within the context of different European labour markets.

MJH has been used as a strategy to compensate for, among other aspects, the lack of working hours and income in a first job (Birch & Preston, 2020; Koumenta & Williams,

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2019). In particular, young workers make up a significant proportion of MJH, as it is a strategy used to meet both financial needs and other non-financial ones, such as increasing skills or labour experience (Osborne & Warren, 2006). The interest in young people is prompted by their state of vulnerability within the labour market due to their lower experience and accessibility to jobs (Green & Livanos, 2017). The increasing precariousness of unstable, short-term and poorly paid jobs (O'Reilly *et al*., 2018) may push young workers to hold second jobs. Additionally, young people are an interesting collective for understanding whether MJH makes sense as a labour integration strategy, as young workers are taking their first steps in labour markets characterised by insecurity and uncertainty (Hardgrove *et al*., 2015). Although the definition of 'young' is far from being consistent (Simms *et al*., 2018), herewith we used the Eurofound fluid definition of youth which considers it a term for describing the period between childhood and adulthood.

There have thus far been studies on the influence of non-standard forms of employment, such as part-time or temporary work, over MJH (Dickey *et al*., 2015; Livanos & Zangelidis, 2012; Zangelidis, 2014). Some of these studies focus on certain specific EU countries (Livanos & Zangelidis, 2012), while others address the EU as a whole (Zangelidis, 2014). These studies report an increase in secondary jobholding due to the higher insecurity associated with non-standard employment (Dickey *et al*., 2015; Zangelidis, 2014), particularly among young workers facing a higher risk of holding precarious jobs (Green & Livanos, 2017; Mills, 2004). However, and as far as we know, there are no studies that compare the influence that non-standard forms of employment have on the MJH of young people across all EU member states. Therefore, the research question addressed in this research is: How does non-standard employment influence MJH among young people in the EU? This article analyses whether flexibility has a different effect on the MJH of wage-earners in EU countries, as its implementation depends on each country's institutions (Viebrock & Clasen, 2009)[8]. These institutions include labour unions, legislation on minimum wages and employment protection, unemployment insurance, and active labour market policies (Holmlund, 2014).

[8] According to the flexibility classification of Viebrock & Clasen (2009), here we analyse internal- and external-numerical flexibility. These forms of flexibility include the use of flexible forms of labour contracts, the ease of hiring and firing workers and the ability companies have to meet market fluctuations (e.g., via part-time, temporary contracts, etc.).

We compare the determinants and rate of MJH across all EU-28 member states, along with non-standard forms of employment and the socio-demographic characteristics of young wage-earners. A further contribution this article makes involves an analysis of the role of over-qualification when making the decision to find a second job, and the voluntary nature of accepting non-standard employment. This helps us to understand the use of MJH as a strategy for changing employment or working more hours. We also study young people's search for another job, which may reflect a labour market imbalance due to a mismatch between an individual's job and the optimal one. This factor enables us to understand the voluntary nature or need in terms of secondary jobholding if an individual looks for another job despite holding a second job.

The analysis has been based on the European Union Labour Force Survey (EU-LFS) provided by Eurostat. This extensive database enables us to compare all the countries in EU-28 in a way that guarantees the sample's harmonisation and homogeneity. Furthermore, it allows us to compare the results reported by prior studies on the EU as a whole. Our empirical analysis estimates two econometric models to conduct a country-level comparison on the probability of MJH and looking for another job among young people.

The first approach shows that non-standard forms of employment have a positive correlation with MJH. The econometric estimations reveal that the way of developing flexibility by EU countries has a different influence on the rate and intensity of MJH among young workers. Secondly, MJH does not seem to be a desired situation by young people, and it is not a strategy used by over-qualified young workers as a transition to a new job according to their level of education.

2. Literature review and hypotheses

MJH has been clearly defined in the scientific literature since the 80s as the simultaneous or successive exercise of several different professional activities within the same year (Cornu, 1987) for at least a week (Beckhusen, 2019); in other words, having two or more jobs (Bouwhuis *et al*., 2018). The decision to take a second job is a phenomenon that has been studied for decades (Guthrie, 1969; Hamel, 1967; Perlman, 1966). Those initial studies singled out the lack of hours and income in the first job as the principal cause of

MJH. Nevertheless, continuous changes in the labour market over recent decades have led to an increase in academic and political interest in the matter.

The theoretical approaches made so far suggest there are two reasons for making the decision to accept a second job (Preston & Wright, 2020). Firstly, this decision may be triggered by financial considerations due to low wages (Robinson & Wadsworth, 2007; Shishko & Rostker, 1976) or a lack of hours in the first job (Conway & Kimmel, 1998; Guthrie, 1969; Perlman, 1966). In particular, low wages may be an important driver among youth. Eurofound (2020a), for example, shows that both male and female multiple-job holders under the age of 35 have the highest share of low incomes. Secondly, there are non-monetary reasons, which encompass a whole series of factors: transition to a new job, training or learning new skills, greater security, or as a strategy against unemployment.

Multiple-job holders are a heterogeneous group of workers. Rouault (2002) defines four types of MJH to identify different subgroups: (i) Stable and voluntary, (ii) transitional, (iii) constrained and (iv) normative ideal-type. In this article, young workers are associated with transitional and constrained MJH. While the first type concerns mostly highly qualified professionals, the second type includes mostly young workers combining a dependent job that secures the progressive leap to independent work. The third type concerns especially part-time workers with restricted hours in their first job and the normative ideal-type includes those individuals that may choose and design a combination of occupations that suits their personal aspirations.

The literature has recently evolved, considering several determinants that may influence the decision to take a second job. MJH has been studied as a strategy that people use to facilitate their transition to a new occupation or job (Heineck & Schwarze, 2004; Panos *et al*., 2009). The empirical evidence shows that the occupations among multiple-job holders differ considerably by gender. While women concentrate particularly on education, healthcare, and social services, men concentrate on manufacturing, construction and professional, scientific and management services (Beckhusen, 2019; Eurofound, 2020a).

More recent evidence also shows that some people use MJH as a way of acquiring new skills and experience in their careers (Kawakami, 2019; Panos *et al*., 2014; Pouliakas, 2017), especially younger workers (Osborne & Warren, 2006). Considering that over-qualification reflects an imbalance in the labour market because the worker's skills

exceed those required for their job (Kucel, 2011), MJH might be used as a strategy for finding a job that matches the worker's training. Furthermore, some studies report a greater propensity toward MJH among workers with a higher level of education (Amuedo-Dorantes & Kimmel, 2009; Atherton *et al*., 2016; Wu *et al*., 2009), with this tendency being greater among women (Amuedo-Dorantes & Kimmel, 2009; Preston & Wright, 2020). However, this evidence must be tested in a country-level analysis, as women's labour force participation differs across countries (Steiber & Haas, 2009). Eurofound (2020a) highlights an age component in income differences by gender related to MJH, whereby younger women with multiple jobs tend to be at the bottom of the income distribution.

Besides the aforementioned determinants of MJH, Böheim & Taylor (2004) posit a correlation between job security and secondary jobholding, whereby an open-ended contract reduces the probability of a second job, ceteris paribus. It is important to note that a key factor when explaining MJH involves each labour market's specific characteristics and opportunities (Hirsch *et al*., 2017; Livanos & Zangelidis, 2012). In the case of young workers, recent studies have analysed the transition between school and the labour market, pointing out that high rates of unemployment reveal a deficit in school-to-work institutions (O'Reilly *et al*., 2018). In addition, the EU-LFS ad hoc module on individuals aged between 15 and 34 shows an increase in the rate of young individuals working while studying in most European countries [9]. Youth unemployment is considered the main driver of country-level differences in unemployment in Europe (Boeri & Jimeno, 2015). Bell *et al*. (1997) contend that MJH may be used as a strategy to tackle rising unemployment, as do Wu *et al*. (2009) in their study on the UK.

The segmentation of labour markets and the high rates of youth unemployment may generate country-level differences in terms of MJH, particularly among young people facing an increasing prospect of unstable, short-term and poorly paid jobs (O'Reilly *et al*., 2018). According to Boeri and Jimeno (2015), youth unemployment divergences in Europe stem from differences in labour market institutions (including collective bargaining, wage-setting mechanisms, EPL and labour market regulation). One of the issues to be studied, therefore, is whether MJH is a strategy that young people use to tackle job insecurity and unemployment, or whether it is a voluntary move. Zangelidis (2014) concludes that MJH increases due to the flexibility of labour markets, a line that

[9] This is an eight-yearly *ad hoc* module, so the latest available data correspond to 2016.

is consistent with the findings reported by Dickey *et al*. (2015), which reveal an increase in secondary jobholding due to greater insecurity. In particular, part-time and short-term temporary jobs lead to an increase in MJH and in the hours dedicated to second jobs, again ceteris paribus (Böheim & Taylor, 2004).

Since the 1990s, non-standard employment has continuously increased in the EU, even during the great recession (Gutiérrez-Barbarrusa, 2016). In the wake of the 2008 economic crisis, some EU countries have recorded an increase in unemployment and in the number of non-standard jobs (Green & Livanos, 2017). Although Fullerton *et al*. (2011) contend that the methods for making labour markets more flexible do not necessarily mean an increase in labour insecurity, such insecurity may arise when this flexibility is involuntary (Eurofound, 2007). In recent years, there has been an increase in MJH among EU countries (Piasna & Drahokoupil, 2017). This increase has been related to the higher presence of non-standard employment and the flexibilisation of labour markets (Rubery, 2015), which is leading to deeper divisions in EU labour markets between well-protected workers and those with limited access to social protection and employment rights (Eurofound, 2020b). This makes it essential to analyse the forms of labour flexibility introduced by EU countries (Ignjatović, 2012) that depend on each one's institutions (Viebrock & Clasen, 2009), with an ensuing study of their influence on MJH.

The aim here is to investigate the influence of non-standard employment over MJH among young people, as they are one of the cohorts at greatest risk of involuntarily having to accept a non-standard job (Green & Livanos, 2017; Mills, 2004). Consequently, we might expect a higher share of constrained MJH among youth. In addition, young individuals have a greater risk of precarious working conditions when holding a non-standard employment (Nielsen *et al*., 2019). Thus far, some studies have found a greater propensity toward secondary jobholding among younger workers (Wu *et al*., 2009), while others do not find any age differences (Atherton *et al*., 2016), and finally, there are those that report a lower tendency among younger workers (Averett, 2001). The state-of-the-art therefore calls for more empirical evidence to understand MJH among young people.

2.1 Main hypotheses

We assume that MJH depends on the specific nature of each EU country's labour market. When we analyse all EU-28 member states, we expect to find differences between

groups of countries due to each one's specific characteristics and the different ways in which flexibility policies have been implemented. According to previous evidence on the positive effect of flexibilisation and labour insecurity (Dickey *et al*., 2015; Zangelidis, 2014) and part-time and short-term temporary jobs over MJH (Böheim & Taylor, 2004), our hypothesis 1 (H1) states that there will be a positive correlation between MJH and non-standard forms of employment, especially regarding part-time jobs. Furthermore, we would expect a high presence of constrained MJH among youth due to the increase in flexibilisation and their greater risk of involuntary non-standard employment (Green & Livanos, 2017; Mills, 2004). Hypothesis 2 (H2) therefore proposes the rate of MJH will be higher in those countries with more non-standard employment, especially in those with more part-time jobs, due to the theory of restricted hours in the first job (Conway & Kimmel, 1998; Guthrie, 1969; Perlman, 1966). In addition to this positive effect of the type of working day due to the restriction in hours, we also expect a positive effect of the number of hours usually worked per week. Our hypothesis 3 (H3) is that there will be a negative correlation between the number of hours worked in the first job and the decision to hold a second job.

Considering the imbalance that over-qualification reflects in the labour market, as a worker's skills exceed those required for their job (Kucel, 2011), hypothesis 4 (H4) states that over-qualification will increase the likelihood of both MJH and job-seeking, as these individuals may use MJH as a way to change jobs. Hypothesis 5 (H5) proposes that a higher level of education will have a positive effect on the probability of MJH due to the greater labour market opportunities (Amuedo-Dorantes & Kimmel, 2009; Atherton *et al*., 2016; Wu *et al*., 2009).

3. Methodological approach

3.1 Data

The database used for the analysis is the EU-LFS provided by Eurostat. This article analyses MJH among young workers across all EU-28 member states in 2019. This wave of the EU-LFS has been analysed because it is the latest available data for a year that has not been affected by an economic crisis or by the subsequent economic adjustment. The definition of 'young' is far from consistent (Simms *et al*., 2018). Eurofound uses a fluid definition of youth as a term for describing the period between childhood and adulthood.

The definition of young workers firstly chooses the lower threshold as the legal age to start working in Europe according to Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work. Secondly, the upper threshold has been set at the age of 34 because some countries are characterised by a late stabilisation, and young individuals may not enter the labour market until the late age of around 30. This occurs, for example, in countries such as France, Greece, Spain and Italy, where the unemployment rates among youth are very high (Scarpetta *et al*., 2010). Therefore, the database contains solely those individuals in paid employment aged between 15 and 34 to ensure that we capture the transition from childhood to adulthood in all the countries. As shown in the estimation approach, age has been classified into two groups: 15-24 and 25-34.

The main advantage of using this database is that the information it provides has been harmonised for all EU countries, with a broad sample of the study population for the vast majority of countries (Table 2.1). One limitation this database has is the small sample of young people holding several jobs in Bulgaria, Croatia, Estonia, and Slovakia. For this reason, these countries have not been included in the multivariate analysis. The database contains highly detailed information on the characteristics of first and second jobs among young people with one or more jobs. We have information on the type of contract through a variable that captures whether the job is permanent or temporary, the type of working day, as respondents are asked whether they have part-time or full-time jobs, the hours usually worked per week in the first job defined by the respondent of the survey and the hours worked in the reference week in the second job. Additionally, information on the voluntary nature of the choice of employment and type of contract is gathered through two questions related to the reasons for accepting the current temporary or part-time job. If temporary and part-time jobs are accepted because of the lack of a permanent, full-time job, they are considered as involuntary temporary and part-time jobs[10]. The availability of all these variables provides a broad range of options for conducting an accurate analysis of MJH among young people.

[10] This information is captured by the following variables of the EU-LFS: STAPRO (professional status), TEMP (type of contract), FTPT (type of working day), HWUSUAL (usual weekly hours worked), HWACTUA2 (weekly hours worked in a second job), TEMPREAS (reason for having a temporary job), and FTPTREAS (reason for having a part-time job).

Table 2.1. Summary of sample statistics by country and groups of countries, 2019: Gender, level of education, country of birth and secondary jobholding.

	% of total young workers							Total	
	Gender		Level of education			Country of birth		Second jobholders	Observations
	Male	Female	Primary	Secondary	Higher	National	Non-national		N
AT: Austria	52.0	48.0	15.6	50.7	33.6	82.2	17.8	845	26,324
BE: Belgium	51.2	48.8	12.9	43.1	44.0	83.1	16.9	304	5,761
BG: Bulgaria	58.8	41.2	13.5	58.1	28.4	99.7	0.3	4	2,710
CY: Cyprus	50.5	49.5	8.8	35.1	56.1	72.8	27.2	121	5,138
CZ: Czech Republic	58.1	41.9	7.9	67.3	24.7	95.9	4.1	95	3,945
DE: Germany	53.5	46.5	17.3	56.3	26.2	84.4	15.6	3,958	76,024
DK: Denmark	50.8	49.2	28.5	32.3	25.6	90.5	9.5	1,822	18,984
EE: Estonia	56.4	43.6	15.0	50.4	34.5	96.6	3.4	194	3,442
ES: Spain	53.4	46.6	26.6	27.4	46.1	86.4	13.6	222	8,300
FI: Finland	52.7	47.3	18.7	50.6	30.6	93.3	6.7	329	5,751
FR: France	52.5	47.5	10.5	44.7	44.1	91.5	8.5	1,765	48,856
GR: Greece	57.8	42.2	8.9	53.1	38.0	91.4	8.6	225	13,891
HR: Croatia	59.0	41.0	3.1	72.3	24.6	94.4	5.6	18	3,202
HU: Hungary	60.2	39.8	14.6	64.7	20.7	98.3	1.7	163	20,814
IE: Ireland	50.9	49.1	7.2	44.8	45.4	78.9	21.1	462	17,638
IT: Italy	57.5	42.5	20.9	55.3	23.8	83.8	16.2	573	38,752
LT: Lithuania	49.9	50.1	5.0	42.7	52.3	98.5	1.5	189	5,752
LU: Luxembourg	50.7	49.3	16.9	33.8	45.0	56.2	43.8	137	4,283
LV: Latvia	54.7	45.3	10.6	51.3	38.1	98.7	1.3	34	935
MT: Malta	54.6	45.4	24.1	41.3	34.7	91.4	8.6	72	3,105
NL: The Netherlands	52.0	48.0	27.4	39.3	32.7	93.5	6.5	1,278	13,986
PL: Poland	54.9	45.1	4.9	52.1	43.1	98.6	1.4	1,084	27,214
PT: Portugal	53.6	46.4	26.0	44.5	29.5	90.3	9.7	513	12,827
RO: Romania	56.8	43.2	17.9	59.5	22.6	100.0	0.0	318	22,557
SE: Sweden	54.4	45.6	13.6	45.5	40.5	83.1	16.9	1,763	19,949
SI: Slovenia	56.6	43.4	6.1	57.9	36.0	92.5	7.5	215	7,465
SK: Slovakia	61.4	38.6	4.5	61.5	34.0	99.2	0.8	72	8,663
UK: United Kingdom	48.9	51.1	13.2	44.7	41.8	83.7	16.3	378	12,005
Continental	52.8	47.2	14.8	50.8	34.0	85.4	14.6	7,009	161,248
Nordic	52.5	47.5	22.2	40.3	32.8	89.0	11.0	5,192	58,670
Anglo-Saxon	50.1	49.9	9.6	44.7	43.9	80.9	19.1	840	29,643
Mediterranean	56.4	43.6	20.2	49.9	30.0	86.7	13.3	1,533	73,770
Central European	57.8	42.2	7.9	59.3	32.9	97.6	2.4	1,647	71,303
Eastern European	55.8	44.2	15.0	55.6	29.4	99.4	0.6	739	35,396

Source: Authors' estimations based on EU-LFS data.

With a view to simplifying the analysis, EU countries have been grouped according to their labour market flexibility (Ignjatović, 2012), geographical location, and welfare state model (Esping-Andersen, 1990), as previously undertaken for EU-15 member states by Kretsos & Livanos (2016) and Sapir (2006), and for new EU member states by Laužadytė *et al*. (2018). These groups are as follows: Continental (Austria, Belgium, France, Germany and Luxemburg), Nordic (Denmark, Finland, the Netherlands and Sweden), Anglo-Saxon (Ireland and the United Kingdom), Mediterranean (Greece, Italy, Portugal and Spain), Central European (Czech Republic, Croatia, Poland, Slovenia, Slovakia and Hungary), and Eastern European (Lithuania, Latvia, Estonia, Bulgaria and Romania). The Continental group is defined by its focus on unemployment benefits and pensions. The Nordic countries, by contrast, focus on high social welfare and lower unemployment. The Anglo-Saxon countries seek to reincorporate jobseekers into the labour market and reduce the salary gap through the use of active policies. In turn, the Mediterranean model focuses on pensions, with a weak redistribution of income. The countries in Central and Eastern Europe are defined by little employment flexibility. Furthermore, the countries in Eastern Europe reveal significant gender differences. Although each country has its own idiosyncrasies, there are certain similarities among those in each group, such as the institutional context, the economy, and the state of the labour market (Esping-Andersen, 1990; Sapir, 2006). Finally, Malta and Cyprus have not been included in any of these groups because of their characteristics[11].

3.2 Descriptive analysis of MJH

Table 2.2 shows the number of young people with more than one job and the number of hours dedicated to the second job for each EU-28 member state in 2019; in other words, the rate and intensity of MJH. Taking as our reference the study by Zangelidis (2014), which covers the rate and intensity of MJH for the population at large in each EU country, Table 2.2 records a different rate and intensity for young workers in certain cases.

[11] In Malta's case, its economic, demographic and social circumstances do not match any of the aforementioned groups. In Cyprus's case, these characteristics are similar to the other Mediterranean countries, although there are certain differences, so we have kept the classification made by other scholars (Sapir, 2006; Kretsos & Livanos, 2016).

Table 2.2. MJH rate, weekly hours dedicated to second jobs and rate of hours in second jobs among young workers (15-34) by country and groups of countries, 2019.

	2019		
	MJH rate	Weekly hours in second job	% of total hours in second job
AT: Austria	3.2	11.07	25.4
BE: Belgium	5.3	8.37	21.9
BG: Bulgaria	0.1	10.00	20.0
CY: Cyprus	2.4	9.95	24.1
CZ: Czech Republic	2.4	10.22	21.3
DE: Germany	5.2	5.52	13.9
DK: Denmark	9.6	5.70	20.5
EE: Estonia	5.6	11.75	27.5
ES: Spain	2.7	13.56	35.1
FI: Finland	5.7	7.54	19.7
FR: France	3.6	8.21	21.6
GR: Greece	1.6	15.92	31.4
HR: Croatia	0.6	10.22	22.1
HU: Hungary	0.8	15.42	28.9
IE: Ireland	2.6	10.48	25.1
IT: Italy	1.5	10.72	26.9
LT: Lithuania	3.3	10.52	26.7
LU: Luxembourg	3.2	14.88	29.7
LV: Latvia	3.6	16.97	32.9
MT: Malta	2.3	9.97	20.2
NL: The Netherlands	9.1	6.09	22.6
PL: Poland	4.0	13.55	25.4
PT: Portugal	4.0	12.11	26.1
RO: Romania	1.4	13.62	26.4
SE: Sweden	8.8	7.40	19.2
SI: Slovenia	2.9	15.66	30.0
SK: Slovakia	0.8	11.65	23.7
UK: United Kingdom	3.1	9.05	23.1
Continental	4.3	7.59	18.8
Nordic	8.8	6.55	20.5
Anglo-Saxon	2.8	9.90	24.3
Mediterranean	2.1	12.26	28.5
Central European	2.3	13.75	26.3
Eastern European	2.1	12.75	26.2

MJH: Multiple jobholding. *Source*: Authors' estimations based on EU-LFS data.

The Nordic countries record the highest rates of MJH among young people, with this percentage being higher than for the population as a whole. Nonetheless, the youth MJH rate in all the other countries is low, especially in Mediterranean, Central and Eastern European countries, which have the lowest percentages of young workers with more than one job. The data for these countries are similar for young people and the population as a whole.

As regards the intensity of MJH, the hours dedicated to a second job are actually fewer in those countries with a higher rate of MJH. On the one hand, the Nordic countries and Germany, which record a higher rate of MJH, register a lower number and percentage of hours in a second job. On the other hand, more hours are dedicated to a second job in Mediterranean, Central and Eastern European countries.

Considering the difference regarding youth MJH across EU countries, it is worth analysing the rate of non-standard forms of employment due to its possible influence on secondary jobholding. Table 2.3 shows the rates of temporary and part-time employment together with the rate of involuntary non-standard employment across EU-28 member states. By involuntary non-standard employment, we mean those jobs in which young people would prefer to have another kind of job.

Table 2.3. Percentage of non-standard employment and involuntary non-standard employment: first jobs among young workers (15-34), by country and groups of countries, 2019.

	% of total employment					
	Non-standard employment			Involuntary non-standard employment		
	Part-time	Temporary	Total non-standard	Part-time	Temporary	Total non-standard
AT: Austria	24.4	18.2	*39.6*	2.3	1.0	*3.2*
BE: Belgium	23.6	18.0	*33.5*	2.2	11.4	*12.5*
BG: Bulgaria	3.0	6.4	*8.3*	1.3	4.2	*4.9*
CY: Cyprus	12.0	18.2	*28.4*	6.8	16.9	*22.6*
CZ: Czech Republic	7.0	13.5	*17.2*	0.6	7.2	*7.4*
DE: Germany	23.0	26.3	*43.8*	1.9	2.0	*3.7*
DK: Denmark	46.1	22.0	*55.7*	4.2	7.1	*10.3*
EE: Estonia	16.6	6.0	*20.5*	0.6	0.2	*0.8*
ES: Spain	22.9	44.1	*52.7*	13.1	29.3	*35.5*
FI: Finland	25.1	27.6	*42.1*	6.5	7.7	*13.0*
FR: France	18.0	29.7	*40.2*	8.1	12.9	*18.2*
GR: Greece	14.2	17.6	*28.3*	9.7	12.1	*19.7*
HR: Croatia	5.2	32.7	*34.7*	1.6	26.1	*26.7*
HU: Hungary	3.8	10.7	*13.4*	1.1	7.1	*7.8*
IE: Ireland	25.5	18.6	*32.4*	3.7	3.1	*5.9*
IT: Italy	22.8	32.1	*45.6*	16.8	21.5	*32.5*
LT: Lithuania	7.0	2.7	*9.0*	1.2	0.5	*1.6*
LU: Luxembourg	14.7	16.1	*26.6*	1.7	1.2	*2.9*
LV: Latvia	6.5	3.1	*9.0*	0.6	1.3	*1.8*
MT: Malta	12.4	9.5	*18.7*	1.3	2.0	*3.1*
NL: The Netherlands	61.6	35.2	*69.0*	3.1	6.2	*8.7*
PL: Poland	7.4	31.2	*34.1*	1.1	13.9	*14.5*
PT: Portugal	11.9	40.6	*45.1*	5.5	30.9	*33.3*
RO: Romania	6.4	2.3	*8.6*	4.2	1.9	*6.0*
SE: Sweden	28.3	27.4	*41.3*	7.1	12.4	*17.6*
SI: Slovenia	14.1	28.9	*33.0*	-	-	-
SK: Slovakia	4.0	9.8	*11.2*	1.1	7.3	*7.6*
UK: United Kingdom	24.7	6.4	*27.8*	3.9	1.7	*5.1*
Continental	21.5	25.4	*41.2*	3.9	5.5	*8.3*
Nordic	41.7	27.5	*52.7*	5.1	8.7	*12.7*
Anglo-Saxon	25.2	13.6	*30.5*	3.8	2.5	*5.5*
Mediterranean	19.3	32.2	*43.1*	13.1	22.2	*30.6*
Central European	6.5	21.5	*24.3*	1.1	11.0	*11.5*
Eastern European	7.2	3.1	*9.8*	3.0	1.7	*4.6*

Source: Authors' estimations based on EU-LFS data.

The Nordic countries record a significant rate of part-time work, a moderate presence of temporary jobs, and a low rate of involuntary non-standard employment. The Mediterranean countries record a low rate of part-time work, the widespread presence of temporary jobs, and a high percentage of involuntary non-standard employment, due

mainly to the high rate of involuntary temporary work. Continental and Anglo-Saxon countries record a moderate rate of both forms of non-standard employment, with certain differences between them. Finally, Eastern and Central European countries register a low rate of both voluntary and involuntary non-standard (temporary and part-time) employment. It therefore seems that those countries with a higher rate of part-time work also record a higher figure for youth MJH; that is, there appears to be a correlation between non-standard employment and MJH. Nevertheless, this correlation needs to be analysed by estimating the econometric models.

Following an analysis of MJH and non-standard employment, it is also expedient to study the characteristics of the first job and certain socio-demographic characteristics of young people with more than one job. Table 2.4 shows these characteristics for the sample of young people analysed here in EU-28 member states in 2019. The data reflect a high rate of both part-time and temporary jobs among these young people in most countries. As regards involuntary non-standard employment, it is widespread in young people's first job in countries such as Cyprus, Finland and, above all, the Mediterranean group.

As regards the main socio-demographic characteristics of young people with more than one job, there are differences in terms of composition by gender, and certain similarities regarding level of education and country of birth. In relation to gender, although there are no major differences across EU countries in the proportion of men and women, certain countries have more women among their MJH youth, whereas others have more men. These differences prevail within the country groups, as in Anglo-Saxon and Mediterranean countries. As regards level of education and country of birth, the sample has a similar make-up for most countries. There are more young people with a high level of education among the MJH youth, with the majority being young nationals.

Table 2.4. Rates of non-standard employment, involuntary non-standard employment, gender, level of education and country of birth among young (15-34) multiple jobholders by country and groups of countries, 2019.

	% of total multiple jobholders										
	Non-standard employment				Gender		Level of education			Country of birth	
	Part-time	Temporary	Involuntary part-time	Involuntary temporary	Male	Female	Primary	Secondary	Higher	National	Non-national
AT: Austria	44.7	15.3	3.9	2.7	49.9	50.1	7.1	40.8	52.1	86.0	14.0
BE: Belgium	43.8	14.8	2.3	12.8	47.4	52.6	5.6	37.8	56.6	83.2	16.8
BG: Bulgaria	0.0	25.0	0.0	0.0	50.0	50.0	0.0	75.0	25.0	100.0	0.0
CY: Cyprus	47.9	12.4	41.3	9.9	54.6	45.4	1.7	23.1	75.2	77.7	22.3
CZ: Czech Republic	21.3	15.8	0.0	7.4	55.8	44.2	2.1	56.8	41.1	99.0	1.0
DE: Germany	29.4	25.3	3.0	2.4	48.7	51.3	10.8	58.6	30.6	84.1	15.9
DK: Denmark	62.0	28.9	9.7	7.8	42.5	57.5	25.1	49.6	25.3	92.4	7.6
EE: Estonia	30.9	6.2	1.6	0.0	52.1	47.9	6.7	35.0	58.3	98.4	1.6
ES: Spain	55.9	43.2	35.6	31.5	47.8	52.2	12.1	19.4	68.5	90.1	9.9
FI: Finland	45.6	32.5	16.2	11.6	42.2	57.8	16.1	55.3	28.6	93.9	6.1
FR: France	48.4	31.6	21.8	15.3	44.7	55.3	6.9	41.1	52.0	92.4	7.6
GR: Greece	30.7	16.4	15.1	11.4	72.0	28.0	19.1	50.7	30.2	90.2	9.8
HR: Croatia	27.8	44.4	16.7	33.3	50.0	50.0	0.0	38.9	61.1	88.9	11.1
HU: Hungary	11.0	8.0	3.7	1.8	65.0	35.0	3.1	49.7	47.2	96.9	3.1
IE: Ireland	34.6	28.9	6.5	6.1	58.2	41.8	6.9	40.5	52.6	88.7	11.3
IT: Italy	54.1	30.2	31.2	22.0	48.0	52.0	10.3	43.8	45.9	85.5	14.5
LT: Lithuania	23.8	1.6	4.8	0.5	58.7	41.3	1.6	23.3	75.1	98.9	1.1
LU: Luxembourg	37.9	16.7	2.3	0.8	58.4	41.6	28.8	32.8	38.4	65.7	34.3
LV: Latvia	23.5	0.0	0.0	0.0	44.1	55.9	8.8	20.6	70.6	100.0	0.0
MT: Malta	8.3	5.6	1.4	1.4	51.4	48.6	15.3	41.7	43.0	91.7	8.3
NL: The Netherlands	77.3	37.4	3.7	6.7	48.7	51.3	23.8	42.0	34.2	94.9	5.1
PL: Poland	9.8	26.2	2.1	12.1	64.1	35.9	2.5	43.1	54.5	99.7	0.3

(Continued)

Table 2.4. Continued.

PT: Portugal	25.0	38.4	13.8	30.0	50.5	49.5	16.4	26.5	57.1	89.9	10.1
RO: Romania	6.0	0.9	3.8	0.3	58.8	41.2	10.4	76.1	13.5	100.0	0.0
SE: Sweden	44.4	32.2	10.9	13.7	51.6	48.4	11.2	47.0	41.8	85.0	15.0
SI: Slovenia	20.0	29.1	-	-	66.1	33.9	3.7	64.7	31.6	97.7	2.3
SK: Slovakia	19.4	4.2	0.0	1.4	52.8	47.2	0.0	43.1	56.9	100.0	0.0
UK: United Kingdom	46.0	10.1	8.8	4.6	37.6	62.4	5.6	39.8	54.6	88.9	11.1
Continental	36.8	25.1	7.8	6.1	48.0	52.0	9.5	50.6	39.9	86.0	14.0
Nordic	58.8	32.3	9.0	9.8	47.1	52.9	19.5	47.2	33.3	90.6	9.4
Anglo-Saxon	39.7	20.4	7.5	5.4	48.9	51.1	6.3	40.2	53.5	88.8	11.2
Mediterranean	41.2	32.8	23.7	24.5	52.3	47.7	13.9	35.5	50.6	88.3	11.7
Central European	12.5	23.4	2.2	10.3	63.3	36.7	2.6	47.3	50.2	99.0	1.0
Eastern European	17.9	2.6	3.3	0.3	56.3	43.7	7.0	49.2	43.7	99.3	0.7

Source: Authors' estimations based on EU-LFS data.

3.3 Models

With a view to studying young people's decision to hold a second job in EU-28 member states, a logit model has been estimated with the binary dependent variable being MJH or not. This model was chosen because it was the most appropriate for analysing the effect of the different non-standard forms of employment on the secondary jobholding decision. Considering solely salaried jobs for greater homogeneity in the type of employment, this model has involved an analysis of both the first job's characteristics among young people and certain socio-demographic characteristics. This estimation allows comparing the determinants of MJH among young people at EU country-level.

If we consider that the probability of being in a situation of multiple jobholding is MJH_{ij} for an individual i from country j, the estimated model is as follows:

$$MJH_{ij} = \beta_0 + \beta_1 PT_{ij} + \beta_2 TEMP_{ij} + \beta_3 HW_{ij} + \beta_4 GEN_{ij} + \beta_5 EDUC_{ij} + \beta_6 CB_{ij} + \beta_7 AGE_{ij} + \beta_8 OE_{ij} + \beta_9 AGE_{ij} * OE_{ij} + \varepsilon_{ij}$$

$$i = 1, \dots, n$$

$$j = 1, \dots, p$$

Where n is the total number of individuals and p is the total number of EU countries, which in this case means all EU-28 member states. The model's independent variables are the type of working day (PT), the type of contract (TEMP), the number of hours worked in the first job (HW), gender (GEN), level of education (EDUC), country of birth (CB), age (AGE), and over-qualification (OE)[12].

Young people's over-qualification has been analysed according to the methodology proposed by Verdugo & Verdugo (1989), which has already been used in sundry studies (Aleksynska & Tritah, 2013; García-Gómez *et al*., 2021; Nielsen, 2011). This approach has been adopted because it seamlessly fits the data available here. In this case, the two-digit International Standard Classification of Occupations (ISCO-08) of the International Labour Organisation (ILO, 2012) has been applied to calculate the average number of years studied by young workers and the standard deviation for each occupation. The next step involves considering a young worker to be over-qualified if the

[12] Wages were not finally included in the model due to problems of collinearity. The EU-LFS has information on wages only in deciles, which means that this variable is directly correlated with the type of working day and the number of hours worked. Self-employment was not included in the analysis of forms of non-standard employment either due to a lack of data.

number of years studied exceeds the average plus one standard deviation for their first job's occupation[13]. One of this method's drawbacks is that most of the individuals that are over-qualified have higher education. Nonetheless, this problem has been mitigated by analysing the phenomenon of over-qualification separately for each level of education.

A second model has also been estimated for studying the decision to find another job. This model has been used to study the aforementioned variables together with the effect of MJH on the likelihood of being a jobseeker. This information provides supplementary information on MJH and the voluntary nature of holding a second job by young people. In other words, it tells us whether resorting to MJH is prompted by the voluntary search for new skills and learning other occupations or, by contrast, it responds to a situation of insecurity on the part of young workers. We expect those young multiple-job holders seeking another job to use second jobs as transitional. Finally, several robustness tests have been performed on the models, which have included the voluntary nature of accepting a non-standard job (part-time or temporary).

4. Estimations

4.1 MJH model

The first model estimated analyses the influence that non-standard forms of employment, the number of hours worked in the first job, and certain socio-demographic characteristics have on MJH. Table 2.5 shows statistically significant differences for a large part of the countries analysed, together with country-level differences.

4.1.1 First job features

An analysis of the features of a first job reveals a positive correlation between non-standard forms of employment and young people's propensity toward secondary jobholding in most EU-28 member states. The Nordic countries and the bulk of Continental, Mediterranean and Anglo-Saxon countries record a positive effect of part-time work, whereby the likelihood of MJH increases for young people in this situation.

[13] Different thresholds have been trialled regarding the standard deviation of years studied, and the results do not vary.

Table 2.5. Marginal effects on the probability of holding a second job by primary job and socio-demographic characteristics among young people (15-34) by country and groups of countries, 2019.

	Marginal effects									
	Primary job characteristics			Socio-demographic characteristics						
	Part-time	Temporary contract	< 25 hours worked	Female	Primary education	Secondary education	National	Aged ≥ 25	Over-qualified	≥ 25 & over-qualified
AT: Austria	0.031***	0.004	0.004	-0.009***	-0.018***	-0.014***	0.01***	0.015***	0.001	0.002
	(0.005)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.006)	(0.007)
BE: Belgium	0.062***	-0.012	0.024**	-0.015**	-0.037***	-0.02***	0.003	0.023***	0	-
	(0.011)	(0.006)	(0.008)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.008)	-
CY: Cyprus	0.104***	-0.003	-0.005	-0.007**	-0.015***	-0.008**	0.002	0.011***	0.006	-0.007
	(0.031)	(0.003)	(0.004)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.014)	(0.008)
CZ: Czech Republic	0.134**	0	-0.015***	-0.006	-0.019***	-0.014*	0.015**	-0.001	-0.008	0.017
	(0.044)	(0.006)	(0.003)	(0.004)	(0.003)	(0.007)	(0.005)	(0.006)	(0.014)	(0.036)
DE: Germany	0.019***	0.009***	0	0.005**	-0.019***	-0.001	0	0.019***	0.003	-0.001
	(0.004)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.009)	(0.009)
DK: Denmark	0.041***	0.016**	0.026**	0.015***	-0.066***	0.01	0.016*	-0.041***	-0.022	0.072*
	(0.009)	(0.005)	(0.009)	(0.004)	(0.007)	(0.007)	(0.007)	(0.006)	(0.014)	(0.029)
EE: Estonia	0.031	0.015	0.044*	-0.011	-0.046***	-0.047***	0.031***	0.021**	-0.029	0.027
	(0.017)	(0.018)	(0.018)	(0.007)	(0.006)	(0.008)	(0.009)	(0.008)	(0.022)	(0.068)
ES: Spain	0.035***	-0.006*	0.011*	-0.004	-0.017***	-0.013***	0.003	0.01***	-0.003	-0.002
	(0.009)	(0.002)	(0.006)	(0.002)	(0.003)	(0.002)	(0.004)	(0.003)	(0.007)	(0.008)
FI: Finland	0.078***	0.004	0.001	0.019*	-0.035***	-0.004	0.002	0.02*	0.075	-0.043*
	(0.023)	(0.01)	(0.014)	(0.009)	(0.01)	(0.01)	(0.016)	(0.009)	(0.072)	(0.017)
FR: France	0.051***	0.005**	0.035***	-0.004**	-0.017***	-0.009***	0.007***	0.016***	0.002	-0.004
	(0.004)	(0.002)	(0.004)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.004)
GR: Greece	0.012	-0.001	0.01	-0.009***	0.017**	0	0.004	0.008***	-0.007	-0.01*
	(0.007)	(0.002)	(0.007)	(0.002)	(0.006)	(0.002)	(0.002)	(0.002)	(0.008)	(0.004)
HU: Hungary	0.013	0.001	0.002	-0.003***	-0.007***	-0.006***	-0.003	0.005***	0.001	-0.001
	(0.009)	(0.002)	(0.004)	(0.001)	(0.001)	(0.001)	(0.004)	(0.001)	(0.004)	(0.003)
IE: Ireland	0.01	0.015***	0.004	-0.011***	-0.012***	-0.011***	0.014***	0.004	-0.007	0.012
	(0.006)	(0.004)	(0.005)	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)	(0.005)	(0.01)
IT: Italy	0.018***	-0.001	0.006**	-0.003**	-0.011***	-0.011***	-0.001	0.006***	0	-0.004
	(0.003)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.004)	(0.003)

(Continued)

Table 2.5. Continued.

LT: Lithuania	0.093***	-0.002	0.011	-0.016***	-0.021***	-0.026***	0.008	0.019***	-0.016	0.002
	(0.022)	(0.012)	(0.006)	(0.003)	(0.003)	(0.004)	(0.01)	(0.004)	(0.012)	(0.024)
LU: Luxembourg	0.042*	0.006	0.007	-0.017***	0.001	0.006	0.004	0.009*	0.001	-
	(0.018)	(0.007)	(0.01)	(0.005)	(0.008)	(0.006)	(0.005)	(0.005)	(0.007)	-
MT: Malta	0.024	-0.007	-0.023***	0.001	-0.013**	-0.004	0	0.005	-0.017	0.016
	(0.018)	(0.007)	(0.004)	(0.005)	(0.005)	(0.005)	(0.008)	(0.005)	(0.009)	(0.034)
NL: The Netherlands	0.04***	-0.008	0.052***	-0.011*	-0.059***	-0.026***	0.017*	-0.01	-0.021*	0.026
	(0.007)	(0.005)	(0.008)	(0.005)	(0.006)	(0.006)	(0.009)	(0.006)	(0.009)	(0.016)
PL: Poland	0.02*	-0.002	0.015	-0.021***	-0.026***	-0.021***	0.03***	0.016***	-0.021*	0.021
	(0.009)	(0.003)	(0.01)	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.01)	(0.023)
PT: Portugal	0.023	-0.004	0.037*	-0.008**	-0.031***	-0.036***	-0.002	0.021***	-0.002	-0.012
	(0.014)	(0.003)	(0.018)	(0.003)	(0.003)	(0.003)	(0.005)	(0.003)	(0.007)	(0.006)
RO: Romania	0.009	-0.008**	-0.006**	-0.001	0	0.009***	0.013***	-0.002	-0.009	0.023
	(0.006)	(0.003)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)	(0.002)	(0.004)	(0.025)
SE: Sweden	0.044***	-0.002	0.053***	-0.005	-0.048***	-0.015**	0.007	-0.013*	-0.023	0.023
	(0.007)	(0.005)	(0.009)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.012)	(0.019)
SI: Slovenia	0.027	-0.002	-0.004	-0.012**	-0.012	0.002	0.02***	0.001	-0.013	0.012
	(0.014)	(0.005)	(0.008)	(0.004)	(0.006)	(0.005)	(0.004)	(0.005)	(0.013)	(0.026)
UK: United Kingdom	0.028***	0.008	0.007	0.003	-0.022***	-0.013***	0.01**	0.005	0.006	-0.005
	(0.008)	(0.006)	(0.006)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.008)	(0.006)
Continental	0.024***	0.001	0.037***	0.001	-0.017***	-0.004**	0.005***	0.016***	-0.001	0.002
	(0.003)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.004)
Nordic	0.038***	-0.004	0.079***	0.005*	-0.05***	-0.008*	0.008*	-0.023***	-0.02**	0.029**
	(0.006)	(0.004)	(0.004)	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.006)	(0.011)
Anglo-Saxon	0.009	0.017*	0.023***	-0.003	-0.015***	-0.01***	0.013***	0.003	0.002	0.001
	(0.005)	(0.007)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.005)	(0.005)
Mediterranean	0	0	0.032***	-0.004***	-0.013***	-0.016***	0	0.009***	0.003	-0.008***
	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.002)
Central European	0.015*	0.004	0.03***	-0.013***	-0.022***	-0.019***	0.015***	0.009***	-0.015***	0.017
	(0.008)	(0.002)	(0.005)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.004)	(0.012)
Eastern European	0.004	-0.012***	0.013***	-0.003*	-0.016***	-0.008***	0.004	0.002	-0.014***	0.02
	(0.005)	(0.003)	(0.003)	(0.001)	(0.001)	(0.002)	(0.009)	(0.002)	(0.004)	(0.02)

Standard errors in brackets, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. For dummy variables, marginal effects are calculated based on discrete change from zero to 1. *Source*: Authors' estimations based on EU-LFS data

These differences persist in certain Central European countries, such as the Czech Republic and Lithuania, where part-time work has a bigger impact. Furthermore, those young people that work fewer than 25 hours are more likely to be involved in MJH in Mediterranean, Continental, and Nordic countries. These results provide support for the theory on restricted working hours (Birch & Preston, 2020; Koumenta & Williams, 2019), which is a decisive factor in young people's decision to hold a second job. Finally, particular mention should be made of three countries, namely, the Czech Republic, Malta and Romania, where those young people that dedicate more than 25 hours to their first job are more likely to find themselves in a situation of MJH. MJH might be being used there as a strategy by young people working more hours to find supplementary jobs (Heineck & Schwarze, 2004) or obtain greater human capital (Osborne & Warren, 2006; Panos *et al*., 2014; Pouliakas, 2017).

Another of the forms of non-standard employment that has a significant effect in certain member states on the probability of holding a second job involves temporary work. Although there are no significant differences in most countries, Germany, Denmark, France and Ireland record a positive effect, increasing the tendency toward secondary jobholding among those young people in temporary employment. In short, non-standard forms of employment have a positive effect on the likelihood of holding a second job among young people, while the hours dedicated to a first job have a negative effect.

A comparison between country-level results and those for the EU as a whole reported by Zangelidis (2014) reveals certain similarities and certain differences. As regards non-standard forms of employment, although there is a positive effect on the likelihood of MJH in part-time work, temporary work also has this effect in certain countries, which is not the case for the EU as a whole.

4.1.2 Socio-demographic characteristics

An analysis of the influence that the first job's characteristics have on the propensity toward secondary jobholding among young people in EU-28 member states revealed differences according to their socio-demographic characteristics. In terms of gender, there are statistically significant differences, with the likelihood of MJH being greater among women in Germany, Denmark and Finland. These countries are consistent with the

literature (Amuedo-Dorantes & Kimmel, 2009; Preston & Wright, 2020), which reports that women are more prone to MJH. Nevertheless, in most countries this probability is higher among men, as occurs in certain Continental, Central European, and Mediterranean countries. It therefore seems that MJH among young people is more prevalent among men, which is the case for the EU as a whole (Zangelidis, 2014). Nevertheless, the marginal effects found are very small in both cases, which means there are no major gender differences across EU-28.

Level of education is a good predictor of the propensity toward secondary jobholding, as it has significant effects in the same direction throughout EU-28. As the educational level of young people increases, so does their likelihood of finding themselves in a position of MJH. Although some countries do not record significant differences, the marginal effects increase in step with the level of education. The differences are especially noteworthy in Nordic countries, followed by Estonia, the UK, and certain Continental and Mediterranean countries. These country-level differences may arise due to different labour and institutional characteristics, such as unemployment rates and educational systems, which influence the labour integration of young people (De Lange *et al*., 2014). The results therefore indicate that a higher level of education provides greater accessibility to the labour market and increases young people's chances of finding a second job.

Age is another of the characteristics with an influence on the propensity toward MJH. It is a decisive factor when studying the situation of young workers. In Continental and Mediterranean countries, the older the individuals are, the greater the probability of holding a second job. This effect may be due to the greater accessibility to jobs on the back of more job experience or entering the labour market at a later stage. By contrast, two Nordic countries, namely, Denmark and the Netherlands, record a greater propensity toward MJH among individuals under the age of 25, which may be due to the greater presence of non-standard forms of employment, and especially part-time work, among younger workers (Green & Livanos, 2017). The earlier integration of young people in these countries also relies on certain cyclical, structural and institutional factors, such as a more vocationally specific educational system and weaker employment protection legislation (De Lange *et al*., 2014). In terms of country of birth, there are no statistically significant differences across most of the countries analysed because of the small sample sizes of young migrants. Nevertheless, there is a greater likelihood of secondary

jobholding among young nationals in certain countries, such as Austria, Estonia and Ireland, which points to their greater accessibility to the labour market compared to young migrants, favouring a second job.

Finally, it is worth analysing the influence of over-qualification when making the decision to hold a second job. Bearing in mind that over-qualification is more common among young people with a higher level of education, over-qualified young people could be expected to use MJH as a strategy for finding a new job that matches their skills. In this case, there are no statistically significant differences in most of the countries analysed, with even a negative effect in the Netherlands and Poland. These results therefore show that MJH is not an option taken by over-qualified young people in the labour market in most EU countries. These effects persist when analysing this influence in conjunction with people's age, so over-qualification does not have an obvious effect on the propensity toward secondary jobholding. It should be noted that over-qualification in Denmark's case has a positive effect on people over the age of 25. It would therefore be expedient to discover whether over-qualified young people, instead of finding a second job that matches their skills' level, are simply seeking to leave their first one. The next section therefore analyses a second econometric model on young workers' search for employment.

4.2 Job search model

The second econometric model has analysed the characteristics of the first job, certain socio-demographic characteristics, over-qualification, and MJH's influence on job-seeking (Table 2.6). In this case, the search variable refers to finding a new job including primary and second jobs. MJH in Continental countries, Denmark and Ireland increases the propensity to look for a job. In these countries, therefore, we may contend that MJH responds to an imbalance in the labour market. This imbalance is not because young people want MJH, but instead responds to a certain sense of insecurity. Moreover, there are statistically significant differences in job-seeking involving non-standard forms of employment. These differences are found in most countries, with the effects being greater in those with higher levels of job insecurity among young people, such as Cyprus, Spain and Greece. Countries such as Germany, Denmark, France and Greece record a negative

correlation between the number of hours worked and the search for a second job, which is consistent with the influence of part-time work.

Table 2.6. Marginal effects on the probability of seeking another job according to job and socio-demographic characteristics among young people (15-34) by country and groups of countries, 2019.

	Marginal effects						
	Job characteristics				Socio-demographic characteristics		
	MJH	Part-time	Temporary contract	< 25 hours worked	Aged ≥ 25	Over-qualified	≥ 25 & over-qualified
AT: Austria	-0.001	0.02***	0.012***	0.009*	0.003	0.009	0.007
	(0.004)	(0.004)	(0.003)	(0.004)	(0.002)	(0.006)	(0.007)
BE: Belgium	0.032*	0.028**	0.069***	0.015	0.022***	0.064	-0.022
	(0.015)	(0.009)	(0.011)	(0.009)	(0.006)	(0.032)	(0.014)
CY: Cyprus	-0.017	0.109**	-0.004	0.016	0.013	0.163***	-0.02
	(0.011)	(0.034)	(0.007)	(0.017)	(0.008)	(0.044)	(0.012)
CZ: Czech Republic	-0.01	0.001	0.023*	0.017	-0.004	0.061	-0.014**
	(0.008)	(0.013)	(0.009)	(0.024)	(0.005)	(0.038)	(0.005)
DE: Germany	0.009**	0.018***	0.013***	0.01***	0.009***	0.016*	0.002
	(0.003)	(0.003)	(0.002)	(0.003)	(0.001)	(0.007)	(0.005)
DK: Denmark	0.043***	0.027**	0.025***	0.023*	0.017**	0.068**	-0.02
	(0.008)	(0.009)	(0.006)	(0.009)	(0.006)	(0.022)	(0.014)
EE: Estonia	-0.011	0.028	0.013	0.001	-0.017	0.077	-0.031
	(0.016)	(0.02)	(0.018)	(0.016)	(0.011)	(0.058)	(0.021)
ES: Spain	0.004	0.092***	0.051***	0.017	0.021**	0.051*	-0.013
	(0.017)	(0.016)	(0.007)	(0.012)	(0.007)	(0.023)	(0.017)
FI: Finland	0.013	0.057*	0.063***	0.053	0.055***	0.001	0.049
	(0.024)	(0.027)	(0.016)	(0.028)	(0.013)	(0.084)	(0.107)
FR: France	0.024***	0.03***	0.025***	0.02***	0.009***	-0.003	0.009
	(0.005)	(0.004)	(0.002)	(0.004)	(0.002)	(0.005)	(0.007)
GR: Greece	-0.011	0.065***	0.023***	0.022**	0.002	0.018*	0
	(0.006)	(0.013)	(0.004)	(0.008)	(0.003)	(0.009)	(0.007)
HU: Hungary	-0.002	0.01	0.017***	-0.001	0.002	0.003	-0.001
	(0.005)	(0.007)	(0.003)	(0.003)	(0.001)	(0.004)	(0.003)
IE: Ireland	0.037**	0.016	0.028***	0.007	0.011*	0.072***	-0.023***
	(0.016)	(0.009)	(0.006)	(0.008)	(0.004)	(0.013)	(0.006)
IT: Italy	0.012	0.039***	0.023***	0.009**	0	0.011	0.007
	(0.007)	(0.004)	(0.002)	(0.003)	(0.002)	(0.006)	(0.007)
LT: Lithuania	-0.001	0.037*	0.04*	0	0.01**	0.053*	-0.019***
	(0.008)	(0.015)	(0.02)	(0.004)	(0.004)	(0.027)	(0.004)
LU: Luxembourg	0.126**	0.006	0.101***	-0.014	0.032**	0.006	0.028
	(0.046)	(0.021)	(0.02)	(0.021)	(0.012)	(0.046)	(0.057)
MT: Malta	0.039	0.006	0.011	0.018	0.012*	0.011	-0.005
	(0.027)	(0.014)	(0.01)	(0.021)	(0.005)	(0.016)	(0.01)
NL: The Netherlands	0	0.004	0.009*	0.009	0.039***	0.051***	-0.018**
	(0.006)	(0.005)	(0.004)	(0.005)	(0.005)	(0.012)	(0.006)
PL: Poland	0.02***	0.023***	0.012***	-0.001	-0.003	0.021*	-0.007*
	(0.006)	(0.007)	(0.002)	(0.004)	(0.002)	(0.008)	(0.004)
PT: Portugal	0.007	0.09***	0.054***	0.004	0.018***	0.024*	-0.004
	(0.011)	(0.024)	(0.005)	(0.013)	(0.005)	(0.01)	(0.01)
RO: Romania	-0.001	0.005**	0.003	0.03***	-0.007***	0.007*	0.004
	(0.003)	(0.002)	(0.003)	(0.004)	(0.001)	(0.003)	(0.003)
SE: Sweden	0.015	0.03***	0.057***	0.025**	0.013*	0.022	0.014
	(0.008)	(0.007)	(0.006)	(0.009)	(0.005)	(0.018)	(0.019)
SI: Slovenia	-0.021**	0.014	0.033***	-0.014*	0.009*	0.047*	-0.017*
	(0.008)	(0.011)	(0.006)	(0.007)	(0.005)	(0.022)	(0.008)
UK: United Kingdom	-0.023	0.036**	0.075***	0.002	0.001	0.114***	-0.05***
	(0.012)	(0.012)	(0.013)	(0.01)	(0.006)	(0.018)	(0.008)

(Continued)

Table 2.6. Continued.

Continental	0.014***	0.021***	0.022***	0.012***	0.011***	0.013***	0.001
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.004)	(0.003)
Nordic	0.024***	0.012**	0.035***	0.017***	0.027***	0.023**	0.009
	(0.005)	(0.004)	(0.003)	(0.005)	(0.003)	(0.009)	(0.009)
Anglo-Saxon	0.011	0.031***	0.027***	0	0.009*	0.097***	-0.036***
	(0.009)	(0.007)	(0.005)	(0.001)	(0.004)	(0.011)	(0.005)
Mediterranean	0.012*	0.045***	0.037***	0.017***	0.004*	0.025***	-0.002
	(0.005)	(0.004)	(0.002)	(0.003)	(0.002)	(0.005)	(0.004)
Central European	0.01**	0.018***	0.019***	-0.002	0.001	0.015**	-0.004
	(0.004)	(0.004)	(0.002)	(0.002)	(0.001)	(0.005)	(0.002)
Eastern European	0	0.011***	0.007	0.022***	-0.005**	0.015**	-0.002
	(0.003)	(0.003)	(0.004)	(0.003)	(0.001)	(0.005)	(0.002)

Standard errors in brackets, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. For dummy variables, marginal effects are calculated based on discrete change from zero to 1. MJH: Multiple jobholding. *Source*: Authors' estimations based on EU-LFS data.

As regards age, the Nordic countries and certain Continental, Mediterranean, Anglo-Saxon and Central and Eastern European countries record statistically significant differences, with young people tending to look for a job as they get older, possibly seeking better working conditions. As regards the influence of over-qualification, there are indeed statistically significant differences, whereby the probability of job-seeking is greater among over-qualified young people. This confirms that MJH is not used as a strategy for changing jobs among over-qualified young people, but instead in the search for a new job to replace the current one.

4.3 Robustness checks

The results here have been verified by the performance of several robustness checks involving the estimation of other models that have considered other variables in the analysis. One of the aspects that has been considered is the voluntary nature of young people wishing to hold a temporary or part-time job and its influence on MJH. Although few of the countries record statistically significant differences, some, such as Cyprus, Germany, Denmark and Spain, have a positive correlation between involuntary part-time work and MJH. These data underline the results obtained in the econometric models expounded earlier. Furthermore, all the other results remain practically unchanged when analysing involuntary non-standard employment.

An analysis has also been conducted to discover whether there are differences in the results for over-qualification for each separate level of education. In this case, there are no differences, for example, among young people with a high level, which concentrates most of the over-qualified young people. These results confirm that over-qualification does not appear to have a statistically significant effect on the decision to

hold a second job, although it does on the decision to change first jobs. The methodology for measuring over-qualification among young people proposed by Verdugo & Verdugo (1989) has been verified by using different thresholds; in other words, using different levels of standard deviation for years of education. Nevertheless, the results are similar to those recorded when the consideration of over-qualified is applied to those young people with more years of education than the average for their occupation plus one standard deviation.

Finally, the youth unemployment rate has been considered for each member state in 2019 and its correlation with the MJH rate. Although there is no clear relationship between these two rates, there appears to be an inverse correlation between MJH and unemployment. It may therefore be posited that countries with lower youth unemployment rates will have more labour market openings for favouring secondary jobholding among young people.

5. Discussion and conclusions

The objective of this study was to conduct a comparative analysis of MJH among young people in EU-28 member states through the EU-LFS. This has involved estimating several econometric models for analysing the influence that an individual's first-job and socio-demographic characteristics have on MJH. The analysis has also extended to the relationship that MJH and these characteristics have with young people's job-seeking in order to gain some insight into their willingness to hold a second job.

In terms of MJH, there are major differences across EU countries, showing the diversity of labour markets that young workers must negotiate within it. H1 is fulfilled, as a positive correlation is found between MJH and non-standard forms of employment in almost all European countries, with the propensity to hold a second job being greater particularly among young workers in part-time jobs. Although Zangelidis (2014) concludes that MJH increases due to flexibility, our findings reveal that this increase depends on the way flexibility is developed. Nordic countries record the highest rate of MJH among young people, together with a low intensity or number of hours dedicated to a second job. By contrast, the MJH rate is low in all the other countries, albeit with a high MJH intensity especially in Mediterranean, Central and Eastern European countries. This

means that H2 is clearly fulfilled, as those countries with a higher rate of non-standard employment, and particularly part-time work, have a greater rate of MJH.

These results reveal that some dimensions of precariousness are positively correlated with MJH. Therefore, the increasing trend of unstable, short-term and poorly paid jobs (O'Reilly *et al*., 2018) may generate an increase in MJH in European countries, particularly among young workers facing a higher risk of holding precarious jobs (Green & Livanos, 2017; Mills, 2004). What's more, the results validate H3, as the restriction of hours in the first job has an influence, with a greater likelihood of a second job among young people that work fewer than 25 hours per week. This bears out the conclusions of Conway & Kimmel (1998) on the effect of the restriction of hours over MJH.

H4 is partially confirmed, as there are no statistically significant differences for over-qualified young people, which does not appear to matter when holding a second job. Nevertheless, there are differences when looking for a job, which means that instead of using MJH as a strategy for finding a job that matches their skills, these over-qualified young people choose to look for another job to replace their current one. Furthermore, a positive correlation is found between educational level and the propensity toward MJH among young workers, which confirms H5 and the relationship that Amuedo-Dorantes & Kimmel (2009) and Atherton *et al*. (2016) report for the whole population. Nevertheless, there are differences in terms of the size of the effects depending on the country, which may rely on the different labour integration of young people according to the degree of vocational specification in educational systems, employment protection legislation and unemployment rates (De Lange *et al*., 2014). Although some studies evidence that MJH may be used as a strategy to increase skills (Kawakami, 2019; Panos *et al*., 2014; Pouliakas, 2017) or as a transition to a new job (Panos *et al*., 2009), MJH does not appear to be a situation that young people aspire to, as it increases the likelihood of looking for another job.

In terms of gender, there are certain Nordic countries, such as Denmark or Finland, in which the propensity toward MJH is greater for women, who also record a higher participation in, and share of, part-time jobs (Nätti & Nergaard, 2019). Nevertheless, this propensity is greater among men in Continental, Central European and Mediterranean countries. Once again, this reflects the influence of each labour market's specific characteristics over MJH (Hirsch *et al*., 2017). Moreover, there are no differences depending on country of birth in most member states.

As regards age's influence on MJH, there are statistically significant differences for many of the countries analysed. The propensity toward MJH in Continental and Mediterranean countries is greater among older workers, possibly because of their greater accessibility within the labour market, which is consistent with previous studies (Averett, 2001). Nevertheless, as shown by other authors (Wu *et al*., 2009) certain countries such as Denmark and the Netherlands record a greater propensity among younger workers (aged under 25). There is thus a different tendency in Nordic countries, where there is a high rate of part-time work and MJH, especially among young workers, possibly because their older peers have had access to a better quality first job. Note should also be taken of the earlier labour integration of young people in these countries due to lower unemployment rates, lower labour market dualisation and a higher level of vocational specification in educational systems (De Lange *et al*., 2014).

This article's main contribution is a country-level comparative analysis of MJH among young people across all EU member states. The differences found across groups of EU countries reflect the prevailing diversity. A further contribution is the study of several socio-demographic characteristics that help to understand a cohort such as young people with more than one job and the influence of certain characteristics, such as over-qualification, on secondary jobholding. The rate of MJH is higher in those countries that have chosen to make more use of part-time work. Young people's educational level appears to be a good predictor of MJH, which reflects the importance of openings within the labour market when looking for a second job. There are also country-level differences depending on gender, age and nationality.

A limitation of this study is the lack of longitudinal data on the career development of young people with more than one job. It would be very interesting in the future to study this development in order to understand the consequences that a second job has for the careers of young people in the EU, also including unsalaried jobs.

This article's findings prompt a reflection on its political implications. Faced with the EU's proposal to boost flexicurity (Bekker & Mailand, 2019; Juncker *et al*., 2015), the member states have chosen to focus their efforts on different components of the policies enacted (Viebrock & Clasen, 2009). Nevertheless, the partial implementation of flexicurity generates precariousness and insecurity among young people, thereby affecting a process such as MJH. Of note, the reforms introduced by EU countries have not been coordinated and have failed to reinforce or reconcile the difficult relationship

between flexibility and job security (Burroni & Keune, 2011). In addition, education plays a key role, providing young workers with greater access to employment, which means EU countries should pay attention to the transition between school and labour markets (De Lange *et al*., 2014; O'Reilly *et al*., 2018). Finally, it is important to consider the influence of the number of hours worked when finding a second job, which means there is a need to create quality employment to meet young people's expectations. It is important to reduce precariousness among young workers because MJH may be used as a strategy to deal with it. As future steps, it would be interesting to analyse the impact that the economic cycle and other country-level factors such as institutions and regulations have on MJH among young people in each EU country.

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CHAPTER III: DOES NON-STANDARD EMPLOYMENT INCREASE UNPAID OVERTIME AMONG YOUNG PEOPLE? A MULTILEVEL ANALYSIS OF EU-28 MEMBER STATES[14]

Abstract

This article presents a multilevel analysis of unpaid overtime among young people (aged 15-34) across EU-28 member states. It finds that non-standard employment and the specific characteristics and institutions of Europe's labour markets have an impact on this unpaid overtime. Use has been made of the European Union Labour Force Survey database for 2019. Temporary employment, working from home and a higher number of hours worked increase the probability of unpaid overtime among young people, while part-time employment and temporary employment agencies have a negative effect. Furthermore, the greater level and extension of collective bargaining agreements, a higher rate of involuntary part-time employment and cut-backs on unemployment expenditure are driving this trend. Finally, there are statistically significant differences in the propensity for unpaid overtime according to age, level of education and shift work, while there is no significant effect in terms of gender and the degree of protection against dismissal.

1. Introduction

This article sets out to analyse unpaid overtime and non-standard employment among young people across all EU-28 member states. Over the past decades, European countries have adopted flexibilisation policies that have led to an increase in non-standard employment (European Commission, 2009) and a convergence of social welfare policies that has reduced employees' job security (Heyes, 2011). The 2009 financial crisis has not only prompted higher unemployment in certain European countries, as it has also accelerated this process (Green & Livanos, 2017) and particularly among young people (Choudhry *et al.*, 2012). Working from home has once again raised the issue of unpaid overtime (Chung & Van der Horst, 2020), especially as a result of the COVID-19 pandemic. Nevertheless, the conversation on unpaid overtime is broader because it has

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not stopped increasing in development economies during the last three decades (Ioannides *et al*., 2014) and it involves other factors, such as the lack of security linked to other forms of non-standard employment (Famira-Mühlberger & Fuchs, 2013; Nichols & Sugur, 2004).

Workers have used unpaid overtime as a strategy for signalling, deferred investment or investment in human capital (Bell & Hart, 1999; Eurofound, 2022; Papagiannaki, 2014). More recent evidence, however, provides a new perspective in which unpaid overtime may be due to pressure from employers or a certain insecurity (Eurofound, 2022; Ioannides & Mavroudeas, 2018). Non-standard employment may be a key factor, as it is associated with greater pressure on employees (Gallie, 2005) and with their loss of say in their everyday work because of the reduction in their welfare protection and the rights they are entitled to (Eurofound, 2020). In particular, young employees are an interesting cohort when analysing how non-standard employment and its associated insecurity influence unpaid overtime due to their vulnerability within the labour market because of their short experience and employment record (Green & Livanos, 2017). This is compounded by the transition in their lives to an economic status defined by insecurity and instability (Hardgrove *et al*., 2015).

There have thus far been a number of studies on the effect of part-time employment or working from home on unpaid overtime in certain European countries, such as the UK and Germany (Chung & Van der Horst, 2020; Conway & Sturges, 2014; Zapf & Weber, 2017). Nonetheless, and to the best of our knowledge, there is no prior evidence on the relationship between all types of non-standard employment and the propensity for unpaid overtime among young people. Neither have been found any comparative analyses involving EU-28 member states. This research contributes to the study of the relationship between unpaid overtime and the non-standard forms of employment among young people through a comparative analysis of EU-28 member states. A further contribution involves the study of how certain variables that differ across European labour markets (e.g., unemployment expenditure, the level and extension of collective bargaining agreements and protection against dismissal) affect unpaid overtime.

The analysis is based on data gathered from the European Union Labour Force Survey (EU-LFS) for 2019, as provided by Eurostat. This database is the source for a large uniform and harmonised sample of young employees across all EU-28 member

states, thereby allowing us to conduct a comparative analysis. This article estimates several multilevel logistic regression models with both fixed and random effects for analysing the influence of variables at individual and country level, such as non-standard employment, collective bargaining agreements and public institutions, amongst others.

An initial approach reveals that working from home and temporary employment have a positive impact on unpaid overtime, while part-time employment and working through temporary employment agencies have a negative one. Econometric estimates reveal that unemployment expenditure, the level and extension of collective bargaining agreements and the rate of involuntary part-time employment have a statistically significant effect on the propensity to work unpaid overtime among young people.

2. Literature review

There is no technical agreement in the literature on working time regarding the metrics of unpaid overtime (Anxo & Karlsson, 2019) or regarding the rules on the threshold of hours when it begins. Eurostat (1999) and ILO (2004) set a limit of hours in the definition of unpaid overtime, considering it to involve those times worked over and above the normal or contractual working day. Eurofound (2003) goes one step further by using a more comprehensive definition that includes rules on the limit of hours, but also on their compensation, which in this case is not forthcoming. This article therefore takes its reference to be the definition used by Eurofound (2003), considering unpaid overtime to be the hours worked over and above a specific working timetable that should involve some form of compensation for employees, but which is not provided, either in the form of a higher rate of pay or as time off in lieu.

From a theoretical viewpoint, the amount of overtime an individual works is the result of market forces, supply and demand (Anxo & Karlsson, 2019). Standard neoclassical theory contends that employees are free to choose the distribution of their work and free time to maximise their utility (Hamermesh, 2019). A more modern perspective assumes that employees should face a series of external or regulatory restrictions in response to collective bargaining agreements or statutory legislation (Anxo & Karlsson, 2019). Hart (2004) posits that employees may do more overtime than they want because of these restrictions. Nevertheless, neither standard neoclassical theory nor

these restrictions explain why an individual needing to choose between paid work and free time will decide to do unpaid overtime.

Bell & Hart (1999), Eurofound (2022) and Papagiannaki (2014) single out five reasons that may encourage people to do unpaid overtime. These reasons may be summarised as follows: (i) uncertainty over the time required for performing tasks, (ii) signalling, (iii) investment in human capital, (iv) exchange of gifts and (v) deferred reward. Based on this classification, one of the strategies that young people use mostly involves the exchange of gifts (Chung & Van der Horst, 2020; Hübler *et al*., 2000; Zapf & Weber, 2017). They also do unpaid overtime as a way of signalling their commitment, effort, motivation and loyalty with a view to keeping their jobs and gaining promotion (Anger, 2006, 2008). Young people consider unpaid overtime to be a long-term investment, as they may earn a higher salary in the future (Anger, 2005); for example, due to systems of compensation related to seniority (Famira-Mühlberger & Fuchs, 2013; Zapf & Weber, 2017). What's more, young people are expected to be more willing to work unpaid overtime as an investment in human capital because of the current moment in their lives.

In contrast to these reasons, the state-of-the-art has evolved towards a new perspective on the motives that prompt individuals to do unpaid overtime. Ioannides *et al*. (2014) highlight the possibility of working unpaid overtime due to labour exploitation. Furthermore, Ioannides & Mavroudeas (2018) analyse these determinants in the Netherlands and Greece, stressing that a large part of unpaid overtime stems from the pressure put on employees and is not chosen freely. These scholars emphasise how this pressure is particularly more effective on more vulnerable employees. When considering that non-standard employment is associated with greater insecurity (Fernández-Kranz *et al*., 2015), reduced welfare protection and labour rights (Eurofound, 2020) and greater vulnerability and employer pressure (Gallie, 2005), a higher rate of unpaid overtime is to be expected among individuals in non-standard jobs[15]. This may have a particular impact on young people, as they tend to be in a more precarious and vulnerable situation (Green & Livanos, 2017; Kretsos, 2010; O'Reilly *et al*., 2018). There is only minimal prior evidence on the effect that non-standard employment has on unpaid overtime. The

[15] According to the classification of the International Labour Organization, non-standard employment includes: working from home, temporary employment, part-time and on-call work, multi-party employment and dependent self-employment.

handful of existing studies reveal that part-time employment has an ambiguous effect (Conway & Sturges, 2014; Famira-Mühlberger & Fuchs, 2013; Zapf & Weber, 2017), as does working from home (Chung & Van der Horst, 2020; Song, 2009), and as far as we know, there are no studies focusing on temporary work, temporary employment agencies and on-call jobs.

The prior literature that studies the propensity to work unpaid overtime reveals an ambiguous effect. While Ioannides *et al*. (2014) and Zapf & Weber (2017) report a greater readiness to do unpaid overtime among young people, Bell & Hart (1999) and Conway & Sturges (2014) find a positive relationship between age and unpaid overtime. As regards level of education, it has a positive effect on unpaid overtime (Famira-Mühlberger & Fuchs, 2013; Zapf & Weber, 2017) and as Ioannides *et al*. (2014) argue, this effect decreases the explanatory power of the human capital theory. Finally, some studies report a greater willingness to work unpaid overtime among men (Conway & Sturges, 2014), whereas others find the same for women (Famira-Mühlberger & Fuchs, 2013). This research therefore sets out to clarify the impact these variables have on the likelihood of working unpaid overtime.

Besides the influence of the aforementioned factors, unpaid overtime also depends on variables that differ across EU-28 member states. For example, as Famira-Mühlberger & Fuchs (2013) and Nichols & Sugur (2004) report for Austria and Turkey, respectively, unpaid overtime is a consequence of a high rate of unemployment in a region or country. This factor, together with the flexibilisation of labour markets, forces employees to accept the greater demands made by employers (Bernhardt & Krause, 2014). Moreover, both the level and extension of collective bargaining agreements and the lack of union representation have been crucial factors in the rate of unpaid overtime in certain occupational sectors in Denmark (Eurofound, 2022). If unpaid overtime may be a response to face the pressure by employers on employees, usually using the threat of dismissal (Ioannides *et al*., 2014), then we could expect a higher propensity towards unpaid overtime in contexts of greater insecurity, which is related to these country-level factors. Finally, employment flexibilisation agreements are related to an increase in work time (Chung & Van der Horst, 2020), overtime (Glass & Noonan, 2016; Lott & Chung, 2016) and work intensification (Kelliher & Anderson, 2010).

The particular interest in studying non-standard employment and unpaid overtime among young people stems from their greater vulnerability in the labour market and their

lesser experience and reduced accessibility to employment (Green & Livanos, 2017). Furthermore, young people constitute one of the cohorts at greatest risk of accepting non-standard employment against their will (Green & Livanos, 2017; Mills, 2004) and having to put up with precarious working conditions (Nielsen *et al*., 2019). These factors, added to the growing trend of non-standard employment (European Commission, 2009) and unpaid overtime (Ioannides *et al*., 2014), makes us wonder if unpaid overtime could be a strategy used by young workers to face the insecurity linked to non-standard employment.

2.1 Main hypotheses

We assume that unpaid overtime depends on the specific nature of each EU country's labour market and that it may arise due to several reasons among young workers, mainly as a form of labour exploitation (Ioannides *et al*., 2014). According to the greater insecurity and employer pressure associated to non-standard employment (Fernández-Kranz *et al*., 2015; Gallie, 2005), our hypothesis 1 (H1) states that there will be a positive correlation between unpaid overtime and non-standard forms of employment, especially regarding working from home as previously shown by Song (2009). On the one hand, hypothesis 2 (H2) assumes that there will be a lower propensity towards unpaid overtime among young shift workers due to their relatively greater legal and union protection (Ioannides *et al*., 2014), and a greater probability among the youth who work on afternoons, Saturdays and Sundays. In addition, we also expect a positive effect of the number of hours usually worked per week (Ioannides *et al*., 2014). On the other hand, hypothesis 3 (H3) sets that there will be a positive correlation between the number of hours worked in the first job and the probability of working unpaid overtime, being different the size of the effects among European countries due to the different working time regulation.

Considering that unpaid overtime is mainly undesired (Ioannides *et al*., 2014), in contrast with the theory of investment in human capital, hypothesis 4 (H4) states that the age and level of education of young people will increase the likelihood of unpaid overtime, probably due to the uncertainty over the time required for performing tasks. Finally, when we analyse all EU-28 member states, we expect to find differences between countries due to each one's specific characteristics and the different ways in which flexibility policies have been implemented (Bernhardt & Krause, 2014). Hypothesis 5

(H5) proposes that a higher level and extension of collective bargaining, a lower unemployment expenditure and a higher rate of workers in involuntary non-standard employment will have a positive effect on the probability of working unpaid overtime (Bernhardt & Krause, 2014; Eurofound, 2022; Famira-Mühlberger & Fuchs, 2013). We expect unpaid overtime, therefore, to arise in contexts where young workers feel insecure and where union representation is weaker (Eurofound, 2022; Ioannides *et al*., 2014).

3. Data and methodology

3.1 Data and variables

The database used here is the EU-LFS compiled by Eurostat for 2019, which allows conducting a comparative country-level analysis by containing harmonised information on EU-28 member states. The 2019 wave of the EU-LFS has been used because it is the most recent year available that is unaffected by the economic cycle, either by the prior financial crisis or by the pandemic. What's more, this database contains highly detailed information on the individual-level characteristics of youth employment and the amount of unpaid overtime worked; in this case, as reported by the actual employee. This database´s main shortcoming is the lack of information on unpaid overtime in Bulgaria, whereby this country has not been included in the analysis. The data on individuals has been gathered for the following variables: gender, age, level of education, country of birth, type of contract, type of working day, working from home, contract with a temporary employment agency, on-call job, multiple employment, number of hours worked and type of work (nights, Saturdays, Sundays, etc.)[16].

All the individual-level variables are categorical. As regards gender and country of birth, two dichotomous variables have been included (1 male, 0 female and 1 national, 0 immigrant, respectively). Age is divided into five-year brackets (15-19, 20-24, 25-29 and 30-34). Level of education is divided into three categories: lower than secondary education, secondary education and tertiary education. In turn, the variables referring to

[16] This information is captured by the following variables of the EU-LFS: SEX (gender), AGE (age in five-year brackets), HATLEV1D (level of education in three categories), COUNTRYB (country of birth), TEMP (type of contract), FTPT (type of working day), HOMEWK (working from home), TEMPAGCY (contract with temporary employment agency), EXIST2J (existence of second job), HWUSUAL (usual weekly hours worked), SHIFTWK (shift work), EVENWK (evening work), NIGHTWK (night work), SATWK (work on Saturday) and SUNWK (work on Sunday). For on-call work, only zero-hour contracts have been analysed as there is no information available on other on-call work.

non-standard employment are also dichotomous: type of contract (1 temporary, 0 open-ended), type of working day (1 part-time, 0 full-time), working from home (1 working from home sometimes, 0 never), temporary employment agency contract (1 contract through an agency, 0 contract with employer) and on-call work (1 zero-hour contract, 0 other contract). Four categories have been established for the number of hours according to the legal limits permitted per week for EU-28 member states: fewer than 36 hours/week, 36-40 hours/week, 41-48 hours/week and more than 49 hours/week. Finally, dichotomous variables have also been used for multiple employment and working shifts, Saturdays, Sundays, afternoons and nights, with a value of 1 if the condition is fulfilled and 0 otherwise.

Despite the lack of consensus in the literature over the age bracket in which an individual is considered young (Simms *et al*., 2018), the fluid definition of youth used by Eurofound has been applied. According to this definition, youth is a term that defines the period between childhood and adulthood. The lower threshold has been set at the age of 15, as this is the minimum working age in the EU pursuant to Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work. The upper threshold has been set at 34, as certain countries such as Greece, Italy and Spain are characterised by young people's late entry and consolidation in the labour market (Scarpetta *et al*., 2010)[17]. In this case, there is a sample of 414,418 wage earners between the ages of 15 and 34 in EU-28 member states[18]. Multilevel models have been estimated by using the age variable as defined in the EU-LFS, in five-year brackets.

The country-level variables have involved analysing the influence on the amount of unpaid overtime exerted by unemployment expenditure, collective bargaining agreements, the regulations on working time and dismissal and the rates of involuntary non-standard employment and employees working more than 48 hours per week. Use has been made accordingly of three more databases: Eurostat for the variables on per capita gross domestic product (GDP) and unemployment expenditure (Eurostat, 2020)[19]; the Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS) for information on the level and extension of collective bargaining

[17] Random effects have been estimated for the age variable as a robustness check to ensure that there are no differences by country in the estimations of age. Finally, fixed effects have been estimated for age because these results do not differ across countries. These results are available upon request.
[18] Neither self-employment nor dependent self-employment have been included in the analysis since the latter is inconsistent with the EU-LFS.
[19] Data on the UK have been obtained from the Office for National Statistics.

agreements (Visser, 2019) and finally, the Employment Protection Legislation (EPL) index issued by the Organization for Economic Co-operation and Development (OECD) (OECD, 2019). Although other scholars such as Adăscăliței *et al*. (2021) defend the use of the CBR Labour Regulation Index Dataset (Adams *et al*., 2016) on information related to the protection of working time and dismissal due to its greater latitudinal and longitudinal coverage, this database was finally discarded because of its lack of information for a more recent timeframe.

The inclusion of unemployment expenditure as percentage of per capita GDP is due to the possible influence that the security it gives workers outside the labour market may have on the amount of unpaid overtime, in the same way as the insecurity linked to unemployment (Famira-Mühlberger & Fuchs, 2013; Nichols & Sugur, 2004). This variable is a continuous predictor. A further two variables have also been included on the influence of collective bargaining agreements, as recent literature has reported their effect on unpaid overtime (Eurofound, 2022). Firstly, account has been taken of the prevailing level at which collective bargaining agreements affect wages, creating a variable with three categories: local, sectorial and national. Secondly, consideration has been given to the impact that collective bargaining agreements have on unorganised employees. This categorical variable has the following options: none, widespread and automatic.

Finally, a numerical predictor has been included on employment protection legislation related to dismissal and the rate of involuntary non-standard employment due to the insecurity these variables prompt in employees (Eurofound, 2020; Fernández-Kranz *et al*., 2015). As regards the regulation on protection against dismissal, a continuous variable has been included that takes values from 0 to 4, which are calculated as the weighted average of the OECD's sub-indicators on the protection against individual and collective dismissals. A higher score for this variable indicates greater protection and vice versa. There are also two numerical predictors, namely, the rates of involuntary temporary and part-time employment.

In theory, country-level variables are not expected to have an immediate influence on individual-level variables and unpaid overtime. By contrast, institutional reforms and changes in the economy and labour markets have a delayed effect; in other words, the decisions made by individuals will change over time (Adăscăliței *et al*., 2021). This has led to an analysis of the figures with a one-year lag for country-level variables, that is, those corresponding to 2018.

3.2 Empirical approach

The unpaid overtime worked by young people across EU-28 member states have been studied by estimating different multilevel logistic regression models, with the likelihood of doing so being the dependent binary variable. These models allow to analyse both individual- and country-level characteristics and their interaction.

This article has studied two different types of multilevel models. Models 0 to 2 involve multilevel logistic regressions with the fixed effects of the independent variables; in other words, it is assumed that the effect of the predictors does not vary across countries. If y_{ij} is taken to be the probability of working unpaid overtime for an individual i in country j, the multilevel logistic models estimated with fixed effects are defined as follows:

$$y_{ij} = \beta_{0j} + \beta_{10}x_{ij} + \beta_{01}z_j + \beta_{20}x_{ij}z_{ij} + \varepsilon_{ij} + u_{0j}$$

$$\varepsilon_{ij} \sim N(0, \sigma_e^2)$$

$$u_{0j} \sim N(0, \tau_e^2)$$

$$i = 1, \dots, n$$

$$j = 1, \dots, p$$

Where n is the total number of individuals and p the total number of countries, which in this case involves 27 of EU-28 member states. As regards the independent variables, x_{ij} represents the group of individual-level variables, z_{ij} the matrix of country-level variables and $x_{ij}z_{ij}$ is the term used for the interaction between individual and country levels. Finally, ε_{ij} corresponds to the variance in the random term at individual level and u_{0j} to a vector of the errors at country level.

Models 3 to 15 involve multilevel logistic regressions with random slopes, where it is considered that the effect of certain variables varies according to clusters or countries[20]. In theory, there are expected to be differences by countries regarding the number of hours worked per week, as the statutory limit permitted varies across European countries[21]. This has therefore involved an estimation of the random slopes for the variable of hours worked per week and fixed effects for all the other variables. The

[20] The estimates of all the econometric models are presented as a robustness check of the obtained results.
[21] The maximum limit of hours per week that an individual can work in each EU country can be found in Eurofound (2021).

multilevel logistic regression models estimated with random slopes are defined as follows:

$$y_{ij} = \beta_{0j} + \beta_{10}x_{ij} + \left(\beta_{20} + u_{ij}\right) * h_{ij} \; + \; \beta_{01}z_j + \beta_{30}x_{ij}z_{ij} + \varepsilon_{ij} + u_{0j}$$

$$\varepsilon_{ij} \sim N(0, \sigma_e^2)$$

$$u_{0j} \sim N(0, \tau_e^2)$$

$$i = 1, \dots, n$$

$$j = 1, \dots, p$$

Where h_{ij} represents the number of hours worked per week and u_{ij} corresponds to each country's variance regarding the value of the fixed coefficient β_{20}.

With a view to facilitating the comparison and interpretation of the effects, all the continuous variables have been grand mean centred, that is, around the mean for the sample as a whole. These variables have been standardised, which means that the coefficients and odds ratios obtained represent the change of one standard deviation regarding the mean of the predictor variables.

4. Findings

An initial descriptive approach to the ratio of unpaid overtime among young people reveals differences across EU-28 member states (Figure 3.1). On the one hand, those countries with a higher ratio of unpaid overtime among young people are Portugal, Luxembourg, the UK and the Netherlands, with this last country recording a high 11%. On the other hand, the countries with a lower ratio of unpaid overtime are some Central and Eastern European countries, such as Lithuania, Hungary and Romania. As regards the possible relationship between the ratio of unpaid overtime and the ratio of non-standard employment, although no linear relationship is detected, non-standard employment appears to have a certain influence on unpaid overtime, probably due to some of these forms of employment.

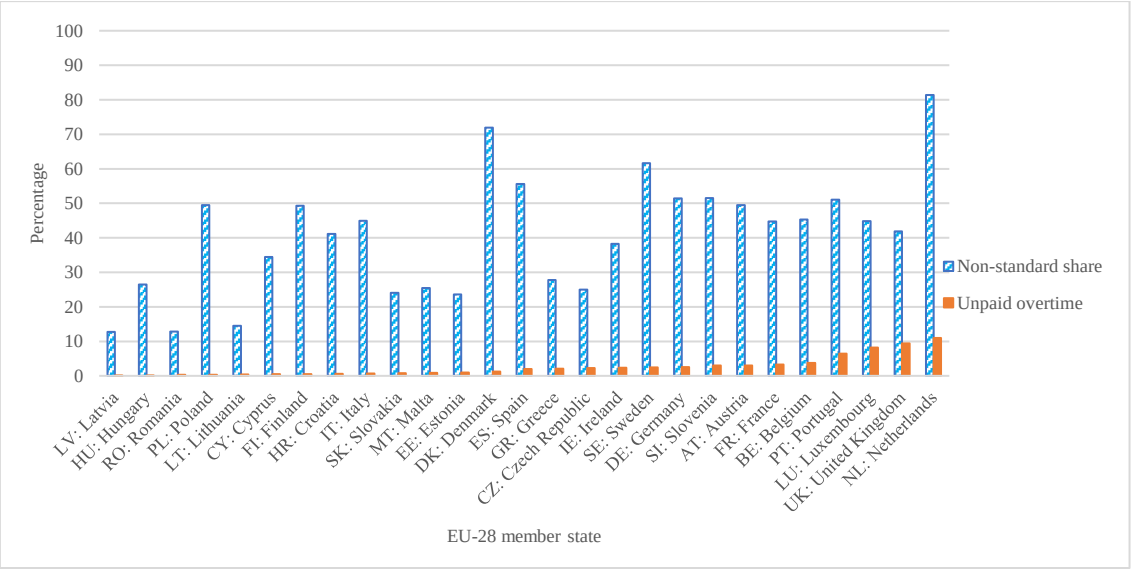

Figure 3.1. Rates of non-standard employment and unpaid overtime among young workers (15-34) across EU-28 member states, 2019. *Source*: Authors' estimations based on EU-LFS data.

Figure 3.2 compares the percentage of each one of the forms of non-standard employment among the overall cohort of young people and young people doing unpaid overtime. It shows that countries with a higher ratio of unpaid overtime among young people, such as the Netherlands, Portugal and the UK, have a high percentage of young people working from home or in temporary employment. Although the ratio of non-standard employment is similar between the two groups, the distribution within each one is completely different. In this case, there are differences particularly in the percentage of young people working from home or in temporary employment. Furthermore, the rate of these two forms of non-standard employment is very high among young people doing unpaid overtime in all EU-28 member states. These two forms of employment are therefore expected to have a positive effect on the propensity to work unpaid overtime. Nevertheless, this needs to be confirmed by estimating the aforementioned econometric models.

Finally, the suitability of the above multilevel models has been verified by calculating the intraclass correlation coefficient (ICC). The ICC forthcoming in the estimation of the multilevel model is 0.17, which means that 17% of the variation in the probability of working unpaid overtime among young people depends on country-level variables. The ICC therefore confirms that the econometric strategy proposed is the right one for analysing the unpaid overtime among young people across EU-28 member states, as the country-level variables significantly influence the variation in the propensity to work unpaid overtime.

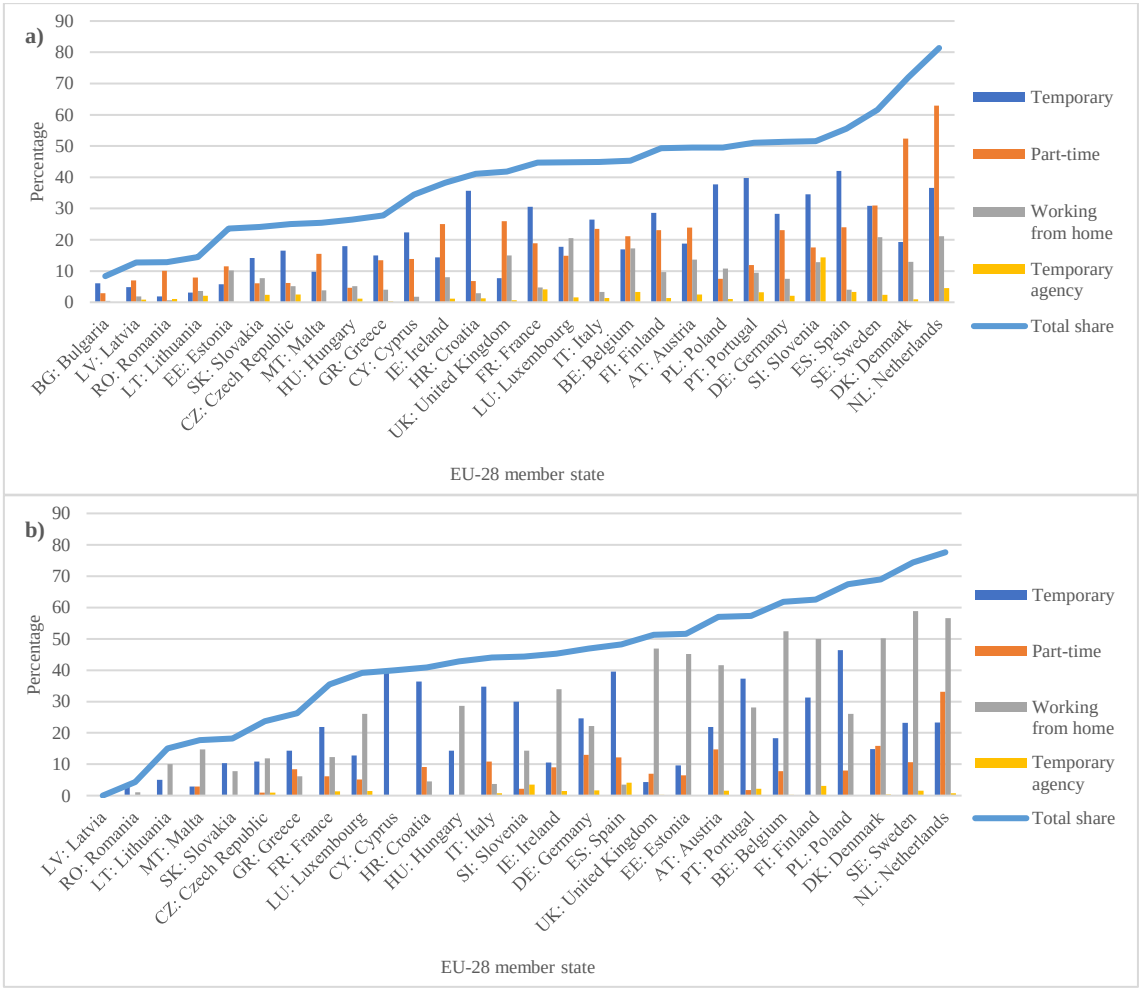

Figure 3.2. Ratio of non-standard forms of employment and total share of non-standard employment among young workers (15-34) across EU-28 member states, 2019. Panel a) contains the ratios for all young workers and panel b) for those working unpaid overtime. *Source*: Authors' estimations based on EU-LFS data.

4.1 Individual-level predictors

Table 3.1 presents the odds ratios for the sociodemographic variables, non-standard forms of employment, working conditions, number of hours worked and country-level variables. In the full model of individual- and country-level characteristics (model 11), the estimations of the sociodemographic variables do not reveal any statistically significant gender differences among young people. Age has a positive effect, increasing the probability of working unpaid overtime in step with age. Therefore, although some studies report a greater propensity to work unpaid overtime among the youngest individuals (Zapf & Weber, 2017), our results should that the probability of doing so among young people is higher especially among those aged 30-34. In this case, the

Table 3.1. Estimations of multilevel logistic regression models: Odds ratios for the probability of working unpaid overtime by individual- and country-level variables among young workers (15-34) in EU-28 member states, 2019.

	Model 0		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender: women					1.007	0.983-1.031	1.009	0.985-1.034
Age (ref: 15-19)								
20-24					2.241***	2.048-2.452	2.123***	1.943-2.321
25-29					3.053***	2.793-3.337	2.861***	2.617-3.127
30-34					3.38***	3.093-3.695	3.168***	2.898-3.463
Education (ref: primary or lower)								
Secondary					1.279***	1.214-1.347	1.296***	1.23-1.365
Tertiary					2.583***	2.45-2.724	2.638***	2.502-2.782
Country of birth: nationals					1.334***	1.287-1.383	1.338***	1.29-1.387
Type of contract: temporary					1.083**	1.05-1.117	1.091**	1.058-1.125
Type of working day: part-time					0.803***	0.757-0.852	0.781***	0.731-0.834
Working from home					2.425***	2.358-2.494	2.404***	2.337-2.472
Temporary agency workers					0.677***	0.619-0.741	0.682***	0.624-0.747
On-call work					0.662	0.458-0.955	0.629	0.436-0.907
Shift work					0.627***	0.604-0.651	0.627***	0.604-0.651
Evening work					1.893***	1.839-1.948	1.917***	1.863-1.974
Night work					0.929	0.894-0.965	0.935	0.9-0.971
Saturday work					1.153***	1.116-1.19	1.137***	1.1-1.175
Sunday work					0.994	0.959-1.03	1.001	0.966.1.038
Holding a second job					1.053	1.001-1.108	1.066	1.013-1.122
Hours worked (ref: < 36 h/week)								
36-40 hours/week					1.435***	1.362-1.511	1.231	1.091-1.39
41-48 hours/week					3.463***	3.267-3.669	3.508***	2.989-4.116
49 or more hours/week					4.145***	3.896-4.411	3.074***	2.452-3.854
Unemp exp/per capita GDP								
Level of CBA (ref: local)								
Sectorial								
National								
Extension of CBA (ref: none)								
Widespread								
Automatic								
Long working hours rate								
Dismissal protection								
Involuntary temporary rate								
Involuntary part-time rate								
Constant	0.134***	0.133-0.134	0.146***	0.132-0.161	0.001***	0.001-0.001	0.001***	0.001-0.002
Observations	414,418		414,418		324,480		324,480	
AIC	300.622		283,435		64,236		63,833	
BIC			283,457		64,482		64,175	
ll			-141,716		-32,095		-31,885	

(Continued)

Table 3.1. (Continued).

	Model 4		Model 5		Model 6		Model 7	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender: women	1.009	0.985-1.034	1.009	0.985-1.034	1.009	0.985-1.034	1.009	0.985-1.034
Age (ref: 15-19)								
20-24	2.123***	1.941-2.323	2.125***	1.944-2.323	2.121***	1.939-2.321	2.125***	1.943-2.326
25-29	2.861***	2.617-3.127	2.861***	2.62-3.124	2.858***	2.612-3.127	2.861***	2.617-3.127
30-34	3.168***	2.898-3.463	3.171***	2.904-3.463	3.165***	2.892-3.463	3.171***	2.901-3.466
Education (ref: primary or lower)								
Secondary	1.296***	1.229-1.366	1.297***	1.231-1.366	1.297***	1.23-1.368	1.296***	1.23-1.365
Tertiary	2.638***	2.502-2.782	2.638***	2.502-2.782	2.638***	2.502-2.782	2.635***	2.499-2.779
Country of birth: nationals	1.338***	1.29-1.387	1.338***	1.29-1.387	1.338***	1.29-1.387	1.339***	1.292-1.388
Type of contract: temporary	1.091**	1.058-1.125	1.091**	1.058-1.125	1.091**	1.058-1.125	1.091**	1.058-1.125
Type of working day: part-time	0.781***	0.731-0.834	0.78***	0.731-0.832	0.782***	0.732-0.835	0.78***	0.73-0.833
Working from home	2.404***	2.337-2.472	2.404***	2.337-2.472	2.404***	2.337-2.472	2.404***	2.337-2.472
Temporary agency workers	0.682***	0.624-0.747	0.682***	0.624-0.746	0.682***	0.624-0.747	0.682***	0.624-0.746
On-call work	0.629	0.433-0.916	0.631	0.438-0.909	0.629	0.433-0.912	0.63	0.443-0.896
Shift work	0.627***	0.604-0.651	0.628***	0.604-0.652	0.628***	0.604-0.652	0.627***	0.604-0.651
Evening work	1.917***	1.863-1.974	1.917***	1.863-1.974	1.917***	1.863-1.974	1.917***	1.863-1.974
Night work	0.935	0.9-0.971	0.935	0.9-0.971	0.935	0.9-0.971	0.935	0.9-0.971
Saturday work	1.137***	1.1-1.175	1.137***	1.1-1.175	1.135***	1.099-1.174	1.135***	1.099-1.174
Sunday work	1.001	0.966-1.038	1.001	0.966-1.038	1.001	0.966-1.038	1.002	0.967-1.039
Holding a second job	1.066	1.013-1.122	1.066	1.013-1.122	1.066	1.013-1.122	1.067	1.014-1.123
Hours worked (ref: < 36 h/week)								
36-40 hours/week	1.231	1.09-1.391	1.275*	1.143-1.422	1.224	1.089-1.376	1.285*	1.142-1.446
41-48 hours/week	3.504***	2.971-4.133	3.508***	3.022-4.071	3.522***	3.01-4.121	3.636***	3.111-4.25
49 or more hours/week	3.071***	2.433-3.877	3.343***	2.707-4.129	3.216***	2.573-4.019	3.337***	2.683-4.15
Unemp exp/per capita GDP	0.976	0.591-1.613						
Level of CBA (ref: local)								
Sectorial			4.595**	2.863-7.374				
National			5.663	1.405-22.83				
Extension of CBA (ref: none)								
Widespread					1.394	0.807-2.408		
Automatic					3.152	1.589-6.253		
Long working hours rate							0.896	0.829-0.969
Dismissal protection								
Involuntary temporary rate								
Involuntary part-time rate								
Constant	0.001***	0.001-0.002	0.001***	0-0.001	0.001***	0-0.001	0.001***	0.001-0.002
Observations	324,480		324,480		324,480		324,480	
AIC	63,835		63,830		63,835		63,833	
BIC	64,188		64,193		64,199		64,186	
ll	-31,885		-31,881		-31,884		-31,884	

(Continued)

Table 3.1. (Continued).

	Model 8		Model 9		Model 10		Model 11	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender: women	1.016	0.992-1.041	1.004	0.98-1.028	1.004	0.98-1.028	1.01	0.986-1.035
Age (ref: 15-19)								
20-24	2.16***	1.97-2.368	2.113***	1.931-2.312	2.113***	1.929-2.314	2.143***	1.952-2.351
25-29	2.912***	2.659-3.19	2.846***	2.604-3.111	2.846***	2.601-3.114	2.883***	2.63-3.161
30-34	3.232***	2.951-3.54	3.158***	2.889-3.452	3.155***	2.883-3.452	3.206***	2.924-3.515
Education (ref: primary or lower)								
Secondary	1.301***	1.232-1.373	1.313***	1.245-1.384	1.313***	1.245-1.384	1.319***	1.25-1.392
Tertiary	2.659***	2.519-2.807	2.68***	2.542-2.826	2.68***	2.542-2.826	2.705***	2.56-2.858
Country of birth: nationals	1.351***	1.302-1.402	1.331***	1.284-1.38	1.331***	1.284-1.38	1.344***	1.296-1.395
Type of contract: temporary	1.092**	1.059-1.126	1.084**	1.051-1.119	1.084*	1.051-1.119	1.085**	1.051-1.121
Type of working day: part-time	0.791***	0.74-0.845	0.783***	0.734-0.836	0.782***	0.732-0.835	0.793***	0.742-0.847
Working from home	2.399***	2.333-2.467	2.394***	2.328-2.462	2.394***	2.328-2.462	2.392***	2.326-2.46
Temporary agency workers	0.683***	0.624-0.748	0.688***	0.629-0.753	0.688***	0.629-0.753	0.688***	0.628-0.754
On-call work	0.645	0.446-0.931	0.627	0.435-0.904	0.629	0.444-0.892	0.652	0.448-0.948
Shift work	0.629***	0.605-0.654	0.619***	0.596-0.644	0.619***	0.596-0.644	0.623***	0.599-0.649
Evening work	1.914***	1.857-1.972	1.923***	1.868-1.98	1.923***	1.868-1.98	1.919***	1.863-1.978
Night work	0.936	0.9-0.973	0.942	0.907-0.978	0.942	0.907-0.978	0.943	0.907-0.98
Saturday work	1.113**	1.077-1.15	1.147***	1.11-1.185	1.147***	1.11-1.185	1.122***	1.085-1.16
Sunday work	1.009	0.973-1.046	0.995	0.96-1.031	0.995	0.96-1.031	1.003	0.967-1.041
Holding a second job	1.082	1.027-1.14	1.067	1.013-1.124	1.067	1.013-1.124	1.082	1.027-1.14
Hours worked (ref: < 36 h/week)								
36-40 hours/week	1.47***	1.311-1.647	1.158	1.024-1.31	1.219	1.077-1.38	1.359**	1.228-1.505
41-48 hours/week	4.179***	3.525-4.953	3.337***	2.838-3.924	3.494***	2.962-4.121	3.811***	3.277-4.433
49 or more hours/week	4.289***	3.459-5.317	2.91***	2.305-3.673	3.193***	2.494-4.088	4.221***	3.438-5.181
Unemp exp/per capita GDP							0.048***	0.026-0.088
Level of CBA (ref: local)								
Sectorial							8.732***	5.585-13.65
National							20.905**	7.486-58.38
Extension of CBA (ref: none)								
Widespread							6.284***	3.975-9.934
Automatic							4.904*	2.418-9.944
Long working hours rate							1.196**	1.134-1.261
Dismissal protection	3.438*	1.939-6.098					0.572	0.317-1.033
Involuntary temporary rate			0.928	0.877-0.981			0.926	0.871-0.984
Involuntary part-time rate					1.089	0.964-1.23	1.365***	1.259-1.48
Constant	0.001***	0.001-0.002	0.001***	0.001-0.002	0.001***	0.001-0.002	0.001***	0-0.001
Observations	296,548		324,025		324,025		296,093	
AIC	61,453		63,267		63,269		60,882	
BIC	61,803		63,620		63,621		61,317	
ll	-30,694		-31,601		-31,601		-30,400	

* p < 0.05, ** p < 0.01, *** p < 0.001. Models 0 to 2 are fixed effects models and models 3 to 11 include random slopes for the number of hours worked per week: All numeric variables have been grand mean centred. OR: Odds ratio, CI: Confidence interval, GDP: Gross domestic product, CBA: Collective bargaining agreement, AIC: Akaike's Information Criteria, BIC: Bayesian Information Criteria, ll: Log-likelihood. *Source*: Authors' estimations based on EU-LFS, Eurostat, ICTWSS, and OECD data.

probability of working unpaid overtime is three times higher among this age bracket than among those aged 15-19.

Level of education has a positive relationship with the propensity to work unpaid overtime, which means the more educated the young people are, the greater the likelihood of doing unpaid overtime. The probability of working unpaid overtime is almost three times greater among young people with a tertiary level of education compared to those without secondary schooling, as they may have more access to occupations related to a greater propensity to work unpaid overtime, such as managers, professionals and associated professionals and technicians (Chung & Van der Horst, 2020; Conway & Sturges, 2014). As pointed out by Ioannides *et al*. (2014), this positive effect diminishes the explanatory power of the human capital theory. What's more, it may be expected a response by young people with a higher level of education that is consistent with the theory of exchanging gifts (Chung & Van der Horst, 2020; Hübler *et al*., 2000; Zapf & Weber, 2017). These young people might therefore work more unpaid overtime in order to receive some kind of benefit in the future and stand out before the employer (Anger, 2006, 2008). Finally, there is a slightly greater probability of working overtime among young nationals compared to their migrant counterparts.

As regards non-standard forms of employment, the effects on the probability of working unpaid overtime vary according to the type of employment (model 11). Firstly, there is a negative effect of two forms of non-standard employment, namely, part-time employment and employees hired through a temporary employment agency. In contrast with the evidence found by Ioannides *et al*. (2014), the effect of part-time employment is negative among young workers. This negative effect may be caused because part-time is a flexible type of employment that permits an employee to work the hours they choose, for example, to reconcile the working life with education (Nicolaisen *et al*., 2019). It should be noted in the case of employees hired through temporary employment agencies (i.e., jobs brokered through a third party and for a specific period of time) that they do not normally involve unpaid overtime as a strategy of deferred investment or the exchange of gifts.

A second highlight is the positive effect that temporary employment and working from home have on the probability of unpaid overtime. Although temporary employment does have a positive effect, this is very small and may be due to the insecurity associated with this kind of work, which may induce young people to do unpaid overtime. Table 3.1

reveals that working from home has a greater impact among non-standard forms of employment, whereby it more than doubles the probability of doing unpaid overtime. It should be noted, nonetheless, that working from home has certain advantages, such as flexibility in an employee's tasks. It should also be noted that there is a downside, as young people may have less control over their working time and be forced to work longer hours, thereby blurring the gap between their personal lives and their work.

The number of hours worked has a positive effect on the propensity to do unpaid overtime. Compared to the category involving fewer than 36 hours per week, there is a slightly higher chance of unpaid overtime among those working up to 40 hours per week. From then on, the categories of 40-48 hours per week and over 48 hours record a probability of working unpaid overtime that is four times higher among young employees in EU-28 member states. It is therefore clear that more hours worked favours unpaid overtime, possibly due to employer pressure (Eurofound, 2022; Ioannides & Mavroudeas, 2018) or as a response to uncertainty over the time needed to perform tasks (Bell & Hart, 1999; Papagiannaki, 2014). Moreover, this effect varies across European countries, as shown in Figure 3.3, where the effect of hours worked is clearly greater in Mediterranean countries (Spain, Portugal, Greece and Italy), the UK and Belgium, while it is lower in certain Nordic countries (the Netherlands, Denmark and Sweden), Luxembourg, Germany and Austria. This figure also shows the differences across countries in the probability of doing unpaid overtime, with this being higher than the average for European countries in Luxembourg and lower in Italy, Greece, Hungary and Slovakia, among others.

Finally, according to the nature of the working day, working in shifts, in the afternoon and on Saturdays has a statistically significant effect. Shift work records a lower probability of doing unpaid overtime, which is consistent with the findings reported by Ioannides & Mavroudeas (2018) on the greater protection these employees have. By contrast, afternoon work considerably increases the likelihood of doing unpaid overtime, as does Saturday work, which has a slightly positive effect on this probability.

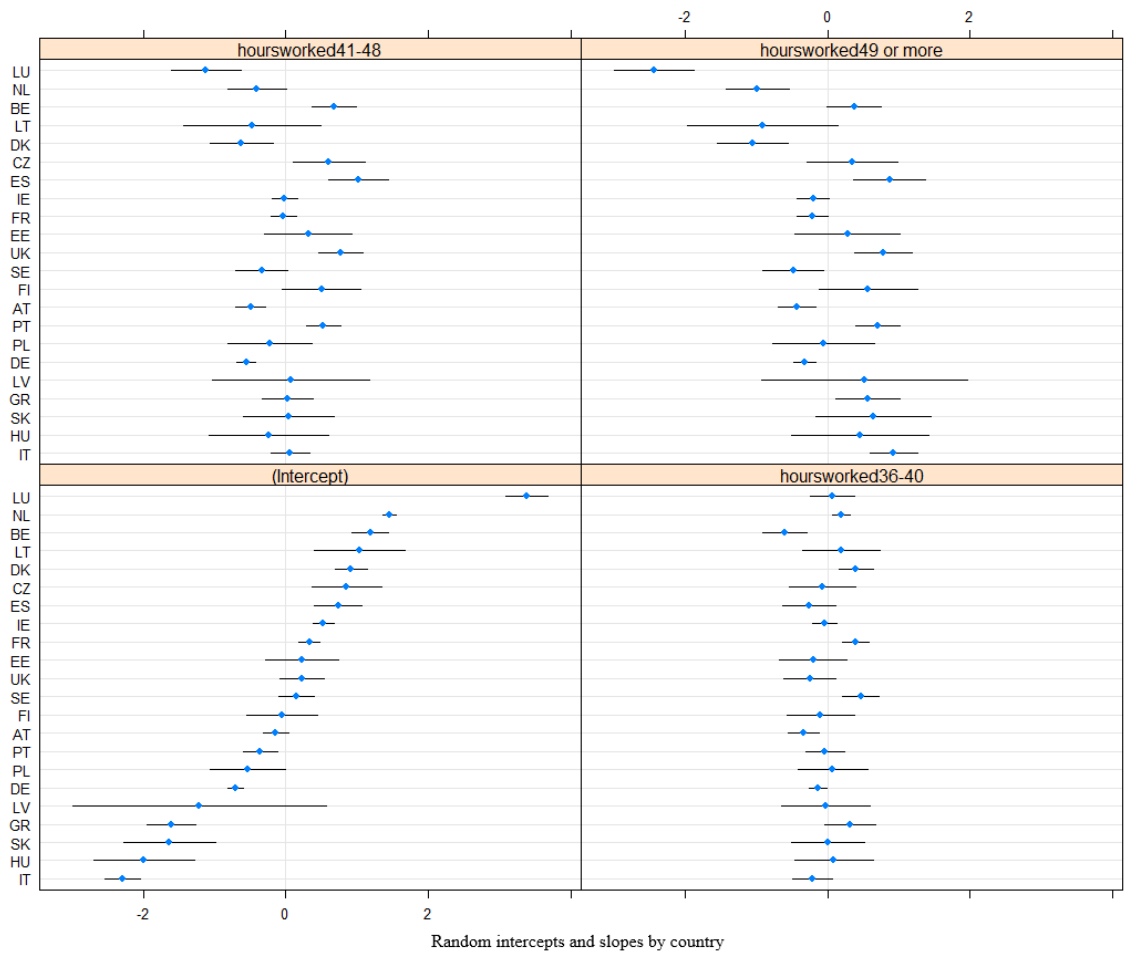

Figure 3.3. Model 11's random intercepts and slopes for the number of hours worked by country. *Source*: Authors' estimations based on EU-LFS data.

4.2 Country-level predictors

This section discusses the effects of country-level variables, which are crucial when conducting a comparative analysis across the countries in EU-28. Model 11 (Table 3.1) reveals the statistically significant effect of unemployment expenditure, the level and extension of collective bargaining agreements, the ratio of individuals that work more than 48 hours per week and the ratio of involuntary part-time employees. By contrast, there are no statistically significant differences depending on the degree of protection against dismissal and the rate of involuntary temporary employment.

The first aspect to note is the negative effect that unemployment expenditure as percentage of per capita GDP has on the propensity to work unpaid overtime (Table 3.1). This means an increase in unemployment expenditure reduces the chances of working unpaid overtime among young people. This therefore tallies with the findings reported by Famira-Mühlberger & Fuchs (2013) and Nichols & Sugur (2004), as the greater security

associated with the coverage provided by unemployment expenditure may be one of the determinants behind the negative impact on unpaid overtime. A lower propensity for unpaid overtime is therefore to be expected in certain Continental and Mediterranean countries in Europe, such as Belgium, France, Spain and Italy, while a higher propensity is expected in Central and Eastern ones, such as Hungary, Poland, Estonia and Romania.

Secondly, both the level and the extension of collective bargaining agreements have a positive effect on the propensity to work unpaid overtime. As regards the sectorial and national levels of these agreements, the probability of unpaid overtime increases over those at local level, with this probability increasing in step with the level at which the agreements are reached. Among European countries, the level and extension of these collective agreements are greater in Mediterranean and Continental countries (e.g., Spain, Portugal, Austria and Belgium) and lower in certain Nordic countries (e.g., Sweden and Denmark). The reduced capacity that firms have to adapt their work times to their needs when these collective agreements are reached at sectorial or national levels may favour the unpaid overtime young people work due to employer pressure. In turn, the greater extension of collective agreements increases the probability of unpaid overtime. Again, the lesser capacity firms have to adapt to their specific needs in response to the greater extension of these agreements will lead to unpaid overtime among employees.

Thirdly, there is a small positive effect on the probability of working unpaid overtime according to the rate of employees that work more than 48 hours per week and the rate of involuntary part-time employment. The greater propensity to do unpaid overtime in countries with a higher rate of employees working more than 48 hours per week may be a strategy young people use to signal their commitment, effort, and work (Anger, 2006, 2008). Finally, it should be stressed that a higher rate of involuntary part-time work is linked to greater job insecurity, which may prompt young people to do unpaid overtime, as with unemployment expenditure. This rate is higher in Mediterranean countries, followed by certain Nordic ones, such as Sweden and Finland, whereas it is lower in Central and Eastern European countries, which are defined by a lower degree of flexibilisation.

Table 3.2. Estimations of multilevel logistic regression models with interactions: Odds ratios for the probability of working unpaid overtime among young workers (15-34) in EU-28 member states, 2019.

	Model 12		Model 13		Model 14		Model 15	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Type of contract: temporary	1.088**	1.054-1.122	1.097**	1.064-1.132	1.132***	1.096-1.169	1.081*	1.048-1.115
Type of working day: part-time	0.783***	0.733-0.837	0.785***	0.734-0.839	0.78***	0.73-0.833	0.784***	0.735-0.837
Working from home	2.375***	2.309-2.442	2.38***	2.312-2.45	2.401***	2.335-2.469	2.342***	2.273-2.413
Temporary agency workers	0.661***	0.603-0.725	0.698***	0.638-0.764	0.713***	0.651-0.781	0.669***	0.607-0.737
Unemp exp/per capita GDP	1.069	0.647-1.768						
Unemp exp*temporary	1.139	1.05-1.235						
Unemp exp*part-time	1.04	0.905-1.195						
Unemp exp*home	0.617***	0.575-0.662						
Unemp exp*agency	0.653	0.513-0.832						
Long working hours rate			1.119	1.037-1.207				
Long hours*temporary			1.011	1.003-1.019				
Long hours*part-time			0.982	0.963-1.002				
Long hours*home			0.987	0.979-0.995				
Long hours*agency			1.089**	1.058-1.121				
Dismissal protection					5.795**	3.258-10.309		
EPL*temporary					0.714***	0.651-0.783		
EPL*part-time					1.511*	1.23-1.857		
EPL*home					0.85*	0.786-0.92		
EPL*agency					0.493*	0.374-0.65		
Involuntary part-time rate							1.087	0.959-1.231
IPR*temporary							0.98	0.969-0.992
IPR*part-time							1.043	1.017-1.069
IPR*home							0.97*	0.956-0.985
IPR*agency							0.962	0.917-1.009
Constant	0.001***	0.001-0.002	0.001***	0.001-0.002	0.001***	0.001-0.002	0.001***	0.001-0.002
Observations	324,480		324,480		296,548		324,025	
Individual controls	Yes		Yes		Yes		Yes	
AIC	63,794		63,819		61,432		63,267	
BIC	64,200		64,225		61,835		63,673	
ll	-31,859		-31,871		-30,678		-31,596	

* p < 0.05, ** p < 0.01, *** p < 0.001. All numeric variables have been grand mean centred. OR: Odds ratio, CI: Confidence interval, GDP: Gross domestic product, EPL: Employment Protection Legislation Index, IPR: Involuntary part-time rate, AIC: Akaike's Information Criteria, BIC: Bayesian Information Criteria, ll: Log-likelihood. *Source*: Authors' estimations based on EU-LFS, Eurostat, ICTWSS, and OECD data.

Models 12-15 (Table 3.2) summarise the effects of the interactions among individual- and country-level variables. Model 12 shows a statistically significant effect for the interaction between working from home and unemployment expenditure, whereby working from home in those countries spending more on this item reduces the probability of working unpaid overtime. Finally, it is worth mentioning the negative effect of the interaction between temporary employment and protection against dismissal on the propensity to work unpaid overtime (model 14). This means that the greater security an employee perceives because of the greater protection against dismissal reduces the amount of unpaid overtime among young people in temporary employment. Both effects are consistent with the influence that the security an employee perceives has on doing unpaid overtime (Famira-Mühlberger & Fuchs, 2013; Nichols & Sugur, 2004).

5. Discussion and conclusions

The aim of this research is to analyse the influence that non-standard employment has on the propensity to work unpaid overtime among young people in EU-28 member states. This has involved estimating sundry multilevel models for analysing the impact that both individual- and country-level characteristics have on unpaid overtime. The analysis has focused on young wage-earners aged 15-34, controlling the estimated effects by several sociodemographic variables and the nature of employment.

The estimations made regarding non-standard employment reveal that temporary employment and working from home have a positive effect. By contrast, this effect is negative for part-time employment and temporary employment agencies, this result confirms partially our H1. It seems that those non-standard forms of employment which are linked to a higher insecurity increase the propensity towards unpaid overtime. EU member states should pay particular attention to the spread of certain forms of non-standard employment (Green & Livanos, 2017) and especially working from home as a result of the recent COVID-19 pandemic (Predotova & Vargas-Llave, 2021). This increase in working from home and its impact on unpaid overtime clearly reveal the need to adapt legislation on non-standard employment to the changing circumstances in today's labour markets. European public institutions should provide employees working from home with the necessary safeguards to avoid the health issues that may be caused by the disadvantages involved, such as a longer working day, the interference between

work and home life and work intensification (Bellmann & Hübler, 2021; Eurofound & ILO, 2017). The growing trend of non-standard employment and its associated insecurity seem to drive, or at least partially, the performance of unpaid overtime among the youth.

H2 is confirmed since working afternoons and Saturdays increases the propensity to do unpaid overtime, while shift work reduces it, because of the greater protection associated with it (Ioannides & Mavroudeas, 2018; Ioannides *et al*., 2014). In this case, as the number of hours worked per week increases, so it does the probability of working unpaid overtime, which supports H3. Furthermore, the analysis reveals statistically significant differences for two sociodemographic variables, namely, age and level of education. In this case, among young people aged 15-34, the older ones and those with more education are precisely the ones with a greater propensity to work unpaid overtime. H4 is sustained by this positive effect, that also highlights the diminished explanatory power of the investment in human capital theory when explaining unpaid overtime among the youth.

The findings show that the probability of working unpaid overtime among young people depends in part on certain country-level variables. This increases due to lower unemployment expenditure, the greater extension and level of collective bargaining agreements and higher rates of involuntary part-time work and of employees working more than 48 hours per week. This means that the different contexts and institutions and the specific nature of each labour market across EU-28 member states affect young people's decision to work unpaid overtime. The negative effect of unemployment expenditure shows that changes in macroeconomic conditions may influence young people's behaviour because of the threat of possible dismissal (Green & Weisskopf, 1990). Accordingly, there is less unpaid overtime in countries with automatic extension mechanisms and collective bargaining agreements at local level, which is consistent with the finding reported by Adăscăliței *et al*. (2021) on work intensification. Likewise, as we assumed in H5, unpaid overtime increases in contexts in which, in this case, young people feel more insecure, and the safeguards afforded by collective bargaining agreements are weaker.

The differences found reflect the diversity of the non-standard forms of employment and their different effect on unpaid overtime, which has major implications for policymakers. Within a context in which the EU is proposing to boost flexicurity (Bekker & Mailand, 2019) and the use of active labour market policies as an instrument

for a swift transition from unemployment into work (Martin, 2015), non-standard employment has not stopped growing. As stressed by Grimshaw *et al*. (2018), Haapanala (2022) and Heyes (2011), this has led to an unintended increase in precariousness and insecurity, with a particular impact on young people (Green & Livanos, 2017; O'Reilly *et al*., 2018). European countries should therefore seek to strike a balance between boosting employment and its associated security. As already mentioned, it is vital to regulate working time following the increase in working from home brought about by the COVID-19 pandemic (Predotova & Vargas-Llave, 2021) and the intensification of work (Adăscăliței *et al*., 2021), as these have a direct influence on working time and unpaid overtime. This article's main limitation is the lack of longitudinal data for analysing young people's careers and the lack of information on the causes or reasons that induce these individuals to work unpaid overtime. This research paves the way for new fields of study; for example, it would be interesting to analyse the effect that the economic cycle has on unpaid overtime among young people in EU-28 member states and analyse the motives that prompt young people to work unpaid overtime.

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DISCUSSION

This thesis has studied precarious employment among young people in EU countries, emphasising the role non-standard employment plays, the differences according to sociodemographic characteristics and the influence of domestic institutions and the specific contexts of EU labour markets. This objective has been attained through three studies: the evolution of job precariousness and its dimensions, multiple jobholding, and unpaid overtime. This has involved the application of a novel multidimensional indicator and the estimation of several econometric models using the EU-LFS, which has permitted a comparative analysis to be made of young people across all EU-28 member states.

This section has three parts. Firstly, the research's main findings and the contributions common to all three chapters are presented and discussed. Secondly, an analysis is made of the implications for socioeconomic policy arising from the results, and the appropriateness of certain policies rolled out in the EU are discussed, highlighting the need for improvement in certain areas. Thirdly, the research's main limitations are identified, paving the way for future studies that may emerge based on the results herein.

1. Main findings and contributions

Our results confirm the importance of non-standard employment when studying job precariousness among young people and the strategies they may use to deal with both precariousness and insecurity. EU countries, and especially young people, have had to cope with a growing rate of precariousness introduced by the flexibility fostered by the EU and the Great Recession. Nevertheless, the effects of this process have been uneven across the different groups of EU countries, as the diversity of domestic institutions and contexts has a key role to play, impacting upon the analysis of precarious employment.

In this case, we have focused on young people, as a more vulnerable cohort within Europe's labour markets because of their reduced labour experience, for example. This is combined with a greater propensity toward finding themselves in precarious jobs (Nielsen *et al*., 2019) and having to accept non-standard employment against their will (Green & Livanos, 2017; Mills, 2004). This trend has worsened in recent years, as it has been compounded by an increase in job insecurity due to the partial implementation of flexicurity policies by EU-28 member states (Eurofound, 2007). We are therefore

analysing a cohort that is having to take its first steps in labour markets plagued by a growing trend towards more precarious, short-term, and low-paid jobs (O'Reilly *et al*., 2018).

Precarious employment and labour insecurity

Our first objective has been to study the evolution of precarious employment among young people across all EU-28 member states following the Great Recession, as a topic that had hitherto not been addressed. Considering the part played by the willingness to accept part-time or temporary non-standard employment, the analysis of precariousness has included all the dimensions in which it may be present, in this specific case, among young wage earners aged between 15 and 34. The first aspect that has been studied accordingly is the lack of consensus on how to measure precariousness and its dimensions (Laparra, 2006).

According to the ILO, precariousness is present in at least four dimensions: low wages, little protection against dismissal, a lack of access to employment welfare protection and benefits, and restricted access to labour rights (ILO, 2012; ILO, 2016a, 2016b). Thus far, several scholars have sought to measure precariousness by considering some of these dimensions for the whole of EU-15 (Gutiérrez-Barbarrusa, 2016; Kretsos & Livanos, 2016) or focusing on the specific case of young people (Kretsos, 2010). García-Pérez *et al*. (2017) have recently developed an adjusted multidimensional precariousness rate for measuring all the dimensions at the same time and their specific contribution to precariousness. Nevertheless, these scholars have developed this indicator for Spain with only three of these dimensions.

We have measured precariousness by building this adjusted multidimensional precariousness rate, as it has enabled us to include all its component dimensions, as well as compare all EU-28 member states. The next step has involved studying both the rate and intensity or number of precarious dimensions present in youth employment. With a view to facilitating a comparison of the results, as defined previously, the EU-28 member states have been grouped according to their welfare state, the nature of their labour markets, and their geographical location.

In terms of precariousness, the results reveal an initial group involving the Mediterranean and two Nordic countries - Denmark and the Netherlands - where the rate

exceeded 50% for young workers between 2009 and 2016. A comparison between these results and those reported by Kretsos & Livanos (2016) for the overall population reveals that this high rate is due to a structural problem in these countries and is not limited to young people. By contrast, we encounter a second group with moderate rates made up of Continental and Central European countries, Malta, and Finland. Finally, the rate of precariousness in Eastern European countries, Ireland, and Slovakia is low among young people. Our attention is drawn in this group to the case of Ireland, a country with a low rate of precariousness among young people but at the same time a high rate of youth unemployment (Kretsos, 2010), and as we have seen, it especially suffered the negative effects of the Great Recession.

The adjusted multidimensional precariousness rate reveals that the composition of countries within each one of these EU groups also vary considerably due to the different intensity of precariousness. Firstly, the inclusion of precariousness' intensity reveals a growing trend in this indicator over the entire period analysed for the Mediterranean countries and the Netherlands, which has not been detected previously when analysing solely the incidence of precariousness. Gutiérrez-Barbarrusa (2016) has reported that the deregulation of EU labour markets and the 2008 financial crisis have increased job insecurity and poverty in these countries, leading to more precariousness. This greater precariousness' intensity means that young people are having cope with jobs that are precarious in terms of more dimensions and, therefore, their labour conditions have been seriously undermined by the economic crisis and the ongoing process of labour flexibility. Our results ratify the approach taken by O'Reilly *et al*. (2018), who argue that young people now have to contend with increasing labour precariousness in the form of unstable, short-term, and low-paid jobs.

Compared to these countries, moderate rates of precariousness are recorded in Central European countries, with a low intensity but moderate incidence, especially due to the influence of low wages. This group of countries bears certain similarities to the Mediterranean countries; nevertheless, both the presence of involuntary non-standard employment and job protection and welfare benefits outside the labour markets are lower (Sapir, 2006). Finally, Anglo-Saxon, Continental, and Eastern European countries record low values for the multidimensional indicator over the entire period studied. Furthermore, there are differences within this group of countries, as both the intensity and incidence of precariousness are low in Eastern European countries and Ireland, which is the opposite

of what happens in the Continental ones, which record a moderate precariousness' incidence. Once again, we find similarities with the studies on the overall population conducted by Kretsos & Livanos (2016) and Gutiérrez-Barbarrusa (2016).

In contrast to prior studies, this thesis sheds light on the contribution made by each dimension of precariousness across EU countries. Low wages constitute the main dimension that underpins the rate of precariousness across the EU, with the exception of certain countries where other dimensions are equally significant. This result is to be expected as young people are held back by their lack of work experience, which together with the high presence of non-standard employment is associated with lower wages (Davia & Hernanz, 2004; De la Rica, 2004; Hirsch, 2005). The Mediterranean countries record a high intensity of precariousness partly due to the high number of involuntary temporary jobs. The case of the Netherlands is particularly unusual, as the incidence of precariousness is underpinned by low wages, a high number of workers doing unpaid overtime, and the high rate of part-time employment, with this last aspect also being reported by Kretsos (2010).

The differences between EU-28 member states persist in other fields such as social welfare and protection outside labour markets. A comparison of the minimum guaranteed wage as a percentage of the minimum wage reveals that countries in Central and Eastern Europe have weaker welfare systems than in EU-15 countries, which provide more protection outside the labour market. This shows the importance of the context and the specific characteristics that young people face in each country when analysing precariousness. Our results also highlight the influence that political and regulatory changes have on the evolution of the rate of precariousness in some countries.

The high intensity of precariousness in the Mediterranean countries and the impact of involuntary temporary employment reflect the influence of the uneven implementation and boost given to flexibility and non-standard employment in EU countries. Our results highlight how those EU labour markets in which the financial crisis had the worst impact on the aggregate variables have an increasing tendency toward precariousness. The growing insecurity in these labour markets impairs young people's opportunities (Gutiérrez-Barbarrusa, 2016), hindering their access to standard or quality employment. As noted forthwith, these factors emphasise the need EU countries have to increase the protection associated with the different non-standard forms of employment and favour young people's transition from education to quality employment.

Despite the high rate of precarious employment among young people compared to the overall population (Kretsos, 2010), the profile of young people has an influence on the propensity toward it. Although Kretsos (2010) contends that the level of education is not a decisive factor regarding the precariousness of young people in EU-15 countries, our results here reveal that it is a good predictor, whereby as the level of education increases among young people, their probability of having a precarious job decreases. What's more, there are major differences between the groups of EU countries. For example, a high level of education in Croatia, Denmark, and Romania significantly reduces the probability of holding a precarious job, whereas in other countries, such as Spain, Italy, and Portugal, there are only minor differences according to level of education. The impact in these Mediterranean countries is probably due to the high rate of precariousness among young people with a high level of education.

Gender also has a statistically significant impact on the likelihood of having a precarious job. The prior literature reports a greater propensity toward precarious employment among women (Fudge & Owens, 2006; Jonsson & Nyberg, 2009). Our results ratify this situation for most EU countries; nonetheless, such differences are not to be found in Ireland or Slovakia. Moreover, the effects vary both across groups and across countries within the same group. As we shall contend in due course, EU countries and their institutions should cooperate and focus their efforts on reducing these differences. Country of birth is a further sociodemographic variable that has a significant impact on the propensity toward precariousness, which is greater among migrants (Bhalla & McCormick, 2009; Porthé *et al*., 2009; Pradella & Cillo, 2015). Nevertheless, our results are ambivalent for the specific case of young Europeans, although there are no statistically significant effects in most countries, some such as Austria, Belgium, Spain, and Cyprus, record a greater likelihood of precarious employment among young migrants, while others, such as Ireland, record the opposite effect.

Young people's response to precariousness

The second objective here has involved studying the relationship between the diverse non-standard forms of employment and multiple jobholding among young people in EU-28 member states, with multiple jobholding being one of the possible strategies used by this cohort to deal with precariousness and job insecurity. The scarcity of analyses

conducted accordingly and the lack of a comparative study across all EU-28 member states provides a unique opportunity to clarify whether the different implementation of labour flexibility across EU countries has influenced this strategy among young people. This thesis has estimated several econometric models to compare the impact of non-standard employment on the propensity toward multiple jobholding across the EU. The analysis has considered both the employment characteristics of young people and certain sociodemographic ones that, as described forthwith, exert an influence when holding a second job.

An analysis of the first job's characteristics reveals a positive relationship between the different non-standard forms of employment and the propensity toward a second job among young people in EU-28 member states. Although Zangelidis (2014) posits that multiple jobholding increases with labour deregulation, our results show that this increase depends on how it is implemented. Firstly, consistent with the prior evidence on part-time employment (Böheim & Taylor, 2004; Zangelidis, 2014), the Nordic countries and the bulk of the Continental Anglo-Saxon and Mediterranean ones record a positive impact by this non-standard form of employment, whereby the probability of having a second job increases among those young people with this type of working day. These differences persist in certain Central European countries, such as Lithuania and the Czech Republic, where part-time employment has a major impact.

Furthermore, the hours worked in the first job have a negative impact on the propensity toward multiple jobholding, whereby those young people that work fewer than 25 hours per week are more likely to be in multiple jobholding in the Continental, Mediterranean, and Nordic countries. These results support the theory of restricted hours in first jobs (Birch & Preston, 2020; Koumenta & Williams, 2019), which is a key factor in young people's decision to hold a second job. Mention should be made of the cases of the Czech Republic, Malta, and Romania, three countries in which those young people working more than 25 hours per week are more likely to hold several jobs. It should be remembered that young people may resort to multiple jobholding as a strategy for finding a supplementary job (Heineck & Schwarze, 2004) or for learning and increasing their human capital (Osborne & Warren, 2006; Panos *et al*., 2014; Pouliakas, 2017).

In contrast to the results reported by Zangelidis (2014) for the whole of EU-28, we find that temporary employment has a positive impact on multiple jobholding in some EU countries, such as Germany, Denmark, France, and Ireland. The lack of security

associated with temporary employment is one of the factors that drives young people to seek a second job, even though this is an unwanted step. Our results therefore reveal a positive relationship between some of the dimensions of precariousness and multiple jobholding, with these dimensions being linked to non-standard employment. This means that the growing trend toward unstable, short-term, and low-paid employment (O'Reilly *et al*., 2018) may lead to an increase in multiple jobholding in the EU, and particularly among young people, who are at greater risk of holding precarious jobs (Mills, 2004; Nielsen *et al*., 2019).

As we have already noted for precariousness, a youth profile and factors such as level of education, gender, and age, have an influence on the uneven propensity toward a second job across EU countries. In some Nordic countries, such as Denmark and Finland, the propensity toward multiple jobholding is greater among women, who record a greater involvement and percentage in part-time jobs (Nätti & Nergaard, 2019). By contrast, this propensity is greater among men in Continental, Central European, and Mediterranean countries. Once again, these results reflect the influence that each labour market's specific characteristics have on multiple jobholding (Hirsch *et al*., 2017).

In the case of age, there is a greater likelihood of having a second job among the older age brackets of young workers in the Continental and Mediterranean countries, which is consistent with certain prior studies (Averett, 2001). However, as more recent studies (Wu *et al*., 2009) report, some countries, such as Denmark and the Netherlands, record a greater likelihood among the younger age brackets (under 25). The tendency is therefore different across the EU, with the Nordic countries recording a high rate of part-time and multiple jobholding, especially among more youthful workers, possibly because those in the older age brackets (over 25) have access to higher quality employment. This may be due to young people's earlier integration in the workforce in these countries, together with their low rates of unemployment and the higher level of career specialisation in their education systems (De Lange *et al*., 2014).

Level of education is another key factor, as our results reveal its positive impact on the propensity toward multiple jobholding among young workers, as reported by Amuedo-Dorantes & Kimmel (2009) and Atherton *et al*. (2016) for the overall population. Nevertheless, the extent of these impacts varies across countries, which may be due to, among other aspects, young people's different job openings and uneven labour integration depending on the degree of career specification in their education systems,

legislation on protection against dismissal, and unemployment rates (De Lange *et al*., 2014). In the specific case of over-qualified young people, the analysis conducted in the second chapter here does not reveal any statistically significant differences in the propensity toward multiple jobholding, which implies that a second job is not used as a strategy by these young people as a way of transitioning to a new job. Nevertheless, we do detect a positive effect on the likelihood of seeking for another job, thereby confirming that instead of using multiple jobholding as a strategy for finding a job to match their skills, over-qualified young people prefer to find a new main job to replace their current one.

Although some studies report that multiple jobholding may be used as a strategy for transitioning to a new job (Panos *et al*., 2009) or for enhancing human capital or skills (Kawakami, 2019; Panos *et al*., 2014; Pouliakas, 2017), holding a second job does not appear to be a situation that young people aspire to, as multiple jobholding increases the probability of job-seeking among young wage earners. We also note that part-time or temporary employment increases the probability of looking for another job, thereby revealing that, generally, young people do not want these non-standard jobs.

Following the study of multiple jobholding, our third objective involved examining the relationship between non-standard employment and the unpaid overtime young people work. As discussed in the third chapter, the recent literature evidences that unpaid overtime is the outcome of the pressure exerted by the employer or by a certain sense of insecurity (Eurofound, 2022; Ioannides & Mavroudeas, 2018). It may therefore be assumed that working unpaid overtime may be a strategy that young people in non-standard employment use, as this kind of work is linked to greater pressure from employers (Gallie, 2005) and to diminished labour rights (Eurofound, 2020).

The first issue we encountered when studying unpaid overtime was the lack of consensus in the literature and in certain agencies, such as the ILO, on how to measure it (Anxo & Karlsson, 2019). While most scholars study this matter according to the number of hours of unpaid overtime reported by each person (Chung & Van der Horst, 2020; Conway & Sturges, 2014; Zapf & Weber, 2017), other scholars and the ILO itself define this time as the hours exceeding the cap set by the statutory working day (Anxo & Karlsson, 2019). In the second case, unpaid overtime is considered to be those hours an individual works over and above the legal limit, which tends to be between 40 and 48

hours per week in the EU, and which do not entitle a worker to extra pay or free time in lieu.

Using the definition put forward by Eurofound (2003) as our yardstick, we have considered unpaid overtime to involve those hours worked over the limit specified in the contract and which should entail some form of compensation for workers, whether financially or as free time in lieu. This information is featured in the EU-LFS through the weekly hours of unpaid overtime each worker reports. This avoids the problem associated with the ILO metrics (Anxo & Karlsson, 2019), as using this methodological approach may underestimate the number of hours of unpaid overtime an individual works, for example, in the case of part-time employment.

Chapter Three has studied the relationship between non-standard employment and unpaid overtime through a comparative analysis of young people across all EU-28 member states. This has involved estimating several models of multilevel logistic regression, with both fixed and random effects, considering the influence of individual and country-level variables. This has meant studying the influence on unpaid overtime of sociodemographic characteristics or working conditions and certain country-level variables, such as, for example, expenditure on unemployment, the extension and level of collective bargaining agreements, and the degree of protection against dismissal. In turn, unpaid overtime has been used when measuring precariousness, as it is an indicator of the degree of empowerment young people have in their jobs (Eurofound, 2022; Ioannides & Mavroudeas, 2018).

An initial approach to the relationship between the different non-standard forms of employment and unpaid overtime reveals that those countries with a higher rate of unpaid overtime among young workers are the Netherlands, Portugal, and the UK - three countries characterised by a high percentage of young people working from home or in temporary employment. Furthermore, all EU member states have a high percentage of young people in temporary employment or working from home among those working unpaid overtime. The econometric models reflect the greater propensity toward unpaid overtime among young people in Luxemburg, with a lower propensity in Italy, Greece, and Slovakia, for example.

The estimations made on the relationship between non-standard employment and the likelihood of working unpaid overtime reveal the positive impact of temporary

employment and working from home. On the one hand, workers in temporary employment may be forced to do more unpaid overtime as a means of signalling or distinguishing themselves from other workers (Anger, 2006, 2008), with a view to taking a step up into a permanent contract. On the other hand, although working from home has certain advantages, such as greater control in adapting the timetable to one's personal needs (Chung & Van der Horst, 2020), young workers in this non-standard form of employment may have less control over their timetable and be required to work longer, with an interference between their personal lives and work. Although discussed further on in the section on the implications for socioeconomic policy, EU countries should pay particular attention to working from home and its regulation because of the drawbacks associated with it, such as longer working days, the interference between work and home-life, and the intensification of work (Bellmann & Hübler, 2021; Eurofound & ILO, 2017). The recent COVID-19 pandemic has seen the use of this kind of employment skyrocket (Predotova & Vargas-Llave, 2021), stressing the need to adapt to the continuous changes EU labour markets are undergoing.

By contrast, part-time employment and temporary employment agencies have a negative impact, while on-call employment does not appear to have a statistically significant effect. The negative impact of part-time employment is to be expected, as it may be used as way of working fewer hours in order to reconcile work and home-life (Beham *et al*., 2019) or education (Nicolaisen *et al*., 2019). In the case of temporary employment agencies, the certainty of job's termination may be the reason an employee does not have an incentive to work longer hours without receiving any compensation, and at the same time, it is more difficult for employers to exert effective pressure. Our results contrast with the ambiguity in prior studies over the effects on both part-time employment (Conway & Sturges, 2014; Famira-Mühlberger & Fuchs, 2013; Zapf & Weber, 2017) and working from home (Chung & Van der Horst, 2020), revealing the varying impact of the non-standard forms of employment and the importance of the way flexibility is being implemented in EU countries.

Working conditions also play a key role in unpaid overtime, as in the case of working evening and on Saturdays, because they are factors that increase young people's propensity toward working overtime without receiving any compensation. In contrast, shift work reduces this probability, which may be due to the greater protection associated with this type of work (Ioannides & Mavroudeas, 2018). Standard neoclassical theory

contends that individuals are free to choose the number of hours they work and the amount of free time in order to maximise their utility (Hamermesh, 2019). In turn, a more modern perspective assumes that there are certain external or regulatory restrictions that may influence this decision (Anxo & Karlsson, 2019). Nevertheless, these theories do not explain why young people work overtime without being compensated accordingly. Our results here indicate the key role played by job security when understanding the reasons that young people have for working unpaid overtime.

Our multilevel analysis also reveals the positive effect that the number of hours worked per week has on the probability of doing unpaid overtime, although there are differences between EU countries, which may be due to the different ways the working day is regulated. This probability increases in step with the number of hours worked, whereby those young people that work more than 48 hours per week have a greater propensity toward unpaid overtime that is fourfold higher than those working 35 or fewer hours a week. It is therefore clear that more hours worked favour unpaid overtime, which may partly be due to uncertainty over the time required to complete job tasks (Bell & Hart, 1999; Papagiannaki, 2014) or to the greater pressure exerted by the employer (Eurofound, 2022; Ioannides & Mavroudeas, 2018). This effect of the hours worked varies across EU countries, being greater in Mediterranean countries (Spain, Portugal, Greece, and Italy), the UK, and Belgium, and lesser in certain Nordic ones (the Netherlands, Denmark, and Sweden) and Continental ones (Luxemburg, Germany, and Austria).

Regarding the part played by sociodemographic variables, there are statistically significant differences in the propensity toward unpaid overtime depending on age and level of education. Although some prior studies have reported a greater propensity among young people (Zapf & Weber, 2017), our results reveal that young people in the older age bracket (aged 30-34) are the ones more likely to work unpaid overtime. These individuals are three times more likely to do so than their younger counterparts between the ages of 15 and 19.

Level of education also has a positive impact, with a greater propensity toward unpaid overtime among more highly qualified young people, and as Ioannides *et al*. (2014) argue, this effect decreases the explanatory power of the human capital theory. This tendency is three times higher among those individuals with tertiary education than those without secondary, which may be because of the greater access to occupations

involving the need for more overtime, such as managers, professionals and technicians, or associated professionals (Chung & Van der Horst, 2020; Conway & Sturges, 2014). Moreover, a response is to be expected from young workers with a higher level of education that is consistent with gift exchange theory (Chung & Van der Horst, 2020; Hübler *et al*., 2000; Zapf & Weber, 2017). These young people may work unpaid overtime in order to receive a benefit in the future and signal themselves to the employer (Anger, 2006, 2008).

One of the main findings here involves the influence that certain country-level variables have on the probability of young people working unpaid overtime. This probability increases because of the lower expenditure on unemployment, the greater extension and level of collective bargaining agreements, and the higher rates of involuntary part-time employment and young people working more than 48 hours per week. This evidence confirms the theory of the varying influences that context, domestic institutions, and the nature of labour markets have on the decision to work unpaid overtime in EU-28 member states.

The negative impact of expenditure on unemployment highlights the effect that changes in macroeconomic conditions have on young people's behaviour due to such factors as the fear of possible dismissal (Green & Weisskopf, 1990). In keeping with the results reported by Famira-Mühlberger & Fuchs (2013) and Nichols & Sugur (2004), the greater security associated with broader cover in terms of expenditure on unemployment is one of the determinants underpinning the negative impact on unpaid overtime. There is therefore expected to be a lower propensity toward unpaid overtime in certain Continental and Mediterranean countries, such as Belgium, France, Spain, and Italy, at the same time as a greater propensity in Central and Eastern European ones.

In line with these results, there is a reduced likelihood of unpaid overtime in those countries in which collective bargaining agreements have a more local scope and involve an automatic extension mechanism, as reported by Adăscăliței *et al*. (2021) for the intensification of work. The lower capacity firms have to adjust the working timetable to their needs because of these agreements with a sectoral or national scope favours overtime without any compensation among young people due to greater pressure from the employer. Unpaid overtime therefore increases in contexts in which young people feel less secure and the safeguards put in place by these agreements are weaker.

To end this first part of the discussion, note should be taken of the different scenarios that young people face in EU labour markets and the key part played by non-standard employment both in precarious employment and the strategies these young people apply to deal with these conditions. Likewise, the insecurity associated with this type of employment, the working conditions, and certain country-level variables, is a crucial factor when studying young people's behaviour. Considering the effect of labour flexibility and the 2008 financial crisis, which had an uneven impact across EU-28, young people now have to deal with labour markets characterised by insecurity, uncertainty, and precariousness. All these factors prompt us to consider and discuss the main implications for socioeconomic policy of the results reported here, which are addressed in the next section.

2. Implications for socioeconomic policy

Our results shed light on the impact that the different non-standard forms of employment have on precarious employment, multiple jobholding, and unpaid overtime among young people, with major implications for socioeconomic policy. Within a context defined by the EU commitment to the notion of flexicurity (Bekker & Mailand, 2019; Juncker *et al.*, 2015), member states have fallen in line and focused their efforts on different aspects of the policies rolled out (Viebrock & Clasen, 2009). Nevertheless, the partial implementation of these policies has led to an increase not only in non-standard employment, but also in the insecurity that young people face in EU labour markets, and therefore in job precariousness.

One aspect of the reforms introduced across the EU is the lack of consensus and coordination by European institutions, which has led to their inability to reconcile and reinforce the difficult relationship between job security and flexibility (Burroni & Keune, 2011). All the EU-28 member states should therefore work together to provide the necessary guarantees to reduce precariousness among young people. In addition, their policies should adapt to each country's specific conditions and workers' needs, especially of those young people entering the labour market.

The use of non-standard employment does not necessarily imply greater precariousness, but instead means that European institutions should improve the conditions and rights associated with this type of work, especially part-time and

temporary employment. As we have seen throughout this text, a key aspect when studying precariousness involves young people's willingness to accept non-standard employment. This means that reinforcing the protection and rights linked to this kind of employment may reduce job precariousness and achieve the EU's aim of providing a more flexible workplace at the same time as protecting jobs.

EU-28 member states should review the regulation of certain non-standard forms of employment such as working from home, adapting to the new scenario created by the COVID-19 pandemic. One of our findings here involves evidence that shows working from home considerably increases the amount of unpaid overtime young people work. Working from home therefore leads to an overlap between their work and home-life, increasing the possibility of causing health issues related to overly long working days, interference between work and leisure time, or the intensification of work (Bellmann & Hübler, 2021; Eurofound & ILO, 2017). EU countries must therefore protect their workers and regulate this type of employment that has burgeoned in recent years, providing them with the necessary safeguards.

A further aspect that should receive particular attention across these countries involves young people's transition from education to the labour market for several reasons, such as multiple jobholding and over-qualification. Although multiple jobholding among young people is prompted by the limited worktime provided in their first job, we have found that it is involuntary, as young people prefer to find another job that fulfils their expectations. In turn, being over-qualified for a position increases the chances of looking for another job. These two situations, together with a greater propensity toward job precariousness among young people, reflect the shortcomings in their transition from education to work in certain EU countries. If we add to this, as shown by O'Reilly *et al.* (2018), that high unemployment rates reveal a shortfall in the institutions responsible for promoting this step in young people's life trajectories, we may affirm that these institutions have failed to provide a suitable transition to the labour market in some countries. EU countries should therefore also strive to improve the performance of these institutions in order to assist in this transition.

Education is a crucial factor when studying aspects such as job precariousness and the propensity toward holding a second job. Although there are admittedly differences between EU countries, the results reported here stress the need to provide young people with quality education to improve their job prospects. A good education increases the

chance of a smooth transition into work and reduces the likelihood of facing precarious conditions in labour markets plagued by insecurity and uncertainty. Finally, when analysing precariousness among young people, mention should be made of the persistent gender differences in almost all EU countries as a gap that needs to be narrowed through the endeavour of both public institutions and society at large.

In short, EU countries should make more effort to provide young workers with greater protection and rights associated with the different non-standard forms of employment. At the same time, there should be a call for quality employment that meets a given set of standards, favouring young people's transition from education to work, thereby improving their access to the labour market. Likewise, it is essential to adapt current legislation to the new kinds of employment and the new scenarios in EU labour markets. All this, in a context in which education plays a key role in reducing precariousness and where the gender gap persists. This requires finetuning education structures, workers' rights, and labour markets, focusing on young people's specific needs in each EU-28 member state.

3. Limitations and future lines of research

The main limitations of the research described here involve the availability of data. Firstly, one of the problems we have encountered over the course of these three chapters is the lack of longitudinal information for studying young people's labour trajectories and the associated impact of factors such as precarious employment, multiple jobholding, and unpaid overtime. For example, it would be interesting to know whether non-standard employment acts as a mechanism for young people's transition toward standard employment with proper working conditions.

Secondly, we should highlight the lack of data on incomes prior to 2009, and for the whole period in certain countries such as Slovenia and Sweden. In the former's case, we also lack data on why young people accept non-standard employment, which means we have been unable to study involuntary non-standard employment in that country. Likewise, we have been unable to study multiple jobholding in Bulgaria, Croatia, Estonia, and Slovakia because of the small sample of young people holding second jobs. Finally, we were limited in our study of certain non-standard forms of employment such as dependent self-employment and working via digital platforms, as well as in our

understanding of the reasons that lead young people to do unpaid overtime or find a second job.

Looking to the future, it would be pertinent to study whether the mismatch in young people's skills in the workplace may be a source of precariousness depending on the occupation and their level of education. In turn, an analysis of the employment trajectories of young people in multiple jobholding is a highly fertile field of study for understanding the consequences of a second job on the careers of young people in EU-28 member states, including unpaid jobs. In sum, this research paves the way for new lines of research, such as studying the impact that the economic cycle has on unpaid overtime among young Europeans and analysing the reasons that induce them to work overtime without any kind of compensation.

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CONCLUSIONS

The following are our conclusions on this research's first objective of comparing the evolution of job precariousness and its dimensions among young people aged 15 to 34 across EU-28 member states:

1. In terms of precariousness, the evidence reveals major differences across the EU, reflecting the diversity of labour conditions young people face. The adjusted multidimensional precariousness rate was especially high between 2009 and 2016 in the Mediterranean countries, followed by two Nordic ones: Denmark and the Netherlands. Stress should be placed on the high rate in these countries, although the Mediterranean countries record a particularly high intensity of precariousness, with a lower one among the two Nordic countries. In comparison, the rates are more moderate in the Central European countries, which show similarities to their Mediterranean counterparts. By contrast, the Continental, Anglo-Saxon and Eastern European countries have low rates during the period in question. Nevertheless, there are significant differences across the countries in each group.
2. As regards the dimensions of precariousness, low wages stand out as the main factor that underpins the rate of precariousness across all EU-28 member states. Note should likewise be taken of the effect that involuntary temporary employment has on the high rate of precariousness in the Mediterranean countries, and especially in Spain. In two of the Nordic countries, namely, Denmark and the Netherlands, other factors such as unpaid overtime and involuntary part-time employment play a major role in the study of precariousness.
3. Level of education is a good predictor of precariousness, as a higher level among young people reduces their chances of being in precarious employment. It should be noted that the size of the effect education has on this probability differs considerably across EU countries, with a lower impact in the Mediterranean ones because of their high rates of precariousness among young people with a high level of education. In turn, the probability of holding a precarious job is higher for women across all EU-28 member states, with the exception of Ireland and Slovakia. In terms of country of birth, although there

are not statistically significant differences across most EU countries; in some cases, such as Spain, Austria, Belgium, and Cyprus, young people born outside the country have a greater propensity toward precarious employment.

4. The differences across EU countries continue in the field of social welfare. The countries in Central and Eastern Europe have weaker welfare systems than their EU-15 counterparts. Therefore, although the countries in Eastern Europe have a lower rate of precariousness, the degree of cover and protection outside the labour market is low, thereby reflecting the importance of the context and domestic institutions when studying precariousness. The influence of context is also reflected in those countries in which political and regulatory changes have increased or decreased the rate of job precariousness among young people.

As regards our second objective here involving an analysis of the relationship between the non-standard forms of employment and multiple jobholding, considering the latter to be a strategy young people use to deal with the growing precariousness in EU labour markets, we reach the following conclusions:

5. There is a positive relationship between the non-standard forms of employment and multiple jobholding across almost all EU countries, with a greater propensity toward holding a second job particularly among young workers in part-time employment. Furthermore, those countries with a higher incidence of non-standard employment, and especially part-time employment, among young people have higher rates of multiple jobholding, with a highlight being the particular case of the Nordic countries. Nevertheless, the intensity or number of hours dedicated to a second job among young people in these countries is low, in contrast to the Mediterranean, Central and Eastern European countries, where the incidence of multiple jobholding is lower, while more hours are dedicated to second jobs.
6. The results show that certain dimensions of precariousness have a positive relationship with multiple jobholding, while confirming the theory of restricted hours in the first job as a trigger for multiple jobholding. In this case, there is a greater propensity toward holding a second job among those young people working fewer than 25 hours a week in their first job. We should stress that those young people with more than one job are more likely to look for

new employment, which confirms that multiple jobholding is not a situation they want.

7. Multiple jobholding is not a strategy over-qualified young people use as a way of transitioning into new employment, as over-qualification does not appear to have a statistically significant effect on the likelihood of holding a second job. Nevertheless, these young people are more likely to look for a new job, so we may affirm that a state of over-qualification reveals a mismatch between young people's expectations and the job they hold.
8. Finally, level of education has a positive effect on the propensity toward holding a second job, with differences in the size of the effect between different EU countries. There are also differences in terms of gender and age. There is a greater propensity toward multiple jobholding among women in certain Nordic countries characterised by their high presence in part-time employment, such as Denmark and Finland, for example. By contrast, this effect is greater among men in the Continental, Mediterranean, and Central European countries. Due to the unequal access to jobs and employment opportunities across the EU, the probability of holding a second job is greater among individuals aged under 25 in the Nordic countries, and greater among those aged over 25 in the Continental and Mediterranean ones.

Regarding our third objective, the study of the relationship between unpaid overtime and the non-standard forms of employment, highlighting the role these play for coping with job insecurity and precarious conditions, the conclusions are as follows:

9. The estimations on non-standard employment reveal that temporary employment and working from home have a positive effect on the probability of doing unpaid overtime among young people in EU-28 member states. By contrast, this effect turns negative for both part-time employment and working for temporary employment agencies. Regarding on-call work, there is no statistically significant effect on the propensity toward working unpaid overtime.
10. Working evenings and Saturdays increases the likelihood of doing unpaid overtime, while shift work reduces it, probably because of the greater protection associated with the nature of this type of working day. There are also statistically significant differences depending on the two

sociodemographic variables of age and level of education. Among young people aged 15-34, the older ones and those with a higher level of education are precisely the ones with a greater propensity toward unpaid overtime. By contrast, there are no gender-related differences in the likelihood of working unpaid overtime.

11. The probability of working unpaid overtime among young people depends on certain country-level variables. This probability increases as public spending on unemployment decreases, the greater the extension and level of collective bargaining agreements, and the higher the rates of involuntary part-time employment and the number of young people working more than 48 hours a week. This means that the different contexts, domestic institutions, and the nature of the labour markets in EU-28 member states affect young people's decision to work unpaid overtime, which therefore increases in contexts in which young workers feel more insecure and the guarantees provided by collective agreements are weaker.

CONCLUSIONES

Las conclusiones a las que llega nuestra investigación sobre el objetivo de comparar la evolución de la precariedad laboral y sus dimensiones entre los jóvenes de 15 a 34 años de los países miembro de la UE-28 son:

1. En términos de precariedad, la evidencia revela grandes diferencias entre los países europeos, reflejando así la diversidad en cuanto a condiciones laborales que enfrentan los jóvenes. La tasa de precariedad multidimensional ajustada es especialmente elevada entre 2009 y 2016 en los países Mediterráneos seguidos de dos países Nórdicos como Dinamarca y Países Bajos. Se debe enfatizar en la elevada incidencia de la precariedad en estos países, no obstante, los primeros se caracterizan por una intensidad especialmente alta, mientras que en los segundos la intensidad de la precariedad es menor. En comparación con estos países, encontramos tasas moderadas en los países de Centro de Europa, países que muestran similitudes con los países Mediterráneos. Por el contrario, los países Continentales, Anglosajones y de Este de Europa destacan por tener bajas tasas durante el periodo analizado. Pese a ello, encontramos importantes diferencias entre los países dentro de cada grupo.
2. En lo que concierne a las dimensiones de la precariedad, destacan los bajos salarios como la principal dimensión que influye en la incidencia de la precariedad en todos los países miembros de la EU-28. Se debe subrayar igualmente el efecto que tiene el empleo temporal involuntario sobre la elevada incidencia de la precariedad en los países Mediterráneos, y especialmente en España. Asimismo, en dos países Nórdicos, como son Dinamarca y Países Bajos, otras dimensiones como la realización de horas extra no remuneradas o el empleo a tiempo parcial involuntario ejercen un papel importante a la hora de estudiar la precariedad.
3. El nivel educativo es un buen predictor de la precariedad, ya que a medida que aumenta el nivel educativo de los jóvenes disminuye la probabilidad de encontrarse en un empleo precario. Cabe destacar que el tamaño del efecto del nivel educativo sobre esta probabilidad difiere considerablemente entre los países europeos, siendo este efecto menor en los países Mediterráneos. Ello se

debe a la elevada incidencia de la precariedad entre los jóvenes con un nivel educativo alto en estos países. Asimismo, la probabilidad de obtener un empleo precario es mayor entre las mujeres en todos los países miembro de la EU-28 a excepción de Irlanda y Eslovaquia. En relación con el país de nacimiento, si bien no encontramos diferencias estadísticamente significativas en la mayoría de los países europeos, en algunos de estos, como son España, Austria, Bélgica o Chipre, los jóvenes nacidos fuera el país tienen una mayor propensión hacia el empleo precario.

4. Las diferencias entre los países europeos se mantienen en el ámbito del bienestar social. Los países de Centro y Este de Europa se caracterizan por tener sistemas de bienestar más débiles que los países de la EU-15. Por lo tanto, aunque los países del Este de Europa se caracterizan por tener una baja incidencia de la precariedad, el grado de cobertura y protección fuera del mercado laboral es bajo. Ello es muestra de la importancia del contexto y de las instituciones nacionales a la hora de estudiar la precariedad. De igual manera, la influencia del contexto se refleja en aquellos países donde los cambios políticos y regulatorios han desembocado en un aumento o disminución de la tasa de precariedad laboral entre los jóvenes.

En lo relativo al segundo objetivo de este trabajo doctoral centrado en analizar la relación entre las formas de empleo no estándar y el pluriempleo, considerando este último como estrategia de los jóvenes frente a la creciente precariedad laboral en los países europeos:

5. Encontramos una relación positiva entre las formas de empleo no estándar y el pluriempleo en casi todos los países europeos, siendo mayor la propensión a tener un segundo empleo particularmente entre los trabajadores jóvenes con un empleo a tiempo parcial. Además, aquellos países con una mayor incidencia del empleo no estándar y especialmente de empleo a tiempo parcial tienen mayores tasas de pluriempleo entre los jóvenes, destacando el caso particular de los países Nórdicos. Sin embargo, en estos países la intensidad o el número de horas dedicado al segundo empleo entre los jóvenes es bajo, al contrario que en los países Mediterráneos y de Centro y Este de Europa, donde la incidencia es menor pero el número de horas dedicadas al segundo empleo entre los jóvenes pluriempleados es elevado.

6. Los resultados revelan que algunas dimensiones de la precariedad tienen una relación positiva con el pluriempleo, al igual, que se confirma la teoría de la restricción de horas en el primer empleo como detonante del pluriempleo. En este caso, hay una mayor propensión a obtener un segundo empleo entre los jóvenes que realizan menos de 25 horas semanales en su primer empleo. Debemos destacar que los jóvenes pluriempleados tienen una mayor probabilidad de buscar un nuevo empleo, lo que confirma que el pluriempleo no es una situación deseada por los jóvenes.
7. El pluriempleo no resulta ser una estrategia utilizada por parte de los jóvenes sobre-educados como medio de transición hacia un nuevo empleo, ya que no se observa un efecto estadísticamente significativo de la sobre educación en la probabilidad de obtener un segundo empleo. No obstante, estos jóvenes muestran una mayor propensión a buscar un nuevo empleo, por lo que podemos afirmar que la situación de sobre-educación muestra un desajuste entre las expectativas de los jóvenes y el empleo que poseen.
8. Finalmente, se observa un efecto positivo del nivel educativo sobre la propensión a obtener un segundo empleo, existiendo diferencias en cuanto al tamaño de los efectos entre los diferentes países europeos. Asimismo, se observan diferencias en función del género y la edad. La propensión hacia el pluriempleo es mayor entre las mujeres en algunos países Nórdicos caracterizados por una elevada presencia de las mujeres en el empleo parcial, como son, por ejemplo, Dinamarca y Finlandia. Por el contrario, este efecto es mayor entre los hombres en los países Continentales, Mediterráneos y del Centro de Europa. Como consecuencia de la desigual accesibilidad al empleo y oportunidades laborales de los diferentes países europeos, la probabilidad de obtener un segundo empleo es mayor entre los individuos menores de 25 años en los países Nórdicos y menor en los países Continentales y Mediterráneos.

Respecto al tercer objetivo de esta tesis orientado al estudio de la relación entre las horas extra no remuneradas y las formas de empleo no estándar, subrayando el papel que estas horas para hacer frente a la inseguridad laboral y las condiciones precarias:

9. Las estimaciones realizadas sobre el empleo no estándar muestran un efecto positivo del empleo temporal y el teletrabajo sobre la probabilidad de realizar horas extra no remuneradas entre los jóvenes de los estados miembros de la

EU-28. Por el contrario, este efecto es negativo tanto para el empleo a tiempo parcial como para el empleo a través de agencias de trabajo temporal. En relación con el trabajo sobre llamada, no se encuentra un efecto estadísticamente significativo sobre la propensión a realizar horas extra no remuneradas.

10. Trabajar por las tardes y los sábados aumentan la probabilidad de trabajar horas extra no remuneradas, mientras que el trabajo por turnos disminuye esta probabilidad, probablemente por la mayor protección asociada a esta característica de la jornada laboral. Asimismo, observamos diferencias estadísticamente significativas en función de dos variables sociodemográficas como son la edad y el nivel educativo. Entre los jóvenes de 15-34 años, son precisamente los de mayor edad y aquellos con un mayor nivel educativo los que tienen una mayor propensión hacia la realización de horas extra no remuneradas. Por el contrario, no observamos diferencias en la probabilidad de trabajar horas extra no remuneradas en función del género.
11. La probabilidad de trabajar horas extra no remuneradas entre los jóvenes depende de algunas variables a nivel país. Esta probabilidad aumenta cuanto menor es el gasto público en desempleo, mayor es el nivel y extensión de los acuerdos colectivos y mayores son las tasas de empleo a tiempo parcial involuntario y de jóvenes que trabajan más de 48 horas semanales. Ello implica que los diferentes contextos, las instituciones nacionales y la naturaleza de los mercados laborales de los países miembros de la EU-28 afectan a la decisión de los jóvenes de realizar horas extra no remuneradas. Por lo tanto, las horas extra no remuneradas aumentan en contextos en los que los trabajadores jóvenes se sienten más inseguros y las garantías que ofrecen los acuerdos colectivos son más débiles.

APPENDIX

Table A.1. Part-time employment rate measured as percentage of total employed population (15-64) by EU-28 member states, 2000-2019.

	Part-time employment as percentage of total employed population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	17.50	18.40	19.00	20.30	21.20	21.70	22.00	21.90	22.40	23.20	23.70	24.70	24.70	24.30	23.70	24.30	24.70	24.50	24.50	24.90
BG		2.80	2.20	1.90	2.00	1.80	1.70	1.40	2.00	2.10	2.20	2.20	2.20	2.50	2.50	2.20	2.00	2.20	1.80	1.90
CZ	4.70	4.30	4.30	4.50	4.30	4.40	4.40	4.40	4.30	4.80	5.10	4.70	5.00	5.80	5.50	5.30	5.70	6.20	6.30	6.30
DK	21.00	19.60	19.40	20.70	21.50	21.50	22.90	23.00	23.10	24.60	24.80	24.30	24.10	24.00	23.90	23.80	25.00	24.70	23.90	24.20
DE	19.20	19.90	20.50	21.30	22.20	23.40	25.20	25.40	25.10	25.30	25.60	25.90	25.80	26.60	26.50	26.80	26.70	26.90	26.80	27.20
EE	7.60	7.80	7.20	7.40	7.20	6.80	6.80	7.10	6.40	9.40	9.80	9.30	9.20	8.90	8.30	9.40	9.70	9.60	11.00	11.30
IE	16.90	16.90	16.90	17.20	17.20	17.60	17.40	17.90	18.70	21.30	22.40	23.30	23.70	23.70	23.00	22.20	21.90	20.10	19.50	19.70
GR	4.30	3.80	4.20	4.10	4.40	4.80	5.50	5.40	5.40	5.90	6.30	6.70	7.70	8.40	9.30	9.40	9.80	9.70	9.10	9.10
ES	7.80	7.90	7.90	8.10	8.60	12.00	11.60	11.40	11.60	12.40	12.90	13.50	14.40	15.70	15.80	15.60	15.10	14.90	14.50	14.50
FR				16.80	17.00	17.20	17.20	17.30	16.90	17.30	17.70	17.70	17.70	18.20	18.60	18.40	18.30	18.20	18.00	17.50
HR				6.90	6.60	7.60	7.10	6.10	6.50	6.50	7.00	7.20	5.60	5.40	5.30	6.00	5.60	4.80	5.20	4.80
IT	8.30	8.30	8.50	8.40	12.50	12.70	13.10	13.40	14.10	14.10	14.80	15.20	16.80	17.60	18.10	18.30	18.50	18.50	18.40	18.70
CY	7.50	7.30	6.80	7.60	7.50	7.60	6.60	6.40	6.80	7.50	8.30	9.00	9.70	11.90	13.50	13.00	13.40	12.20	10.80	10.20
LV	10.60	9.80	9.20	9.60	9.90	7.60	5.90	5.60	5.90	8.20	9.30	8.80	8.90	7.50	6.80	7.20	8.50	7.70	7.20	8.30
LT	9.90	9.70	10.60	9.20	8.40	6.90	10.00	8.60	6.50	7.90	7.80	8.30	8.90	8.40	8.60	7.60	7.10	7.60	7.10	6.40
LU	11.00	11.40	12.00	13.40	16.30	17.40	17.10	17.80	17.90	17.60	17.40	18.00	18.50	18.70	18.40	18.40	19.20	19.50	17.70	16.90
HU	3.00	3.10	3.10	3.70	4.40	3.90	3.70	3.90	4.30	5.20	5.50	6.40	6.70	6.40	6.00	5.70	4.80	4.30	4.20	4.40
MT	6.50	7.00	7.90	8.80	8.30	9.00	9.70	10.60	11.10	11.00	11.60	12.60	13.20	14.00	15.30	14.30	13.90	13.70	13.20	12.20
NL	41.20	41.90	43.60	44.60	45.10	45.10	45.00	45.70	46.10	47.00	48.10	48.30	49.00	49.80	49.60	50.00	49.70	49.80	50.10	50.20
AT	16.40	17.30	18.20	18.40	19.40	21.00	21.50	22.00	22.70	23.90	24.40	24.50	25.20	26.00	26.90	27.30	27.80	27.90	27.30	27.20
PL	9.30	9.20	9.60	9.40	9.80	9.80	8.90	8.50	7.70	7.70	7.70	7.30	7.20	7.10	7.10	6.80	6.40	6.60	6.40	6.10
PT	8.20	8.00	8.30	8.80	8.30	8.20	8.20	8.90	8.80	8.50	8.50	10.30	11.20	11.10	10.10	9.80	9.50	8.90	8.10	8.10
RO	14.00	14.10	10.10	10.20	9.50	9.20	8.60	8.60	8.60	8.50	9.90	9.50	9.30	9.00	8.70	8.80	7.40	6.80	6.50	6.10
SI	5.60	5.40	5.40	5.50	7.90	7.80	8.00	8.10	8.10	9.50	10.30	9.50	9.00	9.30	10.00	10.10	9.30	10.30	9.70	8.40
SK	1.80	2.20	1.80	2.20	2.50	2.40	2.70	2.50	2.50	3.40	3.80	4.00	4.00	4.50	5.10	5.80	5.80	5.80	4.90	4.50
FI	11.90	11.80	12.40	12.60	13.20	13.20	13.50	13.40	12.70	13.30	13.80	14.10	14.10	14.00	14.10	14.10	14.90	15.00	15.10	15.50
SE	21.00	19.70	20.00	22.00	22.80	23.50	23.60	23.50	25.70	26.00	25.80	25.20	25.00	24.70	24.50	24.30	23.90	23.30	22.60	22.50
UK	24.30	24.20	24.40	24.70	24.70	24.20	24.20	24.10	24.10	24.90	25.60	25.50	25.90	25.60	25.30	25.20	25.20	24.90	24.60	24.40

Source: Author's elaboration based on Eurostat data.

Table A.2. Temporary employment rate measured as percentage of total employed population (15-64) by EU-28 member states, 2000-2019.

	Temporary employment as percentage of total employed population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	7.70	7.50	6.90	7.20	7.40	7.50	7.40	7.40	7.10	7.00	7.00	7.70	7.00	6.90	7.40	7.70	7.80	9.00	9.30	9.40
BG		4.80	4.00	5.00	5.80	5.10	5.10	4.40	4.30	4.00	3.90	3.60	3.90	4.90	4.60	3.90	3.60	3.90	3.60	3.90
CZ	6.20	6.10	6.10	7.00	7.00	6.70	6.70	6.60	6.10	6.30	6.70	6.50	6.80	7.50	8.00	8.30	8.10	8.00	7.00	6.50
DK	8.90	8.30	8.20	8.40	8.60	9.00	8.10	8.20	7.60	7.80	7.50	7.80	7.70	7.80	7.60	7.70	11.80	11.30	9.90	9.90
DE	11.60	11.30	11.10	11.20	11.60	12.60	12.90	13.00	13.10	13.00	13.00	13.00	12.30	12.00	11.80	11.80	11.90	11.70	11.50	11.00
EE	2.70	2.50	2.60	2.40	2.40	2.50	2.40	2.00	2.30	2.20	3.40	4.10	3.20	3.20	2.80	3.10	3.40	2.80	3.10	2.80
IE	8.20	7.50	7.70	7.90	7.90	8.10	7.70	7.80	7.80	7.90	8.50	9.10	9.10	9.00	8.60	8.10	7.60	7.80	8.60	8.40
GR	8.00	8.10	7.20	6.90	7.80	7.80	7.00	7.20	7.70	8.10	8.30	7.60	6.50	6.50	7.50	7.90	7.50	7.60	7.60	8.70
ES	25.80	25.90	26.10	26.20	26.80	27.50	28.10	26.20	24.10	21.10	20.70	21.10	19.50	19.10	19.90	20.90	21.80	22.40	22.70	22.30
FR				11.10	11.10	11.70	11.80	12.00	12.00	11.50	12.00	12.20	12.20	12.10	13.50	14.20	14.30	14.90	14.80	14.40
HR				8.90	9.60	9.60	10.10	10.70	10.00	9.70	10.20	10.80	10.90	12.10	14.40	17.20	19.30	18.20	17.60	16.00
IT	7.30	7.10	7.20	7.30	8.60	9.10	9.80	9.90	10.00	9.50	9.60	10.10	10.50	10.10	10.40	10.80	10.90	12.10	13.40	13.40
CY	8.10	8.00	7.60	9.60	9.90	11.00	10.60	10.80	11.40	11.30	11.70	11.90	12.90	14.70	15.80	15.90	14.40	13.50	12.20	12.00
LV	6.00	6.60	11.60	9.70	8.60	7.70	6.40	3.70	3.00	3.80	6.30	5.90	4.20	3.80	2.90	3.30	3.20	2.60	2.40	2.80
LT	3.90	4.80	5.90	5.80	5.00	4.50	3.80	3.20	2.10	2.00	2.20	2.40	2.30	2.40	2.40	1.80	1.70	1.50	1.40	1.30
LU	3.10	3.50	3.50	2.90	4.40	4.90	5.60	6.30	5.80	6.60	6.50	6.50	6.90	6.40	7.30	9.10	7.90	8.10	8.90	8.30
HU	6.00	6.40	6.20	6.50	5.80	6.10	6.00	6.40	6.90	7.40	8.50	8.00	8.50	9.70	9.60	10.10	8.70	7.90	6.50	5.90
MT	3.50	3.70	3.60	3.10	3.30	3.70	3.20	4.40	3.60	4.20	4.50	5.70	6.00	6.60	6.70	6.50	6.60	5.10	6.80	7.80
NL	11.90	12.60	12.60	12.70	12.80	13.30	14.20	15.30	15.40	15.50	15.40	15.40	16.20	17.00	17.70	16.70	17.20	18.10	17.80	16.90
AT	6.70	6.90	6.50	6.10	7.80	7.90	7.80	7.70	7.80	7.90	8.20	8.40	8.20	8.10	8.10	8.00	7.90	8.10	8.10	7.70
PL	4.10	8.50	11.20	14.30	16.80	19.30	20.80	21.80	20.90	20.60	21.10	20.90	20.90	21.10	22.40	22.20	21.90	20.90	19.50	17.40
PT	15.20	15.60	16.60	15.80	15.30	15.30	16.30	17.80	18.30	17.70	18.60	18.20	16.90	17.60	18.00	18.70	19.10	19.00	19.00	17.90
RO	1.70	1.80	0.70	1.30	1.70	1.60	1.20	1.10	0.90	0.70	0.70	1.00	1.10	1.00	1.10	1.00	1.00	0.90	0.90	1.10
SI	11.70	10.90	12.10	11.90	15.20	14.90	14.60	15.80	15.10	13.90	14.50	15.20	14.40	13.80	13.70	15.10	14.60	15.20	13.50	11.50
SK	4.40	4.40	4.30	4.30	4.70	4.20	4.30	4.30	3.90	3.60	4.70	5.50	5.70	5.80	7.40	8.90	8.40	8.00	6.90	6.60
FI	14.10	14.30	14.10	14.30	14.10	14.40	14.30	14.00	13.10	12.60	13.40	13.60	13.50	13.40	13.40	13.10	13.60	13.90	14.20	13.60
SE	12.80	13.40	13.40	13.40	13.80	14.10	15.30	15.50	14.30	13.50	14.40	14.90	14.40	14.70	15.20	15.10	14.70	14.70	14.50	14.30
UK	6.00	5.80	5.50	5.20	5.10	4.90	4.90	5.00	4.60	4.70	5.10	5.20	5.30	5.20	5.30	5.20	5.10	4.80	4.70	4.30

Source: Author's elaboration based on Eurostat data.

Table A.3. Involuntary part-time employment rate measured as percentage of total employed population (15-64) by EU-28 member states, 2000-2019.

	Involuntary part-time employment as percentage of total employed population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	4.06	3.84	3.18	3.72	3.97	3.73	3.40	3.42	3.37	2.88	2.73	2.58	2.43	2.44	2.54	2.63	2.33	1.93	1.88	1.51
BG		2.23	1.83	1.31	1.81	1.41	1.18	0.94	1.06	1.20	1.14	1.19	1.61	1.63	1.60	1.41	1.34	1.74	1.08	1.24
CZ	0.44	0.48	0.51	0.74	0.67	0.79	0.82	0.69	0.64	0.74	0.89	0.90	1.14	0.91	1.14	0.91	0.79	0.60	0.44	0.40
DK	4.60	4.19	4.84	5.06	5.22	4.59	4.34	3.55	3.47	3.86	3.85	3.91	4.15	4.19	3.84	3.56	3.39	3.23	2.78	2.68
DE	2.37	2.46	2.58	3.12	3.53	4.77	5.38	5.39	5.62	5.44	5.32	4.04	3.89	4.03	3.74	3.61	3.09	2.89	2.57	2.43
EE	1.24	1.86	1.72	2.07	1.74	1.39	1.46	1.17	0.89	1.98	2.06	2.00	1.75	1.45	1.22	1.29	0.85	0.67	0.62	0.80
IE	2.72	2.41	2.35	2.37	1.57		1.67	1.89	2.35	4.38	6.69	8.18	9.22	9.56	8.85	7.97	6.61	4.81	3.39	3.05
GR	2.06	1.87	2.02	1.72	2.26	2.38	2.50	2.41	2.42	2.88	3.30	3.80	4.77	5.29	5.81	6.08	6.18	5.97	5.51	5.08
ES	1.82	1.66	1.54	1.55	1.71	3.86	3.86	3.81	4.10	5.30	6.18	7.21	8.44	9.58	9.95	9.85	9.26	9.00	8.10	7.87
FR	4.59	4.16	3.96	4.87	4.89	5.14	5.27	5.55	5.31	5.47	5.66	5.35	5.33	6.27	7.81	8.09	8.05	8.00	7.59	7.14
HR			1.87	1.73	1.23	1.80	1.83	1.40	1.46	1.55	1.77	1.77	1.33	1.50	1.43	1.61	1.72	1.78	1.77	1.47
IT	3.22	3.15	2.71	2.68	4.16	4.75	4.73	5.22	5.65	6.28	7.20	8.08	9.58	10.75	11.42	11.66	11.55	11.25	11.81	11.98
CY	1.83	1.50	1.27	1.77	1.95	2.45	2.48	1.88	2.00	2.39	2.78	4.26	5.04	6.45	8.58	8.89	8.97	7.90	6.60	5.60
LV	5.86	4.21	4.13	3.94	4.62	3.27	2.61	1.87	2.30	4.42	4.47	4.10	4.22	3.48	2.81	2.73	3.44	2.96	2.80	2.15
LT	4.80	5.04	5.44	4.52	4.18	3.63	3.68	2.47	1.58	2.64	3.19	3.43	3.25	3.33	3.21	2.97	2.71	2.76	1.99	1.61
LU	0.77	0.90	0.93	0.98	0.94	1.80	1.75	0.80	1.54	1.51	1.33	1.82	2.54	2.00	2.28	1.57	2.05	1.88	1.70	1.64
HU	0.85	0.81	0.85	1.09	0.92	1.02	1.18	1.26	1.43	1.99	2.16	2.88	2.89	2.97	2.46	2.19	1.54	1.21	0.96	0.99
MT										1.72	2.32	2.06	2.25	2.27	2.38	2.28	1.46	1.32	1.12	0.83
NL	1.50	1.07	0.96	1.25	1.50	1.61	2.20	1.90	1.77	2.56	2.30	2.84	3.68	3.82	4.36	4.08	3.87	3.38	2.96	2.32
AT	1.78	1.78	1.67	1.65	1.55	2.17	2.30	2.35	2.28	2.49	2.56	2.22	2.39	2.79	2.79	2.98	3.14	3.06	2.52	2.23
PL	1.37	2.70	3.05	3.15	3.20	3.17	2.70	2.08	1.52	1.56	1.72	1.89	2.05	2.20	2.30	2.10	1.68	1.42	1.06	0.89
PT	2.58	1.84	2.02	2.18	2.34	2.55	2.81	3.33	3.39	3.21	3.69	4.94	5.54	5.66	5.28	5.19	4.82	4.49	3.95	3.80
RO	6.31	6.49	5.37	5.78	5.06	4.87	4.71	4.41	4.41	4.38	5.16	4.71	4.86	5.03	5.02	5.31	4.47	3.81	3.58	3.50
SI																				
SK	0.20	0.42	0.30	0.28	0.27	0.49	0.46	0.33	0.62	0.83	1.11	1.00	1.28	1.50	1.72	1.78	2.05	1.90	1.42	1.30
FI	4.35	4.02	4.01	3.82	3.57	3.62	3.72	3.01	2.87	3.19	3.38	3.33	3.03	3.27	3.61	3.82	4.12	4.02	4.00	3.81
SE	5.24	5.00	4.86	4.85	5.49	5.87	5.95	6.05	5.97	6.30	7.16	6.84	6.92	7.03	6.95	6.64	6.23	5.75	5.06	4.74
UK	2.44	2.25	2.08	2.07	1.91	2.02	2.11	2.33		1.70	1.91	4.55	4.80	4.82	4.49	4.26	3.80	3.45	3.21	3.01

Source: Author's estimations based on EU-LFS data.

Table A.4. Involuntary temporary employment rate measured as percentage of total employed population (15-64) by EU-28 member states, 2000-2019.

	Involuntary temporary employment as percentage of total employed population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	5.27	5.84	5.01	6.06	6.36	5.13	4.82	4.65	4.10	3.90	5.16	5.83	5.38	5.40	5.64	6.15	6.09	6.12	5.67	5.92
BG		3.08	3.03	3.25	4.42	3.44	3.29	2.76	2.03	2.92	2.55	2.74	2.87	3.59	3.10	2.74	2.57	3.51	2.53	3.13
CZ	2.87	3.03	4.35	4.94	5.28	4.72	4.64	4.24	4.15	4.38	5.24	5.36	5.93	6.14	6.26	6.76	6.38	6.29	4.28	4.10
DK	6.50	6.64	5.77	6.58	8.40	5.82	4.75	3.43	3.28	3.66	3.58	3.84	4.11	4.09	4.17	3.60	3.52	4.52	3.60	3.41
DE	1.32	1.33	1.17	1.30	1.40	1.93	2.16	2.44	2.06	1.93	2.13	2.07	1.80	1.63	1.52	1.39	1.65	1.63	1.46	1.25
EE	1.74	1.76	1.57	1.60	1.84	1.42	1.09	0.67	0.80	1.05	1.39	1.43	1.22	1.09	0.73	0.74	0.72	0.38	0.44	0.19
IE	1.14	0.78	0.96	0.98	0.61	0.55	0.91	1.03	1.15	1.59	2.28	2.59	4.15	4.28	3.89	3.72	3.54	2.99	2.48	1.93
GR	5.75	5.94	5.20	5.06	5.61	5.40	4.89	5.14	5.34	5.49	5.76	5.51	4.89	4.81	5.17	5.34	5.36	5.51	5.72	6.87
ES	18.58	18.30	17.51	17.02	17.55		15.93	14.89	15.08	14.29	14.43	15.08	14.84	14.31	15.54	16.61	17.10	17.22	16.01	15.59
FR				6.77	6.87	7.02	7.35	7.41	7.33	6.76	7.22	7.05	7.06	6.70	7.83	8.05	8.11	8.29	7.82	7.09
HR			4.23	4.53	5.20	5.44	5.47	5.23	5.37	4.99	4.97	5.15	5.26	6.11	6.75	7.55	15.25	14.96	14.98	13.58
IT	3.25	3.36	3.09	3.04	5.09	6.15	6.39	6.77	6.87	6.68	6.85	7.49	7.69	7.48	7.70	8.05	8.05	8.88	10.66	10.78
CY	6.16	6.57	6.51	8.44	9.15	9.85	9.40	9.34	10.25	10.46	10.89	11.06	11.94	13.67	14.47	14.26	13.85	13.11	12.61	12.01
LV	4.04	4.69	4.55	4.10	3.43	3.08	4.63	2.53	2.24	3.20	5.17	4.88	3.24	2.62	1.93	1.63	1.81	0.74	1.72	1.47
LT	1.99	3.89	4.91	5.39	3.71	3.51	2.97	1.94	1.11	1.45	1.43	1.54	1.45	1.56	1.40	1.15	1.07	0.87	0.65	0.54
LU	0.41	0.50	0.58	0.33	1.63	2.42	2.32	1.89	2.54	2.45	2.16	2.40	2.96	2.87	3.26	2.09	3.12	3.22	3.69	0.53
HU	2.94	3.51	3.50	3.36	3.08	3.22	4.36	4.55	4.95	6.03	7.48	6.40	7.74	9.38	9.46	10.47	9.88	8.82	7.24	6.37
MT										2.13	2.41	2.81	3.10	3.36	3.82	3.49	2.93	2.42	2.04	1.65
NL	3.35	2.63	2.29	2.38	2.82	3.22	3.71	3.62	3.54	4.17	3.29	3.47	3.86	4.52	5.21	5.76	5.49	5.41	4.62	4.05
AT	1.15	1.20	0.93	1.08			0.94	1.07	0.94	0.93	0.71	0.70	0.68	0.67	0.68	0.69	0.65	0.68	0.74	0.63
PL		4.44	5.88	6.71	9.11	9.55	15.41	15.47	14.49	14.80	15.53	12.95	13.56	13.88	14.59	13.95	13.27	12.02	10.29	8.15
PT	5.58	10.14	11.09	10.86	10.81	11.19	13.14	14.46	14.56	14.59	15.50	15.30	14.33	14.47	14.57	15.06	15.66	15.16	15.24	14.32
RO	1.04	1.09	0.31	0.78	1.21	1.02	0.88	0.76	0.61	0.53	0.54	0.80	0.86	0.80	0.86	0.86	0.80	0.78	0.67	0.93
SI																				
SK	2.64	3.67	3.65	3.30	3.52	2.93	3.03	2.78	2.81	2.83	2.48	4.46	4.55	4.74	5.90	6.96	4.99	6.06	5.20	4.70
FI	9.17	10.19	9.58	8.50	7.81	8.70	8.37	4.61	3.88	4.17	4.13	4.19	4.27	4.38	4.46	4.47	4.73	4.71	4.86	4.28
SE	6.98	3.64	3.34	2.57	3.12	8.35	8.45	8.30	7.24	7.33	8.90	8.87	8.54	8.90	9.13	8.63	7.88	7.26	7.14	6.92
UK	1.85	1.62	1.50	1.38	1.33	1.20	1.23	1.36	1.09	1.33	1.62	1.75	1.90	1.75	1.61	1.60	1.48	1.20	1.20	1.06

Source: Author's estimations based on EU-LFS data.

Table A.5. Employment rate measured as percentage of total working age population (15-64) by EU-28 member states, 2000-2019.

	Employment rate as percentage of total working age population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	60.5	59.9	59.9	59.6	60.3	61.1	61.0	62.0	62.4	61.6	62.0	61.9	61.8	61.8	61.9	61.8	62.3	63.1	64.5	65.3
BG	50.4	49.7	50.6	52.5	54.2	55.8	58.6	61.7	64.0	62.6	59.8	58.4	58.8	59.5	61.0	62.9	63.4	66.9	67.7	70.1
CZ	65.0	65.0	65.4	64.7	64.2	64.8	65.3	66.1	66.6	65.4	65.0	65.7	66.5	67.7	69.0	70.2	72.0	73.6	74.8	75.1
DK	76.3	76.2	75.9	75.1	75.7	75.9	77.4	77.0	76.3	73.5	71.8	71.6	71.0	70.7	71.1	72.0	72.7	73.2	74.1	75.0
DE	65.4	65.6	65.3	64.9	64.6	65.5	67.2	69.0	70.1	70.3	71.3	72.7	73.0	73.5	73.8	74.0	74.7	75.2	75.9	76.7
EE	60.3	61.1	61.3	63.0	63.1	64.8	68.4	69.8	70.1	63.8	61.2	65.3	67.1	68.5	69.6	71.4	71.8	73.7	74.4	74.8
IE	68.3	68.7	68.1	68.1	69.0	70.4	71.2	71.7	69.7	63.6	61.0	60.0	59.9	61.7	63.1	64.8	66.4	67.7	68.6	69.5
GR	56.5	56.4	57.4	58.5	59.1	59.6	60.6	60.9	61.4	60.8	59.1	55.1	50.8	48.8	49.4	50.8	52.0	53.5	54.9	56.5
ES	56.3	57.8	58.9	60.2	61.3	63.6	65.0	65.8	64.5	60.0	58.8	58.0	55.8	54.8	56.0	57.8	59.5	61.1	62.4	63.3
FR				63.5	63.3	63.2	63.2	63.8	64.4	63.5	63.5	63.4	63.5	63.5	63.7	63.8	64.2	64.7	65.3	65.6
HR	53.4	51.9	53.1	53.5	54.6	55.0	55.6	59.0	60.0	59.4	57.4	55.2	53.5	52.5	54.6	56.0	56.9	58.9	60.6	62.1
IT	53.7	54.8	55.5	56.1	57.7	57.6	58.3	58.6	58.6	57.4	56.8	56.8	56.6	55.5	55.7	56.3	57.2	58.0	58.5	59.0
CY	65.8	67.9	68.6	69.1	69.1	68.5	69.6	71.0	70.9	69.0	68.9	67.6	64.6	61.7	62.1	62.7	63.7	65.6	68.6	70.5
LV	57.6	58.2	59.9	60.8	61.0	62.1	65.9	68.1	68.2	60.3	58.5	60.8	63.0	65.0	66.3	68.1	68.7	70.1	71.8	72.3
LT	59.1	57.6	59.9	61.1	61.6	62.9	63.6	65.0	64.4	59.9	57.6	60.2	62.0	63.7	65.7	67.2	69.4	70.4	72.4	73.0
LU	62.0	62.5	62.9	62.2	62.5	63.6	63.6	64.2	63.4	65.2	65.2	64.6	65.8	65.7	66.6	66.1	65.6	66.3	67.1	67.9
HU	56.3	56.2	56.2	57.0	56.8	56.9	57.4	57.0	56.4	55.0	54.9	55.4	56.7	58.1	61.8	63.9	66.5	68.2	69.2	70.1
MT	54.0	54.0	54.4	54.2	54.0	53.6	53.9	55.0	55.5	55.3	56.2	57.9	59.9	62.2	63.9	65.1	67.2	69.2	71.9	73.1
NL	72.9	74.1	74.4	73.6	73.1	70.6	71.6	73.5	74.9	74.6	73.9	74.2	74.4	73.6	73.1	74.1	74.8	75.8	77.2	78.2
AT	68.5	68.4	68.7	68.9	66.5	67.4	68.6	69.9	70.8	70.3	70.8	71.1	71.4	71.4	71.1	71.1	71.5	72.2	73.0	73.6
PL	55.0	53.4	51.5	51.2	51.7	52.8	54.5	57.0	59.2	59.3	58.9	59.3	59.7	60.0	61.7	62.9	64.5	66.1	67.4	68.2
PT	68.4	69.0	68.8	68.0	67.6	67.3	67.6	67.6	68.0	66.1	65.3	63.8	61.4	60.6	62.6	63.9	65.2	67.8	69.7	70.5
RO	63.0	62.4	57.6	57.6	57.7	57.6	58.8	58.8	59.0	58.6	60.2	59.3	60.2	60.1	61.0	61.4	61.6	63.9	64.8	65.8
SI	62.8	63.8	63.4	62.6	65.3	66.0	66.6	67.8	68.6	67.5	66.2	64.4	64.1	63.3	63.9	65.2	65.8	69.3	71.1	71.8
SK	56.8	56.8	56.8	57.7	57.0	57.7	59.4	60.7	62.3	60.2	58.8	59.3	59.7	59.9	61.0	62.7	64.9	66.2	67.6	68.4
FI	67.2	68.1	68.1	67.7	67.6	68.4	69.3	70.3	71.1	68.7	68.1	69.0	69.4	68.9	68.7	68.5	69.1	70.0	72.1	72.9
SE	71.8	74.0	73.6	72.9	72.1	72.3	73.1	74.2	74.3	72.2	72.1	73.6	73.8	74.4	74.9	75.5	76.2	76.9	77.4	77.1
UK	71.2	71.4	71.4	71.5	71.7	71.8	71.6	71.5	71.5	69.9	69.4	69.3	69.9	70.5	71.9	72.7	73.5	74.1	74.7	75.2

Source: Author's elaboration based on Eurostat data.

Table A.6. Unemployment rate measured as percentage of total working age population (15-64) by EU-28 member states, 2000-2019.

	Unemployment rate as percentage of total working age population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	6.7	6.4	7.3	7.9	8.2	8.2	8.0	7.2	6.8	7.7	8.0	6.9	7.4	8.3	8.4	8.4	7.7	7.0	5.8	5.2
BG	16.4	19.7	17.7	13.4	11.7	9.8	8.6	6.6	5.4	6.6	10.0	11.0	12.0	12.7	11.3	9.1	7.6	6.1	5.1	4.2
CZ	8.4	7.7	7.0	7.5	8.0	7.6	6.9	5.2	4.3	6.5	7.1	6.5	6.8	6.8	6.0	5.0	3.9	2.8	2.2	2.0
DK	4.5	4.4	4.5	5.2	5.4	4.6	3.5	3.4	3.1	5.8	7.1	7.0	7.2	6.9	6.5	6.0	5.6	5.3	4.8	4.7
DE	8.0	8.1	8.9	10.1	11.0	11.2	10.2	8.6	7.5	7.7	7.0	5.8	5.4	5.2	5.0	4.6	4.1	3.7	3.3	3.1
EE	14.3	12.6	11.2	10.2	9.6	7.9	5.7	4.4	5.2	13.3	16.7	12.2	10.0	8.6	7.3	6.3	6.9	5.8	5.2	4.4
IE	4.0	3.8	4.2	4.4	4.3	4.2	4.3	4.5	6.2	12.0	14.0	14.9	14.9	13.3	11.5	9.6	8.1	6.4	5.4	4.6
GR	10.9	10.5	10.1	9.6	10.4	9.8	8.9	8.3	7.7	9.5	12.7	17.8	24.3	27.3	26.4	24.9	23.5	21.4	19.3	17.3
ES	13.3	10.0	11.0	11.0	10.5	8.7	8.0	7.8	10.6	17.2	19.3	20.9	24.3	25.6	24.1	21.7	19.3	16.9	14.9	13.8
FR				8.2	8.5	8.5	8.4	7.6	7.1	8.6	8.8	8.8	9.4	9.9	9.9	10.0	9.7	9.1	8.8	8.2
HR	14.9	15.3	14.1	13.6	13.1	12.3	11.0	9.4	8.1	8.8	11.1	13.2	15.5	16.6	16.5	15.5	12.5	10.8	8.2	6.4
IT	10.0	9.1	8.6	8.3	7.6	7.4	6.5	5.8	6.4	7.5	8.1	8.1	10.3	11.9	12.5	11.7	11.5	11.1	10.5	9.9
CY	4.7	3.9	3.6	4.3	4.7	5.2	4.5	3.9	3.7	5.4	6.2	7.8	11.8	15.8	16.0	14.9	12.9	11.1	8.4	7.0
LV	14.0	13.5	12.1	11.3	11.4	9.7	6.7	5.8	7.6	17.3	19.3	16.1	14.9	11.9	10.9	9.9	9.8	8.8	7.5	6.4
LT	16.1	17.1	13.6	12.1	10.7	8.3	5.7	4.2	5.7	13.7	17.8	15.4	13.5	11.9	10.8	9.2	8.0	7.2	6.3	6.4
LU	2.2	2.0	2.7	3.6	4.9	4.3	4.4	3.8	4.9	4.9	4.2	4.8	5.0	5.7	5.6	6.3	5.9	5.3	5.3	5.3
HU	6.1	5.5	5.6	5.7	5.9	7.0	7.3	7.3	7.7	9.9	11.1	11.0	10.9	10.0	7.6	6.7	5.0	4.0	3.6	3.3
MT	4.9	4.8	5.4	5.9	5.6	5.6	5.6	5.4	4.9	5.9	6.0	5.6	5.3	5.5	5.3	4.9	4.3	3.6	3.3	3.3
NL	2.5	1.9	2.4	3.3	4.2	5.4	4.5	3.6	3.1	3.8	4.4	4.4	5.2	6.7	6.9	6.4	5.5	4.4	3.4	3.0
AT	3.4	3.5	3.8	4.2	5.1	5.2	4.9	4.5	3.8	5.0	4.6	4.3	4.7	5.1	5.5	5.6	5.8	5.3	4.7	4.3
PL	16.0	17.9	19.6	19.4	18.9	17.7	13.8	9.6	7.0	8.1	9.5	9.5	10.0	10.2	8.9	7.4	6.1	4.8	3.8	3.2
PT	4.0	3.9	5.0	6.2	6.6	7.8	7.8	8.2	7.7	9.7	11.1	12.8	15.8	16.5	14.1	12.5	11.2	8.9	7.0	6.4
RO	7.2	6.7	8.4	6.9	7.7	7.0	7.0	6.3	5.6	6.7	7.0	7.2	6.7	7.1	6.7	6.7	5.7	4.8	4.0	3.7
SI	6.5	6.0	6.1	6.5	6.2	6.5	5.9	4.8	4.3	5.8	7.3	8.2	8.9	10.2	9.8	9.0	8.1	6.6	5.1	4.4
SK	17.2	17.9	17.6	16.7	17.6	15.7	12.8	10.7	9.2	11.7	14.0	13.2	13.6	13.9	12.9	11.3	9.5	7.9	6.4	5.6
FI	8.9	8.3	8.2	8.2	8.1	7.7	7.0	6.1	5.6	7.4	7.6	7.1	7.0	7.5	8.0	8.8	8.2	8.1	6.8	6.1
SE	5.3	4.4	4.6	5.3	6.0	6.6	6.1	5.1	5.1	7.3	7.6	6.9	7.1	7.1	7.1	6.7	6.3	6.0	5.6	6.0
UK	4.9	4.3	4.4	4.2	3.9	4.0	4.5	4.4	4.8	6.6	6.8	7.0	6.9	6.7	5.4	4.6	4.3	3.8	3.6	3.4

Source: Author's elaboration based on Eurostat data.

Table A.7. Long-term unemployment rate measured as percentage of total working age population (15-64) by EU-28 member states, 2000-2019.

	Long-term unemployment rate as percentage of total working age population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	3.8	3.2	3.7	3.7	4.1	4.4	4.2	3.7	3.3	3.5	4.0	3.5	3.4	3.9	4.3	4.4	4.1	3.5	2.9	2.4
BG	9.5	12.5	11.9	9.0	7.1	6.0	4.9	4.0	2.9	2.9	4.7	6.3	6.7	7.4	6.9	5.6	4.5	3.4	3.0	2.4
CZ	4.1	4.1	3.6	3.7	4.2	4.1	3.8	2.8	2.1	2.0	3.0	2.7	3.0	3.0	2.7	2.4	1.7	1.0	0.7	0.6
DK	1.1	0.9	0.9	1.2	1.2	1.2	0.9	0.6	0.5	0.6	1.5	1.8	2.2	1.9	1.8	1.7	1.3	1.3	1.0	0.9
DE						6.0	5.9	5.0	4.0	3.6	3.3	2.8	2.5	2.4	2.3	2.1	1.7	1.6	1.4	1.2
EE	6.8	6.5	6.2	4.9	5.3	4.5	3.0	2.3	1.7	3.6	7.7	7.2	5.6	3.9	3.4	2.5	2.3	2.1	1.3	0.9
IE	1.5	1.3	1.3	1.5	1.5	1.4	1.4	1.4	1.7	3.5	6.9	8.9	9.2	8.1	6.7	5.4	4.3	3.1	2.1	1.6
GR	6.1	5.5	5.2	5.3	5.5	5.2	4.8	4.2	3.7	3.9	5.7	8.9	14.5	18.5	19.6	18.3	17.0	15.7	13.6	12.2
ES	5.7	3.8	3.8	3.8	3.5	2.2	1.8	1.7	2.0	4.2	7.2	8.8	10.9	12.9	12.9	11.4	9.5	7.7	6.4	5.3
FR				3.2	3.4	3.4	3.6	3.1	2.8	3.2	3.8	3.8	4.1	4.4	4.5	4.5	4.5	4.2	3.8	3.4
HR						7.6	6.8	5.9	5.3	5.2	6.4	8.3	10.2	11.0	10.1	10.3	6.6	4.6	3.4	2.4
IT	6.3	5.7	5.2	4.9	3.7	3.6	3.2	2.8	3.0	3.4	4.0	4.2	5.5	6.8	7.7	6.9	6.7	6.5	6.2	5.6
CY						1.2	0.9	0.7	0.5	0.6	1.3	1.7	3.6	6.1	7.8	6.9	5.9	4.6	2.7	2.1
LV			5.6	5.0	5.0	4.6	2.4	1.7	1.9	4.6	8.8	9.0	8.0	5.9	4.7	4.6	4.1	3.3	3.2	2.5
LT			7.4	6.0	5.6	4.5	2.7	1.4	1.3	3.3	7.5	8.2	6.7	5.1	4.9	4.0	3.1	2.8	2.1	2.0
LU				0.9	1.0	1.2	1.3	1.1	1.5	1.2	1.3	1.4	1.6	1.8	1.6	1.9	2.2	2.1	1.4	1.2
HU	3.0	2.6	2.5	2.4	2.6	3.2	3.3	3.4	3.6	4.1	5.5	5.3	5.0	4.9	3.7	3.1	2.4	1.7	1.4	1.1
MT			2.7	2.9	3.1	3.0	2.5	2.5	2.4	2.8	3.7	3.5	3.4	3.3	2.8	2.6	2.3	1.9	1.7	0.9
NL				1.0	1.5	2.3	2.1	1.6	1.2	1.1	1.3	1.6	1.9	2.6	2.9	3.0	2.5	2.0	1.4	1.0
AT			1.1	1.1	1.5	1.4	1.5	1.3	1.0	1.1	1.2	1.2	1.2	1.3	1.5	1.7	1.9	1.9	1.4	1.1
PL	7.5	9.2	11.0	11.1	10.4	10.4	7.9	5.0	2.4	2.5	3.0	3.6	4.1	4.4	3.9	3.0	2.2	1.5	1.0	0.7
PT	1.8	1.6	1.8	2.3	3.1	3.8	4.0	3.9	3.7	4.4	5.9	6.4	7.9	9.6	8.6	7.4	6.4	4.6	3.2	2.8
RO	3.9	3.5	4.7	4.4	4.8	4.1	4.1	3.2	2.4	2.2	2.5	3.0	3.1	3.3	2.9	3.0	3.0	2.0	1.8	1.6
SI	4.2	3.8	3.5	3.5	3.3	3.1	3.0	2.3	1.9	1.8	3.2	3.7	4.3	5.3	5.4	4.8	4.3	3.2	2.3	1.9
SK	9.8	10.9	11.9	11.2	11.7	11.5	10.0	8.2	6.5	6.4	9.1	9.2	9.3	9.9	9.2	7.5	5.8	5.0	4.0	3.3
FI	2.8	2.6	2.3	2.3	2.2	2.2	2.0	1.6	1.2	1.4	2.1	1.8	1.7	1.8	2.0	2.4	2.4	2.2	1.7	1.2
SE		1.0	1.0	1.0	1.3			0.9	0.8	1.1	1.6	1.5	1.5	1.5	1.5	1.5	1.3	1.3	1.2	1.0
UK	1.5	1.3	1.1	1.0	0.9	1.0	1.1	1.2	1.3	1.7	2.4	2.6	2.6	2.6	2.1	1.6	1.3	1.1	1.0	0.9

Source: Author's elaboration based on Eurostat data.

Table A.8. Youth employment rate measured as percentage of total population aged 15-34 by EU-28 member states, 2000-2019.

	Youth employment rate as percentage of total youth population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	57.60	51.80	52.36	51.03	53.66	53.28	52.70	53.07	53.72	51.42	51.65	51.76	51.56	49.72	49.76	49.03	49.10	50.59	51.20	51.27
BG	39.39	42.38	42.32	43.29	44.92	45.09	47.55	50.57	51.96	49.03	47.62	43.17	43.05	43.34	43.88	43.96	44.62	51.91	46.82	48.34
CZ	53.16	52.93	53.37	53.16	52.60	52.80	52.49	52.76	52.68	50.42	49.94	49.98	50.13	51.47	53.14	52.78	54.93	56.63	55.19	54.62
DK	73.95	73.51	74.41	69.55	71.61	73.37	75.34	76.58	75.93	68.06	63.68	62.32	60.72	59.66	59.42	61.04	64.83	63.27	64.43	65.01
DE	63.31	62.78	61.74	60.25	57.64	57.06	58.45	60.27	61.52	61.20	62.21	63.68	63.46	64.03	64.03	64.10	64.46	64.72	65.93	66.87
EE	44.40	44.64	45.27	46.82	45.30	43.90	45.20	46.34	47.37	40.11	37.90	42.63	45.74	47.24	49.05	51.74	51.52	52.45	55.53	54.91
IE	62.33	61.26	60.62	60.73	60.47	61.60	62.91	63.79	60.93	55.13	52.33	50.25	50.13	50.82	51.63	52.25	54.38	55.45	57.58	58.20
GR	49.38	49.07	50.12	50.08	51.59	50.80	51.36	51.29	51.84	51.28	48.43	42.92	38.18	35.84	37.19	37.48	37.11	38.30	39.10	39.75
ES	49.21	50.54	51.36	52.63	53.40	56.25	57.78	58.63	56.20	49.34	46.85	44.77	40.59	38.39	38.62	39.66	39.57	42.88	42.70	43.07
FR	52.33	53.56	53.30	52.79	52.22	52.01	51.03	52.17	52.61	50.99	50.57	50.84	49.61	49.74	46.40	45.47	46.09	47.12	47.20	47.18
HR			46.40	45.63	47.76	47.60	47.36	49.20	50.26	48.02	44.80	41.65	38.89	37.57	42.11	43.08	45.96	47.93	48.18	49.01
IT	45.77	46.92	47.69	47.58	49.48	47.19	47.31	47.16	46.80	44.21	42.48	41.79	40.66	37.32	35.73	36.22	37.39	37.83	38.12	39.12
CY	53.82	57.20	57.91	56.89	56.74	57.44	58.53	58.16	58.79	57.98	59.02	54.94	52.26	50.01	51.20	50.67	50.54	53.11	57.20	59.47
LV	49.27	48.13	49.82	50.26	50.69	49.73	51.70	52.78	51.94	44.64	44.13	46.18	47.89	50.93	52.47	54.25	56.06	56.95	56.56	57.08
LT	49.43	45.00	45.12	47.09	43.20	42.72	43.23	42.98	39.81	36.22	35.64	38.65	38.63	40.49	43.18	44.15	47.98	51.28	54.20	55.00
LU	54.94	54.40	52.35	52.00	49.40	51.70	51.97	47.85	48.11	55.56	52.18	51.80	50.08	48.32	49.69	53.85	44.67	43.40	44.24	49.55
HU	50.47	50.52	49.91	48.23	46.75	45.64	45.99	45.86	44.75	41.92	41.62	42.00	42.38	43.17	46.96	48.97	50.63	51.74	52.02	51.56
MT										59.73	59.22	60.71	60.96	62.40	62.80	62.27	63.79	65.90	67.61	67.50
NL	77.93	78.63	79.54	79.08	77.36	77.18	75.54	77.24	77.81	74.98	74.61	75.35	74.30	72.93	72.11	73.14	72.96	75.71	76.83	77.02
AT	66.07	66.11	66.04	65.16	65.10	66.36	66.21	67.61	68.62	67.91	67.43	68.01	68.78	67.92	67.99	68.06	69.06	68.45	69.15	69.05
PL	42.29	42.67	40.91	41.61	41.81	42.77	44.46	46.76	48.17	47.82	47.11	46.48	46.27	45.58	47.35	47.78	48.83	50.20	50.45	50.04
PT	58.57	58.92	59.31	58.41	57.59	56.76	56.10	55.35	55.43	52.77	50.17	48.88	44.92	43.48	45.51	45.89	45.17	47.48	49.62	48.70
RO	53.75	53.65	50.79	48.82	50.47	48.34	48.32	48.33	48.43	46.92	47.62	47.11	46.85	46.72	47.55	48.91	47.24	49.27	49.82	49.70
SI	57.25	56.47	56.54	55.39	58.52	57.64	57.84	60.90	61.01	57.91	56.60	55.89	53.53	51.96	52.43	55.19	54.84	58.64	60.00	59.04
SK	44.39	44.18	44.33	46.11	46.39	46.52	48.51	50.24	50.43	47.69	45.23	45.25	45.61	45.54	45.68	48.45	50.62	51.14	52.07	51.49
FI	59.72	60.16	59.67	56.59	56.25	56.74	57.36	52.33	52.93	50.09	49.38	51.07	51.42	50.53	49.96	50.06	51.61	53.32	52.96	54.81
SE	62.40	66.64	65.30	64.52	62.23	64.09	66.17	69.10	68.80	63.48	63.26	64.19	62.20	62.44	63.97	65.87	66.86	68.04	68.16	68.19
UK	67.72	67.20	66.90	65.90	65.76	65.45	64.82	63.89	63.79	59.95	59.51	60.31	60.26	60.93	61.70	63.43	64.84	65.43	65.49	66.57

Source: Author's estimations based on EU-LFS data.

Table A.9. Youth unemployment rate measured as percentage of total population aged 15-34 by EU-28 member states, 2000-2019.

	Youth unemployment rate as percentage of total youth population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	6.34	5.85	6.28	7.07	7.09	8.18	7.74	7.24	6.61	7.51	7.87	6.66	7.21	7.99	8.07	7.92	7.25	6.37	5.98	5.51
BG	11.37	14.50	13.22	9.68	8.77	7.28	6.72	5.10	4.58	5.14	6.95	8.83	9.39	10.00	9.22	7.48	5.90	4.57	3.95	3.55
CZ	7.34	6.43	5.59	6.03	6.48	6.34	5.73	3.96	3.36	5.67	6.00	6.47	7.26	6.99	6.32	5.13	4.64	3.15	2.83	2.63
DK	6.75	5.75	5.76	8.56	7.24	5.92	4.89	4.62	4.66	7.91	8.34	8.76	8.36	7.30	7.03	6.38	6.75	6.25	5.53	5.52
DE	4.87	4.67	5.41	6.48	7.21	8.22	7.36	6.51	5.62	6.16	5.70	4.59	4.47	4.51	4.27	4.03	3.67	3.48	3.19	3.08
EE	9.82	8.85	6.35	7.98	8.01	4.87	4.13	3.53	4.63	10.61	11.65	9.31	8.74	7.11	6.38	5.50	5.82	4.87	4.75	4.16
IE	3.42	3.08	3.79	3.93	3.93	3.75	4.00	4.53	6.13	11.01	12.01	12.81	12.51	10.86	9.43	7.86	6.93	5.82	5.63	4.99
GR	11.71	10.65	10.43	9.70	10.56	9.80	9.22	8.63	8.13	9.77	12.61	17.34	22.47	24.81	23.20	21.29	19.53	17.33	15.38	14.11
ES	12.14	8.97	9.88	10.03	10.19	8.99	8.15	7.38	10.18	15.44	17.28	19.05	22.32	23.07	21.52	19.74	17.37	14.36	13.34	11.76
FR	8.50	7.24	7.55	7.78	8.76	8.70	8.67	8.13	7.54	9.59	9.45	8.88	9.29	9.82	10.56	10.31	9.90	9.18	8.89	8.07
HR			14.56	13.60	13.29	11.89	10.53	9.23	8.11	9.00	12.31	13.77	15.44	16.16	16.90	16.24	13.20	10.85	8.37	7.03
IT	11.24	9.84	9.78	9.52	8.28	8.08	7.18	6.47	6.90	7.67	8.22	8.28	10.62	11.84	12.36	11.48	11.28	10.53	9.75	9.05
CY	3.63	2.72	2.64	3.49	3.27	4.95	3.89	3.52	3.36	4.88	5.91	7.47	10.57	14.07	14.05	12.74	11.68	10.20	8.33	6.90
LV	9.40	8.90	9.06	6.95	7.38	6.32	4.94	4.71	6.13	13.79	15.07	12.53	12.06	9.49	8.51	7.46	7.45	7.17	7.03	5.43
LT	12.04	12.47	8.31	10.08	6.26	4.78	3.17	2.66	3.74	9.11	11.68	10.08	8.23	7.13	6.74	5.33	5.01	4.64	4.46	4.68
LU	2.26	1.59	2.29	2.93	4.53	3.89	4.28	4.41	4.19	4.63	3.72	4.07	4.64	4.90	5.11	5.33	4.76	3.90	4.60	4.86
HU	5.28	4.55	4.49	5.82	5.29	5.87	6.14	5.96	6.36	8.17	8.56	8.15	8.75	8.28	6.69	6.06	4.69	4.09	3.89	3.82
MT										5.84	5.79	5.82	5.86	5.97	5.19	5.21	4.44	4.41	4.01	3.93
NL	2.91	2.36	2.47	3.33	4.20	4.16	4.12	3.44	3.11	4.46	5.13	4.92	6.14	7.33	6.81	6.02	5.70	4.27	3.68	3.54
AT	3.29	2.99	3.61	3.74	4.32	4.88	4.46	4.15	3.93	4.84	4.53	4.04	4.32	4.77	4.94	4.64	4.93	4.43	4.05	3.88
PL	13.75	15.65	16.43	15.75	15.39	13.84	10.50	7.33	5.61	6.75	7.98	8.19	8.59	8.70	7.77	6.40	5.38	4.16	3.31	2.82
PT	3.33	3.62	4.13	5.94	5.54	6.86	7.10	7.54	7.26	8.77	9.47	12.62	15.73	15.69	13.49	11.59	10.36	8.51	7.42	6.75
RO	6.91	6.47	7.17	6.31	7.13	5.96	6.23	5.46	5.02	5.90	6.59	6.81	6.76	7.10	7.00	6.87	5.94	5.13	4.31	4.18
SI	5.96	5.13	5.57	5.81	5.99	6.52	6.23	5.10	4.88	6.42	7.43	7.99	8.96	10.54	10.40	9.61	8.20	6.69	5.38	4.67
SK	16.25	16.94	15.39	13.53	13.71	12.10	9.73	8.11	7.08	9.14	11.22	11.17	11.51	11.77	11.04	9.25	8.05	6.95	5.65	5.24
FI	12.98	12.01	12.97	11.99	11.61	11.07	10.43	5.99	6.12	8.14	7.76	7.19	7.15	7.92	8.08	8.82	8.28	7.97	7.25	6.51
SE	4.39	4.92	5.30	5.97	7.39	9.33	8.57	7.43	7.35	9.91	9.78	8.96	9.59	9.84	9.43	8.30	7.54	7.04	7.06	7.61
UK	5.71	4.93	5.30	5.22	4.96	5.13	6.07	5.92	6.21	8.16	8.29	8.58	8.34	8.00	6.70	5.62	5.15	4.49	4.11	4.16

Source: Author's estimations based on EU-LFS data.

Table A.10. Youth long-term unemployment rate measured as percentage of total population aged 15-34 by EU-28 member states, 2000-2019.

	Youth long-term unemployment rate as percentage of total youth population																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	3.08	2.58	2.74	2.76	3.16	3.50	3.19	3.01	2.55	2.78	3.22	2.76	2.81	3.22	3.55	3.58	3.20	2.61	2.32	2.13
BG	6.47	8.34	7.99	6.12	4.76	4.04	3.39	2.76	2.45	1.98	3.15	4.94	5.76	6.15	5.49	4.83	3.29	2.66	1.96	2.10
CZ	2.98	2.86	2.26	2.33	2.69	2.76	2.55	1.65	1.27	1.37	2.01	1.88	2.33	2.26	2.02	1.66	0.96	0.71	0.51	0.57
DK	1.08	0.99	0.93	1.58	1.59	0.93	0.85	0.47	0.49	0.56	0.79	1.02	1.03	0.96	0.74	0.78	0.81	0.76	0.62	0.57
DE	1.55	1.55	1.70	2.22	2.65	3.18	3.23	2.71	2.10	2.07	2.06	1.62	1.44	1.40	1.31	1.26	1.05	1.04	0.93	0.84
EE	3.83	3.66	2.22	2.53	2.70	1.78	1.35	1.26	1.13	2.54	4.96	4.50	3.30	2.72	2.23	1.69	1.30	1.19	0.65	0.51
IE	0.93	0.75	0.90	1.11	1.09	1.07	1.16	1.11	1.35	2.87	5.47	6.84	6.86	5.51	4.59	3.61	2.84	2.10	1.34	1.00
GR	6.70	5.54	5.60	5.67	5.70	5.02	5.00	4.23	3.71	3.81	5.58	8.57	13.20	15.70	15.96	14.21	12.89	11.50	9.89	9.12
ES	5.04	3.14	3.12	3.21	3.15	2.14	1.73	1.45	1.75	3.93	6.50	8.23	10.54	11.97	11.97	10.38	8.34	6.13	4.96	3.79
FR	2.95	2.26	2.20	2.52	2.94	3.28	3.16	2.84	2.41	3.07	3.46	3.32	3.37	3.51	4.48	4.33	4.15	3.81	3.43	2.97
HR			8.73	7.38	6.41	5.78	5.29	4.87	4.11	4.17	6.22	8.00	9.42	9.32	9.04	9.04	6.04	4.02	2.88	2.28
IT	6.69	6.09	5.67	5.40	3.98	3.91	3.56	3.13	3.18	3.57	4.05	4.38	5.72	6.88	7.66	6.74	6.39	6.03	5.34	4.76
CY	0.85	0.48	0.38	0.60	0.85	1.00	0.60	0.67	0.46	0.46	1.07	1.47	3.06	5.52	6.58	5.22	4.17	3.39	2.09	1.59
LV	4.88	4.40	3.08	2.34	2.53	2.24	1.29	1.03	1.14	3.36	6.16	5.78	4.95	4.01	2.93	2.70	2.53	2.25	2.16	1.22
LT	5.97	5.88	4.04	3.44	2.69	1.59	0.99	0.62	0.41	1.54	4.10	4.08	3.01	2.14	1.95	1.37	1.16	1.24	0.77	0.81
LU	0.47	0.38	0.55	0.53	0.90	0.63	1.04	1.08	1.17	1.09	0.74	0.95	1.17	1.12	1.17	0.74	0.57	0.65	0.46	0.53
HU	2.30	1.84	1.86	2.14	2.18	2.34	2.56	2.47	2.56	2.97	3.89	3.40	3.27	3.12	2.52	2.02	1.52	1.16	1.19	1.09
MT										2.05	2.11	2.29	2.32	2.13	1.98	1.74	1.37	1.94	1.64	1.41
NL			0.28	0.51	0.90	0.98	0.99	0.63	0.48	0.60	0.70	0.73	0.94	1.36	1.36	1.32	1.02	0.73	0.33	0.30
AT	0.61	0.54	0.38	0.70	0.91	0.89	0.89	0.73	0.63	0.79	0.91	0.70	0.80	0.84	0.98	1.01	1.11	0.98	0.82	0.67
PL	5.71	6.94	8.08	7.70	7.16	6.88	5.12	3.07	1.52	1.60	1.93	2.49	2.96	3.20	2.81	2.14	1.51	0.92	0.68	0.46
PT	1.09	1.05	1.18	1.50	1.97	2.59	2.74	2.65	2.65	3.07	3.78	5.29	7.37	8.20	7.17	5.74	5.02	3.67	2.72	2.46
RO	3.24	2.87	4.21	3.63	4.04	3.21	3.46	2.61	2.10	1.74	2.31	2.89	3.12	3.23	2.94	2.99	2.96	2.25	1.82	1.63
SI	3.13	2.73	2.74	3.10	2.84	2.65	2.69	1.99	1.60	1.69	2.96	3.18	4.02	5.17	5.32	4.91	3.96	2.83	1.81	1.53
SK	7.98	9.07	9.29	8.45	8.07	8.09	6.82	5.30	4.31	4.34	6.81	6.81	7.35	7.80	7.21	5.60	4.26	3.90	3.08	2.74
FI	1.36	0.92	1.03	0.95	0.90	0.88	0.85	0.54	0.34	0.60	0.85	0.56	0.65	0.73	0.72	0.95	1.00	0.71	0.73	0.50
SE	0.73	0.38	0.43	0.57	0.74			0.47	0.42	0.70	1.12	0.91	0.92	0.91	0.82	0.75	0.63	0.55	0.57	0.35
UK	1.20	0.98	0.97	0.92	0.80	0.83	1.05	1.10	1.21	1.79	2.39	2.37	2.36	2.52	1.97	1.35	1.10	0.87	0.75	0.68

Source: Author's estimations based on EU-LFS data.

Table A.11. Part-time employment rate among young workers (15-34) measured as percentage of total employed individuals aged 15-34 by EU-28 member states, 2000-2019.

	Percentage of young people in part-time employment																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	17.32	16.98	17.26	17.20	19.28	19.10	18.65	18.79	18.66	19.97	19.92	20.95	21.04	20.91	20.73	21.18	21.63	22.03	22.47	23.59
BG		3.25	2.37	2.12	2.74	1.85	1.68	1.45	1.83	2.46	2.37	2.43	2.83	2.99	2.83	2.89	2.57	3.95	2.03	2.99
CZ	4.51	4.26	3.98	3.78	4.17	4.00	4.04	3.94	4.11	5.17	5.34	4.97	6.37	6.45	6.38	6.19	6.74	7.82	7.77	7.02
DK	25.98	23.90	25.61	26.89	29.11	29.79	31.78	32.26	36.37	46.91	50.29	52.54	53.07	52.74	52.24	52.41	50.43	47.21	45.81	46.10
DE	15.41	16.00	16.59	17.07	17.55	19.80	21.14	21.44	21.82	22.59	22.42	21.96	21.83	22.36	22.32	23.10	22.81	22.87	23.00	23.01
EE	7.25	8.20	6.36	6.07	6.32	7.78	8.29	8.81	8.70	13.24	12.33	10.82	10.86	10.27	10.03	11.48	12.58	12.43	15.95	16.59
IE	15.73	14.90	14.58	15.55	15.57		16.12	16.93	17.49	20.39	22.50	24.53	25.16	25.41	25.21	24.99	24.63	23.85	24.43	25.45
GR	5.93	4.94	5.36	5.01	5.74	6.62	7.36	7.22	7.22	8.12	8.55	9.11	10.87	11.67	13.00	13.43	14.44	15.19	15.05	14.23
ES	9.88	9.94	10.02	10.00	10.69	15.03	14.35	14.28	14.21	15.80	17.12	18.88	21.36	22.70	23.00	23.96	23.33	23.64	23.37	22.92
FR	17.06	16.06	15.42	15.60	16.10	16.28	16.44	16.85	16.53	16.94	17.12	17.11	17.06	18.20	19.30	18.88	18.75	18.60	18.27	17.97
HR			5.67	6.03	5.54	6.27	5.66	4.58	4.34	4.34	5.46	5.43	3.68	3.66	5.70	6.81	5.93	4.90	7.11	5.22
IT	10.05	10.06	9.73	9.50	13.75	13.79	14.49	14.96	16.01	16.22	17.09	17.80	20.42	21.68	23.13	23.52	23.85	23.77	22.87	22.79
CY	7.20	5.76	4.44	6.38	6.45	6.80	6.33	6.14	7.17	9.10	8.93	10.27	11.56	13.95	15.75	13.88	16.33	15.03	12.76	12.05
LV	12.23	11.72	8.09	9.86	9.78	8.46	5.89	6.00	6.59	10.08	10.35	8.45	8.63	8.21	6.85	7.04	8.30	5.43	7.23	6.52
LT	10.61	8.93	9.91	10.02	8.38	6.51	8.38	7.48	6.78	7.68	7.58	8.74	9.40	8.63	8.47	7.88	7.58	8.02	7.77	7.02
LU	10.35	11.21	11.82	10.43	12.64	12.86	13.10	13.60	11.14	15.03	12.41	12.88	15.02	16.48	17.73	14.89	16.66	16.38	14.60	14.66
HU	2.38	2.63	2.68	3.42	3.18	2.97	3.18	3.48	4.01	5.12	5.05	6.15	5.82	5.71	4.75	4.63	4.29	3.84	3.56	3.79
MT										9.96	12.16	13.02	13.47	14.55	16.65	15.46	14.54	13.34	13.80	12.37
NL	45.33	46.92	48.82	50.03	50.59	51.17	49.98	51.04	51.78	54.83	56.76	58.50	59.99	60.94	62.67	62.89	63.46	61.83	61.52	61.65
AT	15.19	15.80	16.28	14.94	17.83	18.56	19.01	20.29	19.82	20.36	21.69	20.62	21.52	22.15	23.46	23.86	24.40	25.06	23.74	24.41
PL	10.40	10.24	11.23	10.72	11.43	12.27	10.89	9.75	8.13	8.14	8.41	8.26	8.27	8.05	8.06	7.54	7.47	7.73	7.48	7.39
PT	5.18	5.23	5.49	6.64	5.64	6.01	5.89	6.58	7.06	7.28	7.70	10.41	12.70	13.29	12.01	11.94	12.23	11.69	11.06	11.92
RO	15.23	14.57	9.74	10.59	9.76	9.75	9.45	9.03	8.84	8.69	10.02	9.94	9.79	9.42	9.28	10.05	8.17	7.68	7.14	6.37
SI	6.53	7.44	8.23	9.49	12.68	13.57	13.31	13.35	14.56	16.52	18.59	17.08	15.75	15.90	16.92	17.51	15.47	16.57	15.25	14.09
SK	1.14	1.37	1.03	1.38	1.58	1.89	2.14	1.94	2.15	3.09	3.71	3.98	4.07	5.07	5.74	6.05	5.89	6.07	4.98	3.98
FI	18.57	17.77	19.02	18.84	18.37	19.64	19.86	19.39	18.34	20.03	20.89	20.50	21.34	21.24	22.67	23.12	23.98	24.47	25.41	25.06
SE	23.94	22.03	22.98	26.42	27.96	24.72	24.38	24.05	28.85	30.45	30.63	30.14	31.42	31.64	31.39	31.01	30.32	29.17	28.75	28.29
UK	24.36	24.72	24.54	25.75	25.82	25.48	25.94	25.12	24.35	24.56	25.67	25.96	27.09	26.01	26.08	25.92	25.32	25.43	24.92	24.71

Source: Author's estimations based on EU-LFS data.

Table A.12. Temporary employment rate among young workers (15-34) measured as percentage of total employed individuals aged 15-34 by EU-28 member states, 2000-2019.

	Percentage of young people in temporary employment																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	13.87	14.18	12.81	13.79	14.05	14.69	14.77	14.91	14.83	15.02	15.14	16.21	15.20	15.00	15.98	16.98	17.72	17.21	17.15	18.04
BG		6.46	6.40	6.22	7.70	6.80	6.64	5.89	4.79	5.55	5.66	5.05	5.10	7.61	7.66	6.11	6.44	9.01	5.46	6.38
CZ	7.57	8.33	8.35	9.32	9.88	9.30	9.47	8.81	8.29	9.11	10.44	11.08	12.25	13.23	15.11	16.57	15.55	15.69	13.36	13.46
DK	17.85	17.10	16.46	16.42	19.86	17.36	15.41	15.30	16.92	18.97	17.62	18.71	18.25	18.29	17.74	19.27	22.63	25.31	22.32	21.96
DE	23.72	23.92	24.08	25.31	26.73	30.11	29.37	30.49	31.48	31.60	31.30	30.09	28.90	28.82	28.36	28.34	28.28	27.80	27.21	26.31
EE	3.28	4.02	4.57	4.92	4.87	5.03	5.02	3.81	4.40	5.75	7.08	7.76	6.79	6.63	5.81	5.77	6.29	5.96	6.87	5.96
IE	7.15	6.58	6.57	6.70	5.48	3.68	10.24	11.96	12.07	11.99	13.35	15.15	15.06	15.12	14.83	14.40	13.43	14.67	17.96	18.55
GR	13.90	14.25	12.37	12.04	13.72	13.12	11.86	12.67	14.09	14.53	13.97	12.85	11.88	12.27	14.66	15.02	14.53	14.09	14.28	17.57
ES	43.58	42.71	42.11	42.47	41.87	42.28	41.99	39.55	38.01	35.45	34.62	36.82	37.01	37.52	39.58	42.04	43.18	45.47	44.95	44.12
FR	26.96	25.82	24.65	23.54	23.72	25.45	26.73	27.54	27.43	26.37	27.99	27.77	27.94	28.41	29.22	30.57	30.93	30.94	30.78	29.66
HR			15.41	17.43	19.45	19.89	20.65	22.22	21.59	20.79	21.63	23.30	24.27	27.17	28.91	35.65	40.77	36.63	35.51	32.73
IT	12.75	12.22	12.98	12.85	15.85	17.12	18.67	19.28	20.25	19.76	20.63	21.94	23.82	23.59	25.46	26.49	26.32	29.53	32.38	32.13
CY	13.23	12.76	10.70	15.36	14.41	16.63	15.60	15.73	15.85	15.81	16.07	16.51	17.92	20.37	22.13	22.41	22.49	22.27	19.15	18.18
LV	6.50	7.09	13.32	11.45	11.09	11.00	8.68	6.04	4.50	5.56	8.56	7.54	5.71	5.21	3.63	4.84	4.53	3.27	3.01	3.10
LT	5.23	8.22	8.58	10.48	6.74	7.54	6.64	5.39	3.78	3.24	3.60	4.03	3.93	4.24	4.57	3.12	3.66	2.96	2.91	2.69
LU	6.52	7.68	7.92	5.48	10.21	10.93	12.68	14.48	15.27	14.52	13.43	13.51	15.02	14.94	17.66	17.73	17.33	18.24	16.99	16.06
HU	8.57	9.80	9.24	10.14	9.21	9.97	10.13	10.75	12.36	13.68	16.00	14.48	15.25	17.35	17.39	17.98	16.21	14.28	11.94	10.74
MT										6.39	7.67	9.61	9.28	9.91	10.58	9.79	10.29	7.32	9.45	9.47
NL	19.97	20.69	20.56	21.11	21.37	23.91	24.90	26.44	26.88	30.47	30.09	31.55	33.94	35.45	38.10	36.57	37.37	38.09	36.87	35.19
AT	16.55	15.66	15.95	15.93	16.20	18.20	18.56	18.40	18.30	18.81	19.36	20.56	19.29	19.23	18.98	18.76	18.41	18.53	18.38	18.25
PL	6.79	15.02	19.11	24.05	28.71	32.62	34.09	35.15	33.31	33.34	34.81	34.80	35.43	36.09	37.86	37.73	37.46	36.69	34.52	31.16
PT	25.23	27.89	30.05	28.44	28.69	29.05	30.61	33.47	35.18	35.71	37.41	36.67	35.08	37.28	37.26	39.80	41.80	42.76	41.84	40.56
RO	3.13	3.01	1.03	2.27	2.59	2.49	2.04	1.70	1.32	1.12	1.36	1.80	1.88	1.80	2.06	1.87	1.98	1.70	1.73	2.30
SI	21.91	24.14	27.31	25.45	31.62	32.74	32.51	34.44	34.25	32.82	33.40	33.79	32.75	31.29	30.72	34.53	35.35	35.69	33.14	28.85
SK	5.15	6.55	6.35	6.54	6.62	5.99	6.06	6.18	5.90	4.97	6.79	8.11	8.25	8.69	12.31	14.20	12.61	11.83	10.84	9.80
FI	30.78	31.88	30.49	32.23	31.20	32.35	31.53	27.25	25.80	25.17	26.82	28.01	26.84	28.23	28.86	28.63	28.64	28.26	30.40	27.60
SE	23.62	26.31	26.74	28.19	28.19	29.02	30.09	30.55	28.39	27.51	29.23	30.76	30.96	31.48	31.53	30.88	29.06	28.41	27.46	27.37
UK	7.88	8.17	7.48	6.96	7.09	6.85	7.26	7.67	6.58	6.67	7.04	6.90	7.97	7.24	7.62	7.70	7.40	7.14	6.78	6.36

Source: Author's estimations based on EU-LFS data.

Table A.13. Involuntary part-time employment rate among young workers (15-34) measured as percentage of total employed individuals aged 15-34 by EU-28 member states, 2000-2019.

	Percentage of young people in involuntary part-time employment																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	6.04	5.92	4.45	5.29	5.66	5.40	4.76	4.86	5.05	4.29	4.07	3.96	3.70	3.65	3.84	4.10	3.61	2.84	3.04	2.15
BG		2.26	1.67	1.29	1.74	1.30	0.95	0.75	0.59	1.12	1.08	1.31	1.77	1.83	1.61	1.78	1.43	2.00	0.94	1.29
CZ	0.52	0.45	0.55	0.52	0.68	0.78	0.71	0.64	0.51	0.75	0.91	0.98	1.36	1.25	1.15	1.02	0.95	0.52	0.49	0.63
DK	4.41	4.62	5.06	5.19	5.47	5.11	4.67	3.92	4.10	5.05	5.25	5.12	5.59	5.44	4.98	4.66	4.94	4.59	4.09	4.16
DE	1.91	2.08	2.18	2.70	3.22	4.63	4.75	4.85	4.58	4.90	4.50	3.19	3.04	3.10	2.86	2.84	2.53	2.24	2.11	1.94
EE	0.69	1.70	1.31	1.31	1.08	1.14	1.08	0.64	0.58	2.37	1.60	1.59	1.03	0.78	0.73	1.14	0.91	0.55	0.54	0.64
IE	2.05	1.80	1.82	2.16	1.71		1.63	1.96	2.51	5.00	8.03	9.77	10.22	10.17	9.90	9.29	7.58	5.30	3.92	3.72
GR	3.31	2.83	2.99	2.60	3.40	3.84	3.81	3.69	3.81	4.69	5.29	5.94	7.53	8.26	9.47	9.98	10.30	10.67	10.74	9.67
ES	2.92	2.55	2.43	2.46	2.72	5.34	5.25	4.99	5.28	7.28	8.85	11.21	13.79	15.67	15.68	16.38	15.29	15.15	13.61	13.11
FR	6.32	5.50	5.16	5.11	5.62	5.80	5.95	6.47	6.46	6.52	7.12	6.79	6.70	7.61	9.39	9.77	9.66	9.19	8.45	8.07
HR			2.11	2.23	1.08	2.06	2.15	1.52	1.43	1.65	2.23	2.10	1.27	1.49	2.43	2.34	2.16	2.26	2.77	1.59
IT	4.67	4.56	4.04	4.02	5.94	6.70	6.86	7.36	8.16	9.13	10.39	11.68	14.22	16.07	17.68	18.03	17.76	17.42	17.24	16.85
CY	2.29	1.60	1.66	2.54	2.51	2.79	3.33	2.85	2.99	4.16	4.60	6.44	7.04	9.02	11.70	10.26	12.17	10.38	8.28	6.83
LV	5.39	4.32	2.73	2.83	3.15	2.22	1.47	0.86	1.36	4.13	4.67	3.51	3.30	2.64	2.11	2.07	2.60	1.16	2.14	0.64
LT	4.33	4.46	5.64	4.38	3.84	2.82	2.38	1.76	1.16	1.92	2.72	3.23	2.84	2.43	2.47	1.94	2.05	1.95	1.24	1.16
LU	0.96	1.21	1.40	0.98	0.97	1.78	2.01	1.68	2.03	1.96	1.52	2.26	2.67	2.67	3.41	1.70	2.46	2.14	2.01	1.70
HU	0.82	0.82	0.94	1.28	0.89	1.03	1.20	1.45	1.71	2.43	2.68	3.46	3.32	3.37	2.49	2.28	1.75	1.47	1.08	1.10
MT										2.47	3.42	3.19	3.19	2.57	2.91	2.64	2.13	2.08	1.58	1.26
NL	1.79	1.41	1.41	1.89	2.39	2.37	3.20	2.62	2.46	3.68	3.37	3.99	5.08	5.41	6.29	6.00	5.56	4.50	4.08	3.13
AT	1.92	1.78	1.44	1.55	1.42	2.00	2.22	2.53	2.12	2.41	2.65	2.15	2.11	2.56	2.80	3.03	3.34	3.09	2.54	2.26
PL	2.01	3.97	3.80	4.30	4.63	4.42	3.57	2.46	1.68	1.82	2.12	2.50	2.59	2.89	3.06	2.67	2.04	1.72	1.12	1.05
PT	2.02	1.54	1.78	2.46	2.37	2.47	2.95	3.38	3.61	3.87	4.56	6.05	7.55	8.09	7.08	7.20	6.76	5.97	5.21	5.46
RO	10.12	9.78	6.77	7.65	6.95	6.35	6.18	5.83	5.84	5.56	6.76	6.43	6.94	6.94	6.87	7.60	5.81	5.30	4.81	4.16
SI																				
SK	0.12	0.34	0.13	0.23	0.15	0.46	0.36	0.28	0.59	0.73	1.35	1.39	1.72	1.92	2.32	1.88	2.20	1.95	1.40	1.12
FI	5.44	5.27	5.37	5.32	5.06	5.03	5.19	3.89	4.03	5.09	5.74	5.38	5.02	5.23	6.05	6.48	6.87	6.40	6.85	6.49
SE	6.92	6.75	7.01	7.27	8.86	9.39	9.23	9.16	9.03	10.06	10.88	10.30	10.79	10.86	10.76	10.38	9.64	8.48	7.28	7.10
UK	2.60	2.42	2.30	2.62	2.28	2.53	2.87	3.09		2.21	2.58	6.00	6.42	6.51	5.81	5.59	4.86	4.47	4.22	3.87

Source: Author's estimations based on EU-LFS data.

Table A.14. Involuntary temporary employment rate among young workers (15-34) measured as percentage of total employed individuals aged 15-34 by EU-28 member states, 2000-2019.

	Percentage of young people in involuntary temporary employment																			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
BE	10.16	10.67	9.46	10.61	11.37	9.20	8.91	8.70	7.90	7.78	10.58	11.48	11.03	11.17	11.48	12.99	12.62	12.19	12.08	11.39
BG		3.88	4.48	4.06	4.89	3.99	3.55	3.25	2.34	3.52	3.69	3.22	3.46	5.19	4.62	4.33	4.07	5.66	3.73	4.24
CZ	4.10	4.68	6.31	7.06	7.45	6.89	6.76	6.16	6.33	6.69	8.35	9.27	10.41	11.25	12.41	14.09	12.28	12.03	7.64	7.25
DK	7.23	7.59	7.25	7.33	11.55	8.03	6.66	4.73	5.59	6.77	6.22	6.98	7.65	7.61	7.97	7.22	6.49	9.43	7.68	7.05
DE	1.50	1.57	1.44	1.89	2.08	3.02	3.24	3.67	3.32	2.98	3.38	3.25	2.75	2.53	2.32	2.22	2.70	2.63	2.36	2.05
EE	1.90	2.32	2.61	2.62	2.53	2.19	1.74	1.16	1.19	2.29	2.05	2.08	1.92	1.36	0.95	0.95	0.88	0.63	0.49	0.20
IE	1.47	1.10	1.19	1.35	0.97	0.69	1.15	1.37	1.68	2.56	3.61	4.30	6.40	6.63	6.18	5.97	5.24	4.48	3.74	3.07
GR	9.68	10.12	8.66	8.54	9.37	8.87	7.84	8.49	9.43	9.85	9.89	9.12	8.49	8.50	9.63	9.83	9.88	9.35	9.52	12.06
ES	30.99	30.19	28.83	28.37	28.69		25.31	23.73	23.91	24.32	25.18	27.32	28.44	28.04	29.81	31.29	32.56	33.59	30.35	29.25
FR				12.02	12.43	12.36	13.15	13.16	13.09	12.28	13.68	13.42	13.44	13.13	15.20	15.94	16.11	15.44	14.76	12.89
HR			8.19	8.91	10.49	11.16	10.91	11.04	11.40	10.57	10.94	11.73	11.58	13.28	13.24	15.16	31.42	30.28	29.07	26.14
IT	4.48	4.84	4.35	4.49	7.23	9.03	9.52	10.08	10.62	10.74	11.48	12.63	13.83	14.02	15.16	15.94	15.78	18.04	21.91	21.49
CY	9.56	9.79	9.93	12.76	12.66	14.48	13.56	13.30	13.57	14.15	14.42	15.04	16.44	18.95	20.13	20.15	19.89	19.33	17.21	16.89
LV	4.78	5.39	5.71	4.76	3.37	4.31	5.28	2.79	2.46	4.19	6.03	4.97	3.70	3.17	1.78	2.02	1.86	0.47	1.45	1.28
LT	3.14	6.11	6.86	8.12	4.97	5.55	4.28	3.15	1.34	1.89	2.05	2.21	2.05	2.10	2.02	1.35	1.55	1.10	0.73	0.52
LU	0.62	0.86	1.11	0.59	3.55	5.15	5.10	4.33	5.96	4.82	4.41	4.56	5.64	5.75	7.65	3.57	7.55	8.26	7.86	1.19
HU	4.03	4.80	4.55	4.86	4.32	4.72	5.95	6.40	6.98	8.71	10.75	8.98	10.24	12.45	12.45	13.09	12.35	10.44	8.10	7.15
MT										3.15	3.80	4.42	4.32	4.26	5.28	4.81	4.12	3.13	2.94	1.96
NL	5.02	4.07	3.76	4.03	4.96	5.80	6.67	6.31	6.03	7.14	5.87	5.62	6.68	8.37	9.01	10.01	9.03	8.59	7.16	6.23
AT	1.84	1.56	1.38	1.69			1.40	1.57	1.44	1.44	1.02	1.04	0.97	1.04	1.11	1.12	1.05	1.05	1.07	0.99
PL		7.39	9.36	11.34	15.04	15.77	24.38	23.99	22.16	22.78	24.25	20.95	22.40	23.35	24.20	23.29	22.46	20.44	17.28	13.95
PT	10.17	18.76	20.30	19.99	20.55	21.46	24.55	26.99	28.43	29.39	31.45	30.47	29.34	30.62	29.60	30.92	33.00	32.58	32.09	30.90
RO	1.96	2.10	0.47	1.40	1.74	1.65	1.50	1.20	0.98	0.89	0.99	1.45	1.57	1.47	1.75	1.62	1.51	1.39	1.29	1.91
SI																				
SK	4.20	5.62	5.34	5.31	5.47	4.40	4.50	4.34	4.38	3.93	4.47	7.08	7.30	7.72	10.28	11.53	7.88	9.09	8.08	7.30
FI	14.60	17.30	15.96	14.85	13.99	15.44	14.35	8.09	7.04	7.63	7.89	7.76	8.10	8.75	9.01	9.06	9.29	8.61	9.43	7.67
SE	11.94	6.52	6.05	4.87	5.77	16.01	16.22	15.92	14.07	15.38	16.54	16.63	16.38	16.80	17.33	16.71	14.69	13.35	12.90	12.37
UK	2.39	2.24	2.10	1.91	1.90	1.74	1.86	2.27	1.66	2.24	2.75	2.80	3.11	2.80	2.54	2.60	2.25	1.77	1.89	1.69

Source: Author's estimations based on EU-LFS data.