

Working conditions

Employment status and job quality

[Does employment status
matter for job quality?](#)

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Glossary

Dependent self-employed without employees: Also referred to as '*dependent solo self-employed*'. Self-employed persons with no employees that are economically dependent based upon three criteria (see table 1 of this report).

Employment status: In this report employment status refers to the contractual aspects of work and employment (e.g. distinguishing between waged and self-employment and between different types and durations of employment contracts), as well as to the number of working hours (e.g. separating part-time and full-time work).

Fixed-term contracts of less than one year: Also referred to as '*short-term temporary contracts*'. These are workers on temporary contracts of less than one year duration.

Fixed-term contracts of more than one year: Also referred to as '*long-term temporary contracts*'. These are workers on temporary contracts of longer duration than one year.

Indefinite contracts: Also referred to as '*permanent contracts*'. Workers in stable, indefinite or 'open-ended' employment contracts.

Independent self-employed without employees: Also referred to as '*independent solo self-employed*'. Self-employed persons with no employees that are not economically dependent based upon three criteria (see table 1 of this report).

Job quality: In this project the concept is made up in line with previously used EUROFOUND-definitions (Green & Mostafa, 2012). It refers to a multidimensional concept, including intrinsic work task-related characteristics (such as skill and discretion, physical conditions, day-to-day social relations, earnings, work intensity and others), working time quality (such as extend of, regularity and predictability of working hours) and future employment prospects.

Non-standard employment: In this report sometimes referred to as '*new forms of employment*'. Forms of employment that diverge from the standard employment relationship. They are typically 'non-standard' in terms of the contractual and temporal nature of work.

Other employees: Employment status that includes 'all other types of contracts' not explicitly mentioned as categories in our employment status indicator, such as agency workers, apprentices and those without a contract.

Self-employed with employees: Also referred to as '*employers*'. Self-employed persons who employ others.

Solo self-employed: Also referred to as '*self-employed without employees*'. Self-employed persons who do not employ others.

Standard employment relationship: A norm of employment that is mainly characterised as waged employment on a permanent and full-time basis. This employment relationship contains an implicit assumption of an almost careerlong engagement for one employing organisation.

Unstable employment status: A combination of employment statuses that is unstable in terms of continuation of paid work. It is used in this report as an overarching category for short-term temporary work, employment agency work and dependent solo self-employment.

Quality of working life: This concept includes people's subjective assessments of their working situation. It includes concepts such as health and well-being, work life balance, financial security, satisfaction with working conditions and sustainability of work.

List of abbreviations

CFL_SB	Satorra-Bentler Comparative fit index
EC	European Commission
EESC	European Economic and Social Committee
Etui	European trade union institute
EU	European Union
EWCS	European Working Conditions Survey
GDP	Gross domestic product
ILO	International Labour Organization
ISCO	International Standard Classification of Occupations
LFS	Labour Force Survey
NACE	Nomenclature statistique des activités économiques dans la Communauté Européenne (Statistical classification of economic activities in the European Community)
OECD	The Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
RMSEA	Root mean squared error of approximation
R&D	Research and Development
SEM	Structural Equation Modelling
SER	Standard Employment Relationship
SRMR	Standardized root mean squared residual
W4	Post-stratification weight – Individual country weights
W5-28	Cross-national weight – Population-size weight for the 28 Member States

Abstract

This technical report contains an in-depth analysis of employment status in the European Union. Our main objective is to study the relations between employment status and workers' job quality and quality of working life. We identify seven employment status categories: indefinite contracts, fixed-term contracts of longer than one year, fixed-term contracts of less than one year, other employees, dependent self-employed without employees, independent self-employed without employees, and self-employed with employees. The results of this study show clear differences in job quality according to the categories of employment status. Employment status is also related to quality of working life-determinants, although this relation is strongly mediated by job quality. Also the importance of country-level variation in employment status and its relationships with job quality and quality of working life are demonstrated. The conclusions of this research are embedded in the on-going EU policy debate on job quality and non-standard employment.

Executive summary

This report contains an in-depth analysis of employment status in Europe, dealing with its distribution and the potential consequences for job quality and quality of working life.

Since the 1970's, employment statuses have started to diversify. Non-standard forms of work emerged next to 'standard' permanent employment. These forms of employment may be 'non-standard' on several dimensions, but most important are the contractual (temporary, agency, and freelance work) and temporal (part-time) nature of work. The main classification of employment status in this study contains: indefinite contracts, fixed-term contracts of more than one year, fixed-term contracts of less than one year, other employees, dependent self-employed without employees, independent self-employed without employees, and self-employed with employees.

Policy context

Since non-standard forms of employment are changing the labour market at a growing rate, European policy makers aim to formulate suitable policy initiatives. While also earlier EU-efforts tried to deal with this issue, the European Pillar of Social Rights aims to modernise the rules of employment contracts, and broaden the scope of traditional employment to new and atypical forms of work.

Key findings

In this study, first of all, we discuss the prevalence over time, socio-demographics and countries of different employment status categories. Then, we studied the relationship between the employment statuses and job quality, and the mediating influence of individual-, and country-level characteristics. Finally, we also studied the relationship of employment status and the quality of working life.

While permanent waged employment is still the norm, non-standard employment is more prevalent among new labour market entrants

Permanent waged employment is still the norm throughout Europe. Fixed-term contracts however, have no continuous pattern across European countries. Solo self-employment is increasing, especially in Southern European countries. Part-time employment tends to increase in all European countries.

While permanent employment is most often found among older, higher educated workers and in higher income quintiles, both fixed-term contracts and (involuntary) part-time employment are more prevalent among young, primary educated workers, and in low income quintiles. Self-employment without employees is prevalent in both higher and lower income quintiles.

Different employment statuses experience different degrees of job quality

The job quality of all other employment status categories was compared with that of workers holding a permanent employee contract. Long-lasting temporary contracts have lower work intensity, lower quality of social environment, lower skills and discretion, less chance of receiving training, less work schedule regularity, poorer working time quality, less job security, and less employment prospects. The pattern is very similar, but more pronounced, for short-term fixed contracts. The dependent self-employed without employees have lower employment prospects, poorer skills and discretion, less favourable physical and social environment, and lower scores on work intensity and higher job strain compared to other employment statuses. For the independent self-employed without employees similar patterns are found. The self-employed with employees are a relatively favourable group in terms of job quality. Finally, workers in part-time employment have a worse quality of their social environment, training, skills and discretion, regularity, job security and employment prospects – but a more favourable physical environment, job strain and working time quality.

Labour market performance and working-class power are crucial to understanding the country-level influence on job quality

The results concerning country variation in job quality have shown that particularly indicators relating to ‘**labour market performance**’ (e.g. unemployment rate and R&D expenditure) and ‘**working-class power**’ (e.g. centralisation in collective bargaining, collective bargaining coverage and union density) are significantly related to a number of job quality indices. Such results show the importance of social dialogue.

Furthermore, the size of the associations between employment statuses and job quality indices differs between production regimes. For example, results have shown that fixed-term workers have poorer employment prospects compared to permanent workers in all but the Anglo-Saxon production regime.

Employment status and quality of working life

Compared to permanent contract-holders, temporary workers encounter more financial problems, adverse social behaviour, lower satisfaction with working conditions, and find their health and safety more at risk. Most of these findings are stronger among short-term temporary contracts. Also, dependent solo self-employed have worse scores on many quality of working life indicators, although their motivation is higher. Independent solo self-employed encounter more financial difficulties and work-private interference and worse self-rated health than permanent employees, while they are more motivated and engaged with work and less often absent from work. Self-employed with employees have overall the most favourable quality of working life scores, although face a problematic work-private interference. Voluntary part-timers show similar or better quality of working life than permanent workers. This cannot be said for the involuntarily part-time employed, who perform badly on most quality of working life outcomes. The relation between employment status and quality of working life is mediated by job quality. Contextual factors (e.g. educational attainment, or the country of residence) tend to aggravate/attenuate associations between employment status and quality of working life.

Policy pointers

While there have been considerable efforts in improving the job quality of workers in non-standard employment, we were able to identify gaps that were not covered under these efforts.

- The Council Directive 1999/70/EC on **fixed-term work** aims to improve the quality of fixed-term work by the principle of non-discrimination, and to prevent abuse by use of successive fixed-term employment contracts. Some elements of the directive can be improved: 1) many countries often exclude whole sectors from the coverage of legislation on fixed-term work. Such exceptions need to be formulated with more consideration. 2) The grounds to which the principle of non-discrimination should

apply, need to be specified in a more specific manner. 3) The ideal maximum-duration of fixed-term contracts should be stated more clearly.

- The proposals for a directive on transparent and predictable working conditions and for a council recommendation on the social protection for all workers are both initiatives trying to improve the **working conditions and social protection of workers in an inclusive manner**. However, such proposals often miss specificity in policy suggestions for the member states, therefore we recommend to 1) allow member states for voluntary expansions of social protection packages, and to shorten the qualifying periods for unemployment and sickness benefits. 2) To apply a universal minimum social security system which can provide income support for all, including the self-employed.
- The Council Directive 1997/81/EC on **part-time work** aims to apply the principle of non-discrimination and intends to facilitate the development of voluntary part-time work. However, since the directive has not been fully transposed to all member states we recommend stricter enforcement and more incentives to improve implementation. We should be aware that stricter enforcement requires an unanimous vote from all member states. Also, the directive needs to consider that discrimination towards part-time workers can occur during the hiring process. Furthermore, the grounds on which to base the principle of non-discrimination need to be defined more carefully.
- **Social dialogue and cooperation with social partners** have come a long way at the European level under the influence of the ‘new start for social dialogue’. At the national level however, social dialogue can be much more encouraged in some member states. Moreover, trade unions need to be inclusive and strengthened; and social dialogue must be embedded in a suitable institutional framework in all member states. Additional financial resources (for example from EU funds) could further strengthen social dialogue.

Introduction

The overall objective of this research is to perform an in-depth analysis of **employment status** in Europe. This implies looking at the distribution of forms of employment over time and countries. However, the most important focus lies with the potential consequences of certain forms of employment for job quality and quality of working life – and country variation in these associations. The same holds for the potential modifying role of socio-demographic characteristics. Finally, we aim to connect policy-relevant conclusions to the findings of our empirical analyses by consulting experts in the field.

For the purpose of this study, mainly micro-data from the 6th European Working Conditions Survey (2015) is used. When relevant, we use pooled EWCS-data (2000-2015), and macro data from the labour force survey.

This report contains five main chapters. In the next chapter a brief overview of current literature regarding this topic is presented. The third chapter deals with current policy initiatives and discussions at the EU-level regarding regulation of employment status and intends to improve the quality of non-standard employment. Then, the methodology of the empirical analyses and the consultation of stakeholders is outlined. The fifth chapter summarizes the results of the analyses of the EWCS-data. In a final, concluding chapter, the findings from the secondary analyses of the EWCS are summarized and related to the policy context – among others, involving an assessment of the implications of our findings by prominent European labour market experts.

Background

A logical first question when analysing employment status has to do with definitions. What is meant by ‘employment status’? In this study, we place ‘employment status’ under the wider umbrella of ‘employment conditions’ – in other words the conditions under which the work is organised, including contractual, temporal, interactional and rewards-related settlements (J Benach et al., 2014). Holman and McLeland (2011) label these characteristics of a job as ‘employment quality’, which for them is clearly distinct from ‘work quality’. With the latter, they rather refer to the content of work tasks (e.g. is a job physically/mentally demanding? interesting and enriching? ergonomically taxing?). Employment quality and work quality together then constitute ‘job quality’ – a kind of overarching concept that tries to grasp into all aspects that determine the objective quality of a job.

Conceptualizing and monitoring job quality has always been the aim of the Eurofound’s European Working Conditions Surveys. That aim has been translated into a series of dimensions of job quality, enabling researchers to monitor evolutions (Green and Mostafa, 2012; Eurofound, 2017a). Green and Mostafa (2012) distinguish between seven dimensions of job quality. Four dimensions – skills and discretion, physical environment, social environment and intensity – constitute what Holman and Mcleland (2011) would label as ‘work quality’. Three dimensions – working time quality, earnings and prospects – can be labelled as ‘employment quality’. In current study, we use the concept of ‘employment status’, which is rooted in the dimensions of ‘prospects’ and ‘working time quality’, although in a narrow way. Employment status refers to the contractual aspects of work and employment (e.g. distinguishing between waged and self-employment and between different types and durations of employment contracts), as well as to the number of working hours (e.g. separating part-time and full-time work). It is consequently, our main objective to relate the above-outlined concept of ‘employment status’ to the other dimensions of job quality and quality of working life as defined in earlier Eurofound research.

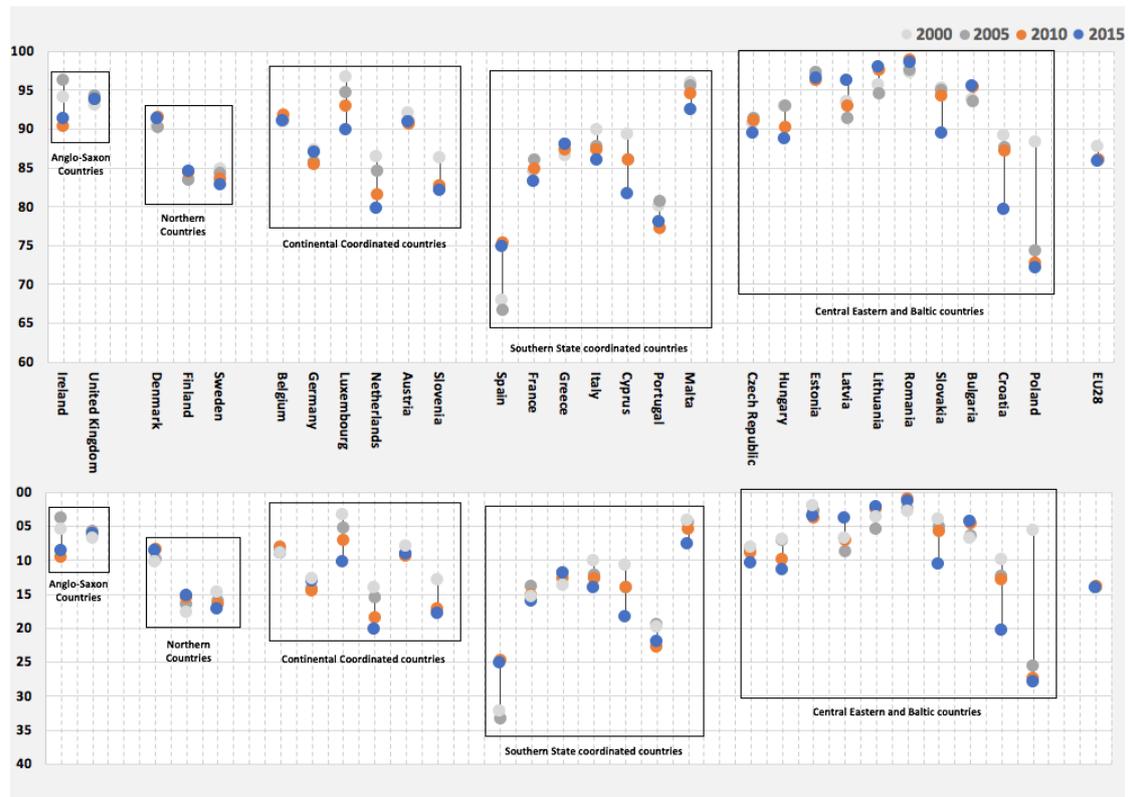
When referring to employment status in this way, almost simultaneously the distinction between ‘standard’ and ‘non-standard’ employment emerges (Eurofound, 2017b; International Labour Office, 2016a). This distinction is firmly rooted in the recent history of labour market developments in Western economies (Bosch, 2004). More specifically, the distinction explicitly refers to the **Standard Employment Relationship (SER)** – a Post-Second-World-War-point of reference, against which employment status is usually assessed (Kalleberg et al., 2000). The Post-Second-World-War employment norm was one of waged employment, on a permanent and full-time basis, with an implicit assumption of an almost careerlong engagement for one employing organisation (Castel, 2007). Until today, this SER-model of employment is seen as a *golden standard* against which other (non-standard) forms of employment can be compared. These other forms of employment may depart from the SER in various ways, however most notable are departures in terms of the contractual (like temporary, agency, freelance work) or temporal (like part-time and all kinds of irregular working hours) nature of work (Rodgers, 1989).

Since the economic restructuring starting in the 1970’s, it is assumed that the SER as a golden standard for employment started to erode (Bosch, 2012). Although, many observers have highlighted the enduring importance of ‘standard’ permanent full-time employment as a model of reference (Auer and Cazes, 2000; International Labour Office, 2016a). A mix of causes has been held responsible for the supposed **decline of the SER**: ideological transformations often described as ‘neoliberalism’ (characterized by the centrality of individual freedom and skills, and an institutional framework stressing private property rights, free markets and free trade (Harvey, 2005)); a shift from Keynesian to supply-side macro-economics; technological innovations, involving automatization and real-time communication, cheaper and easier logistics; organisational innovations, involving for example lean production, delocalisation, franchising and subcontracting; changes in the characteristics and composition of the work force; and altered power relations between capital and labour are among the main factors often referred to (Vallas, 1999).

Employment status

There is a widespread belief that permanent, full-time employment is gradually declining across the globe, while non-standard employment is expanding (Drache et al., 2015). This assumption is however not unequivocally supported with **empirical evidence** (Green and Livanos, 2017; Lewchuk, 2017). The same holds for job tenure: even in the years of the financial and economical crisis it did not drop very drastically in most countries (Eurofound, 2015a). Recent figures from the European Labour Force Survey (LFS) indeed show that on the one hand, European labour markets are in motion when it comes to the relative importance of employment status categories. On the other hand, not that many countries have seen large changes in the past 20 years. Figure 1 shows the evolution of permanent and temporary employment between 2000 and 2015. Countries are sub-divided into five categories, reflecting the production regimes typology of D. Gallie (see infra). Gallie (2007) classifies European countries in five groups, based on how they differ on key institutional dimensions: the skill formation system, employment policies and institutions, and traditions of socio-economic coordination. A small decline in permanent employment is the general picture that emerges, but only in a few countries (Croatia, Poland and the Netherlands) this decline has been spectacular. In many countries, the share of permanent employment remained remarkably stable – or even increased (such as in Spain). Also the share of self-employment and solo self-employment remains relatively stable over time in most EU-countries (Eurofound, 2017c).

Figure 1: Permanent (above) and temporary (below) as a share of total employment in the EU-countries (2000-2015)

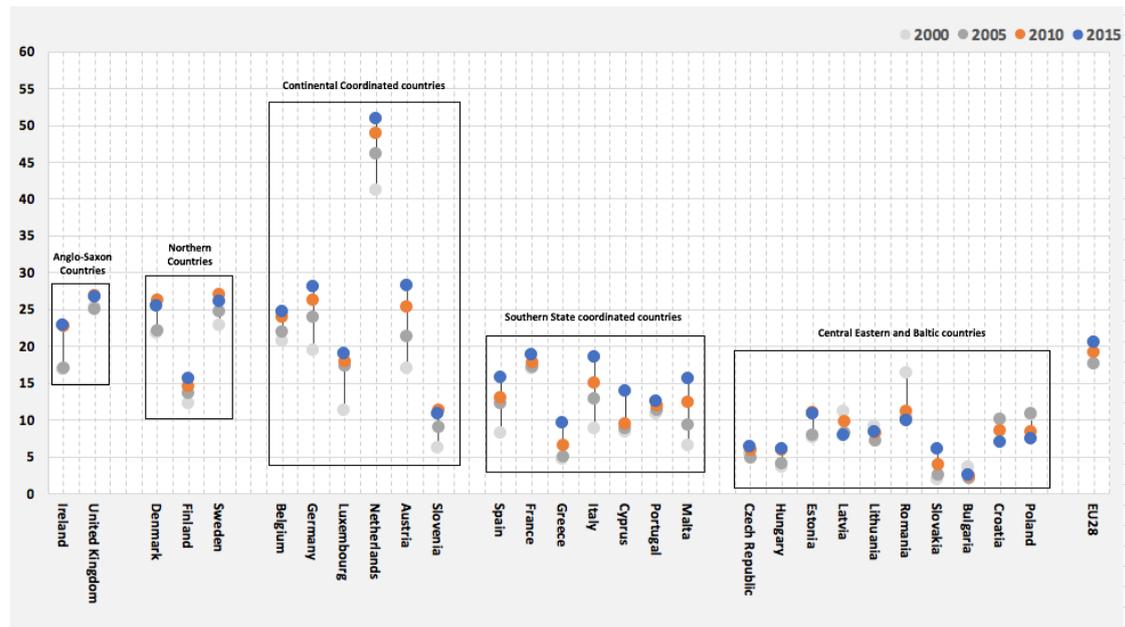


Source: EU-LFS 2018

Non-standard employment also refers to the amount and timing of working hours. Part-time employment is a very common flexibilization strategy in many European countries (Hinterseer, 2013). Part-time is not necessarily unstable in contractual terms and may correspond well with both the preferences of employers and employees. Nevertheless,

previous research has shown that often part-time jobs are sub-optimal in many of the other dimensions of the SER-standard, including contractual stability, wage levels and future employability, while also intrinsic job quality characteristics may be less advantageous compared to permanent jobs (Fagan et al., 2014). According to the LFS, part-time employment is on the rise in almost all EU-countries (see figure 2), except in a number of Central Eastern and Baltic countries. In the LFS, the indicator for part-time employment is based on the subjective assessment of the respondent, not on the declared number of working hours¹. In the EWCS, part-time is defined on the declared number of working hours. This might explain the differences in the exact prevalence of part-time, compared to the EWCS.

Figure 2: Part-time employment as a share of total employment in the EU-countries (2000-2015)

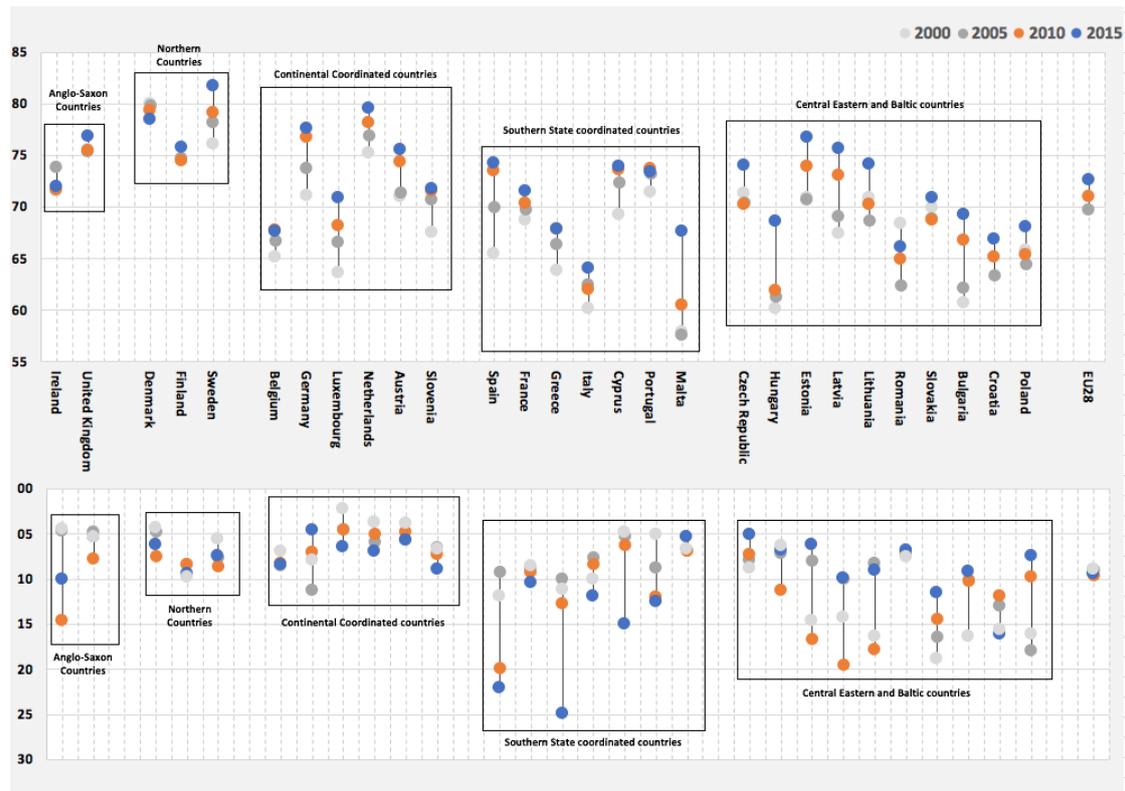


Source: EU-LFS 2018

Evolutions in the general distribution of employment statuses need to be related to changes in the fraction of the population in gainful work. Figure 3 shows employment rates and unemployment rates for the same time period, based on LFS-macro data. In almost every EU-country the employment rate has increased during the past two decades. This is not accompanied by similar decreases in unemployment rates. The latter seems to indicate that other categories of the inactive population have declined in size (e.g. homekeepers or pre-retirees). New labour market entrants tend to over-proportionally end up in non-standard forms of employment (Eurofound, 2013).

¹ http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_-_methodology#EU-LFS_concept_of_labour_force_status

Figure 3: Employment rate (above) and unemployment rate (below) in the EU-countries (2000-2015)



Source: EU-LFS 2018; The employment rate is expressed as a percentage of the active population between 15 and 64 years of age; The unemployment rate is expressed as a percentage of the total active population (aged 15 to 89).

In order to describe employment status in this study, we propose to work with a simple but internationally comparable indicator, distinguishing between waged employees and self-employed. Among employees, a further distinction is made between those with a permanent contract and employees in longer (more than a year) and shorter (less than a year) temporary contracts.

Employment status and the broader work experience

The most important aim of this study lies with examining the associations between specific forms of employment, on one hand and job quality and quality of working-life, on the other hand. Until now, policy makers were usually more interested in macro-economic and social consequences of (non-standard) employment at the level of national economies, or relations with socio-economic factors at the individual level (such as poverty, labour market chances, employability, gender-related consequences (Duval and Furceri, 2018; OECD, 2015).

While seldom studied, it is worth exploring whether certain types of employment prove to be structurally associated with less-favourable job quality or quality of working-life related outcomes (for example sub-optimal health and well-being, financial hardship, opportunity constrains, work-private interference, etc.). Recent literature on labour market dualisation, already suggested that there exists a certain kind of clustering between job status categories, earnings, and certain socio-economic worker profiles (Eurofound, 2015b).

Employment status and job quality

As discussed above, in this study, ‘job quality’ refers to the conceptualization presented in recent Eurofound reports (Eurofound, 2017d; Green and Mostafa, 2012). According to Eurofound, seven indices are together representing the overarching concept of ‘job quality’:

the physical work environment, work intensity, working time quality, the social work environment, skills and discretion, prospects and earnings (Eurofound, 2017d). As ‘working time quality’ and ‘prospects’ conceptually partly overlap with the concept of ‘employment status’, shorter versions of these indices are used.

Although the subject is relatively under-studied, from the existing literature some evidence emerges regarding the relation between employment status and job quality. In countries with a strong polarization of the labour market, a larger number of low-quality jobs are found (Gallie, 2007). While there are only small differences in working conditions between permanent and non-permanent contracts, there is a weak but significant relationship between having a non-permanent contract and low time control and lack of skills (Eurofound, 2002). There is also a significant relationship between having a non-permanent contract and low job control (Eurofound, 2002). Similar relations with less favourable job quality outcomes are seen for indicators of employment precariousness and for a typology of employment quality types (Van Aerden et al., 2014; Bosmans et al., 2016; Julià et al., 2017b; Pyöriä and Ojala, 2016). Van Aerden et al. (2014) show specific patterns in job quality (job control, co-workers support, superior support, unwanted social contacts at work, time pressure, environmental exposures and ergonomic exposures) for each of the five job types they revealed, with the categories of precarious workers in the least beneficial position. Nevertheless, the general picture of the relation between employment status and job quality knows notable exceptions. In some cases, nonstandard employment presents itself as an interesting challenge, a welcome response to worker-desired flexibility or as a stepping-stone into the labour market (Bosmans et al., 2017; Girard, 2010; Jahn and Rosholm, 2014).

Self-employed, in general, experience more autonomy, self-determination, freedom and motivation in their job (Dijkhuizen et al., 2016; Nordenmark et al., 2012; Stephan and Roesler, 2010). Some studies have pointed towards considerable variation in job quality among the self-employed, with small business owners and dependent self-employed being in a less favourable situation than economically independent self-employed, liberal professionals and large employers (Eurofound, 2017c).

Employment status and quality of working life

Eurofound (2002) has also studied the relation between job features and quality of working life. Quality of working life, includes people’s subjective assessments of their working situation (such as health and well-being, work life balance, financial security, satisfaction with working conditions, sustainability of work). With this concept, Eurofound (2002) refers to the subjective assessment of **people’s working life experience** as independent from their objective job quality, related to their private circumstances and preferences.

The quality of working life appears to be dependent of specific employment statuses, but also of intrinsic job characteristics (job quality features), household-related factors and workers’ and family’s preferences with regard to employment (Bosmans, 2016; Callea et al., 2016). Just two examples can illustrate this statement. With regard to part-time employment and poverty: studies have both highlighted part-time employment as a welcome supplement to the household income and as a source of in-work poverty for underemployed workers (Booth and Van Ours, 2013; Horemans et al., 2016). In a similar fashion, temporary employment serves as an answer to the flexibility needs of some young people, while for others it is a barrier for their transition to adulthood, or a source of mental health problems (Bosmans et al., 2016; Canivet et al., 2016). For precarious employment – defined as an employment situation involving multiple sub-optimal employment characteristics (such as instability, low pay, lack of social rights, temporal flexibility, lack of voice) – clear relations with adverse outcomes of the quality of working life have been found (Julià et al., 2017a). Independent from intrinsic job quality, relations with general and mental health, low work satisfaction, and adversely perceived safety climate have been found (Van Aerden et al., 2016, 2015; Canivet et al., 2016; Lewchuk, 2017; Underhill and Quinlan, 2011; Vives et al., 2010)

Also among self-employed, heterogeneity has been shown, with in particular dependent freelancers/own account workers and small-employers being worse-off for a number of well-being outcomes, compared to larger and economically independent self-employed (Cocker et al., 2013; Eurofound, 2017c; Syrett, 2016).

Country-level variation

Based on earlier research, it can be assumed that country-level variation exists in the distribution of employment statuses (Eurofound, 2017b; Green and Livanos, 2017; Puig-Barrachina et al., 2014), as well as their association with job quality (Eurofound, 2002; Gallie, 2011) and quality of working life (Benach et al., 2004). Also, international variation in the levels of precarious employment and employment quality are found (Van Aerden et al., 2014; J. Benach et al., 2014; Lamberts et al., 2016). In general, the precarious job types are more prevalent in Southern and Eastern European countries, while jobs still corresponding to the standard employment relationship-pattern are more strongly present in Northern and Central European countries (Julià et al., 2017a). For the self-employed, there is important variation between countries in the proportion and types of self-employed (Eurofound, 2017b).

These findings suggest the existence of more or less stable country-patterns in employment status and its consequences. Scholars have experimented with typologies based on production regimes (Hall and Soskice, 2001), power recourses (Korpi, 2006), gender institutional regimes (Korpi et al., 2013), employment regimes (Gallie, 2007) and entrepreneurship typologies (Liñán and Fernandez-Serrano, 2014). Some interesting recent studies are showing the possibilities and limitations of using country typologies (Holman, 2013; Kim et al., 2012; De Moortel et al., 2015). Based on its sound theoretical basis and its satisfactory predictive properties, we believe the typology of Gallie (2011) is most appropriate to use for this study. This typology makes a distinction between five types of countries: Anglo-Saxon, Northern, continental coordinated, Southern state coordinated and Central Eastern and Baltic countries.

Typologies are insightful, but often unable to grasp the entire diversity of country-patterns and historical evolutions in the labour market (Gallie, 2011). Some scholars have argued that it is more fruitful to concentrate on separate macro-level characteristics of countries, instead of country-typologies (Bergqvist et al., 2013). In the context of cross-national variations in job and employment quality, a number of country-level factors have been suggested: economic conjuncture, national-level unemployment rates, gross domestic product (growth) rates, degree of integration in the global economy, skill-level of the workforce, dominant types of technology and innovation, institutional factors such as labour market regulation and relative power of organised labour (Burchell et al., 1999; Greenan et al., 2013; Holman, 2013; Lorenz and Valeyre, 2005). In this research, both the contribution of a theory-based selection of macro-level indicators and the typology of Gallie are investigated.

Policy context

In this chapter, we will give a short overview of the policy debate on labour market evolutions and forms of employment at the international (EU) policy level. We will do this by referring to the main actors and their most recent publications.

The definition of non-standard work

New forms of employment (non-standard forms) are changing the labour market at a growing rate. But how is non-standard work defined at the European level? A definition is provided by the European Commission: *‘Non-standard employment is defined as including the self-employed, employees with a temporary or fixed-term contract, and those working part-time or fewer than 30 hours per week, as well as family workers (who tend to be ignored in the usual definitions but who are obviously in employment that deviates from the norm)* (European Commission, 2015).

An important future evolution in non-standard forms of employment is expected in the so called 'gig-economy' (International Labour Office, 2016b). Examples of these new forms of employment are temporary work, informal self-employed work, informal entrepreneurs, part-time workers, unpaid family workers, casual work, on-call work and dependent self-employment (there is an extensive list available at the ILO website) (International Labour Office, 2017, 2015a). These forms of employment come with several risks such as in work-poverty and inequality (ETUI, 2017a). Currently efforts are made to gain insights in these new non-standard forms of employment by for example developing a framework on job quality or developing a typology on the types of new employment forms (Eurofound, 2015c; OECD, 2016).

Policy measures at the European level

The European Union believes that the responsibility for social policy and employment lies primarily with the national governments. The EU makes efforts to coordinate, support and monitor the national policies (European Union, 2017). It is however possible to identify a number of policy measures targeting non-standard employment at the EU-level. In addition, also the OECD and the ILO are shaping the international policy debate on forms of employment.

The European Union and the European Commission

The European Union's employment policy is in part channelled through the European Employment Strategy. The aim of this strategy – as it was already declared under the **Lisbon Strategy** – is to create more and better jobs, and to establish common objectives and targets for the employment and labour market policy on national levels. The **employment package** and the **flexicurity strategy** are part of the European Employment Strategy. The employment package's focus is on job creation, while the flexicurity strategy aims to enhance both flexibility and security in European labour markets.

Another relevant policy programme is the **European Pillar of Social Rights** that was proclaimed by the European Commission in 2017. The EU Pillar of Social rights devices to build a more inclusive and fairer EU, by implementing a stronger social dimension in European level policy-making. One particular aim of the Social Pillar is to modernise the rules for employment contracts and broaden the scope of traditional employment to new and atypical forms of work. Currently the European Commission is in discussion with various stakeholders, unions, and employer's organisations in order to revise the Written Statement

Directive² (with all the new forms of employment), and to improve the social protection of non-standard workers.

A concrete example of these debates turning into actual policy is the Temporary and Agency Directive (2008/104/EC). The aim of this directive is the protection of these non-standard workers by ensuring the principle of equal treatment. Other European Directives, trying to eliminate risks of precariousness in non-standard work, are directives on part-time work, fixed-term contracts, outsourcing, and posted work (European Parliament, 2016).

Another form of policy-making by the European Commission and Parliament in order to reduce the risk of precariousness in non-standard employment, is soft law. This mostly refers to non-binding policy recommendations for national levels, through the mutual learning programme embedded in the so-called Open Method of Coordination³ Through knowledge-sharing on good business practices, countries are stimulated to advance on labour market-related issues.

The EU also actively supports scientific research in the field of employment. Apart from the activities related to EUROFOUND, there are several research projects focussing on new forms of employment. The European Union has several programmes, financed by the EU programme for Employment and Social Innovation (EaSI), that focus on promoting a high level of quality and sustainable employment. Examples are the projects PROGRESS, EURES and Progress Microfinance. The European Commission has also attempted to make an inventory of the ‘regulatory gaps in social protection systems to examine the added value of EU action in this area’. This is done through a consultation of different stakeholders (see: First stage consultation of the European Pillar of Social Rights).

The OECD and the ILO

The OECD and ILO also mainly operate via soft law, information provision and recommendations.

The OECD formulates policy advice within its Jobs Strategy (OECD, 2017a). The aim of this strategy is to achieve an inclusive labour market with increased labour market participation, a fair distribution of opportunity, and make labour markets more adaptable and resilient. OECD is also engaged in labour market and employment research. The Future of Work-project is a good example. The main objective of this project is to study ‘how demographic change, globalisation and technological progress are affecting job quantity and quality, as well as labour market inclusiveness - and what this means for labour markets, skills and social policy.’ (OECD, 2017b).

The International Labour Organisation (ILO) has also formulated a list of conventions, in order to reduce the risk of precariousness. These conventions include elements such as the part-time work convention, the right to organise collectively and collective bargaining convention (International Labour Office, 2013).

The current debate

Many European institutions raise concerns about the changing labour market relations. But also **ILO** (2015b) expresses a general concern over the possible outcomes of non-standard work, such as increased inequality. The **European Economic and Social Committee (EESC)** (2016) warns that these new forms of work can quickly result into a race to the bottom in terms of wages, working conditions and social protection of workers. These concerns are the reason why the **European Commission** states that employment strategies

² The Written Statement Directive (EC Directive 91/533/EEC) describes that employers must always inform their employees of the conditions that apply to the employment relationship and/or contract. More information concerning the directive can be found on the website of the European Commission <http://ec.europa.eu/social/main.jsp?catId=706&langId=en&intPageId=202>.

³ The Open Method of Coordination is a form of cooperation between EU member states in which they exchange good practices on the organization of policy and funding schemes. https://ec.europa.eu/culture/policy/strategic-framework/european-coop_en

should not just focus on creating jobs, but creating jobs of good quality (European Commission, 2016a).

Under initiative of the European Commission, the European Pillar of Social Rights includes a dimension that aims to improve the quality of jobs. It can be considered an attempt to actively intervene and modernise the rules on employment contracts at the EU-level. However, the employment-dimension of the EU-Pillar is also the subject of debate. Regarding this initiative, **Business Europe** (2017) points out that: (1) It is not appropriate to formulate social policy at the EU level, initiatives should be taken at the national level. (2) There is no trust between the different social partners and stakeholders, which would lead to a lack of success. The previous argument is shared by the **Etui** general director (ETUI, 2017b). (3) Still according to Business Europe, the European Commission uses a too broad term of non-standard work, it also creates a situation in which employers are restricted from using non-standard jobs which is disadvantageous for job creation/ job growth/ and flexibility in the labour market.

At the same time one particular think tank on EU affairs, the Centre for European Policy Studies, argues that EU-policy makers should not worry, but should actively encourage new forms of employment in order to create a stepping stone for more employment on the permanent labour market (Echikson, 2017).

The current challenges

There are several challenges related to the changes in the labour market. First, there is an increasing need for statistics related to the new flexible labour market – where attention is needed to workers' perceptions of the quality of their work environment (Arends et al., 2017; Eurofound, 2015c). Second, a collective, broad and inclusive debate is required on the place of non-standard employment in contemporary European labour markets (European Economic and Social Committee, 2017). Third, research should be done into how international labour standards can be applied to the situation of non-standard employment and what the gaps are in these standards (International Labour Office, 2015b). Fourth, there are important differences across countries, which make it difficult to arrange a European benchmark for social protection for non-standard workers (Erhel and Guergoat-Larivière, 2010). Fifth, social protection is a prominent issue (Eurofound, 2017b).

Regarding the issue of social protection, the European Commission identifies four gaps in legislation, which they present in their consultation document for the social partners in the framework of discussion on the Pillar of Social Rights: (1) Gaps in formal coverage: statutory obstacles for people in non-standard forms of employment to receive access to social protection; (2) Gaps in effective coverage: Even if formal coverage is in place, people in non-standard employment still have difficulty with access due to stringent eligibility criteria; (3) Insufficient transferability of rights: the difficulty in transferring rights and entitlements in case of shifting job statuses (working periods of self-employment, periods in SER, periods in non-standard forms); (4) Insufficient transparency of rights and regulatory complexity: people are rarely aware of their rights and obligations.

The European Commission has also attempted to make an inventory of the 'regulatory gaps in social protection systems to examine the added value of EU action in this area'. This is done through a consultation of different stakeholders (First stage consultation of the European Pillar of Social Rights). The main issue here seems to be the question of whether non-standard jobs are 'stepping stones' to better jobs or 'dead ends' leaving workers stuck in the 'secondary labour market' (European Commission, 2015).

Outline of the methodology

In this section the methodology applied in the empirical parts of this study is described. From a methodological point of view, the project mainly consists of secondary analyses of the EWCS (mainly the 6th EWCS (2015)). However, the results of these statistical analyses informed a ‘consultation part’, involving the observations of a purposefully selected group of experts regarding our empirical results and their potential policy consequences.

Secondary analyses of the EWCS

Data

Our main source of statistical information on employment status, job quality and quality of working life, are the various rounds of the EWCS. The EWCS is a large-scale survey of the European working population (employees and self-employed), organised by EUROFOUND every 5 years, since 1991⁴. Respondents in the EWCS are surveyed face-to-face on a broad range of factors related to their work. All information is self-reported and cross-sectional. The EWCS excludes people out of employment at the moment of the interview, leaving the inactive population out of scope. The EWCS for this study was limited to the 28 EU Member States. In some of the descriptive analyses, data from the pooled 2005, 2010 and 2015-editions has been used, amounting to a total weighted number of 98,706 workers. The 2015-edition alone includes data on a weighted sample of 35,610 workers from the 28 EU-countries. Where necessary, results presented in this report have been weighted according to the appropriate sampling weights.⁵

Finally, as an introduction to the labour market configuration in European countries, time series data of the European Labour Force Surveys (LFS) have been used. These data are derived from the publicly accessible EUROSTAT⁶ data base.

Indicators

The indicators that have been used in our analyses of the EWCS are shown in tables 1 to 4. This list of indicators includes: specifications of ‘employment status’ (table 1), indicators of ‘job quality’ (table 2), ‘quality of working life-indicators’ (table 3) and a selection of demographic and socio-economic control and stratification variables (table 4). In the tables, for each indicator, basic information on its composition and distribution over the sample is given. Besides, also a number of ‘country-level policy indicators’ was involved in our analyses. These indicators are mentioned in table 5. A more detailed description of the country level indicators can be found in Appendix 3.

⁴For detailed technical information on the EWCS, we refer to the webpage: www.eurofound.europa.eu/surveys/european-working-conditions-surveys

⁵Analyses performed on the entire EU28-sample are weighted using ‘W5_EU28’, which is a weighting factor correcting for the sample distribution within countries, as for the size of the working population of countries; for stratified analyses at the country-level, ‘W4’ has been used, only correcting for the sample distribution within countries.

⁶All included LFS-macro data originates from this webpage: <http://ec.europa.eu/eurostat/data/database>

Table 1: Specification and description of indicators of employment status

Employment status (main indicator)

Construction. This indicator is created for the 2015 data only. The indicator is constructed out of different source variables. For employees, type of contract was used (Q11). Based on a dichotomy, ‘more or less than 1 year’, contract duration (Q12) was used to distinguish between shorter (less than 1 year) and longer (more than 1 year) temporary contracts. All other types of contracts (agency, apprentice, no contract) were collapsed to the ‘other employees-category’. For the self-employed, the variable Q7 was used to distinguish between employees and self-employed, while a distinction was made between those with and without employees, based on the variable Q9c. Further, for self-employed, also a distinction was made between ‘dependent’ and ‘independent’ self-employed without employees (based on Q9a,b,d): those with a score on 2 or 3 items were classified as ‘dependent’. For self-employed with employees, dependency was not considered. Self-employed who did not have clear information on having employees were considered as self-employed without employees. Also if no information on dependency was available, the self-employed were assumed to be independent.

Characteristics. Employment status is a categorical indicator consisting of 7 categories: (1) an indefinite contract; (2) a fixed term contract of more than 1 year; (3) a fixed term contract of less than a year; (4) other employees; (5) Self-employed without employees – dependent; (6) Self-employed without employees – independent; (7) Self-employed with employees.

Related indicators.

Employment status (long term). This indicator is created in order to enable making time series for the period 2005 - 2015. The indicator consists of 5 categories: (1) an indefinite contract; (2) a fixed term contract of more than 1 year; (3) a fixed term contract of less than a year; (4) other employees; (5) self-employed.

Agency is a dummy indicator derived from the same source variable as employment status, distinguishing between (1) all other workers and (2) employees with an employment agency contract.

Apprentice is a dummy indicator derived from the same source variable as employment status, distinguishing between (1) all other workers and (2) employees with an apprentice contract.

No contract is a dummy indicator derived from the same source variable as employment status, distinguishing between (1) all other workers and (2) employees without a (written) contract.

Unstable employment status is a dummy indicator derived from the same source variable as employment status, distinguishing between (1) all other workers and (2) unstable employment status. The latter is a combination of employment status categories that can be considered particularly unstable in terms of continuation of paid work: short term (less than 1 year) temporary work; employment agency work; dependent solo self-employment.

Part-time employment (main indicator)

Construction. This indicator is created using question Q24: those respondents indicating working less than 35 hours a week are qualified as part-time.

Characteristics. Part-time employment is a dummy indicator consisting of the following categories: (1) full-time (35 hours/week or more); (2) part-time (less than 35 hours/week).

Related indicators.

Small part-time employment. This indicator is created using question Q24: those respondents indicating working less than 20 hours a week are qualified as part-time, leading to the following dummy variable: (1) more than 20 hours/week; (2) less than 20 hours/week.

Involuntary part-time employment. This indicator is created by combining the questions Q24 and Q25: those workers indicating to work part-time (<35h/week) and indicate wanting to work full-time, are considered involuntary part-time. The result is the following categorical variable: (1) full-time; (2) part-time, not wanting to work full-time; (3) part-time, wanting to work full-time.

Table 2: Specification and description of indicators of job quality

Hourly earnings (in euros, converted in purchasing power parities – ppp’s)

Construction. This indicator is based on the question q104 in the questionnaire, using the coding suggested by EUROFOUND.

Characteristics. The ‘hourly earnings’ indicator is a scale with 0.21 euros per hour as the observed minimum and 148.34 euros per hour as the observed maximum.

Physical environment

Construction. This indicator is based on the following questions in the questionnaire, using the coding suggested by EUROFOUND: Q29a-i (physical risks) and Q30a,b,c,e (posture related risks).

Characteristics. The indicator for ‘Physical environment’ is a scale ranging from 0 to 100, where the maximum score represents the best possible physical environment.

Work intensity

Construction. This indicator is based on the following questions in the questionnaire, using the coding suggested by EUROFOUND: Q49a,b (high speed, deadlines); Q61o (hide feelings); Q61g (time pressure); Q30g,h (emotional demands).

Characteristics. The indicator for ‘work intensity’ is a scale ranging from 0 to 100, where the maximum score represents the highest possible work intensity.

Social environment

Construction. This indicator is based on the following questions in the questionnaire: Q61a (co-worker support); Q80a,b,c,d (abuse); Q81a,b,c (harassment). This was done using the coding suggested by EUROFOUND.

Characteristics. The indicator for ‘social environment’ is a scale ranging from 0 to 100, where the maximum score represents the best possible social work environment. For the hierarchical models, the scale has been converted into a dummy, using the 75th percentile as a cut-off value.

Skills and discretion

Construction. This indicator is based on the following questions in the questionnaire, using the coding suggested by EUROFOUND: Q65c (on-the-job-training); Q53c,e,f (unforeseen problems, complex tasks, learning new things); Q54a,b,c (skill discretion); Q61c,e,i,n,d (discretion, participation); Q30i – comp (working with computers); Aved2 (average educational level in ISCO 2-digit); Manprof (managerial and professional occupations); Training (Having received training paid by employer or by self if self-employed – Q65a,b)

Characteristics. The indicator for ‘skills and discretion’ is a scale ranging from 0 to 100, where the maximum score represents the highest possible skills and discretion score.

High strain

Construction. This indicator is based on the following indicators from the questionnaire: Q54a,b,c (autonomy); Q53a,b,c,e,f (skill discretion); 49a,b (work intensity). All items are summed to their respective scales and standardised to a 0-100 range. Subsequently a control score is calculated by taking the mean of autonomy and skills and discretion. Job quadrants are calculated based on the tertile cut-off of job control and job demands. The combination with low control and high demands is considered as (acute) job strain.

Characteristics. ‘High strain’ is a dummy indicator consisting of the following categories: (1) no high strain; (2) high strain.

Receiving training (training)

Construction. This indicator is based on the questions Q65a and b, where cases with training received (either paid by the employer or by the worker him/herself) are contrasted with cases where neither one of both possibilities happened.

Characteristics. ‘Training’ is a dummy indicator consisting of the following categories: (1) no training received; (2) training received.

Working time quality

Construction. This indicator is based on the following questions in the questionnaire, using the coding suggested by EUROFOUND: Q24 (working hours per week); Q37a,b,c,d (combination of frequency of night, Saturday, Sunday and work days of more than 10 hours); Q42, Q43 (setting/regularity working time arrangements); Q47 (taking time off); Q46 (working in free time); Q40 (come to work in short notice).

Characteristics. The indicator for ‘working time quality’ is a scale ranging from 0 to 100, where the maximum score represents the highest possible working time quality score.

Regularity (working the same number of hours per day and per week, same number of days per week and fixed starting and finishing times)

Construction. This indicator is based on the following questions in the questionnaire, using the coding suggested by EUROFOUND: Q39a,b,c,d (regularity of numbers and starting hours of working hours, days).

Characteristics. ‘Regularity’ is a categorical indicator consisting of the following categories: (1) low regularity; (2) medium regularity; (3) high regularity. In several analyses the category (1) low regularity is contrasted with the categories (2&3) medium and high regularity.

Table 2: Specification and description of indicators of job quality (continued)

Being called to work at short notice

Construction. This indicator is based on question Q40, where those workers being called to work at short notice daily, several times a week and several times a month are considered as workers called to work at short notice.

Characteristics. Being called to work at short notice is a dummy indicator consisting of the following categories: (1) not being called to work at short notice; (2) being called to work at short notice.

Difficulties in arranging an hour or two time off during working hours for personal or family matters

Construction. This indicator is based on question Q47, where those workers having difficulties to arrange time off (very difficult and fairly difficult) are considered as those workers reporting difficulties.

Characteristics. ‘Difficulties in arranging time off’ is a dummy indicator consisting of the following categories: (1) not difficult to arrange time off; (2) finding it difficult to arrange time off.

Employment prospects

Construction. This indicator is based on the following questions in the questionnaire, using the coding suggested by EUROFOUND: q89b (career progression); q89g (job insecurity); q19 (change of number of employees at work place). Type of contract (q11) is not included in this modified indicator, as it is part of the employment status indicators

Characteristics. The indicator for ‘employment prospects’ is a scale ranging from -300 to 100, where the maximum score represents the best possible employment prospects score. For the hierarchical models, the scale has been converted into a dummy, using the 75th percentile as a cut-off value.

Job security

Construction. Job security is a scale based on question q89 (might lose my job in the coming 6 months), where all answering categories are converted to a decimal score between 0 and 1 assuming equal distances.

Characteristics. The indicator for ‘job security’ is a scale ranging from 0 to 1, where the maximum score represents the highest possible job security.

Table 3: Specification and description of the indicators for the quality of working life

Satisfaction with working conditions

Construction. This indicator is based on the following question in the questionnaire: q88. The original categories are dichotomised into not very satisfied + not at all satisfied; and very satisfied + satisfied.

Characteristics. ‘Satisfaction with working conditions’ is a dummy indicator consisting of the following categories: (1) Not very satisfied to not at all satisfied; (2) very satisfied to satisfied.

Related indicators.

Low satisfaction with working conditions. For this indicator used in the mediation analyses, the original answering possibilities are converted into a scale ranging from 0 to 1, where the highest scores represent respondents with the lowest possible satisfaction with their working conditions.

Subjective financial insecurity (difficulty to make ends meet)

Construction. This indicator is based on the following question in the questionnaire: q100. The original categories are dichotomised into: very easily + easily + fairly easily; with some difficulty + with difficulty + with great difficulty?

Characteristics. ‘Subjective financial insecurity’ is a dummy indicator consisting of the following categories: (1) no difficulty to make ends meet; (2) difficulty to make ends meet.

Motivation

Construction. This indicator is based on the following question in the questionnaire: q89e – ‘The organisation I work for motivates me to give my best job performance’. The original answering categories were dichotomized in a way that ‘strongly agree’ and ‘agree’ are contrasted with ‘neither agree nor disagree’, ‘tend to disagree’ and ‘strongly disagree’.

Characteristics. ‘Motivation’ is a dummy indicator consisting of the following categories: (1) indifferent to disagree; (2) (strongly) agree.

Related indicator.

Motivation (scale). For this indicator used in the mediation analyses, the original answering possibilities are converted into a scale ranging from 0 to 1, where the highest scores represent respondents with the highest possible work motivation.

Engagement

Construction. This indicator is based on the following questions in the questionnaire, using the coding suggested by EUROFOUND: Q90a-f

Characteristics. The indicator for ‘engagement’ is a scale ranging from -8.33 to 150, where the maximum score represents the highest possible engagement score.

Health and safety at risk (do you think your health or safety is at risk because of your work?)

Construction. This indicator is based on the original “q73”-question from the questionnaire.

Characteristics. ‘Health and safety at risk’ is a dummy indicator consisting of the following categories: (1) yes; (2) no.

Absenteeism (In the last 12 months, have you been absent from work for reasons of health problems?)

Construction. This indicator is based on the following indicators from the questionnaire: q82. All respondents who have been absent at least one day during the reference period are allocated to the exposure category.

Characteristics. ‘Absenteeism’ is a dummy indicator consisting of the following categories: (1) no; (2) yes.

Presenteeism (Did you work when you were sick??)

Construction. This indicator is based on the following indicators from the questionnaire: q84a. All respondents who have been present at least one day during the reference period are allocated to the exposure category.

Characteristics. ‘Presenteeism’ is a dummy indicator consisting of the following categories: (1) no; (2) yes.

Adverse behaviour (having been exposed to any type of adverse social behaviour)

Construction. This indicator is based on the following indicators from the questionnaire: q80a-d and Q81a-c. It is a summed scale recoded to a dummy, isolating those who report at least one of the abusive treatments.

Characteristics. The indicator for ‘adverse behaviour’ is a scale ranging from 0 to 7, where the maximum score represents the highest possible exposure to adverse behaviour.

Work-private interference

Construction. This indicator is based on the following indicators from the questionnaire: q45a-e. A summed scale was created with the reversed item scores. High scores on the scale mean high interference of work with family/private life.

Characteristics. The indicator for ‘work-private interference’ is a scale ranging from 0 to 100, where the maximum score represents the highest possible exposure to work-private interference.

Table 3: Specification and description of the indicators for the quality of working life (continued)

Mental well-being (WHO 5 - Well-being index)

Construction. This indicator is based on the following questions in the questionnaire, using the coding suggested by EUROFOUND: Q87a-e: WHO5 well-being items are included in a sum scale (high scores signify good well-being).

Characteristics. The indicator for ‘mental well-being’ is a scale ranging from 0 to 100, where the maximum score represents the best possible mental well-being.

General self-rated health

Construction. This indicator is based on the following indicators from the questionnaire: q75. The original indicator has been dichotomised: very bad + bad + fair; good + very good.

Characteristics. ‘Self-rated health’ is a dummy indicator consisting of the following categories: (1) very good to good; (2) fair to bad.

Related indicator.

Self-rated health (scale). For this indicator used in the mediation analyses, the original answering possibilities are converted into a scale ranging from 0 to 1, where the highest scores represent respondents with the worst possible self-rated health.

Table 4: Specification and description of the indicators for socio-demographic and workplace characteristics

Sex

Construction. This indicator is created using the original question ‘Q2a’ from the EWCS.

Characteristics. Dummy indicator: (1) men; (2) women.

Age, categorised in 5 categories

Construction. This indicator has been categorised based on the originally questionnaire-item ‘Q2b’

Characteristics. This categorical indicator consists of 5 categories: (1) under 25; (2) 25-34; (3) 35-44; (4) 45-54; (5) 55+

Related indicators.

Age, categorised in 3 categories. This categorical indicator consists of 3 categories: (1) under 35; (2) 35-49; (3) 50+.

Age, dummy for younger workers. In this dummy variable the category (1) under 35 is contrasted with (0) all other workers.

Education (educational attainment, subdivided in 3 categories)

Construction. This indicator is based on the ISCED long term classification, were the following coding scheme was applied to reduce the scale to three categories: (0,1=1) (2,3,4 =2) (5, 6=3). The broad ISCED in turn is based on Q106 in the questionnaire

Characteristics. This categorical indicator consists of 3 categories: (1) primary; (2) secondary; (3) tertiary.

Citizenship (Were you or your parents born in another country then the country of residence?)

Construction. This indicator is based on Q4a and Q4b. In line with the indicator suggested by EUROFOUND, three possible combinations are made between own and (one of) the parents country of birth.

Characteristics. This categorical indicator consists of 3 categories: (1) born in country, parents born in country; (2) born in country, parents not born in country; (3) not born in country, parents not born in country.

Lifestage (extended indicator)

Construction. This indicator provides an extended household composition and household roles indicator, in line with the indicator suggested by EUROFOUND.

Characteristics. This categorical indicator consists of 3 categories: (1) Single 18-35 years, living with parents/other relatives; (2) Single <= 45 years, not living with parents, without children; (3) Couple without children, woman <= 45 years; (4) Couple with youngest child <7 years; (5) couple with youngest child >=7 & <12 years; (6) couple with youngest child >= 12 years; (7) couple without children/empty nest, woman 46-59 years; (8) couple without children/retiring couple, both >=60 years; (9) single >=50, without children; (10) household not classified in 0-8.

Seniority (how many years have you been in your company or organisation?)

Construction. This indicator is based on question ‘Q17’ in the questionnaire, using the coding suggested by EUROFOUND: the numerical original item has been subdivided in four categories.

Characteristics. This categorical indicator consists of 4 categories: (1) less than a year; (2) 1 to 4 years; (3) 5 to 9 years; (4) 10 or more years.

Income (within-country income quintiles weighted with W4)

Construction. This indicator is based on the pre-calculated income variables provided by EUROFOUND

Characteristics. This categorical indicator consists of 5 categories: (1) lowest quintile; to (5) highest quintile.

Occupational categories (Isco 88 classification of occupations)

Construction. This indicator is based on Q5 and used as was prepared by EUROFOUND according to the ISCO-classification of occupations.

Characteristics. This categorical indicator consists of 10 categories: (1) armed forces occupations (results not shown); (2) managers; (3) professionals; (4) technicians and associate professionals; (5) clerical support workers; (6) service and sales workers; (7) skilled agricultural, forestry and fishery workers; (8) craft and related trades workers; (9) plant and machine operators, and assemblers; (10) elementary occupations.

Economic sectors (NACE Rev 1.1 recoded into 11 categories)

Construction. This indicator is based on Q13 and Q14 and used as was prepared by EUROFOUND according to the NACE-classification of economic sectors.

Characteristics. This categorical indicator consists of 10 categories: (1) agriculture; (2) industry; (3) construction; (4) commerce and hospitality; (5) transport; (6) financial services; (7) public administration and defence; (8) education; (9) health; (10) other services.

Table 4: Specification and description of the indicators for socio-demographic and workplace characteristics (continued)

Gallie typology

Construction. The production regimes typology developed by Duncan Gallie (2011) is used as an ‘interpretative lens’ throughout the descriptive results and the analyses involving structural equation modelling. As this typology did not mention some of the current EU-countries, the research team added these countries to the most appropriate category (mentioned in italics).

Characteristics. This categorical indicator divides the EU-countries into 5 categories: (1) ‘Anglo-Saxon’ (Ireland, The U.K.); (2) ‘Northern’ (Denmark, Finland, Sweden); (3) ‘continental coordinated’ (Austria, Belgium, Germany, Luxembourg, *the Netherlands, Slovenia*); (4) ‘Southern state coordinated’ (Cyprus, *France, Greece, Italy, Malta, Portugal, Spain*); (5) ‘Central Eastern and Baltic’ (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia).

Table 5: Overview of the macro-level indicators used in the multivariable hierarchical models, organised according to broad theoretical categories^o

Dimension/ indicator	Description	Unit
Economic development		
GDP per capita in ppp	Gross domestic product per capita expressed in purchasing power parities	Percent
Data: https://ec.europa.eu/eurostat/web/products-datasets/-/tec00114		
Innovative nature of the economy		
R&D expenditure/GDP	The amount of R&D expenses of an economy as a percentage of GDP.	Percent
Data: http://ec.europa.eu/eurostat/web/products-datasets/-/t2020_20&lang=en		
Employment knowledge-intensive activities	The percentage of employment in knowledge-intensive industries as a share of total employment.	Percent
Data: http://ec.europa.eu/eurostat/data/database?p_id=NavTreeportletprod_WAR_NavTreeportletprod_INSTANCE_nPqeVbPXRmWQ&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_count=1 → htec_kia_emp2		
Skill level of workforce/ productivity		
Share of tertiary educated 25-64 years old	The share of tertiary educated among the working aged population.	Percent
Data: http://ec.europa.eu/eurostat/data/database?p_id=NavTreeportletprod_WAR_NavTreeportletprod_INSTANCE_nPqeVbPXRmWQ&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_count=1 → edat_ifse_03		
Economic globalisation/ integration in the global market/ competitiveness		
Employment in foreign enterprises	Employment in foreign controlled enterprises as a share of total domestic employment.	Percent
Data: http://ec.europa.eu/eurostat/web/products-datasets/-/tps00004		
Labour cost per hour	Represents the expenditure (in euro) by employers, with the purpose of employing staff.	Euros
Data: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lc_lci_lev&lang=en%20-%202015 → lc_lci_lev		
Working class power/institutionalisation		
Union density	Net union membership as a proportion of wage earners in employment.	Percent
Data: http://www.uva-aias.net/en/ictwss		
Collective bargaining coverage	Proportion of all wage earners covered by collective bargaining procedures;	Percent
Data: http://www.uva-aias.net/en/ictwss		
High Collective bargaining centralization	Summary measure of degree of centralisation of wage bargaining.	Scale
Data: http://www.uva-aias.net/en/ictwss		
Labour market performance		
Unemployment rate	Unemployed persons are persons aged 15-64 according to the EUROSTAT definition.	Percent
Data: http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do → Ifsa_urgan		
Social protection for the working aged population		
Net social protection benefits	Net social protection expenditure as a percentage of GDP.	Percent
Data: http://ec.europa.eu/eurostat/statistics-explained/index.php/Social_protection_statistics		
Active labour market policies	People receiving active labour market support per 100 persons wanting to work.	Percent
Data: http://ec.europa.eu/eurostat/web/labour-market/labour-market-policy/database → Imp_ind_actsup		
Passive labour market policies	People receiving passive labour market support per 100 persons wanting to work.	Percent
Data: http://ec.europa.eu/eurostat/web/labour-market/labour-market-policy/database → Imp_ind_actsup		

^o The following indicators were tested in bivariate analyses, but not retained in the final analyses because of a lack of significant contribution: Real GDP growth rate; GDP/hour worked; Exports of goods and services as % of GDP; Temporary employment rate; Unemployment benefits expenditure. See Annex 3 for a detailed description of the macro indicators.

Analytical approach and applied statistical techniques

Descriptive analyses. In a first paragraph, our concepts for measuring employment status are presented. At the same time a descriptive overview of the prevalence of different ‘employment statuses’ (expressed as a percentage of the total working population) over countries and over time (2005, 2010 and 2015) is provided – as well as some of the most interesting socio-demographic breakdowns. In most cases, these descriptive analyses are the result of own calculations based on the EWCS. The results reported have been weighted, using purposefully constructed weighting-variables provided by EUROFOUND: in cases where Europe-wide analyses are presented, W5-EU28 (correcting for sampling bias at the country level and country population size) has been used; in cases where specific results at the country-level are presented, ‘W4’ (correcting for sampling bias at the country level) has been used.

Associations between employment status and job quality. The main aim of this study is to highlight the relations between employment status and job quality. For that purpose we only use data from the 6th EWCS (2015). In a first step, these associations are explored in descriptive bivariate analyses, including significance tests for the associations found. These descriptive analyses have been weighted using the W5-EU28 weighting factor. Subsequently – and partly based on the results of the descriptive analyses - a series of multi-variable hierarchical regression models has been fitted. The primary data units are individual respondents, while the second-level data unit are countries. Multi-variable regression models allow to statistically control the association between employment status and job quality for confounding effects coming from third variables. Moreover, the hierarchical (multilevel) modelling approach allows us to separate micro-/workplace-level and contextual effects and to estimate the independent direct effects of employment status on a series of indicators representing aspects of job quality and quality of working life (Hox, 2002). At the country-level, these data are complemented with macro-level policy indicators derived from EUROSTAT, The World Bank, ILO, the Amsterdam Institute for Advanced Labour Studies (AIAS) and the The Swedish Institute for Social Research (see table 5). We thus test to what extent country-variation in the selected job quality indices can be explained by (a) individual level and workplace characteristics of the working populations of these countries and (b – option 1) macro-indicators representing aspects of the socio-economic and policy environment of these countries or (b – option 2) the Gallie production regime indicator. Moreover, it allows to investigate whether employment status (remains) an independent predictor of job quality after controlling for relevant confounders. For some cases, OLS-regression is the most appropriate modelling approach, while for the other outcomes logit modelling has been used – the applied estimation technique is mentioned in the results tables. In fitting the models, a stepwise approach is applied (see box 1).

The following dependent variables have been assessed in the multilevel analyses: physical environment; work intensity; social environment; skills and discretion; high job strain; training received; low regularity; working time quality; job security; being called to work at short notice; difficulties in arranging time off; employment prospects.

Box.1 Generic modelling approach for predicting job quality as a dependent variable

For each of the job quality indicators mentioned above, a largely generic stepwise procedure has been followed. However, when deemed appropriate during modelling, this generic approach was modified. More specifically, the following steps have been made:

- Step 1: Null model, distinguishing level 1 (respondents) and level 2 (countries) variance
- Step 2: Bivariate models. For each independent variable, first a bivariate analysis is estimated
- Step 3: Employment status is added to the null model (EMPSTAT_2015 and Part-time)
- Step 4: All other job quality indices are added to step 3 (exceptions are made for multicollinear indicators)
- Step 5: The individual level variables are added to step 4
- Step 6: Workplace characteristics such as sector and occupational type are added to step 5

The above-mentioned steps were followed for modelling on data from all countries. However, in a later stage, we also stratified the analyses by production regime.

Proceedings after step 6: option macro-level indicators

- Step 7: Country-level variables are added in two steps
 - A. For each country-level variable, a bivariate analysis is estimated
 - B. The significant country-level variables are added to the model from step 6
 It should, moreover, be noted that all other discussed individual-level/workplace results are derived from the step 6 models including macro-level variables (which we consider our fully controlled final models).

Proceedings after step 6: option production regime indicator

- Step 7: The indicator for the Gallie production regimes is added to step 6

Based on this series of hierarchical models, three types of results are reported. First of all, crude and net (controlled for third variables) associations of employment status with job quality characteristics are reported. The crude associations are derived from the bivariate model, while the net associations are derived from step 7(B). The reported estimates represent the effect of belonging to a certain employment status (for example being self-employed with employees) on the level of a certain job quality indicator, using the status of ‘permanent employment’ as a reference group. The results are shown in table 10. Moreover, tables presenting associations with job quality for all mentioned independent variables are shown (table 11). Although it is not the central objective of this consultation, there are some very interesting results to show.

The cross-national dimension. In a next phase the impact of the country level has been assessed through adopting different approaches. First, associations between macro-level indicators at the country level and job quality characteristics (only significant effects) are shown. These estimates represent the standardised effect expressed as z-scores. The association between macro-level indicators and job quality characteristics gives an idea of the impact of certain national policies on the level of job quality in EU countries. The macro-level indicators have therefore been selected on theoretical grounds. The associations between production regimes and job quality characteristics are also shown. The results are shown in tables 12 and 13. We also conducted stratified multi-variable analyses in order to assess how the associations between employment status and job quality differ across the above-mentioned country groups. These stratified analyses were conducted on only a selection of the

dependent variables: physical environment, work intensity, social environment, skills and discretion, working time quality and employment prospects. Furthermore, we have used the same regression modelling approach as mentioned above, up to and including step 6 (Box 1). The results of the stratified analyses are shown in table 14.

Links between employment status and quality of working life. While direct relations between a certain employment status and job quality are relatively straightforward, this is less the case for relations between employment status and ‘more distal’ quality of working life characteristics. It can be assumed that this relation is of an indirect nature. Therefore, we estimated a number of ‘mediation models’ using the statistical technique of ‘structural equation modelling’ (SEM). SEM-modelling allows for testing specific theory-based pre-specified causal orders, allowing to separate direct and indirect effects (Byrne, 2011). SEM-models, make it possible to test whether a given employment status affects a given quality of work life-outcome directly or indirectly; and which pathways could modify that relationship. Two approaches have been followed for these mediation analyses.

First of all, we related a composite dichotomous indicator for ‘unstable employment status’ with job quality and quality of working life indicators in a series of mediation analyses. Based on the results of the descriptive analyses and the multilevel models, we selected three employment statuses: that is ‘short fixed-term contracts’, ‘temporary agency contracts’ and ‘dependent solo self-employed’. These three forms of employment are particularly unstable in terms of their continuity and show consistent relations with less-favourable job quality. We then investigated relations with the following outcome variables: ‘satisfaction with working conditions’, ‘work-private interference’, ‘work motivation’ and ‘self-rated general health’. The ‘physical work quality’, ‘work intensity’, the ‘quality of the social work environment’, ‘working time quality’ and ‘employment prospects’ served as mediators. For each outcome, the model construction procedure followed a similar pattern: (1) bivariate analyses for every indicator with the dependent variable separately; (2) a main effects model including one part explaining the relation between ‘employment status’ and ‘job quality’ and one part explaining the relation between ‘employment status’ and ‘job quality’ on ‘quality of working life’ (not shown in the tables); (3) a final model adding relevant interaction terms to the second model. Models 2 and 3 included additional controls for sex, age, educational attainment and the country typology. Results are reported in table 17.

Second, using a more selected number of indicators, a limited set of measurement models using SEM-techniques have been fitted. Specific models were selected based on the magnitude of the associations in descriptive analyses. Only those cases where strong mutual associations existed between a certain employment form, a number of job quality indices and a quality of working life outcome were eligible for testing. The models that were finally maintained are listed below:

- temporary employment and satisfaction with working conditions;
- dependent self-employment without employees and general health;
- self-employment with employees and work-private interference;
- involuntary part-time work and satisfaction with working conditions.

Also, in this case a stepwise approach has been followed. First, it was assessed whether some configurations of independent variables constituted a valid latent structure, using the technique of ‘confirmatory factor analysis’. Then, in a stepwise manner, measurement models were fitted. Each time we started from the contrast between two employment statuses (for example the contrast between temporary employment and permanent employment) in terms of a given quality of working life outcome. Then, a series of relevant job quality characteristics and confounders were added to the model. Relations between the indicators included in the model were specified so that the highest possible model fit was achieved. Fit indices that have been considered in deciding upon model fit are: RMSEA (Root Mean Square Error of Approximation – ideally <0.05), CFI-SB (Comparative Fit-index - Satorra-Bentler corrected – ideally >0.9) and SRMR (Standardized Root Mean Square Residual -

ideally <0.05). Finally, the measurement models are stratified according to the country typology developed by Duncan Gallie (2011). Results are reported in tables 18 to 21.

Policy analysis

The findings from the secondary analyses of the EWCS were communicated to a group of academic and non-academic experts. We particularly highlighted notable evolutions and policy-amenable issues/findings concerning two main topics: (1) important constellations and evolutions in employment status in/between EU-countries; and (2) relations between employment status and job quality and/or quality of working life. The selected experts were asked to react on the information provided to them, in order to be able to frame and validate our empirical results. A simple written and oral consultation procedure, inspired by the Delphi research method, was conducted (Murry and Hammons, 1995).

The aim of this endeavour was twofold:

1. To inquire into the experts' knowledge on **deeper explanations** for patterns and associations found. Experts were asked to frame their observations into their own theoretical and empirical knowledge of the field, including knowledge on regional/national factors that might be of interest;
2. To reflect on **policy consequences** of the highlighted findings: the experts were asked to formulate proposals and refer to best practices in order to alter undesirable situations on the labour market, or to spread desirable situations to other contexts.

In line with these two objectives, all selected experts received an email with the following specific questions:

We would appreciate your insights and comments regarding these specific issues: (1) Your personal knowledge on deeper explanations and interpretations for patterns and associations shown in our results; (2) To reflect on policy consequences of the highlighted findings; (3) Moreover, we also want to ask you to be particularly sensitive to findings related to your country and/or the economic sector you are most familiar with

Throughout the policy paper also more specific questions on certain results were asked. The experts were asked to document their observations by including, as much as possible, material (references, websites, legislation, etc.) supporting their reaction. The results of these written reactions were processed by the research team. Based on these reactions, a limited number of telephone interviews has been done with a smaller selection of experts, in order to receive more in-depth information and clarification. The results of this policy analysis are summarized in the conclusion. All participating experts (academic, social partners, EU and national-level policy-makers) are mentioned in Box 2 below. Experts were selected first of all from the steering committee of the project. Moreover, also other academic experts known to the research team, the EUROFOUND-team or the steering committee were selected.

Box.2 Selection of labour market and employment experts participating to the expert consultation

The following experts participated in stage one of the expert consultation. Experts with ^(*) also participated in the second stage of the consultation.

- Expert 1: Juha Antila, Work and Security, The Central Organisation of Finnish Trade Unions, Finland
- Expert 2: Julia Bock-Schappelwein, Labour Market, Income and Social Security, Academic background and National Expert, Austrian Institute of Economic Research (WIFO), Austria
- Expert 3: Dr. Brendan Burchell, The effects of labour market experiences on psychological well-being, Social psychologist, Academic background, University of Cambridge, United Kingdom
- Expert 4^(*): Prof. Dr. Antonio Callea, Job insecurity and Precarious employment, Psychologist, LUMSA Università Maria SS. Assunta di Rima, Italy
- Expert 5^(*): Prof. Dr. David Holman, Stress and emotions at work: emotional labour, job and work design, job quality, Organisational psychologist, Academic background, University of Manchester, United Kingdom
- Expert 6^(*): Sofia Lambousaki and Penny Georgiadou, National expert, Labour Institute of Greek General Confederation of Labour (INE/GSEE), Greece
- Expert 7: Prof. Dr. Janine Leschke, European and EU labour market and social policy, Copenhagen Business School (CBS), Denmark
- Expert 8^(*): Dr. María Lopez, Occupational Health Research, Universitat Pompeu Fabra Barcelona, Spain
- Expert 9: Prof. Dr. Philippe O'Connell, Equality in the labour market and National expert, Sociologist. UCD Geary Institute for Public Policy, Ireland
- Expert 10^(*): Prof. Dr. Valeria Pulignano, Industrial relations expert, Sociologist, Academic background, KU Leuven, Belgium
- Expert 11: Prof. Dr. Chris Warhurst, labour market and labour process developments, Economist/ Sociologist, Academic background, Warwick Institute for Employment Research, United Kingdom.
- Expert 12: Prof. Dr. Anne Green, Employment, non-employment, regional and local labour market issues, Economist/ Geographer, University of Birmingham, United Kingdom
- Expert 13: Ulrike Famira-Mühlberger, Labour Market, Income and Social Security, Economist, Austrian Institute of Economic Research (WIFO), Austria
- Expert 14^(*): Dr. Adele Whelan, Labour economics and industrial organisation, Economist, The Economic and Social Research Institute (ESRI), Ireland
- Expert 15: Prof. Dr. Roberto Pedersini, Employment relations, Sociologist, Universitat degli studi di Milano, Spain

Results

In this section of the report the main empirical results of the analyses of the EWCS are presented. The overview of results consists of three main sections:

- A descriptive overview of the distribution and evolutions in employment status, using the EWCS. The country and socio-demographic distribution of employment status is reported; and for the indices that are stable over time, evolutions during the 2005-2015-period are shown;
- The second section focuses on relations between employment status and job quality. This is done from a descriptive perspective in the first place, thereafter (hierarchical) regression methods are used to get a grasp on country and other third variable-effects;
- In the third main section, relations with quality of working life are studied. Here too, this is done first using a descriptive approach, then using structural equation modelling to dig further into the results;

Descriptive overview of employment status in Europe

Employment status: variation over countries and time

The main classification of employment status, used in this study, distinguishes between seven categories: indefinite (permanent) contracts, fixed-term contracts of longer duration (+ 1 year), fixed term contracts of short duration (less than 1 year), ‘other employees’, self-employed without employees in an (economically) dependent situation, (economically) independent self-employed and self-employed with employees. The distribution of employment status over EU-countries based on the 6th EWCS (2015) sample is shown in table 6. For indefinite contracts, fixed-term contracts, and the self-employed, also evolutions in the 2005-2015 period are shown (see figures 4 to 7)⁷. Only for these categories comparable data over time was unavailable. The time series are ordered according to the production regimes typology developed by Duncan Gallie (2011). Although the country typology shows clear outliers for each of the employment status categories, it proves to be useful as an ‘interpretive lens’. In table 7, some additional employment statuses are described at the country level.

Indefinite (permanent) employment (table 6, figure 4). Over the period 2005-2015, almost no change in the EU-average prevalence of permanent employment can be noted. This average hides strong divergence in prevalence and evolution for specific countries. Some countries – such as Luxembourg, Lithuania, Denmark, Finland – count about 80% of their workforce as employees with a permanent contract. In other countries – such as Cyprus and Greece – permanent employment is a minority phenomenon for only about 40% of the workforce. Patterns of evolution diverge as well, including relatively strong rises in the share of permanent employment (for example Lithuania or U.K.), but also relatively steep declines (for example the Netherlands). Adopting the typological perspective shows that Northern and most coordinated and Central Eastern and Baltic countries have a tendency of high shares of permanent employment. Southern state coordinated countries tend to have lower shares of permanent employment. Ireland and Poland lean towards the Southern state coordinated category in that regard. France rather resembles the continental coordinated group. Both the Netherlands and Croatia have become outliers in their country groups during the period 2005-2015.

⁷ These figures are not directly comparable with the macro-figures derived from the EU-Labour Force Survey, mentioned in the background section. While, the EWCS is representative for the EU labour force, the distributions shown here are primarily intended to be sample descriptions of the EWCS. Although all employment status indicators largely follow the same trend as those reported in the LFS, some differences exist. Moreover, LFS-data on non-standard employment use the total employed labour force as the denominator, while the figures reported based on the EWCS take the entire sample (= total active labour force) as the denominator. Also definitions (such as) part-time employment may differ.

Employment status and job quality

Table 6: Distribution of the sample according to the main employment status indicator in the EU-countries (6th EWCS (2015), men and women, aged 15-89)

Country	Indefinite contract		Fixed term contracts +1 year		Fixed term contracts -1 year		Other employees		Solo Self-employed, dependent		Solo Self-employed, independent		Self-employed with employees		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<i>Austria</i>	750	73.8	42	4.1	13	1.3	80	7.9	33	3.2	60	5.9	38	3.7	1,016	100
<i>Belgium</i>	1,861	73.5	96	3.8	100	3.9	134	5.3	29	1.1	166	6.6	146	5.8	2,532	100
<i>Bulgaria</i>	777	73.6	41	3.9	30	2.8	54	5.1	20	1.9	86	8.2	47	4.5	1,055	100
<i>Croatia</i>	648	66.1	107	10.9	49	5.0	37	3.8	45	4.6	63	6.4	32	3.3	981	100
<i>Cyprus</i>	368	36.8	39	3.9	34	3.4	373	37.3	21	2.1	109	10.9	57	5.7	1,001	100
<i>Czech Republic</i>	663	66.9	103	10.4	39	3.9	46	4.6	24	2.4	69	7.0	47	4.7	991	100
<i>Denmark</i>	787	78.7	63	6.3	33	3.3	62	6.2	4	0.4	32	3.2	19	1.9	1,000	100
<i>Estonia</i>	779	77.5	53	5.3	40	4.0	27	2.7	11	1.1	45	4.5	50	5.0	1,005	100
<i>Finland</i>	688	69.7	55	5.6	40	4.1	34	3.4	16	1.6	100	10.1	54	5.5	987	100
<i>France</i>	1,129	74.0	89	5.8	92	6.0	80	5.2	10	0.7	70	4.6	56	3.7	1,526	100
<i>Germany</i>	1,573	75.8	105	5.1	47	2.3	123	5.9	28	1.3	95	4.6	104	5.0	2,075	100
<i>Greece</i>	415	41.4	28	2.8	30	3.0	160	16.0	39	3.9	231	23.1	99	9.9	1,002	100
<i>Hungary</i>	726	72.8	35	3.5	56	5.6	40	4.0	30	3.0	68	6.8	42	4.2	997	100
<i>Ireland</i>	610	57.8	42	4.0	24	2.3	182	17.2	24	2.3	104	9.8	70	6.6	1,056	100
<i>Italy</i>	750	55.4	49	3.6	84	6.2	97	7.2	56	4.1	222	16.4	95	7.0	1,353	100
<i>Latvia</i>	697	70.7	65	6.6	20	2.0	64	6.5	28	2.8	57	5.8	55	5.6	986	100
<i>Lithuania</i>	791	79.2	29	2.9	10	1.0	19	1.9	32	3.2	69	6.9	49	4.9	999	100
<i>Luxembourg</i>	825	82.3	28	2.8	29	2.9	30	3.0	9	0.9	56	5.6	25	2.5	1,002	100
<i>Malta</i>	573	57.1	56	5.6	16	1.6	241	24.0	11	1.1	77	7.7	30	3.0	1,004	100
<i>Netherlands</i>	602	58.7	137	13.4	49	4.8	87	8.5	7	0.7	102	10.0	41	4.0	1,025	100
<i>Poland</i>	619	53.8	147	12.8	68	5.9	151	13.1	22	1.9	101	8.8	43	3.7	1,151	100
<i>Portugal</i>	553	53.4	67	6.5	31	3.0	121	11.7	60	5.8	143	13.8	60	5.8	1,035	100
<i>Romania</i>	777	73.7	34	3.2	29	2.8	33	3.1	71	6.7	81	7.7	29	2.8	1,054	100
<i>Slovakia</i>	727	73.7	67	6.8	40	4.1	38	3.9	44	4.5	45	4.6	25	2.5	986	100
<i>Slovenia</i>	1,085	70.6	98	6.4	71	4.6	65	4.2	32	2.1	131	8.5	55	3.6	1,537	100
<i>Spain</i>	1,820	54.5	202	6.0	473	14.2	246	7.4	60	1.8	364	10.9	176	5.3	3,341	100
<i>Sweden</i>	772	77.2	56	5.6	56	5.6	43	4.3	5	0.5	47	4.7	21	2.1	1,000	100
<i>United Kingdom</i>	1,175	72.5	32	2.0	31	1.9	129	8.0	63	3.9	135	8.3	55	3.4	1,620	100
Total	23,540	66.7	1,965	5.6	1,634	4.6	2,796	7.9	834	2.4	2,928	8.3	1,620	4.6	35,317	100

All results are weighted using weighting factor 'W4'.

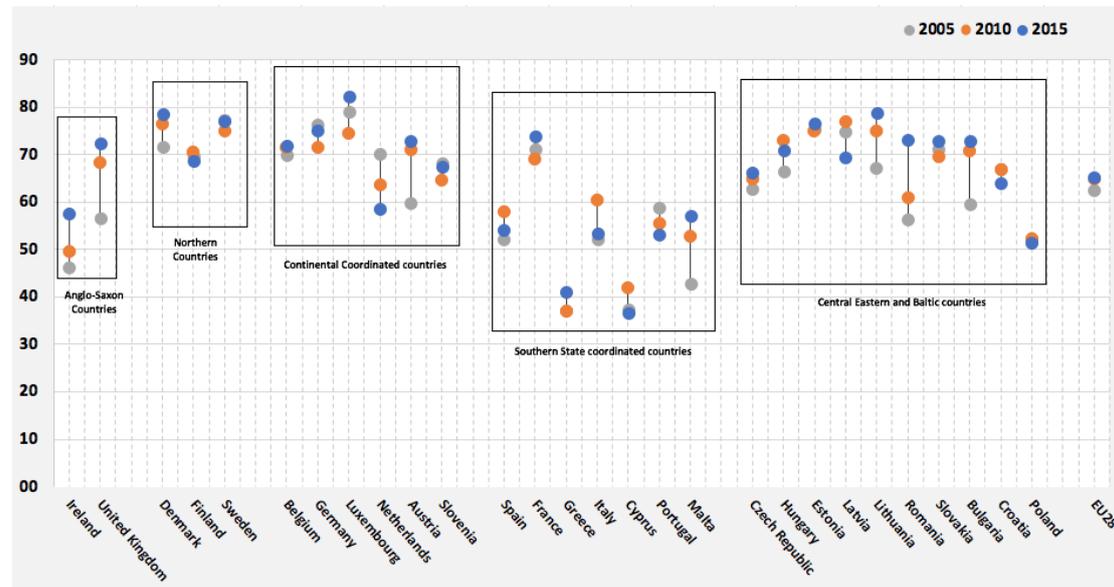
Employment status and job quality

Table 7: Country-level distribution of a number of specific categories of workers as a share of the total sample per country, in the EU-countries (6th EWCS (2015), men and women, aged 15-89

Country	Temporary agency workers		Apprentices		Workers without contract		Part-time (< 35h/week)		Involuntary part-time		Small part-time (< 20 h/week)		Unstable employment status	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<i>Austria</i>	14	1.4	8	0.8	58	5.7	350	34.4	26	2.6	128	12.6	59	6.2
<i>Belgium</i>	61	2.4	12	0.5	24	0.9	802	31.9	113	4.5	237	9.4	189	7.7
<i>Bulgaria</i>	6	0.6	2	0.2	40	3.8	130	12.6	36	3.5	42	4.1	56	5.6
<i>Croatia</i>	8	0.8	3	0.3	19	1.9	124	12.8	45	4.7	68	7.0	102	10.7
<i>Cyprus</i>	7	0.7	1	0.1	362	36.1	222	22.4	81	8.2	55	5.5	63	9.9
<i>Czech Republic</i>	10	1.0	0	0.0	23	2.3	149	15.5	25	2.6	67	7.0	73	7.6
<i>Denmark</i>	13	1.3	16	1.6	31	3.1	289	29.1	40	4.1	140	14.1	50	5.3
<i>Estonia</i>	6	0.6	3	0.3	16	1.6	160	16.3	22	2.3	50	5.1	56	5.8
<i>Finland</i>	3	0.3	4	0.4	24	2.4	196	19.8	24	2.4	87	8.8	58	6.1
<i>France</i>	22	1.4	20	1.3	27	1.8	334	22.2	101	6.7	106	7.1	124	8.5
<i>Germany</i>	21	1.0	54	2.6	48	2.3	734	35.7	79	3.9	289	14.1	96	4.9
<i>Greece</i>	5	0.5	3	0.3	144	14.4	249	24.9	109	10.9	81	8.1	74	8.7
<i>Hungary</i>	16	1.6	0	0.0	22	2.2	139	14.5	40	4.2	69	7.2	102	10.5
<i>Ireland</i>	26	2.5	12	1.1	115	10.9	352	33.7	80	7.7	119	11.4	75	8.3
<i>Italy</i>	11	0.8	10	0.7	64	4.7	459	35.0	125	9.7	171	13.0	151	11.9
<i>Latvia</i>	8	0.8	1	0.1	52	5.3	167	18.7	41	4.7	67	7.5	57	6.1
<i>Lithuania</i>	5	0.5	0	0.0	12	1.2	150	15.8	44	4.7	47	5.0	47	4.8
<i>Luxembourg</i>	7	0.7	12	1.2	6	0.6	258	26.0	57	5.7	48	4.8	45	4.6
<i>Malta</i>	3	0.3	3	0.3	227	22.6	192	19.2	38	3.8	47	4.7	30	3.9
<i>Netherlands</i>	38	3.7	18	1.8	23	2.2	530	52.2	53	5.2	186	18.3	94	9.6
<i>Poland</i>	14	1.2	8	0.7	74	6.4	264	24.4	43	4.1	131	12.1	104	10.8
<i>Portugal</i>	18	1.7	8	0.8	80	7.7	189	19.1	73	7.6	87	8.8	109	11.7
<i>Romania</i>	3	0.3	5	0.5	20	1.9	144	14.6	26	2.7	58	5.9	103	10.0
<i>Slovakia</i>	15	1.5	0	0.0	14	1.4	103	10.9	19	2.1	30	3.2	99	10.3
<i>Slovenia</i>	27	1.8	5	0.3	25	1.6	241	15.3	88	5.6	88	5.6	129	8.6
<i>Spain</i>	23	0.7	22	0.7	147	4.4	886	27.0	394	12.1	285	8.7	556	17.8
<i>Sweden</i>	18	1.8	3	0.3	9	0.9	221	22.3	51	5.2	56	5.7	79	8.1
<i>United Kingdom</i>	32	2.0	4	0.2	59	3.6	546	34.0	83	5.2	216	13.4	127	8.3
Total	440	1.2	237	0.7	1765	5.0	8,580	24.8	1,956	5.7	3,055	8.8	2,908	8.8

All results are weighted using weighting factor 'W4'.

Figure 4: Indefinite contract as a share of the total workforce in the EU-countries (2005-2015)

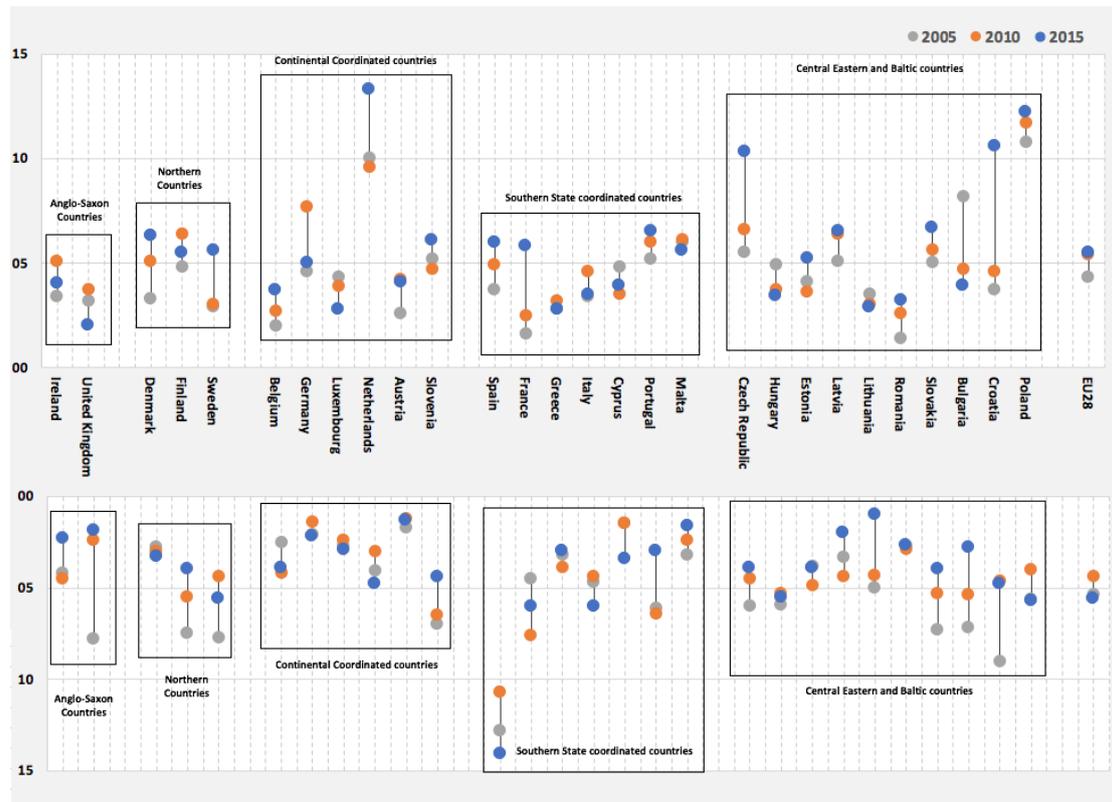


Source: EWCS 2005, 2010, 2015; All results at country-level are weighted using weighting factor 'W4'; EU28 is weighted using weighting factor 'W5_EU28'.

Fixed term contracts (table 6, figure 5). On average, in the EU, there are about 5% longer and 5% shorter term temporary contracts, showing almost no evolution over time. This average hides important country-variation. The Netherlands, the Czech Republic and Poland have more than 10% of the labour force in long term temporary contracts. Sweden, France and Croatia show clear relative growth in longer fixed term contracts. Other countries have seen quite important declines: such as the Anglo-Saxon countries, Germany or Bulgaria. The lowest levels of longer lasting fixed term contracts are seen in the U.K. The Anglo-Saxon countries also show low levels of short-term temporary contracts, although in the majority of EU-countries short-term temporary work remains below 5% of the labour force. A notable exception is Spain, where short term contracts make up almost 15% of the total labour force. Finally, in Central Eastern and Baltic countries, a clear pattern of decreasing prevalence of short temporary contracts can be seen (except for Poland).

Other employee statuses (table 6). The category of 'other employees' is a heterogeneous group that – based on the EWCS-data – can be broken down in three main sub-groups: temporary employment agency workers, apprentices and workers who declared not having a written employment contract. More than the main employment status categories, cross-national comparison of these groups needs to be done with caution as exact definitions might hugely differ between countries. Temporary agency work represents a small share of the sample (overall 1.2%), which is in line with data from other sources, such as the LFS. In the 6th EWCS (2015), the country with the highest prevalence of temporary agency work is the Netherlands (3.7%). Other countries where temporary agency work represents 2% or more of the sample are Ireland, Belgium, and the United Kingdom. Employment as an apprentice is relatively rare throughout the sample (overall EU28 for 2015 is 0.7%). A higher share of apprentice-employment is seen in Germany (2.6%) and the Netherlands (1.8%). Finally, working without a written contract is more prevalent in the ECWS-2015 sample (overall 5%). In some countries, however, this situation is a lot more common: such as in Cyprus (36.1%), Malta (22.6%), Greece (14.4%) and Ireland (10.4%). The summed indicator of unstable employment statuses shows a high prevalence in countries as Spain (17,8%), Italy (11,9%) and Portugal (11,7%), while the frequency of this combined indicator is lowest in Malta (3.9%), Luxembourg (4.6%) and Lithuania (4.8%).

Figure 5: Fixed-term contract of more than 1 year (above) and of less than 1 year (below), as a share of the total workforce in the EU-countries (2005-2015)

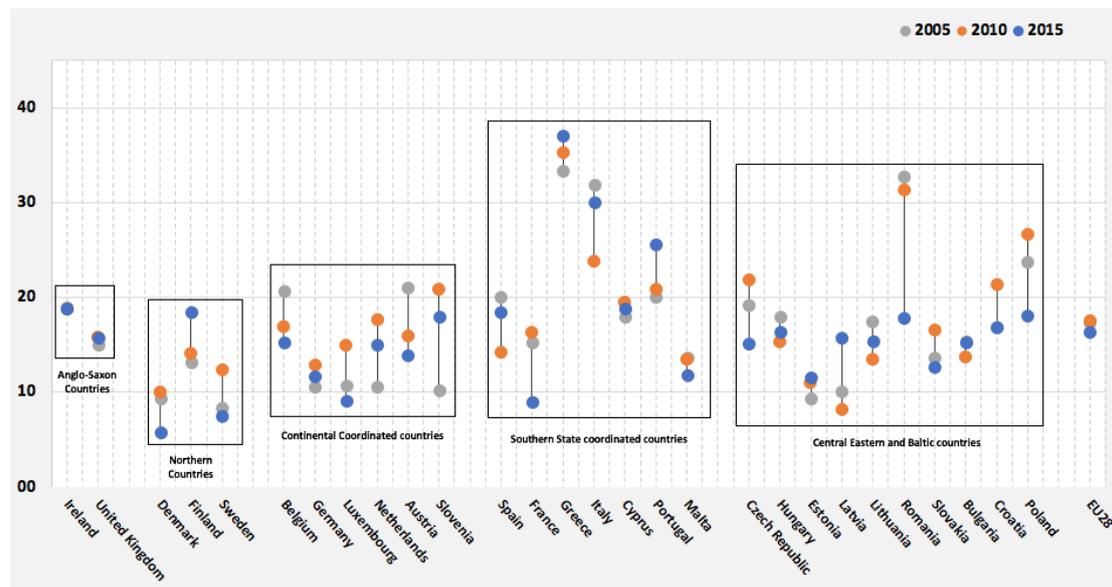


Source: EWCS 2005, 2010, 2015; All results at country-level are weighted using weighting factor 'W4'; EU28 is weighted using weighting factor 'W5_EU28'.

Self-employment (table 6 and figure 6). Shares of total self-employment vary greatly between EU-countries. The production regimes-typology is not very informative with regard to the variation in self-employment prevalence. In the 6th EWCS (2015), Denmark has the lowest prevalence of self-employed (5.7%), while Greece has the highest prevalence (37.1%). Although the exact numbers differ, the magnitude of the relative importance of self-employment for specific countries is largely comparable with findings from the Labour Force Surveys. Also trends over time are heterogeneous. In a number of countries, a clear and consistent growth of the relative share of self-employment can be discerned: for example in Finland, Greece and Portugal. Other countries, in contrast, show patterns of a declining share of self-employment: Romania is the clearest example of this pattern.

In the 6th EWCS (2015), self-employment can be broken down in three more detailed categories. First of all, solo self-employment is particularly prevalent in a number of Southern European countries - as a percentage of the total labour force: Greece (27%), Italy (20.5%), Portugal (19.6%) account for the highest shares. Secondly, In each of these countries, 'dependent solo self-employment' takes out a relatively high share of this solo self-employment. Also, some Eastern-European countries have relatively large shares of dependent solo self-employment: for example Romania (6.7%). A third sub-category, self-employment with employees, accounts for 4.6% of the EU-labour force. Here too, Greece (9.9%) and Italy (7%) have a higher prevalence compared to other EU-countries.

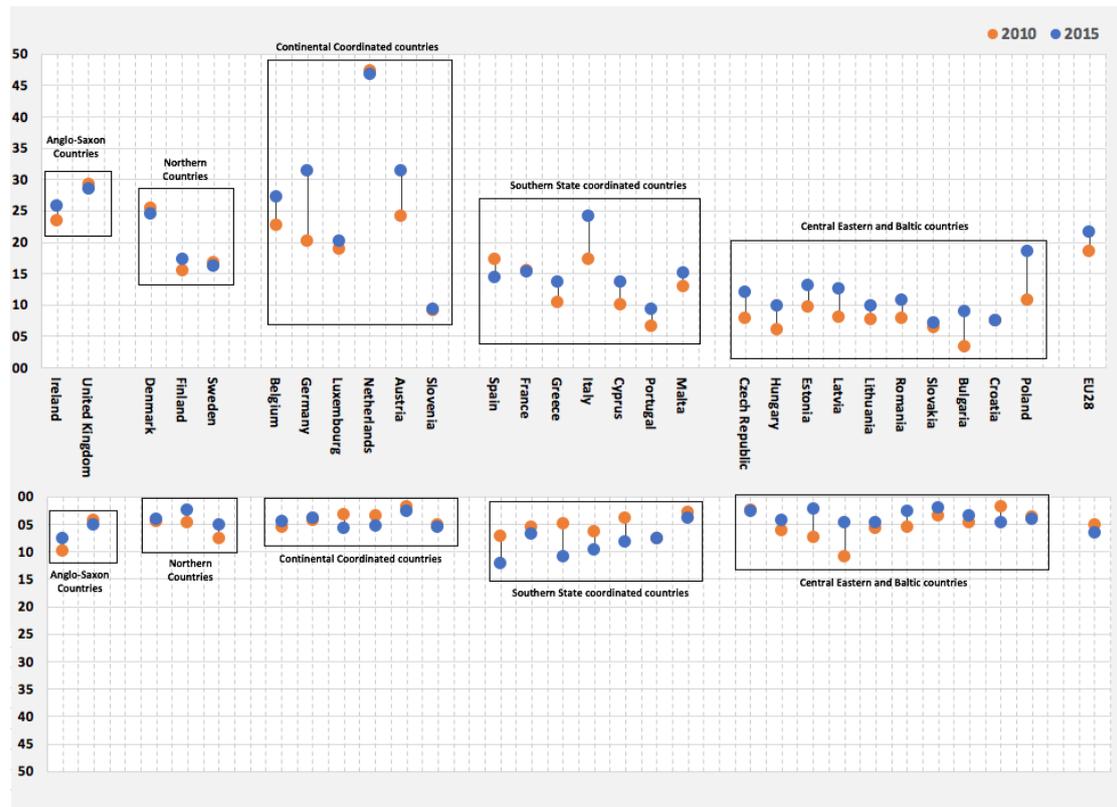
Figure 6: Self-employment as a share of the total workforce in the EU-countries (2005-2015)



Source: EWCS 2005, 2010, 2015; All results at country-level are weighted using weighting factor 'W4'; EU28 is weighted using weighting factor 'W5_EU28'.

Part-time employment (table 7 and figure 7). Part-time employment is most frequent in the Northern continental coordinated and Anglo-Saxon countries, while also Denmark and Italy show a relatively high prevalence. In the Netherlands almost half of all paid employment is part-time. The same countries have also the highest shares of 'small part-time' employment (less than 20 hours a week). Part-time employment generally tends to increase in all European countries. The steepest increases are seen in Germany, Austria, Italy and Poland. Involuntary part-time has also increased, particularly in the Southern state coordinated countries: in Spain, Greece and Italy involuntary part-time employment accounts for 10% or more of all employment.

Figure 7: Voluntary (above) and involuntary (below) part-time employment, as a share of the total workforce in the EU-countries (2010-2015)



Source: EWCS 2005, 2010, 2015; All results at country-level are weighted using weighting factor 'W4'; EU28 is weighted using weighting factor 'W5_EU28'.

The socio-demographic distribution of employment status

In table 8 the distribution of our main employment status indicators over socio-demographic characteristics is shown. These figures refer to EU28-averages. For specific EU-countries the distribution might be different.

Women are over-represented in the employee-categories, while men have higher chances to be in self-employment. Women are clearly more often in (involuntary) part-time employment. The frequency of permanent employment rises with age, only the oldest age-group shows a setback in terms of the frequency of permanent employment. For all other employee statuses, an opposite pattern can be seen - that is: the prevalence in younger age groups is higher. Self-employment is more prevalent among the oldest age groups. The summed scale of 'unstable employment' is biased towards younger workers: they are clearly over-exposed. Part-time employment shows a U-shaped pattern: both the youngest and the oldest age categories find themselves more often in part-time employment. Involuntary part-time employment is more prevalent among the youngest age groups.

Permanent contracts are very much skewed towards the higher educated, while certainly workers with primary educational attainment have a higher prevalence for being in short-term temporary employment, other types of employment contracts and (dependent) solo self-employment. The lowest educated have a three times higher chance to find themselves in unstable employment, compared to the high educated. Part-time employment and - more specifically - involuntary part-time employment are more frequent among the lower educated.

Workers who immigrated to their country of residence have a slightly lower chance of holding a permanent contract, while having a higher chance of being in temporary contracts or in any type of unstable employment. In contrast, independent solo self-employment and self-employment with employees are slightly more prevalent among workers who were both themselves and their parents born in the country of residence. Involuntary part-time employment is more present among immigrant workers.

Middle-aged couples (with or without children) have the highest chances of holding a permanent contract; temporary and other unstable employment status is more prevalent among (young) singles. Part-time employment is a more important phenomenon in couples with children and in young singles.

Table 8: Employment status according to socio-demographics (%)

	An indefinite contract	A fixed term contract of more than 1 year	A fixed term contract of less than 1 year	Other employees	Self-employed without employees - dependent	Self-employed without employees - independent	Self-employed with employees	Voluntary part-time	Involuntary part-time	Unstable employment status °
Sex	***							***		
Men	64.3	5.1	5.3	6.4	2.7	10.0	6.2	11.0	5.0	9.8
Women	67.8	6.1	6.1	7.8	2.0	7.1	3.0	32.9	8.2	10.0
Age	***							***		***
Under 25	41.1	13.7	13.0	25.8	2.3	3.4	0.7	33.3	11.5	24.7
25-34	64.9	9.1	8.9	7.3	1.5	6.0	2.4	16.8	8.5	12.9
35-44	70.3	5.1	5.2	4.9	1.7	8.3	4.6	17.7	6.3	8.2
45-54	71.7	3.0	3.5	4.5	2.3	8.9	6.1	18.7	5.6	6.7
Over 55	62.8	3.1	2.9	6.4	4.5	13.5	6.8	32.2	4.1	8.8
Educational attainment	***							***		***
Primary	39.5	5.9	10.7	17.4	5.4	16.4	4.7	26.9	14.0	21.5
Secondary	65.1	5.6	6.0	7.9	2.3	8.6	4.4	21.5	6.9	10.4
Tertiary	71.0	5.6	4.4	4.2	2.1	7.6	5.1	21.2	4.9	7.6
Citizenship	***							***		***
Born in country, parents born in country	66.6	5.4	5.4	6.6	2.4	8.8	4.9	21.6	6.1	9.4
Born in country, parents not born in country	65.4	6.3	4.6	9.6	2.1	7.7	4.4	25.9	7.3	9.0
Not born in country, parents not born in country	60.8	7.5	8.6	11.1	2.6	6.9	2.4	20.3	10.6	15.8
Life stage	***							***		***
Single, 18-35y, living with parents	39.3	12.6	13.2	26.2	2.2	4.3	2.1	21.9	15.8	26.0
Single <= 45 years, not living with parents, without children (B)	58.1	10.1	9.0	11.6	1.5	6.7	2.9	17.1	8.7	14.8
Single <=45y, not with parents, no children	68.6	8.5	7.5	5.4	1.7	5.1	3.3	11.8	6.7	11.0
Couple without children, woman <=45y	72.1	5.1	4.9	4.1	1.6	7.9	4.3	21.9	5.8	7.7
Couple, youngest child >=7 & <12 years (E)	70.3	4.4	4.4	3.7	1.8	9.0	6.5	21.7	3.9	7.3
Couple, youngest child <=7y	70,3	3.3	3.3	4.5	2.2	9.7	6.7	22.0	4.6	6.1
Couple without children/empty nest, woman 46-59 years (G)	73,1	2.2	2.3	4.8	1.7	10.1	5.9	23.4	3.9	5.1
Couple, youngest child >=7y & <=12y	52.2	3.4	1.8	9.7	8.0	18.1	6.8	50.3	2.9	11.6
Single >=50, without children (I)	65.1	3.5	3.8	6.5	5.5	11.0	4.7	27.7	5.2	10.9
Couple, youngest child >=12y	60.0	6.8	8.3	10.9	2.7	8.2	3.2	21.6	10.0	13.9
Total	66.0	5.6	5.7	7.1	2.4	8.6	4.6	21.6	6.5	9.9

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; All results are weighted using weighting factor 'W5_EU28'. ° In the category of unstable employment status are included: short-term temporary contracts; agency workers; dependent solo self-employed.

Table 8: The prevalence (%) of employment status according to socio-demographics (continued)

	An indefinite contract	A fixed term contract of more than 1 year	A fixed term contract of less than 1 year	Other employees	Self-employed without employees - dependent	Self-employed without employees - independent	Self-employed with employees	Voluntary part-time	Involuntary part-time	Unstable employment status ^o
Income quintile	***							***		***
First quintile	45.9	8.0	10.4	20.2	4.4	9.5	1.6	44.5	18.9	20.6
Second quintile	65.3	9.0	8.4	8.5	1.6	5.4	1.9	19.2	5.9	13.3
Third quintile	75.3	6.4	5.5	3.8	1.1	5.7	2.3	11.3	2.5	8.1
Fourth quintile	80.2	4.3	2.6	2.3	1.4	6.1	3.2	10.1	1.7	4.6
Fifth quintile	74.2	2.8	2.0	1.5	2.0	8.0	9.5	8.4	1.3	4.3
ISCO^a	***							***		***
Managers	48.4	3.6	1.5	3.2	1.9	18.0	23.4	10.0	2.8	3.7
Professionals	72.8	6.2	3.7	3.4	2.4	6.7	4.8	24.2	3.6	6.9
Technicians and associate professionals	71.6	5.5	4.6	3.6	2.4	9.4	3.0	22.7	4.4	7.8
Clerical support workers	81.2	5.7	6.1	5.1	0.4	0.7	0.8	25.1	5.8	7.9
Service and sales workers	62.7	6.7	8.1	12.7	1.3	6.1	2.5	28.3	11.1	12.3
Skilled agri., forestry and fishery workers	21.8	2.8	6.6	8.5	15.6	35.1	9.7	25.9	4.4	25.2
Craft and related trades workers	59.7	4.9	6.0	6.8	2.5	13.9	6.3	6.5	4.5	10.4
Plant and machine operators, assemblers	78.8	5.1	4.2	5.2	1.2	4.3	1.4	8.3	2.8	7.5
Elementary occupations	58.8	6.3	8.7	14.6	3.5	7.0	1.1	32.7	14.5	17.2
NACE	***							***		***
Agriculture	19.0	2.7	8.0	11.4	12.8	33.7	12.4	24.9	3.7	24.5
Industry	76.3	5.6	4.1	4.7	1.0	5.0	3.3	7.9	2.8	7.4
Construction	53.9	3.2	7.8	8.6	3.8	14.2	8.6	7.2	5.2	14.4
Commerce and hospitality	60.6	5.4	7.8	8.3	1.2	9.5	7.2	22.3	8.5	10.7
Transport	78.6	5.2	3.2	3.4	2.2	5.5	2.0	10.7	5.1	6.5
Financial services	76.2	3.1	2.7	2.0	1.8	8.8	5.4	16.2	3.4	4.9
Public administration and defence	83.4	6.4	4.5	4.7	0.1	0.6	0.3	15.7	3.2	5.4
Education	75.5	8.3	6.8	4.0	1.7	3.2	0.5	38.2	6.9	9.8
Health	76.7	6.1	4.0	5.6	1.1	3.8	2.7	33.2	5.4	6.1
Other services	55.4	6.0	5.6	11.3	4.2	12.4	5.2	27.1	10.8	12.7
Total	66.0	5.6	5.7	7.1	2.4	8.6	4.6	21.6	6.5	9.9

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; All results are weighted using weighting factor 'W5_EU28'. ^o In the category of unstable employment status are included: short-term temporary contracts; agency workers; dependent solo self-employed; ^a The armed forces occupations, while not shown, were however, included in the analyses.

A clear relation between income quintiles and employment status exists: in the higher income quintiles a permanent contract as an employee is more likely, while lower income groups - particularly the lowest quintile - know a higher frequency of temporary contracts and other unstable employment statuses. Solo self-employment is a dual story in relation to income, showing a higher prevalence in the lowest and the highest quintiles. Part-time employment is clearly associated with lower income.

In terms of occupational categories, first of all, it can be noted that some occupational categories are very much oriented towards permanent contracts (about 80%): clerical support workers, assemblers/plant and machine operators. For agricultural workers (21%) and managers (48%), permanent employment is not the norm. Managers find themselves more often than other occupational groups in a situation of self-employment. The same holds for agricultural workers, including dependent self-employment. However, they also have a high prevalence of other employee statuses and are over-represented in the aggregated category of 'unstable employment status'. Finally, in service and sales workers and in elementary occupations longer and short term temporary employment are more important, compared to other occupational categories. In general service and sales workers are more likely to find themselves in an unstable employment status. Part-time employment is most prevalent in elementary occupations, followed by service and sales workers, while its frequency is lowest in craft and related trades workers, managers and assemblers/plant and machine operators.

The economic sector with the highest prevalence of permanent employment is public administration (83%). In many sectors, permanent employment is around 75%. However, in the agricultural sector (19%), construction (54%), other services (55%) and commerce and hospitality (61%) permanent employment is less common. In agriculture, the lower presence of permanent employment is compensated by a higher prevalence of all types of self-employment, as well as other employee statuses. In construction and other services too, all types of self-employment and short-duration fixed term employment are more prevalent, compared to the general average. These sectors also show the highest frequency of aggregate 'unstable employment status'. Part-time employment is most common in the education and health sectors, while in industry and construction it is relatively uncommon. In the category of 'other services' involuntary part-time work is most prevalent (11%).

Individual- and workplace-level determinants of job quality

In this paragraph, a detailed analysis of the relation between job quality and employment status is made. Moreover, also relations with other variables included in our models are described: individual-level and workplace determinants.

Relations between employment status and job quality

In the current section, scores on the job quality indices for each of the employment statuses will be discussed. These comments refer to table 9, where scores are compared in terms of categorical averages, compared to the sample average - as well as to table 10, showing the results of hierarchical regression analyses comparing parameter estimates for the separate employment status categories with a reference category. The regression procedure followed a stepwise approach whereby bit by bit additional independent variables were added to a model of employment status predicting job quality. In a first step, also crude estimates were produced by means of bivariate analyses. In the table reporting the results, only the first (bivariate) step and the final model (controlling for other relevant job quality scores, individual-level and workplace variables and country-level indicators) are shown.

As it is the majoritarian category in the sample, holders of permanent contracts show job quality scores very similar to the average. Only receiving training and work schedule regularity are higher than average. In the multivariable models permanent contracts serve as a reference category.

Longer lasting (more than 1 year) temporary contracts diverge from permanent contracts for a number of indicators of job quality. Work intensity is slightly lower, while also the quality of

the social environment, skills and discretion, the chance of receiving training, working schedule regularity, working time quality, job security and employment prospects are significantly lower compared to permanent workers. Moreover, longer term temporary contracts more frequently experience high job strain, are being called to work at short notice more regularly and experience more difficulties arranging time off. After controlling for potential confounders, the effects for the quality of the social environment, high job strain, regularity and being called to work at short notice did not differ significantly from permanent employment anymore. For shorter-term temporary contracts, the pattern is very similar. After controlling for confounders, significant divergences from permanent employment were the following: a higher score for social environment, clearly lower skills and discretion, higher job strain, less chance to receive training, lower working time quality, a higher chance for being called to work at short notice, more difficulties in arranging time off, lower job security and lower employment prospects. In sum, these analyses make clear that temporary employment - and especially short-term temporary employment - scores worse on several aspects of job quality, compared to permanent employment.

Because of its heterogeneous composition, the category of 'other employees' is not so straightforward to interpret: one should keep in mind that workers explicitly stating not having a written employment contract are majoritarian in this category. Also temporary agency workers are an important second category, besides of other groups. The specific composition and magnitude of this group is also quite different between countries. Nevertheless, it is safe to state that this heterogeneous group is predominantly composed of workers in less stable, non-standard types of employment. When looking at job quality, a picture of largely lower quality emerges. Compared to employees holding a permanent contract, the 'other employees'-category shows less favourable scores on the quality of the physical environment and the social environment, lower skills and discretion scores, less training and lower regularity. Furthermore, this group is more confronted with being called to work at short notice and experiences less job security and lower employment prospects, compared with workers holding a permanent contract. Work intensity is, in contrast, significantly lower. The overall measure of working time quality is slightly higher. Controlling for confounders causes the difference with permanent employees to disappear for the quality of social environment and working time quality.

Dependent solo self-employed - when compared to employees holding a permanent contract, show lower scores on work intensity, less high job strain, slightly higher working time quality and report less frequently difficulties to arrange some time off during work. In contrast, the quality of the physical and social environment is less favourable. The same holds - still compared to employees holding a permanent contract - for skills and discretion, receiving training, regularity, being called to work at short notice and job security. 'Independent' solo self-employed, for many job quality indices, show relatively similar patterns as dependent solo self-employed, although the magnitudes of the effects vary. Nevertheless, a few exceptions underline the generally more favourable job quality of 'independent' solo self-employed. Compared to employees holding a permanent contract (and also compared to dependent solo self-employed), solo self-employed show more favourable scores on skills and discretion and employment prospects. Their level of job security is equal to that of employees with a permanent contract, while working time quality is clearly less favourable. These crude findings are quite robust, in the sense that controlling for confounders does not change much to these findings, except for employment prospects becoming non-significant.

Table 9: Associations between job quality indicators and employment status

	<i>p-value</i>	phys. Environment (Mean score)	High work intensity (Mean score)	social environment (Mean score)	Skills and Discretion (Mean score)	High strain (%)	Training received (%)
		***	***	***	***	***	***
An indefinite contract		83.8	34.9	78.6	56.5	11.3	42.5
A fixed term contract of more than one year		82.7	33.5	76.6	51.6	13.6	34.0
A fixed term contract of less than one year		81.1	35.7	79.2	44.2	21.3	24.9
Other employees		82.3	29.9	77.3	43.7	16.9	18.8
Self-empl. without employees - dependent		83.2	27.0	69.9	54.0	6.9	11.8
Self-empl. without employees - independent		82.7	26.5	72.1	64.0	2.5	21.3
Self-employed with employees		83.9	34.7	86.2	71.4	2.5	29.7
	<i>p-value</i>	***	***	***	***	***	***
Fulltime		82.3	35.5	79.0	57.5	11.3	38.9
Part-time (voluntary)		87.4	28.3	77.4	53.7	9.6	31.7
Part-time (involuntary)		83.1	31.5	75.3	46.3	15.7	21.2
	<i>p-value</i>	***		**	***	***	***
Other employment status		83.63	33.96	78.51	57.72	10.2	40.6
Unstable employment status		81.26	33.58	76.94	45.99	20.4	20.8
Total sample		83.4	33.7	78.5	56.0	11.2	36.3
	<i>p-value</i>	Regularity (medium-high) (%)	Working time quality (Mean score)	Called to work at short notice (%)	Difficulties in arranging time off (%)	Job security (Mean score)	Employment prosp. (Mean score)
		***	***	***	***	***	***
An indefinite contract		77.5	71.3	9.8	35.8	0.78	55.5
A fixed term contract of more than one year		77.8	70.1	11.7	43.7	0.56	46.3
A fixed term contract of less than one year		78.6	69.6	14.2	46.3	0.40	37.6
Other employees		65.9	70.9	14.9	36.9	0.58	41.4
Self-empl. without employees - dependent		47.6	71.9	17.9	19.0	0.66	43.9
Self-empl. without employees - independent		37.7	67.2	20.6	15.5	0.74	49.9
Self-employed with employees		41.2	60.5	25.8	17.9	0.81	62.2
	<i>p-value</i>	***	***	***	***	***	***
Fulltime		72.7	68.2	11.4	34.5	0.74	54.7
Part-time (voluntary)		70.8	76.1	11.4	29.3	0.74	49.4
Part-time (involuntary)		68.4	73.8	17.8	35.0	0.58	39.4
	<i>p-value</i>			***	***	***	***
Other employment status		71.5	70.18	11.5	33.5	0.77	54.68
Unstable employment status		70.2	70.29	16.0	40.7	0.45	37.65
Total sample		72.0	70.3	11.8	33.6	0.73	52.5

*p-values: * p<0.05; ** p<0.01; *** p<0.001; All results are weighted using weighting factor 'W5_EU28'. (M) = Mean value, (%) = Percentage of the exposure category*

Self-employed with employees constitute a relatively favourable group in terms of job quality. Compared to employees holding a permanent contract, they have on average better social environment, skills and discretion, less situations of high job strain, they are less confronted with difficulties to arrange time off and have higher employment security and employment prospects. To the contrary, receiving training is slightly less common than for permanent employees, besides also working time quality (including the overall scale, regularity and being called to work at short notice) is more problematic.

When compared to the general average, it can be seen that workers in an unstable employment status experience clearly lower skills and discretion, job security and general employment prospects, while they also receive less training. In contrast, they are exposed more often to high job strain, are more often called to work on short notice and experience more difficulties arranging time off during their working hours.

Workers in part-time employment (less than 35 h/week) - compared to full time employed - show a slightly less favourable social environment score, less often receive training, have lower scores for skills and discretion, are confronted with less work schedule regularity and less job security and employment prospects. In contrast, more favourable scores are noted for the quality of the physical environment and the occurrence of high job strain. Also, overall working time quality as well as more specific indicators of working time quality - being called to work at short notice and difficulties arranging time off - are more favourable on average. Workers in involuntary part-time employment (only descriptive analyses), on average have clearly lower skills and discretion, receive less training, have less schedule regularity and are more often called to work at short notice. Moreover, they have on average less secure jobs and less employment prospects.

Employment status and job quality

Table 10: Associations between job quality indicators and employment status (EU28, 2015)

	Physical environment (scale)		Work intensity (scale)		Social environment (dummy)		Skills and Discretion (scale)	
	Bivariate	Controlled ^(*)	Bivariate	Controlled ^(*)	Bivariate	Controlled ^(*)	Bivariate	Controlled ^(*)
Intercept		85.88		96.27		-1.89		42.05
Employment status (intercept)	(83.73)		(34.13)		(0.64)		(55.95)	
An indefinite contract	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
A fixed term contract of more than one year	-0.24 (-0.91; 0.43)	-0.44 (-1.03; 0.16)	-1.17** (-2.02; -0.32)	-1.07** (-1.88; -0.27)	-0.19*** (-0.29; -0.09)	-0.07 (-0.19; 0.04)	-4.67*** (-5.58; -3.76)	-0.98* (-1.78; -0.19)
A fixed term contract of less than one year	-1.98*** (-2.72; -1.24)	-0.43 (-1.12; 0.26)	-0.37 (-1.31; 0.56)	0.20 (-0.74; 1.15)	-0.10 (-0.22; 0.01)	0.14* (0.00; 0.28)	-10.99*** (-12.00; -9.98)	-3.66*** (-4.58; -2.73)
Other employees	-1.57*** (-2.16; -0.99)	-0.78** (-1.35; -0.21)	-5.23*** (-5.97; -4.48)	-1.92*** (-2.70; -1.13)	-0.14** (-0.24; -0.05)	0.03 (-0.08; 0.14)	-12.01*** (-12.81; -11.21)	-3.31*** (-4.08; -2.53)
Self-employed without employees-dependent	0.01 (-0.93; 0.95)	-0.91 (-2.08; 0.26)	-10.78*** (-11.97; -9.60)	-5.70*** (-7.30; -4.10)	-0.88*** (-1.07; -0.70)	-0.91*** (-1.13; -0.70)	-0.38 (-1.66; 0.89)	2.82*** (1.24; 4.40)
Self-employed without employees-independent	-1.06*** (-1.64; -0.55)	-0.99* (-1.75; -0.23)	-9.13*** (-9.81; -8.44)	-8.81*** (-9.85; -7.78)	-0.73*** (-0.85; -0.61)	-1.04*** (-1.18; -0.90)	8.48*** (7.74; 9.22)	8.76*** (7.74; 9.78)
Self-employed with employees	0.07 (-0.66; 0.80)	0.55 (-0.19; 1.28)	-0.41 (-1.33; 0.51)	-4.18*** (-5.18; -3.18)	0.54*** (0.41; 0.68)	0.23** (0.07; 0.39)	16.46*** (15.47; 17.46)	10.30*** (9.31; 11.28)
Working time (intercept)	(82.83)		(34.07)		(0.64)		(57.10)	
Fulltime	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Part-time (less than 34 hours)	2.89*** (2.53; 3.24)	0.02 (-0.36; 0.39)	-6.95*** (-7.40; -6.50)	-1.01*** (-1.52; -0.50)	-0.20*** (-0.26; -0.14)	-0.13*** (-0.20; -0.06)	-5.32*** (-5.82; -4.82)	-0.97*** (-1.47; -0.46)

^(*) All effects are controlled for employment status and part-time work; the other job quality indices; individual level characteristics (sex; age; education; citizenship; life stage; seniority and income decile); workplace characteristics (ISCO and nace); and a selection of macro-level indicators (see table 5 of this report). For high strain; training, social environment; regularity; called to work at short notice; difficulty to take time off; and employment prospects; the estimates are on a logit scale. For other outcomes; a linear scale

Employment status and job quality

Table 10: Associations between job quality indicators and employment status (EU28, 2015) (continued)

	High strain ^a (dummy)		Training received (dummy)		Medium to high regularity (dummy)		Working time quality (scale)	
	Bivariate	Controlled ^(*)	Bivariate	Bivariate	Bivariate	Controlled ^(*)	Bivariate	Controlled ^(*)
Intercept		1.40		0.28		-1.92		62.01
Employment status (intercept)	(-2.14)		(-0.39)		(1.28)		(71.47)	
An indefinite contract	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
A fixed term contract of more than one year	0.22** (0.08,0.36)	0.04 (-0.13,0.20)	-0.38*** (-0.48,-0.28)	-0.18** (-0.30,-0.06)	-0.14* (-0.25,-0.03)	-0.03 (-0.16,0.10)	-1.37*** (-2.02; -0.72)	-1.25*** (-1.86,-0.65)
A fixed term contract of less than one year	0.62*** (0.49,0.75)	0.30*** (0.14,0.47)	-0.76*** (-0.88,-0.64)	-0.27*** (-0.41,-0.12)	-0.14* (-0.26,-0.02)	0.02 (-0.14,0.18)	-0.96** (-1.68; -0.24)	-1.13** (-1.83,-0.43)
Other employees	0.28*** (0.17,0.40)	0.04 (-0.11,0.19)	-1.11*** (-1.22,-1.01)	-0.39*** (-0.51,-0.27)	-0.59*** (-0.68,-0.50)	-0.41*** (-0.53,-0.29)	0.73* (0.16; 1.30)	-0.29 (-0.86,0.29)
Self-employed without employees-dependent	-0.76*** (-1.02,-0.50)	-0.45* (-0.83,-0.08)	-1.58*** (-1.79,-1.38)	-1.19*** (-1.48,-0.90)	-1.73*** (-1.86,-1.59)	-1.29*** (-1.51,-1.06)	1.34** (0.43; 2.25)	-1.79** (-2.97,-0.61)
Self-employed without employees-independent	-1.78*** (-2.01,-1.55)	-1.79*** (-2.18,-1.39)	-0.94*** (-1.03,-0.85)	-0.59*** (-0.75,-0.43)	-1.90*** (-1.99,-1.82)	-1.37*** (-1.52,-1.22)	-3.39*** (-3.92; -2.86)	-4.32*** (-5.09,-3.55)
Self-employed with employees	-1.74*** (-2.06,-1.42)	-1.52*** (-1.90,-1.13)	-0.53*** (-0.64,-0.41)	-0.55*** (-0.70,-0.41)	-1.66*** (-1.76,-1.55)	-0.90*** (-1.05,-0.75)	-10.74*** (-11.45; -10.03)	-7.64*** (-8.38,-6.90)
Working time (intercept)	(-2.20)		(-0.52)		(1.00)		(69.04)	
Fulltime	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Part-time (less than 34 hours)	-0.12** (-0.21,-0.04)	0.11* (0.00,0.23)	-0.57*** (-0.62,-0.51)	-0.15*** (-0.22,-0.07)	-0.32*** (-0.37,-0.27)	-0.61*** (-0.69,-0.53)	7.08*** (6.74; 7.42)	4.32*** (3.94,4.69)

^(*) All effects are controlled for employment status and part-time work; the other job quality indices; individual level characteristics (sex; age; education; citizenship; life stage; seniority and income decile); workplace characteristics (ISCO and nace); and a selection of macro-level indicators (see table 5 of this report). For high strain; training, social environment; regularity; called to work at short notice; difficulty to take time off; and employment prospects; the estimates are on a logit scale. For other outcomes; a linear scale

Employment status and job quality

Table 10: Associations between job quality indicators and employment status (EU28, 2015) (continued)

	Called to work at short notice (dummy)		Difficulties in arranging time off (dummy)		Job security (scale)		Employment prospects ^a (dummy)	
	Bivariate	Controlled ^(*)	Bivariate	Bivariate	Bivariate	Controlled ^(*)	Bivariate	Controlled ^(*)
Intercept		-1.76		0.73		0.69		-0.48
Employment status (intercept)	(-2.24)		(-0.61)		(0.76)		(0.94)	
An indefinite contract	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
A fixed term contract of more than one year	0.21** (0.06,0.35)	0.14 (-0.03,0.31)	0.31*** (0.21,0.41)	0.14* (0.02,0.25)	-0.20*** (-0.22; -0.19)	-0.16*** (-0.18; -0.14)	-0.55*** (-0.65,-0.46)	-0.58*** (-0.69,-0.46)
A fixed term contract of less than one year	0.46*** (0.31,0.61)	0.39*** (0.20,0.58)	0.43*** (0.32,0.54)	0.17* (0.03,0.30)	-0.32*** (-0.34; -0.31)	-0.25*** (-0.26; -0.23)	-0.86*** (-0.96,-0.75)	-0.71*** (-0.84,-0.58)
Other employees	0.54*** (0.42,0.66)	0.28*** (0.12,0.44)	0.01 (-0.08,0.10)	-0.13* (-0.25,-0.02)	-0.17*** (-0.19; -0.16)	-0.12*** (-0.13; -0.10)	-0.67*** (-0.75,-0.58)	-0.46*** (-0.57,-0.35)
Self-employed without employees-dependent	0.71*** (0.52,0.90)	0.58*** (0.30,0.86)	-1.01*** (-1.18,-0.84)	-0.49*** (-0.75,-0.24)	-0.05*** (-0.07; -0.02)	-0.03* (-0.07; -0.00)	0.02 (-0.13,0.17)	0.14 (-0.10,0.38)
Self-employed without employees-independent	0.91*** (0.80,1.02)	0.63*** (0.44,0.81)	-1.22*** (-1.32,-1.11)	-0.56*** (-0.74,-0.37)	0.00 (-0.01; 0.01)	-0.01 (-0.03; 0.01)	0.30*** (0.21,0.39)	0.15 (-0.01,0.31)
Self-employed with employees	1.19*** (1.05,1.32)	0.81*** (0.64,0.99)	-1.01*** (-1.15,-0.88)	-0.36*** (-0.54,-0.19)	0.05*** (0.03; 0.07)	0.02 (-0.01; 0.04)	0.84*** (0.70,0.98)	0.51*** (0.33,0.69)
Working time (intercept)	(-2.06)		(-0.70)		(0.74)		(0.94)	
Fulltime	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Part-time (less than 34 hours)	0.14*** (0.06,0.21)	0.28*** (0.17,0.39)	-0.11*** (-0.17,-0.06)	-0.06 (-0.14; 0.02)	-0.05*** (-0.06; -0.04)	-0.02*** (-0.03; -0.01)	-0.28*** (-0.34; -0.23)	-0.06 (-0.13; 0.02)

(*) All effects are controlled for employment status and part-time work; the other job quality indices; individual level characteristics (sex; age; education; citizenship; life stage; seniority and income decile); workplace characteristics (ISCO and nace); and a selection of macro-level indicators (see table 5 of this report). For high strain; training, social environment; regularity; called to work at short notice; difficulty to take time off; and employment prospects; the estimates are on a logit scale. For other outcomes; a linear scale

Individual-level and workplace associations with job quality

In table 11, associations between a selected set of socio-demographic indicators and the job quality indices are presented. These characteristics firstly serve as controlling variables for the associations of employment status and job quality. Nevertheless, the proper effects of these socio-demographics are insightful as well. The results presented are derived from the fully controlled model, including employment status and all individual and country-level variables.

Sex and age. For women a number of job quality indices are reported to be better than for men, including a better physical environment, more work schedule regularity and less cases of being called to work at short notice - as well as better working time quality in general. In contrast, women also report higher work intensity, less utilisation of skills and discretion and more often difficulties in arranging time off. Looking at age, two contradicting patterns can be seen in terms of job quality. On one hand, job quality tends to improve with age when considering the physical work environment and high work intensity. Moreover, in the oldest age group, arranging time off is more often possible compared to the reference category. On the other hand, skills and discretion, received training, employment prospects and - more specifically - job security tend to drop with age. The coinciding of the latter factors with age, implies that employability opportunities are gradually becoming lower with age.

Educational attainment. Relations between educational attainment and job quality are particularly insightful, showing a clear pattern. Tertiary educated have an advantage over middle (reference category) and lower educated in terms of the quality of the physical environment, skills and discretion, job strain and received training. In contrast, work intensity and working time-related indices (regularity and working time quality) turn out to be less advantageous for the higher educated, compared to secondary (and primary) educated.

Citizenship - origin. Workers who are born in their country of residence and whose parents are also born in their country of residence - called autochthonous in table 11 - have generally better job quality than second (born in country of residence, but at least one parent born in another country) and first (respondent born in another country) generation immigrants. The first generation shows significantly worse scores, compared to autochthonous workers, for the quality of the physical environment, skills and discretion, high strain and receiving training. For second generation immigrants, it can be noted that they are more likely to be called to work at short notice and have lower job security and employment prospects than autochthonous workers.

Life stage. For this indicator, workers who are single, less than 45 years old and not living with their parents, are used as the reference category. Although, for several outcomes significant differences with that reference category are noted for the other life stage-categories, no clear pattern according to life stages emerges.

Employment status and job quality

Table 11: The relation between individual-level indicators and job quality indices

	Physical Environment ^b	High work intensity ^b	Social environment ^a	Skills and Discretion ^b	High strain ^a	Training received ^a	Regularity (medium-high) ^a	Working time quality ^b	Called to work at short notice ^a	Difficulties in arranging time off ^a	Job security ^b	Employment prospects ^a
Intercept	85.88	96.27	-1.89	42.05	1.40	0.28	-1.92	62.01	-1.76	0.73	0.69	-0.48
Sex												
Men	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Women	1.84*** (1.53,2.15)	3.54*** (3.12,3.97)	-0.01 (-0.07,0.05)	-1.55*** (-1.97,-1.13)	0.34*** (0.24,0.43)	0.00 (-0.06,0.06)	0.22*** (0.15,0.29)	1.96*** (1.64,2.28)	-0.31*** (-0.40,-0.21)	0.13*** (0.06,0.19)	0.02*** (0.01,0.03)	0.05 (-0.02,0.11)
Age												
Under 25	0.00 (-0.96,0.30)	0.00 (-0.05,1.68)	0.00 (0.09,0.34)	0.00 (-2.12,-0.41)	0.00 (0.04,0.36)	0.00 (-0.01,0.25)	0.00 (-0.25,0.02)	0.00 (-0.62,0.66)	0.00 (0.04,0.38)	0.00 (-0.08,0.18)	0.00 (0.03,0.06)	0.00 (0.21,0.47)
25-34	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
35-44	0.72*** (0.30,1.15)	-0.17 (-0.75,0.41)	-0.10* (-0.18,-0.01)	-0.51 (-1.08,0.06)	-0.00 (-0.12,0.12)	-0.14** (-0.22,-0.06)	0.06 (-0.04,0.15)	-0.03 (-0.45,0.40)	0.06 (-0.06,0.18)	0.09* (0.01,0.18)	-0.03*** (-0.04,-0.02)	-0.25*** (-0.33,-0.16)
45-54	0.96*** (0.46,1.47)	-1.36*** (-2.05,-0.67)	-0.09 (-0.18,0.01)	-1.05** (-1.74,-0.37)	0.00 (-0.14,0.14)	-0.29*** (-0.39,-0.19)	0.06 (-0.06,0.17)	0.02 (-0.49,0.54)	0.14 (-0.01,0.28)	-0.02 (-0.12,0.08)	-0.05*** (-0.06,-0.03)	-0.45*** (-0.56,-0.35)
Over 55	1.44*** (0.82,2.06)	-2.42*** (-3.26,-1.57)	-0.09 (-0.21,0.03)	-1.02* (-1.86,-0.19)	-0.04 (-0.22,0.14)	-0.37*** (-0.49,-0.24)	0.02 (-0.12,0.16)	0.59 (-0.04,1.22)	0.06 (-0.12,0.24)	-0.13* (-0.25,-0.00)	-0.03*** (-0.05,-0.02)	-0.56*** (-0.68,-0.43)
Education												
Primary	-0.57 (-1.39,0.24)	-0.94 (-2.06,0.19)	-0.15 (-0.31,0.01)	-3.60*** (-4.71,-2.50)	0.24* (0.04,0.43)	-0.24* (-0.43,-0.05)	0.14 (-0.06,0.34)	0.21 (-0.61,1.03)	0.10 (-0.13,0.33)	-0.08 (-0.25,0.09)	0.03** (0.01,0.05)	0.15 (-0.01,0.30)
Secondary	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Tertiary	3.60*** (3.24,3.96)	2.32*** (1.83,2.82)	-0.17*** (-0.24,-0.10)	4.88*** (4.39,5.36)	-0.24*** (-0.36,-0.13)	0.30*** (0.24,0.37)	-0.15*** (-0.23,-0.07)	-0.48* (-0.85,-0.11)	-0.04 (-0.15,0.07)	0.05 (-0.02,0.13)	-0.00 (-0.01,0.01)	0.00 (-0.07,0.08)
Citizenship												
Autochthonous	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
2 nd generation	0.04 (-0.60,0.67)	0.65 (-0.21,1.51)	-0.09 (-0.21,0.03)	0.02 (-0.83,0.87)	0.12 (-0.07,0.31)	-0.00 (-0.12,0.12)	-0.10 (-0.23,0.03)	0.05 (-0.59,0.70)	0.20* (0.02,0.37)	0.02 (-0.11,0.15)	-0.02* (-0.04,-0.01)	-0.14* (-0.27,-0.02)
1 st generation	-1.09*** (-1.60,-0.59)	0.20 (-0.48,0.88)	-0.02 (-0.12,0.08)	-2.76*** (-3.42,-2.09)	0.31*** (0.18,0.44)	-0.19*** (-0.29,-0.09)	0.11 (-0.00,0.22)	-0.46 (-0.96,0.05)	0.13 (-0.01,0.26)	-0.03 (-0.13,0.07)	-0.01 (-0.02,0.00)	-0.10 (-0.20,0.00)

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; All effects are controlled for employment status and part-time work, individual level characteristics (sex, age, education, citizenship, life stage, seniority and income decile), workplace characteristics (ISCO and nace), and a selection of macro-level indicators (see table 5 of this report). Estimates with an 'a-label' are obtained using logistic regression; estimates with a 'b-label' are obtained using OLS-regression. Estimates in italic are reference categories. Indicators: Physical environment - scale from 0 to 100 (good physical environment). Work intensity - scale from 0 to 100 (high work intensity). Working time quality - scale from 0 to 100 (good working time quality). High strain - dummy 0 to 1 (high strain). Social environment - dummy 0 to 1 (good social environment), 25% cut-off. Regularity - dummy 0 to 1 (medium/high regularity). Job security - scale 0 to 1 (High job security). Prospects - dummy 0 to 1 (good prospects), 25% cut-off. Skills and Discretion - scale from 0 to 100 (good skills and discretion/work quality).

Table 11: The relation between individual-level indicators and job quality indices (continued)

	Physical Environment ^b	High work intensity ^b	Social environment ^a	Skills and Discretion ^b	High strain ^a	Training received ^a	Regularity (medium-high) ^a	Working time quality ^b	Called to work at short notice ^a	Difficulties in arranging time off ^a	Job security ^b	Employment prospects ^a
Intercept	85.88	96.27	-1.89	42.05	1.40	0.28	-1.92	62.01	-1.76	0.73	0.69	-0.48
Life stage												
Single, 18-35y, with parents	-0.61 (-1.66,0.45)	1.04 (-0.40,2.48)	0.01 (-0.19,0.22)	0.76 (-0.66,2.18)	0.00 (-0.26,0.27)	0.14 (-0.07,0.35)	0.11 (-0.13,0.34)	0.54 (-0.53,1.60)	0.04 (-0.24,0.32)	0.00 (-0.21,0.21)	-0.03 (-0.05,0.00)	-0.17 (-0.38,0.04)
Single ≤45y, no children	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Couple no child., woman ≤45y	-0.10 (-0.67,0.47)	0.50 (-0.27,1.27)	0.16** (0.05,0.27)	1.21** (0.44,1.97)	0.03 (-0.13,0.19)	0.21*** (0.10,0.32)	0.14* (0.02,0.26)	0.53 (-0.05,1.10)	-0.15 (-0.31,0.01)	0.10 (-0.02,0.21)	0.01 (-0.01,0.02)	-0.01 (-0.13,0.11)
Couple, youngest child ≤7y	-0.10 (-0.67,0.47)	0.50 (-0.27,1.27)	0.16** (0.05,0.27)	1.21** (0.44,1.97)	0.03 (-0.13,0.19)	0.21*** (0.10,0.32)	0.14* (0.02,0.26)	0.53 (-0.05,1.10)	-0.15 (-0.31,0.01)	0.10 (-0.02,0.21)	0.01 (-0.01,0.02)	-0.01 (-0.13,0.11)
Couple, youngest child ≥7y & ≤12y	0.32 (-0.36,1.00)	-0.27 (-1.20,0.65)	0.10 (-0.03,0.23)	1.94*** (1.03,2.85)	-0.28** (-0.49,-0.08)	0.26*** (0.13,0.39)	0.26*** (0.10,0.41)	-0.18 (-0.86,0.51)	-0.01 (-0.20,0.18)	0.14* (0.00,0.28)	0.02* (0.00,0.04)	0.05 (-0.09,0.19)
Couple, youngest child ≥12y	-0.14 (-0.77,0.49)	-0.05 (-0.91,0.81)	0.13* (0.01,0.25)	1.90*** (1.06,2.75)	-0.13 (-0.31,0.05)	0.29*** (0.17,0.41)	0.22** (0.08,0.36)	0.33 (-0.31,0.96)	-0.14 (-0.32,0.04)	0.04 (-0.09,0.17)	0.01 (-0.01,0.02)	-0.01 (-0.14,0.12)
Couple no child., woman 46-59y	0.04 (-0.68,0.77)	0.30 (-0.69,1.29)	0.11 (-0.03,0.25)	0.27 (-0.71,1.24)	-0.14 (-0.35,0.07)	0.10 (-0.04,0.24)	0.13 (-0.03,0.29)	0.34 (-0.40,1.07)	-0.12 (-0.33,0.09)	0.19* (0.04,0.33)	0.01 (-0.01,0.03)	0.07 (-0.07,0.22)
Couple no child., both ≥60y	1.65** (0.65,2.66)	-0.90 (-2.27,0.47)	0.05 (-0.14,0.25)	0.68 (-0.68,2.03)	-0.30 (-0.65,0.05)	-0.12 (-0.32,0.09)	0.02 (-0.19,0.24)	2.31*** (1.29,3.32)	-0.42** (-0.74,-0.11)	-0.18 (-0.41,0.04)	-0.01 (-0.04,0.02)	-0.01 (-0.21,0.19)
Single ≥50y, without children	0.46 (-0.32,1.24)	-0.19 (-1.26,0.88)	0.07 (-0.08,0.22)	-0.65 (-1.71,0.40)	0.04 (-0.19,0.27)	-0.14 (-0.29,0.02)	-0.03 (-0.21,0.14)	0.89* (0.10,1.68)	-0.23 (-0.46,0.00)	0.11 (-0.05,0.27)	-0.01 (-0.03,0.01)	-0.06 (-0.21,0.10)
Not classified in former	-0.36 (-0.91,0.18)	0.04 (-0.70,0.79)	0.14** (0.03,0.25)	1.14** (0.40,1.87)	-0.02 (-0.17,0.13)	0.21*** (0.10,0.31)	0.14* (0.02,0.26)	0.02 (-0.53,0.57)	-0.09 (-0.24,0.06)	0.14* (0.03,0.25)	0.00 (-0.01,0.02)	0.02 (-0.10,0.13)

*p-values: * p<0.05; ** p<0.01; *** p<0.001; All effects are controlled for employment status and part-time work, individual level characteristics (sex, age, education, citizenship, life stage, seniority and income decile), workplace characteristics (ISCO and nace), and a selection of macro-level indicators (see table 5 of this report). Estimates with an 'a-label' are obtained using logistic regression; estimates with a 'b-label' are obtained using OLS-regression. Estimates in italic are reference categories. Indicators: Physical environment - scale from 0 to 100 (good physical environment). Work intensity - scale from 0 to 100 (high work intensity). Working time quality - scale from 0 to 100 (good working time quality). High strain - dummy 0 to 1 (high strain). Social environment - dummy 0 to 1 (good social environment), 25% cut-off. Regularity - dummy 0 to 1 (medium/high regularity). Job security - scale 0 to 1 (High job security). Prospects - dummy 0 to 1 (good prospects), 25% cut-off. Skills and Discretion - scale from 0 to 100 (good skills and discretion/ work quality).*

Table 11: The relation between individual-level indicators and job quality indices (continued)

	Physical Environment ^b	High work intensity ^b	Social environment ^a	Skills and Discretion ^b	High strain ^a	Training received ^a	Regularity (medium-high) ^a	Working time quality ^b	Called to work at short notice ^a	Difficulties in arranging time off ^a	Job security ^b	Employment prospects ^a
Intercept	85.88	96.27	-1.89	42.05	1.40	0.28	-1.92	62.01	-1.76	0.73	0.69	-0.48
Seniority												
Less than one year	1.15*** (0.60,1.70)	-1.44*** (-2.19,-0.69)	0.12* (0.01,0.23)	-1.66*** (-2.40,-0.92)	0.12 (-0.03,0.27)	-0.23*** (-0.34,-0.12)	0.03 (-0.09,0.16)	-0.07 (-0.63,0.49)	-0.11 (-0.27,0.04)	0.13* (0.02,0.24)	-0.09*** (-0.11,-0.08)	-0.06 (-0.17,0.05)
1-4 years	0.71*** (0.31,1.11)	-0.19 (-0.74,0.35)	-0.03 (-0.10,0.05)	-0.61* (-1.15,-0.07)	0.11 (-0.00,0.23)	-0.06 (-0.14,0.02)	0.05 (-0.04,0.13)	-0.49* (-0.90,-0.08)	0.02 (-0.09,0.14)	0.10* (0.02,0.19)	-0.02*** (-0.03,-0.01)	0.11** (0.03,0.19)
5-9 years	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
10 years or more	-0.65*** (-1.02,-0.27)	-0.36 (-0.87,0.16)	0.04 (-0.03,0.11)	1.15*** (0.65,1.66)	-0.06 (-0.17,0.06)	0.15*** (0.07,0.22)	0.10* (0.02,0.19)	0.13 (-0.26,0.51)	-0.07 (-0.18,0.05)	0.01 (-0.07,0.09)	0.03*** (0.02,0.04)	-0.08 (-0.15,0.00)
Income quintile												
First	0.08 (-0.43,0.60)	-1.47*** (-2.17,-0.77)	0.01 (-0.09,0.11)	-3.73*** (-4.42,-3.04)	0.05 (-0.10,0.19)	-0.52*** (-0.63,-0.42)	-0.19** (-0.31,-0.08)	0.55* (0.03,1.07)	0.23** (0.08,0.38)	-0.08 (-0.19,0.02)	-0.03*** (-0.04,-0.01)	-0.24*** (-0.34,-0.13)
Second	-0.15 (-0.59,0.30)	-0.04 (-0.65,0.57)	-0.03 (-0.12,0.05)	-2.47*** (-3.07,-1.87)	0.25*** (0.12,0.37)	-0.18*** (-0.27,-0.10)	0.03 (-0.07,0.14)	-0.09 (-0.54,0.37)	0.10 (-0.04,0.24)	-0.02 (-0.11,0.07)	-0.02*** (-0.03,-0.01)	-0.17*** (-0.25,-0.08)
Third	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Fourth	0.89*** (0.45,1.33)	0.79* (0.18,1.39)	-0.07 (-0.16,0.01)	1.92*** (1.33,2.52)	-0.01 (-0.14,0.13)	0.11* (0.02,0.19)	-0.12* (-0.22,-0.02)	-1.06*** (-1.51,-0.61)	0.09 (-0.04,0.23)	0.02 (-0.07,0.11)	0.02** (0.00,0.03)	0.18*** (0.09,0.27)
Fifth	2.10*** (1.62,2.57)	1.09*** (0.45,1.73)	0.08 (-0.01,0.17)	4.35*** (3.72,4.98)	-0.23** (-0.39,-0.07)	0.30*** (0.22,0.39)	-0.32*** (-0.42,-0.21)	-2.74*** (-3.21,-2.26)	0.14 (-0.00,0.28)	-0.01 (-0.11,0.08)	0.03*** (0.02,0.05)	0.35*** (0.25,0.45)

*p-values: * p<0.05; ** p<0.01; *** p<0.001; All effects are controlled for employment status and part-time work, individual level characteristics (sex, age, education, citizenship, life stage, seniority and income decile), workplace characteristics (ISCO and nace), and a selection of macro-level indicators (see table 5 of this report). Estimates with an 'a-label' are obtained using logistic regression; estimates with a 'b-label' are obtained using OLS-regression. Estimates in italic are reference categories. Indicators: Physical environment - scale from 0 to 100 (good physical environment). Work intensity - scale from 0 to 100 (high work intensity). Working time quality - scale from 0 to 100 (good working time quality). High strain - dummy 0 to 1 (high strain). Social environment - dummy 0 to 1 (good social environment), 25% cut-off. Regularity - dummy 0 to 1 (medium/high regularity). Job security - scale 0 to 1 (High job security). Prospects - dummy 0 to 1 (good prospects), 25% cut-off. Skills and Discretion - scale from 0 to 100 (good skills and discretion/ work quality).*

Table 11: The relation between individual-level indicators and job quality indices (continued)

	Physical Environment ^b	High work intensity ^b	Social environment ^a	Skills and Discretion ^b	High strain ^a	Training received ^a	Regularity (medium-high) ^a	Working time quality ^b	Called to work at short notice ^a	Difficulties in arranging time off ^a	Job security ^b	Employment prospects ^a
Intercept	85.88	96.27	-1.89	42.05	1.40	0.28	-1.92	62.01	-1.76	0.73	0.69	-0.48
ISCO – Occupational categories^c												
Managers	0.08 (-0.60,0.75)	-1.68*** (-2.60,-0.76)	0.03 (-0.10,0.16)	11.81*** (10.91,12.70)	-0.92*** (-1.17,-0.66)	0.06 (-0.06,0.19)	-0.27*** (-0.42,-0.11)	-5.21*** (-5.89,-4.53)	0.45*** (0.24,0.67)	0.00 (-0.15,0.15)	-0.03** (-0.04,-0.01)	0.04 (-0.11,0.18)
Professionals	-1.50*** (-2.08,-0.92)	-1.85*** (-2.64,-1.05)	0.02 (-0.09,0.14)	10.48*** (9.70,11.26)	-0.54*** (-0.73,-0.34)	0.21*** (0.10,0.32)	-0.33*** (-0.47,-0.20)	-3.20*** (-3.79,-2.61)	0.17 (-0.03,0.38)	0.40*** (0.28,0.52)	-0.01 (-0.03,0.00)	-0.02 (-0.14,0.10)
Technicians and professionals	-1.36*** (-1.92,-0.79)	-1.96*** (-2.73,-1.19)	-0.00 (-0.11,0.11)	9.38*** (8.63,10.13)	-0.38*** (-0.55,-0.20)	0.21*** (0.10,0.31)	-0.32*** (-0.46,-0.19)	-1.45*** (-2.02,-0.87)	0.26* (0.06,0.45)	0.08 (-0.04,0.19)	-0.02** (-0.04,-0.01)	-0.04 (-0.15,0.08)
Clerical support	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Service and sales workers	-3.98*** (-4.52,-3.44)	-4.75*** (-5.49,-4.01)	0.07 (-0.04,0.17)	-2.74*** (-3.48,-2.01)	-0.39*** (-0.54,-0.25)	0.05 (-0.05,0.16)	-0.38*** (-0.51,-0.25)	-5.42*** (-5.97,-4.87)	0.81*** (0.63,0.99)	0.38*** (0.27,0.48)	0.01 (-0.01,0.02)	0.10 (-0.01,0.21)
Skilled agri., forestry, fishery	-11.80*** (-13.07,-10.52)	-8.31*** (-10.06,-6.56)	0.35** (0.10,0.60)	-3.35*** (-5.07,-1.62)	-0.48* (-0.87,-0.10)	-0.58*** (-0.86,-0.29)	-0.25 (-0.53,0.04)	-2.29*** (-3.59,-0.99)	0.43* (0.07,0.80)	-0.12 (-0.40,0.17)	0.03 (-0.01,0.06)	0.13 (-0.13,0.39)
Craft and related trades workers	-13.89*** (-14.54,-13.25)	-5.44*** (-6.34,-4.54)	0.44*** (0.31,0.57)	-4.37*** (-5.26,-3.48)	-0.16 (-0.34,0.01)	-0.33*** (-0.46,-0.20)	-0.17* (-0.33,-0.01)	-0.11 (-0.78,0.57)	0.19 (-0.03,0.41)	-0.15* (-0.29,-0.02)	0.00 (-0.02,0.02)	0.15* (0.01,0.28)
Plant & machine op., assemblers	-10.43*** (-11.11,-9.76)	-5.58*** (-6.51,-4.65)	0.24*** (0.11,0.37)	-9.40*** (-10.31,-8.48)	0.24** (0.07,0.40)	-0.25*** (-0.39,-0.12)	-0.26** (-0.42,-0.10)	-3.30*** (-4.00,-2.61)	0.50*** (0.29,0.72)	0.05 (-0.09,0.18)	0.00 (-0.02,0.02)	0.14* (0.00,0.27)
Elementary occupations	-9.61*** (-10.22,-9.00)	-6.64*** (-7.48,-5.80)	0.03 (-0.09,0.15)	-10.15*** (-10.98,-9.33)	0.11 (-0.05,0.27)	-0.48*** (-0.61,-0.36)	-0.12 (-0.27,0.03)	-1.32*** (-1.95,-0.70)	0.40*** (0.19,0.60)	-0.27*** (-0.40,-0.14)	0.01 (-0.01,0.02)	0.05 (-0.07,0.17)

*p-values: * p<0.05; ** p<0.01; *** p<0.001; All effects are controlled for employment status and part-time work, individual level characteristics (sex, age, education, citizenship, life stage, seniority and income decile), workplace characteristics (ISCO and nace), and a selection of macro-level indicators (see table 5 of this report). Estimates with an 'a-label' are obtained using logistic regression; estimates with a 'b-label' are obtained using OLS-regression. Estimates in italic are reference categories. Indicators: Physical environment - scale from 0 to 100 (good physical environment). Work intensity - scale from 0 to 100 (high work intensity). Working time quality - scale from 0 to 100 (good working time quality). High strain - dummy 0 to 1 (high strain). Social environment - dummy 0 to 1 (good social environment), 25% cut-off. Regularity - dummy 0 to 1 (medium/high regularity). Job security - scale 0 to 1 (High job security). Prospects - dummy 0 to 1 (good prospects), 25% cut-off. Skills and Discretion - scale from 0 to 100 (good skills and discretion/work quality);^c The armed forces occupations, while not shown, were however, included in the analyses.*

Employment status and job quality

Table 11: The relation between individual-level indicators and job quality indices (continued)

	Physical Environment ^b	High work intensity ^b	Social environment ^a	Skills and Discretion ^b	High strain ^a	Training received ^a	Regularity (medium-high) ^a	Working time quality ^b	Called to work at short notice ^a	Difficulties in arranging time off ^a	Job security ^b	Employment prospects ^a
Intercept	85.88	96.27	-1.89	42.05	1.40	0.28	-1.92	62.01	-1.76	0.73	0.69	-0.48
NACE												
Agriculture	-3.38*** (-4.52,-2.23)	-3.59*** (-5.15,-2.03)	0.47*** (0.24,0.69)	-2.14** (-3.67,-0.60)	0.34* (0.00,0.69)	-0.71*** (-0.95,-0.47)	-0.62*** (-0.87,-0.37)	-4.40*** (-5.57,-3.24)	0.29 (-0.03,0.61)	-0.15 (-0.40,0.10)	0.00 (-0.03,0.03)	0.25* (0.02,0.48)
Industry	-3.02*** (-3.69,-2.34)	1.94*** (1.02,2.86)	0.45*** (0.32,0.58)	-3.08*** (-3.99,-2.17)	0.69*** (0.47,0.92)	-0.60*** (-0.72,-0.47)	0.29*** (0.13,0.44)	0.54 (-0.14,1.22)	-0.16 (-0.39,0.06)	-0.05 (-0.19,0.10)	-0.05*** (-0.07,-0.03)	0.00 (-0.13,0.14)
Construction	-6.15*** (-6.97,-5.33)	0.47 (-0.65,1.59)	0.52*** (0.35,0.68)	-0.77 (-1.87,0.34)	0.15 (-0.11,0.41)	-0.80*** (-0.96,-0.64)	-0.13 (-0.31,0.06)	0.11 (-0.72,0.94)	0.05 (-0.20,0.30)	0.10 (-0.07,0.27)	-0.08*** (-0.10,-0.06)	-0.15 (-0.31,0.02)
Commerce and hospitality	1.07** (0.42,1.72)	2.62*** (1.73,3.50)	0.43*** (0.30,0.55)	-3.20*** (-4.07,-2.33)	0.54*** (0.32,0.76)	-0.89*** (-1.02,-0.77)	0.04 (-0.11,0.18)	-2.68*** (-3.34,-2.03)	0.13 (-0.07,0.34)	0.21** (0.07,0.34)	-0.03*** (-0.05,-0.02)	0.10 (-0.03,0.23)
Transport	-0.42 (-1.23,0.39)	-0.17 (-1.27,0.93)	0.11 (-0.04,0.26)	-5.07*** (-6.15,-3.98)	0.62*** (0.38,0.86)	-0.36*** (-0.52,-0.21)	-0.38*** (-0.56,-0.20)	-3.94*** (-4.76,-3.12)	0.40** (0.16,0.64)	0.50*** (0.34,0.67)	-0.03* (-0.05,-0.01)	0.14 (-0.03,0.30)
Financial	3.65*** (2.76,4.53)	5.16*** (3.96,6.36)	0.25** (0.08,0.42)	1.20* (0.01,2.39)	0.52*** (0.21,0.82)	-0.19* (-0.35,-0.02)	-0.05 (-0.25,0.15)	0.46 (-0.44,1.35)	-0.17 (-0.48,0.13)	0.00 (-0.19,0.20)	-0.06*** (-0.08,-0.04)	0.04 (-0.15,0.22)
Public	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Education	-0.22 (-0.94,0.51)	-4.54*** (-5.52,-3.55)	0.14 (-0.00,0.28)	0.90 (-0.08,1.87)	-0.70*** (-1.01,-0.39)	-0.23*** (-0.37,-0.10)	0.68*** (0.51,0.85)	-4.56*** (-5.29,-3.83)	-0.40** (-0.67,-0.14)	0.92*** (0.77,1.07)	-0.02* (-0.04,-0.00)	0.15* (0.00,0.30)
Health	-5.23*** (-5.93,-4.54)	-0.13 (-1.08,0.82)	0.16* (0.02,0.29)	-0.48 (-1.42,0.46)	0.05 (-0.19,0.29)	0.00 (-0.13,0.13)	0.01 (-0.14,0.17)	-3.65*** (-4.35,-2.94)	0.36** (0.15,0.57)	0.64*** (0.50,0.78)	0.01 (-0.01,0.03)	0.18* (0.04,0.32)
Other services	0.54 (-0.10,1.18)	-0.01 (-0.88,0.86)	0.25*** (0.13,0.37)	0.54 (-0.32,1.40)	0.16 (-0.06,0.38)	-0.47*** (-0.60,-0.35)	-0.05 (-0.20,0.09)	-1.39*** (-2.03,-0.74)	0.17 (-0.03,0.38)	0.06 (-0.08,0.19)	-0.05*** (-0.07,-0.04)	0.07 (-0.06,0.20)

*p-values: * p<0.05; ** p<0.01; *** p<0.001; All effects are controlled for employment status and part-time work, individual level characteristics (sex, age, education, citizenship, life stage, seniority and income decile), workplace characteristics (ISCO and nace), and a selection of macro-level indicators (see table 5 of this report). Estimates with an 'a-label' are obtained using logistic regression; estimates with a 'b-label' are obtained using OLS-regression. Estimates in italic are reference categories. Indicators: Physical environment - scale from 0 to 100 (good physical environment). Work intensity - scale from 0 to 100 (high work intensity). Working time quality - scale from 0 to 100 (good working time quality). High strain - dummy 0 to 1 (high strain). Social environment - dummy 0 to 1 (good social environment), 25% cut-off. Regularity - dummy 0 to 1 (medium/high regularity). Job security - scale 0 to 1 (High job security). Prospects - dummy 0 to 1 (good prospects), 25% cut-off. Skills and Discretion - scale from 0 to 100 (good skills and discretion/ work quality).*

Seniority. Net effects (controlling for age) of seniority show that workers with lower tenure - certainly those with less than a year tenure - have worse scores for skills and discretion, receiving training, difficulties arranging time off during working hours and job security. To the contrary, workers with less tenure report a better physical work quality. These results are compared to the reference category of workers with 5 to 9 years of tenure. The longest tenure category (10 years and more) more often reports regularity of their work schedule.

Income quintiles. Clear relations between job quality measures and income quintiles can be discerned. Higher earners on average report a better physical work environment, more utilization of skills and discretion, less job strain, more often receive training and have higher job security and employment prospects. However, higher earners also report higher work intensity and lower working time quality (including lower regularity). The third income quintile serves as the reference here. The lowest income quintile - again compared to the reference - consistently shows more adverse job quality - only work intensity (lower) and working time quality (higher) constitute exceptions to that pattern.

Occupational categories. For the analysis of occupational categories, clerical support workers served as a reference category. Managers have similar or more favourable job quality, compared to the reference category. Work intensity and working time related indicators (regularity, called to work at short notice and working time quality), however, are less favourable compared to the reference. The pattern for professionals is very similar to that of managers, although this occupational category shows a worse physical work environment, compared to clerical support workers. A fairly similar pattern is also seen for technicians and professionals, although for them a slightly lower level of job security is noted. Service and sales workers are generally in a worse situation than clerical support workers when it comes to job quality. Exceptions to that general pattern are lower work intensity and less job strain. The same holds for skilled primary sector workers: particularly physical work environment scores are lower. Crafts and related trades workers depart from the reference category to the worse for the quality of the physical work environment, skills and discretion, receiving training and regularity. In contrast, work intensity, the social work environment, employment prospects and the possibility to arrange time off show better scores. Finally, plant and machine operators and elementary occupations are showing a fairly consistent pattern of worse job quality when compared to clerical support workers – one exception is a better social work environment.

Economic sectors. Public sector workers serve as the reference category. Compared to that reference category, it can be observed that workers from the agricultural sector have worse job quality, except for significantly lower work intensity, better social environment and higher employment prospects, while no differences are noted for being called to work at short notice, difficulties in arranging time off and job security. Workers in industry show a worse physical environment, higher work intensity, lower skill and discretion, more job strain, less training and less job security. In contrast, scores for the quality of the social environment and regularity are better. Workers from the construction sector have particularly adverse scores for the quality of the physical work environment, receiving training and job security. The quality of the social environment is significantly better compared to public sector workers. Those working in commerce and hospitality score worse on work intensity, skills and discretion, high job strain, receiving training, working time quality, difficulties in arranging time off and job security. For the same sector - still compared to public sector workers, the quality of the physical and social work environment are better. For workers in the transport sector, worse scores are reported for skills and discretion, high strain, receiving training, regularity, working time quality (including all sub-scales) and job security. Financial services-workers do better, compared to public sector employees, for the quality of the physical and social work environment, as well as skills and discretion. However, they fare worse in terms of work intensity, job strain, training and job security. In the educational sector, work intensity is on average lower; the same holds for the occurrence of high job strain, while work schedule regularity and work prospects are higher. In contrast, levels of received training, working time quality (general, being called to work at short notice and difficulties in

arranging time off) and job security are significantly worse, compared to public sector workers. As regards the health sector, the quality of the physical work environment and working time quality (general, being called to work at short notice and difficulties in arranging time off) score worse compared to public sector workers. In contrast, the social work environment and employment prospects-scores are higher, compared to the reference. Finally, in ‘other services’ received training, working time quality (general) and job security are lower, while a better score than the reference is noted for a good social environment.

Country-level determinants of job quality

In this section, a detailed analysis of the relation between country-level determinants and job quality is made. First, we discuss the associations between production regimes and job quality. Second, we associate macro-level indicators to job quality. Third, we show how the associations between employment status and job quality vary according to production regime.

Associations between production regimes and job quality

The production regimes typology classifying the EU-countries into five country-types has been added to the regressions as a macro-variable. The results shown in table 12, are therefore controlled for employment status and all other individual-level and workplace variables mentioned in the legend of the table. The Northern countries are considered the reference category. It can be noted that this ‘fully controlled model’ does not generate strong effects for the production regimes typology. Belonging to a Anglo-Saxon market regime-country is associated with a higher score for regularity and being called to work at short notice, while working time quality in general is significantly lower than in Northern countries. Workers from continental coordinated countries have - compared to those from the Northern countries - higher estimates for regularity and for experiencing difficulties to arrange time of during working times. In Southern state coordinated countries, workers generally experience lower skills and discretion scores, more difficulties arranging time off, lower job security and lower employment prospects. At the same time they have a higher regularity score, compared to the Northern countries. The workers from Central Eastern and Baltic countries have generally lower scores for work intensity and skills and discretion, experience lower overall working time quality as well as higher scores for being called to work at short notice and having difficulties arranging time off during working hours. Moreover, also job security scores are lower. In contrast, a lower score for work intensity and higher work schedule regularity are found as well.

Employment status and job quality

Table 12: The relation between production regimes and job quality indices

	Physical Environment ^b	High work intensity ^b	Social environment ^a	Skills and Discretion ^b	High strain ^a	Training received ^a	Regularity (medium-high) ^a	Working time quality ^b	Called to work at short notice ^a	Difficulties in arranging time off ^a	Job security ^b	Employment prospects ^a
Intercept	85.59	98.16	-2.07	48.36	1.11	0.53	-2.68	63.50	-1.95	0.09	0.76	-0.20
Production regimes												
Anglo-Saxon market regime	1.71 (-1.13,4.55)	1.17 (-2.96,5.30)	0.45 (-0.34,1.23)	-2.85 (-9.80,4.09)	0.38 (-0.59,1.35)	0.35 (-0.56,1.27)	0.92*** (0.41,1.43)	-2.56* (-4.78,-0.35)	0.35* (0.04,0.66)	0.19 (-0.56,0.94)	-0.04 (-0.14,0.06)	-0.14 (-0.64,0.37)
Northern countries	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Continental coordinated reg.	0.84 (-1.37, 3.04)	-1.84 (-5.04,1.36)	-0.06 (-0.67,0.55)	-3.53 (-8.91,1.86)	0.20 (-0.56,0.96)	0.16 (-0.55,0.87)	0.57** (0.18,0.97)	-1.10 (-2.82,0.62)	0.12 (-0.12,0.37)	0.65* (0.07,1.24)	-0.04 (-0.12,0.03)	-0.16 (-0.55,0.24)
Southern state coordinated regime	-0.50 (-2.65,1.66)	1.21 (-1.92,4.35)	0.50 (-0.10,1.10)	-9.74*** (-14.99,-4.48)	0.58 (-0.16,1.32)	-0.64 (-1.34,0.05)	1.17*** (0.78,1.56)	-1.53 (-3.22,0.16)	-0.04 (-0.29,0.21)	0.67* (0.10,1.24)	-0.08* (-0.16,-0.01)	-0.47* (-0.86,-0.09)
Central Eastern and Baltic countries	-0.64 (-2.70, 1.42)	-5.70*** (-8.69,-2.70)	0.16 (-0.41,0.73)	-7.83** (-12.84,-2.81)	0.12 (-0.59,0.83)	-0.37 (-1.03,0.29)	0.83*** (0.46,1.20)	-3.14*** (-4.75,-1.53)	0.40*** (0.17,0.64)	0.92*** (0.38,1.47)	-0.11** (-0.18,-0.04)	-0.32 (-0.69,0.05)

*p-values: * p<0.05; ** p<0.01; *** p<0.001; All effects are controlled for employment status and part-time work, individual level characteristics (sex, age, education, citizenship, life stage, seniority and income decile), workplace characteristics (ISCO and nace), and the production regime indicator. Estimates with an 'a-label' are obtained using logistic regression; estimates with a 'b-label' are obtained using OLS-regression. Estimates in italic are reference categories. Indicators: Physical environment - scale from 0 to 100 (good physical environment). Work intensity - scale from 0 to 100 (high work intensity). Working time quality - scale from 0 to 100 (good working time quality). High strain - dummy 0 to 1 (high strain). Social environment - dummy 0 to 1 (good social environment), 25% cut-off. Regularity - dummy 0 to 1 (medium/high regularity). Job security - scale 0 to 1 (High job security). Prospects - dummy 0 to 1 (good prospects), 25% cut-off. Skills and Discretion - scale from 0 to 100 (good skills and discretion/ work quality).*

Associations between macro-level characteristics and job quality

As an alternative approach to the production regimes described above, a series of macro-variables (with separate scores for 2015 for each country) was added to the individual-level/workplace fully controlled model. The results of the macro variables, converted to z-scores, are reported in table 13. Only those macro-indicators that proved to have significant effects in bivariate analyses were added to the final model. The results show that particularly those indicators related to ‘labour market performance’ and ‘working class power’ are significantly related to a number of job quality indices. In countries with a high extent of centralisation in collective bargaining, respondents tend to have higher scores for working time quality. The country-level unemployment rate shows a significant negative association with skills and discretion and with employment prospects, while the estimate for experiencing high job strain is significantly higher as well. Collective bargaining coverage is positively associated with work schedule regularity. Union density shows a negative association with experiencing difficulties in arranging time off during working hours and a positive association with job security and employment prospects. The amount of R&D-expenditure as a percentage of GDP is negatively associated with the scores for social environment and regularity. GDP per capita at the country level, finally, shows a small positive association with individual-level job quality.

Employment status and job quality

Table 13: The relation between macro-indicators and job quality indicators

	Physical Environment ^b	High work intensity ^b	Social environment ^a	Skills and Discretion ^b	High strain ^a	Training received ^a	Regularity (medium-high) ^a	Working time quality ^b	Called to work at short notice ^a	Difficulties arranging time off ^a	Job security ^b	Employment prospects ^a
Intercept	85.88	96.27	-1.89	42.05	1.40	0.28	-1.92	62.01	-1.76	0.73	0.69	-0.48
Net social protection benefits	n.s.	0.93 (-0.29; 2.15)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Labour Cost per hour	0.26 (-0.39; 0.91)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Passive Labour market policies	n.s.	n.s.	n.s.	-0.26 (-1.90; 1.38)	n.s.	0.10 (-0.15; 0.35)	n.s.	n.s.	n.s.	-0.06 (-0.24; 0.13)	n.s.	n.s.
Active Labour market policies	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	0.01 (-0.01; 0.04)	0.05 (-0.04; 0.15)
High collective bargaining centralization	0.23 (-0.40; 0.86)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	0.71** (0.19; 1.24)	n.s.	n.s.	n.s.	n.s.
Unemployment rate	-0.65 (-1.36; 0.06)	n.s.	n.s.	-2.52** (-4.07; -0.98)	0.35** (-0.14; 0.55)	-0.17 (-0.42; 0.08)	n.s.	-0.07 (-0.70; 0.57)	n.s.	n.s.	-0.02 (-0.04; 0.00)	-0.18*** (-0.28; -0.07)
Collective bargaining coverage	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	0.12* (0.01; 0.24)	n.s.	n.s.	n.s.	n.s.	n.s.
Union density	n.s.	1.14 (-0.11; 2.39)	n.s.	0.43 (-0.91; 1.77)	n.s.	n.s.	n.s.	n.s.	n.s.	-0.20* (-0.37; -0.03)	0.02* (0.00; 0.04)	0.09* (0.01; 0.18)
Employment in foreign enterprises	n.s.	n.s.	n.s.	n.s.	n.s.	0.17 (-0.05; 0.39)	n.s.	n.s.	n.s.	n.s.	n.s.	0.03 (-0.06; 0.12)
Share of tertiary educated 25-64-year-old	n.s.	-0.34 (-1.61; 0.93)	n.s.	1.16 (-0.26; 2.58)	n.s.	0.07 (-0.12; 0.26)	n.s.	n.s.	n.s.	-0.16 (-0.34; 0.02)	n.s.	n.s.
Employment knowledge intensive activities	n.s.	0.98 (-0.50; 2.45)	n.s.	n.s.	-0.06 (-0.23; 0.12)	n.s.	n.s.	n.s.	n.s.	0.03 (-0.18; 0.23)	n.s.	n.s.
R&D Expenditure	n.s.	n.s.	-0.22** (-0.38; -0.06)	1.23 (-0.37; 2.83)	n.s.	0.13 (-0.07; 0.34)	-0.44*** (-0.55; -0.32)	n.s.	n.s.	n.s.	-0.00 (-0.03; 0.02)	n.s.
GDP per capita	n.s.	n.s.	n.s.	0.66 (-0.74; 2.06)	n.s.	0.06 (-0.13; 0.26)	n.s.	n.s.	n.s.	n.s.	0.02* (0.00; 0.04)	0.04 (-0.05; 0.13)

*p-values: * p<0.05; ** p<0.01; *** p<0.001; effects controlled for employment status, part-time work, individual level characteristics (sex, age, education, citizenship, life stage, seniority, income decile), workplace characteristics (ISCO, nace), and macro-level indicators. The selection of macro indicators was based upon statistical significance in bivariate models and multicollinearity. Estimates with 'a' are obtained using logistic regression; estimates with 'b' are obtained using OLS-regression. Indicators: Physical environment - scale 0 to 100 (good physical environment). Work intensity - scale 0 to 100 (high work intensity). Working time quality - scale 0 to 100 (good working time quality). High strain - dummy 0 to 1 (high strain). Social environment - dummy 0 to 1 (good social environment), 25% cut-off. Regularity - dummy 0 to 1 (medium/high regularity). Job security - scale 0 to 1 (High job security). Prospects - dummy 0 to 1 (good prospects), 25% cut-off. Skills and Discretion - scale 0 to 100 (good skills and discretion).*

Variation between production regimes in the association between employment status and job quality

In table 14, the results of regression analyses stratified by production regimes are presented. These tables show how the relation between employment status and job quality may differ between production regimes. Note that these results are ‘net associations’ controlling for a series of potential confounders (mentioned in the legend of table 14).

Physical environment. In two of the regime-types (Anglo-Saxon countries and Central Eastern and Baltic states) the quality of the physical environment is lower for independent self-employed without employees than for people in indefinite contracts. This effect is stronger in the Anglo-Saxon countries. Furthermore, the table also shows that particularly in the Northern countries employers and fixed-term contracts of more than one year have a better physical environment than the reference group.

Work intensity. Based on the fully controlled models, in all production regimes, all the self-employed tend to have lower work intensity compared to people in indefinite contracts. The effect is largest for the independent self-employed without employees. While the effects sometimes differ in size (meaning the effect for independent self-employed is largest in Anglo-Saxon countries (β -12.49), and smallest in Central Eastern and Baltic states (β -6.24), these results show that there is very little variation in the direction of the association between self-employed and work intensity. There is one exception, in the Northern countries, we do not find such an effect for the self-employed with employees.

Social environment. In all production regimes the independent self-employed without employees have a worse social environment than the reference group. In the continental coordinated countries, Southern state coordinated countries and Central Eastern and Baltic states this is also the case for the dependent self-employed without employees. Furthermore, in the Central Eastern and Baltic states, continental and Southern state coordinated countries the employers have a better social environment than the workers in indefinite contracts. In Anglo-Saxon countries, fixed term contracts (+ 1 year) have a significantly worse score in comparison to employees with a permanent contract.

Skills and discretion. In all country groups, workers in short-term fixed contracts have poorer skills and discretion than do workers on indefinite contracts. This effect is largest in the Anglo-Saxon countries (β -6.84). The table also shows that in all production regimes, the independent self-employed without employees and the self-employed with employees have better skills and discretion scores than the reference category. Both effects are largest in the Southern state coordinated countries (β 12.39 and β 14.36) while the effects are the smallest in the Northern countries (β 3.78 and β 5.82). In the Southern state coordinated countries and Central Eastern and Baltic states we also found a positive effect of dependent self-employment without employees on skills and discretion.

Working time quality. The working time quality is considerably poorer for the independent self-employed without employees and the self-employed with employees in all production regimes. These effects are largest in Northern and continental coordinated countries, and smallest in Central Eastern and Baltic states. Furthermore, we find that the working time quality of workers in fixed-term contracts (both long-term and short-term) is poorer than workers in indefinite contracts, but the contrast with permanent contracts is only statistically significant in the Central Eastern and Baltic states.

Employment prospects. Fixed-term workers have poorer employment prospects compared to permanent workers in all but one production regime (Anglo-Saxon countries). Lastly, the table shows that the self-employed with employees have better employment prospects, in all countries, except for the Southern state coordinated countries.

This section considered the country-level determinants of job quality. The associations between production regimes and job quality do not show to be strong effects however, we found that Southern countries and Central Eastern countries are often associated to poor job quality indicators, compared to Northern countries, with only few exceptions (e.g. higher

regularity and lower work intensity) Anglo-Saxon countries are only sometimes associated to poor job quality indicators, with Northern countries as reference (e.g. being called into work at short notice, and poor working time quality). Our analyses of the associations between macro-indicators and job quality have shown that especially indicators relating to 'labour market performance' and 'working class power' affect job quality. In addition, analyses stratified by production regime showed that the relation between employment status and job quality indices can differ between production regimes. Most often these differences are manifested in the size of the effects, more so than in the direction of the associations. As a consequence, it may be assumed that the policy-related characteristics of these country-groups (such as the Northern countries) may attenuate potential negative effects of certain employment statuses on job quality.

Employment status and job quality

Table 14: Associations between job quality indices and employment status, stratified by production regime

<i>Physical environment</i>	Whole sample	Anglo-Saxon market regime	Northern countries	Continental coordinated regime	Southern state coordinated regime	Central Eastern and Baltic countries
Intercept	85.52***	82.92***	79.63***	85.87***	86.44***	85.11***
Employment Status						
An indefinite contract	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
A fixed term contract of more than 1 year	-0.41 (-1.00,0.17)	-1.00 (-3.72,1.72)	2.09 (0.44,3.75)*	-0.38 (-1.46,0.69)	-1.06 (-2.28,0.15)	-0.06 (-1.08,0.97)
A fixed term contract of less than a year	-0.45 (-1.14,0.23)	-1.77 (-5.01,1.47)	0.34 (-1.69,2.38)	0.34 (-1.10,1.78)	-0.53 (-1.67,0.62)	-0.48 (-1.89,0.93)
Other employees	-0.75 (-1.32,-0.18)**	-0.79 (-2.41,0.83)	2.20 (0.19,4.20) *	-1.84 (-3.02,-0.67)**	-0.35 (-1.28,0.57)	-0.81 (-2.22,0.61)
Self-employed without employees - dependent	-0.80 (-1.96,0.36)	-2.64 (-5.81,0.52)	2.19 (-2.10,6.48)	1.54 (-1.21,4.30)	-0.55 (-3.09,1.99)	-1.74 (-3.59,0.12)
Self-employed without employees - independent	-0.94 (-1.69,-0.18)*	-3.39 (-5.74,-1.04)**	0.79 (-1.18,2.77)	-0.01 (-1.41,1.40)	0.14 (-1.33,1.61)	-2.42 (-4.01,-0.83)**
Self-employed with employees	0.48 (-0.25,1.21)	-0.62 (-2.99,1.75)	3.41 (1.29,5.52)**	1.08 (-0.25,2.42)	1.15 (-0.27,2.57)	-0.78 (-2.28,0.72)
<i>Work intensity</i>	Whole sample	Anglo-Saxon market regime	Northern countries	Continental coordinated regime	Southern state coordinated regime	Central Eastern and Baltic countries
Intercept	96.08***	98.22***	105.98***	103.48***	98.36***	85.82***
Employment Status						
An indefinite contract	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
A fixed term contract of more than 1 year	-1.07 (-1.88,-0.26)**	-4.39 (-8.44,-0.35)*	-0.96 (-3.62,1.71)	-1.38 (-2.99,0.23)	-1.25 (-2.90,0.40)	-0.54 (-1.79,0.71)
A fixed term contract of less than a year	0.20 (-0.74,1.14)	0.71 (-4.10,5.52)	-3.81 (-7.07,-0.55)*	-0.73 (-2.89,1.43)	1.15 (-0.40,2.71)	-0.28 (-1.99,1.44)
Other employees	-1.93 (-2.72,-1.15)***	-1.32 (-3.74,1.10)	-2.47 (-5.68,0.75)	-2.36 (-4.12,-0.59)**	-1.74 (-2.99,-0.48)**	-1.60 (-3.33,0.12)
Self-employed without employees - dependent	-5.73 (-7.33,-4.13)***	-5.41 (-10.11,-0.72)*	-10.35 (-17.20,-3.50)**	-6.37 (-10.48,-2.25)**	-5.18 (-8.62,-1.73)**	-5.12 (-7.37,-2.86)***
Self-employed without employees - independent	-8.82 (-9.86,-7.79)***	-12.49 (-15.94,-9.03)***	-10.49 (-13.63,-7.35)***	-8.21 (-10.30,-6.11)***	-9.13 (-11.11,-7.15)***	-6.24 (-8.18,-4.30)***
Self-employed with employees	-4.19 (-5.19,-3.19)***	-5.95 (-9.47,-2.43)***	-2.67 (-6.05,0.72)	-5.68 (-7.68,-3.69)***	-3.53 (-5.46,-1.60)***	-3.15 (-4.97,-1.32)***

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; All effects are controlled for gender, age, education, citizenship, life stage, seniority, income decile, ISCO, nace, and the job quality indicators. The estimates are on a linear scale.

Employment status and job quality

Table 14: Associations between job quality indices and employment status, stratified by production regime (continued)

<i>Social environment</i>	Whole sample	Anglo-Saxon market regime	Northern countries	Continental coordinated regime	Southern state coordinated regime	Central Eastern and Baltic countries
Intercept	-1.87***	-1.84**	-2.23***	-2.84***	-1.11**	-1.57***
Employment Status						
An indefinite contract	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
A fixed term contract of more than 1 year	-0.07 (-0.18,0.04)	-0.75 (-1.32,-0.18)*	0.14 (-0.25,0.52)	-0.05 (-0.27,0.16)	0.01 (-0.23,0.24)	-0.17 (-0.36,0.03)
A fixed term contract of less than a year	0.14 (0.00,0.27)*	0.61 (-0.16,1.38)	0.32 (-0.16,0.80)	-0.14 (-0.43,0.16)	0.11 (-0.11,0.33)	0.24 (-0.03,0.52)
Other employees	0.03 (-0.08,0.14)	0.06 (-0.30,0.42)	-0.23 (-0.68,0.22)	0.05 (-0.19,0.30)	0.10 (-0.08,0.28)	-0.13 (-0.39,0.14)
Self-employed without employees - dependent	-0.91 (-1.13,-0.69)***	-0.59 (-1.24,0.06)	-0.93 (-1.88,0.01)	-0.58 (-1.14,-0.02)*	-0.92 (-1.38,-0.45)***	-1.19 (-1.53,-0.84)***
Self-employed without employees - independent	-1.04 (-1.18,-0.90)***	-1.17 (-1.65,-0.69)***	-0.74 (-1.18,-0.30)***	-0.86 (-1.14,-0.57)***	-1.06 (-1.32,-0.79)***	-1.45 (-1.75,-1.15)***
Self-employed with employees	0.23 (0.07,0.39)**	0.14 (-0.43,0.71)	-0.06 (-0.55,0.43)	0.40 (0.10,0.70)**	0.51 (0.20,0.83)**	-0.12 (-0.42,0.19)
<i>Skills and discretion</i>	Whole sample	Anglo-Saxon market regime	Northern countries	Continental coordinated regime	Southern state coordinated regime	Central Eastern and Baltic countries
Intercept	42.15***	49.27***	55.90***	40.15***	42.56***	36.11***
Employment Status						
An indefinite contract	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
A fixed term contract of more than 1 year	-1.00 (-1.80,-0.21)*	-1.51 (-5.18,2.16)	-1.38 (-3.53,0.77)	-0.68 (-2.19,0.84)	-0.63 (-2.21,0.95)	-0.73 (-2.16,0.71)
A fixed term contract of less than a year	-3.68 (-4.61,-2.75)***	-6.84 (-11.21,-2.47)**	-3.91 (-6.54,-1.28)**	-2.92 (-4.95,-0.89)**	-3.59 (-5.07,-2.10)***	-3.21 (-5.18,-1.24)**
Other employees	-3.31 (-4.09,-2.54)***	-4.93 (-7.10,-2.75)***	-1.65 (-4.25,0.94)	-3.69 (-5.34,-2.03)***	-3.53 (-4.74,-2.33)***	-2.33 (-4.30,-0.36)*
Self-employed without employees - dependent	2.80 (1.22,4.38)***	-3.51 (-7.79,0.77)	-2.51 (-8.06,3.04)	-0.67 (-4.54,3.19)	4.26 (0.96,7.57)*	6.32 (3.74,8.91)***
Self-employed without employees - independent	8.75 (7.73,9.77)***	4.13 (0.95,7.30)*	3.78 (1.23,6.34)**	7.56 (5.59,9.53)***	12.39 (10.50,14.28)***	9.00 (6.78,11.22)***
Self-employed with employees	10.30 (9.31,11.28)***	6.89 (3.69,10.08)***	5.82 (3.08,8.56)***	8.13 (6.26,10.00)***	14.36 (12.53,16.18)***	9.96 (7.88,12.05)***

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; All effects are controlled for gender, age, education, citizenship, life stage, seniority, income decile, ISCO, nace, and the job quality indicators. For Social environment the estimates are on a logit scale. For skills and discretion; a linear scale

Employment status and job quality

Table 14: Associations between job quality indices and employment status, stratified by production regime (continued)

<i>Working time quality</i>	Whole sample	Anglo-Saxon market regime	Northern countries	Continental coordinated regime	Southern state coordinated regime	Central Eastern and Baltic countries
Intercept	61.55***	60.45***	63.08***	66.08***	62.23***	55.84***
Employment Status						
An indefinite contract	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
A fixed term contract of more than 1 year	-1.27 (-1.86,-0.67)***	0.57 (-2.47,3.61)	-1.37 (-3.27,0.54)	-0.75 (-1.87,0.38)	-1.00 (-2.15,0.15)	-1.94 (-2.96,-0.92)***
A fixed term contract of less than a year	-1.18 (-1.87,-0.49)***	-0.98 (-4.60,2.65)	-1.85 (-4.19,0.48)	-0.33 (-1.83,1.17)	-0.95 (-2.03,0.13)	-1.87 (-3.27,-0.47)**
Other employees	-0.30 (-0.87,0.28)	0.29 (-1.52,2.09)	-0.46 (-2.75,1.84)	0.41 (-0.81,1.64)	-0.47 (-1.34,0.40)	-1.10 (-2.50,0.30)
Self-employed without employees - dependent	-1.73 (-2.91,-0.56)**	0.76 (-2.79,4.30)	-6.61 (-11.52,-1.70)**	-1.57 (-4.43,1.30)	-2.06 (-4.47,0.34)	-1.68 (-3.52,0.17)
Self-employed without employees - independent	-4.28 (-5.04,-3.52)***	-4.12 (-6.75,-1.50)**	-4.41 (-6.67,-2.15)***	-5.07 (-6.53,-3.61)***	-5.49 (-6.88,-4.11)***	-1.71 (-3.29,-0.12)*
Self-employed with employees	-7.55 (-8.29,-6.82)***	-6.57 (-9.21,-3.93)***	-11.84 (-14.23,-9.46)***	-10.51 (-11.88,-9.14)***	-7.84 (-9.18,-6.51)***	-3.22 (-4.71,-1.73)***
<i>Employment prospects</i>						
Intercept	-0.48**	-0.64	-1.27	-0.04	-0.89**	-0.34
Employment Status						
An indefinite contract	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
A fixed term contract of more than 1 year	-0.58 (-0.69,-0.46)***	-0.16 (-0.76,0.45)	-1.13 (-1.53,-0.73)***	-0.67 (-0.90,-0.44)***	-0.46 (-0.68,-0.24)***	-0.50 (-0.69,-0.31)***
A fixed term contract of less than a year	-0.71 (-0.84,-0.58)***	-0.47 (-1.13,0.20)	-1.37 (-1.84,-0.90)***	-0.70 (-1.01,-0.40)***	-0.80 (-1.00,-0.60)***	-0.29 (-0.56,-0.03)*
Other employees	-0.47 (-0.58,-0.36)***	-0.48 (-0.82,-0.15)**	-0.91 (-1.39,-0.43)***	-0.46 (-0.71,-0.21)***	-0.42 (-0.59,-0.25)***	-0.51 (-0.78,-0.25)***
Self-employed without employees - dependent	0.13 (-0.11,0.37)	-0.19 (-0.87,0.49)	1.14 (-0.42,2.70)	0.21 (-0.43,0.86)	0.12 (-0.35,0.59)	0.13 (-0.24,0.49)
Self-employed without employees - independent	0.15 (-0.01,0.30)	0.24 (-0.33,0.82)	0.80 (0.14,1.47)*	-0.12 (-0.44,0.21)	0.10 (-0.17,0.37)	0.22 (-0.11,0.55)
Self-employed with employees	0.51 (0.33,0.69)***	1.10 (0.28,1.92)**	1.16 (0.28,2.05)**	0.47* (0.08,0.86)	0.08 (-0.19,0.36)	1.13 (0.69,1.57)***

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; All effects are controlled for gender, age, education, citizenship, life stage, seniority, income decile, ISCO, nace, and the job quality indicators. For employment prospects; the estimates are on a logit scale. For working time quality; a linear scale

Exploring links between employment status and quality of working life

A final section of this analytical chapter concerns the relations with a selected number of 'quality of working life indices'. First, these indices have been associated with the employment status indicators, countries and job quality indices. In a second step, a number of 'mediation models' using the statistical technique of 'structural equation modelling' have been fitted. Largely two approaches have been followed. First of all, we related a summed scale for 'unstable employment status' with job quality and quality of working life indicators in a series of mediation analyses. Second, using a more selected number of indicators and specific relevant outcomes, a limited set of measurement models using SEM-techniques have been fitted.

Associations between employment status and quality of working life

In the descriptive analyses reported in table 15, associations with quality of working life indicators are shown for the employment status indicators used in this study.

As it is the most dominant category in terms of frequency, employees with a permanent contract, show scores very similar to the sample average. Nevertheless, it can be noted that clearly less workers in this category report experiencing financial difficulties and that the frequency of absenteeism is higher (compared to the overall sample).

Workers holding a longer-lasting (more than 1 year) temporary contract encounter more financial problems, adverse social behaviour and find their health and safety more at risk. Moreover, their satisfaction with working conditions is lower. In contrast, fewer of them report fair to bad self-rated health and their prevalence of absenteeism is lower. Most of these findings also hold for short-term (less than 1 year) temporary contracts. Moreover, these workers also have lower average motivation and engagement, compared to the sample average, while their prevalence of presenteeism is clearly lower. Also the category of 'other employees' in many respects shows the same pattern as that of (short term) temporary contract holders. Moreover, this category of workers shows a somewhat elevated prevalence of fair to bad general health.

Dependent solo self-employed have, compared to the overall sample, on average less satisfaction with working conditions, find their health and safety at risk more frequently and count more respondents reporting fair to bad self-rated health. Nevertheless, their motivation is higher than average and their rate of absenteeism lower than average. Independent solo self-employed encounter more financial difficulties and work-private interference. Also their score on self-rated health is worse. At the same time, this group, is less confronted with adverse social behaviour, is on average more motivated and engaged with work and less often absent from work. The latter finds its mirror image in presenteeism, which is clearly higher, than average. Self-employed with employees have overall the most favourable quality of working life scores. There are two exceptions, however: work-private interference is problematic for almost a third of them (compared to 22% in the overall sample) and presenteeism peaks to almost 55%.

Table 15: Associations between quality of working life indicators and employment status

	Satisfaction with WC (high) (%)	Subj. fin. Insecurity (%)	Adverse behaviour (%)	Work-private interference (M)	Motivation (high) (%)	Engagement (high) (M)
<i>p-value</i>	***	***	***	***	***	***
An indefinite contract	87.1	31.8	16.8	21.2	61.7	67.3
A fixed term contract of more than one year	82.8	46.6	18.6	21.0	60.1	66.2
A fixed term contract of less than one year	77.6	54.3	16.5	21.0	57.6	64.7
Other employees	77.3	51.8	14.6	17.4	59.0	65.5
Self-empl. without employees - dependent	81.2	37.9	12.9	20.6	69.5	66.8
Self-empl. without employees - independent	84.2	41.7	9.3	26.2	72.6	69.2
Self-employed with employees	92.4	23.0	9.4	29.5	85.7	71
<i>p-value</i>	***	***	***	***	***	***
Fulltime	85.6	34.5	15.8	23.1	62.6	66.9
Part-time (voluntary)	88.9	32.5	15.2	17.4	65.7	69.2
Part-time (involuntary)	73.4	61.9	16.1	18.6	56.9	66.4
<i>p-value</i>	***		***	***	*	***
Not working long hours	86.2	35.8	15.2	20.1	62.6	67.6
Long hours (≥48h/week)	81.6	36.4	18.0	30.4	64.3	65.9
<i>p-value</i>	***	***		***	***	***
Other employment status	86.8	33.3	15.8	22.13	63.3	67.62
Unstable employment status	77.8	49.7	16.2	20.88	59.7	65.09
Total sample	85.5	35.9	15.7	21.7	62.8	67.3
	Health and safety at risk (%)	Fair to bad self-rated health (%)	Mental well-being (good) (M)	Absenteeism (%)	Presenteeism (%)	
<i>p-value</i>	***	***	***	***	***	
An indefinite contract	24.6	20.3	68.7	49.7	42.8	
A fixed term contract of more than one year	22.6	18.5	69.0	41.2	40.5	
A fixed term contract of less than one year	26.9	20.6	70.7	25.7	35.4	
Other employees	20.6	23.4	68.6	34.0	35.9	
Self-empl. without employees - dependent	18.3	32.2	68.2	33.4	39.5	
Self-empl. without employees - independent	24.2	28.9	68.4	26.0	49.9	
Self-employed with employees	23.2	22.4	70.1	31.2	54.4	
<i>p-value</i>	***	***	***	***	***	
Fulltime	26.5	20.7	68.9	44.7	44.2	
Part-time (voluntary)	16.9	23.3	69.4	44.6	39.9	
Part-time (involuntary)	22.3	23.0	67.1	33.5	41.8	
<i>p-value</i>	***	**	***	***	***	
Not working long hours	22.9	21.2	69.2	45.7	40.9	
Long hours (≥48h/week)	31.1	23.3	66.8	33.6	55.1	
<i>p-value</i>		***	*	***	***	
Other employment status	24.3	21.2	68.73	45.9	43.9	
Unstable employment status	24.6	23.8	69.66	29.0	36.6	
Total sample	24.1	21.6	68.8	43.7	42.8	

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; All results are weighted using weighting factor 'W5_EU28'. (M) = Mean value. (%) = Percentage of exposure category.

Voluntary part-time workers diverge from the overall sample in a predominantly positive way. They include a higher number of workers who are satisfied with working conditions, less workers reporting financial problems, lower mean work-private interference, higher motivation and engagement and less presenteeism. Those reporting their health and safety being at risk are somewhat over-represented compared to the general sample - and the same holds for the prevalence of fair to bad general self-rated health. In many ways, involuntarily part-time employed present the mirror image of the voluntary part-time employed: clearly lower satisfaction with working conditions, higher prevalence of encountering financial problems, lower motivation, lower engagement, lower mental well-being and a higher prevalence of fair to bad self-rated health. Only their absenteeism rate is lower than in the overall sample.

Finally, workers performing long hours (more than 48 hours a week), have a lower prevalence of satisfaction with working conditions, are more confronted with adverse social behaviour, have more work-private interference, worse mental and general health and more presenteeism. In contrast, figures of motivation, health and safety being at risk and absenteeism are better, compared to the overall sample.

Workers who find themselves in the aggregate category of 'unstable employment status' are significantly less satisfied with working conditions, experience less work-private interference, are on average less motivated and less engaged with their work, compared to those who are not included in that category. They also show lower rates of absenteeism and presenteeism. In contrast, the unstable employment category shows higher financial insecurity and higher scores for adverse general health.

Country variation in quality of working life

For each of the quality of working life outcomes country-variation is considerable (see Appendix 2). However, no clear picture of 'good' and 'bad' countries emerges: it looks more like every country has a relatively unique combination of particularly bad and particularly advantageous quality of working life characteristics. Satisfaction with working conditions is highest in Austria (92.8%) and lowest in Greece (76.7%). Financial problems are only an issue for 9.8% of the Danish labour force, while in Greece it is the case for 75% of the workers. Adverse social behaviour is experienced by almost 25% of the Danish workers, while only a bit more than 4% of the Portuguese workers report this problem. Work-private interference reaches a mean score of 27 in Greece; in Germany, this figure only amounts to 17. High motivation is the case for more than 75% of the Finish workers. In Lithuania only 47.3% of the workers reports feeling motivated. Work engagement is at its highest in the Netherlands (mean = 75.1) and at its lowest in Poland (mean = 63.4). In Italy, 87% of the workers beliefs their health and safety is not at risk because of their work, while in Sweden this is only 54%. The frequency of workers reporting fair to bad self-rated health is lowest in Cyprus (8.2%) and highest in Estonia (38.4%), while mental health scores are best in the Czech Republic (Mean = 73.3) and worst in the U.K. (mean = 64). Absenteeism is the least frequent in Portugal (19.1%) and most frequent in Malta (64.4%) - for presenteeism this is respectively the case in Portugal (20.3%) and Malta (69.3%) as well.

Employment status and job quality

Table 16: Bivariate correlations between job quality indices and quality of working life indices

Quality of working life/job quality	Physical environment	Work intensity	Good social environment	Skills and discretion	High strain	Working time quality	Training	High/medium regularity	Called to work at short notice	Difficulties in arranging time off	Job security	Employment prospects
<i>(High) Satisfaction with WC</i>	0.162**	-0.197**	0.238**	0.189**	-0.138**	0.152**	-0.078**	0.059**	-0.090**	-0.165**	0.177**	0.261**
<i>Subj. fin. insecurity</i>	-0.165**	0.050**	-0.089**	-0.256**	0.113**	-0.069**	0.139**	0.030**	0.050**	0.119**	-0.205**	-0.244**
<i>Adverse behaviour</i>	-0.141**	0.234**	-0.655**	-0.005	0.054**	-0.180**	-0.086**	-0.106**	0.107**	0.129**	-0.014*	-0.066**
<i>Work-private interference</i>	-0.242**	0.452**	-0.171**	0.137**	0.089**	-0.417**	-0.062**	-0.175**	0.151**	0.162**	-0.127**	-0.079**
<i>Motivation (high)</i>	0.125**	-0.137**	0.261**	0.255**	-0.110**	0.087**	-0.089**	0.028**	-0.044**	-0.155**	0.134**	0.296**
<i>Engagement</i>	0.215**	-0.280**	0.246**	0.265**	-0.166**	0.172**	-0.089**	0.004	-0.053**	-0.175**	0.242**	0.250**
<i>Health and safety at risk</i>	-0.385**	0.254**	-0.121**	-0.049**	0.096**	-0.212**	-0.034**	-0.094**	0.093**	0.117**	-0.021**	-0.115**
<i>(Good) Well-being</i>	0.145**	-0.226**	0.272**	0.134**	-0.083**	0.138**	-0.044**	0.090**	-0.049**	-0.125**	0.143**	0.189**
<i>Gen. self-rated health (fair to bad)</i>	-0.137**	0.089**	-0.133**	-0.112**	0.058**	-0.044**	0.083**	-0.053**	0.033**	0.072**	-0.092**	-0.154**
<i>Absenteeism</i>	-0.037**	0.104**	-0.102**	0.021**	0.005	0.014*	-0.096**	0.019**	0.005	0.064**	0.030**	0.001
<i>Presenteeism</i>	-0.153**	0.238**	-0.109**	0.144**	-0.002	-0.182**	-0.081**	-0.117**	0.076**	0.020**	0.036**	-0.017**

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Spearman rank correlations; All results are weighted using weighting factor 'W5_EU28'.

Associations between job quality and quality of working life

Table 16 shows the bivariate associations between all job quality and quality of work indices used in this study. The associations are calculated as Spearman rank correlation coefficients⁸. It can be seen that there are significant – in most cases moderately strong – associations between almost all indices involved. This is a strong indication for job quality being an (intermediate) determinant of the quality of working life.

Relationships between unstable employment status, job quality and quality of working life

Three employment statuses – i.e. ‘short fixed-term contracts’, ‘temporary agency contracts’ and ‘dependent solo self-employed’ – together constitute the aggregate index of ‘unstable employment status’. In a series of mediation analyses, this index has been related to the following quality of working life outcomes: ‘low satisfaction with working conditions’, ‘work-private interference’, ‘work motivation’ and ‘self-rated general health’ (all defined as scales). Scales representing the ‘physical work quality’, ‘work intensity’, the ‘quality of the social work environment’, ‘working time quality’ and ‘employment prospects’ served as mediating job quality indices. These indices have all been chosen based on the strength of their mutual relations and relations with employment status in the descriptive analyses. In each case, the model construction procedure followed a general pattern: (1) bivariate analyses for every indicator with the dependent variable separately; (2) a main effects model including one part explaining the relation between ‘employment status’ and ‘job quality’ and one part explaining the relation between ‘employment status’ and ‘job quality’ on ‘quality of working life’; (3) a final model adding relevant interaction terms (between unstable employment and gender, age, educational attainment or the country typology) to the second model. Models 2 and 3 included additional controls for sex, age (dummy young workers), educational attainment (dummy low education) and the country typology. The results of the analyses are summarized in table 17. Both the effects between employment status and job quality and the effects between all variables involved in the model and quality of working life are shown; only the final models (main and interaction effects) are discussed below.

Unstable employment status and job quality (table 17). Statistically significant relations are seen with four of the six job quality indices included. The unstable employment category is negatively related with the quality of the physical and social work environment, (high) skills and discretion and (good) employment prospects. The associations with skills and discretion and with employment prospects are the strongest.

Low satisfaction with working conditions (table 17). Unstable employment status is not significantly associated with low satisfaction with working conditions: a small negative direct relation is outweighed by positive indirect associations. The positive total effect of unstable employment status is stronger among the low educated. In other words: particularly for the lower educated unstable employment status is associated with lower satisfaction with working conditions. Strong associations are seen with several job quality indices: physical, social and working time quality, good employment prospects and skills and discretion all relate to higher levels of satisfaction with working conditions. High work intensity relates to lower satisfaction with working conditions. Compared to the Northern countries, low satisfaction with working conditions is highest in Central Eastern and Baltic countries and lower in the Anglo-Saxon countries.

⁸ The Spearman rank correlation coefficient is used in order to assess the degree or strength of association between two variables. The variables must at least be on an ordinal scale (which means the values of the variable are ordered in such a way that they can be considered higher or lower to each other). More information can be found on <http://www.statisticssolutions.com/correlation-pearson-kendall-spearman/>

Work-private-interference. There exists a small negative association between unstable employment status and work-private-interference. The association of high work intensity and skills and discretion on work-private interference is positive, while associations with physical, social and working time quality, as well as employment prospects are negative. Compared to the Northern countries, work-private interference is more common in Southern state coordinated countries and clearly lower in continental coordinated countries.

High work motivation. The negative association of unstable employment status with work motivation is fully mediated by the quality of work indices. This negative association is stronger among the low educated and in Central Eastern and Baltic countries. Motivation is most strongly (positively) related with a good social work environment, skills and discretion and employment prospects; work intensity shows a negative association with motivation. In Anglo-Saxon market economies and Central Eastern and Baltic countries workers are less motivated than in the Northern countries.

Adverse self-rated health. A positive association exists between unstable employment status and adverse self-rated health. This association is partly mediated through job quality. A good physical, social and working time quality are negatively associated with adverse self-rated health; the same holds for skills and discretion. High work intensity is positively associated with adverse self-rated health. Compared to the Northern countries, workers in Anglo-Saxon countries have lower scores and workers in continental/Southern state coordinated and Central Eastern and Baltic countries have higher scores for adverse self-rated health.

Employment status and job quality

Table 17: Mediation analysis linking unstable employment status to job quality and quality of working life (standardized estimates)

	Low satisfaction with working conditions				Work-private-interference			
	Bivariate effects	Main and interaction effects model			Bivariate effects	Main and interaction effects model		
	Direct effect	Direct effect	Indirect effect	Total effect	Direct effect	Direct effect	Indirect effect	Total effect
Effects on job quality								
Physical work quality (good)	-0.04***	-0.05***		-0.05***	-0.04***	-0.05***		-0.05***
Work intensity (high)	-0.04***	-0.01		-0.01	-0.04***	-0.01		-0.01
Social work environment (good)	-0.02 (0.02)**	-0.01*		-0.01*	-0.02**	-0.01*		-0.01*
Skills and discretion (high)	-0.15***	-0.15***		-0.15***	-0.15***	-0.15***		-0.15***
Working time quality (good)	0.02**	-0.01		-0.01	0.02**	-0.01		-0.01
Employment prospects (good)	-0.14***	-0.14***		-0.14***	-0.14***	-0.14***		-0.14***
Effects on quality of working life								
Unstable employment status	0.05***	-0.02	0.05***	0.03	-0.03***	-0.02	-0.01**	-0.03***
Physical work quality (good)	-0.22***	-0.09***		-0.09***	-0.23***	-0.09***		-0.09***
Work intensity (high)	0.23***	0.20***		0.20***	0.45***	0.32***		0.32***
Social work environment (good)	-0.29***	-0.19***		-0.19***	-0.19***	-0.10***		-0.10***
Skills and discretion (high)	-0.26***	-0.19***		-0.19***	0.13***	0.14***		0.14***
Working time quality (good)	-0.16***	-0.07***		-0.07***	-0.40***	-0.27***		-0.27***
Employment prospects (good)	-0.24***	-0.16***		-0.16***	-0.02**	-0.04***		-0.04***
Female gender	-0.01	0.01		0.01	0.03***	0.08***		0.08***
Age (means centred)	0.01	0.04***		0.04***	-0.06***	-0.01		-0.01
Low educated	0.05***	-0.01		-0.01	-0.02**	0.01		0.01
Gallie typology								
Anglo-Saxon market	-0.02*	-0.02**		-0.02**	-0.02***	-0.02***		-0.02***
Northern	Ref.	Ref.		Ref.	Ref.	Ref.		Ref.
Continental coordinated	0.05***	0.03**		0.03**	-0.11***	-0.07***		-0.07***
Southern state coordinated	0.14***	0.04***		0.04***	0.02**	0.04***		0.04***
Central Eastern and Baltic	0.13***	0.08***		0.08***	-0.08***	-0.02*		-0.02*
Interaction effects								
Unstable employment status*Female gender		-0.01		-0.01		0.01		0.01
Unstable employment status*Age		-0.01		-0.01		0.01		0.01
Unstable employment status*Low educated		0.01*		0.01*		-0.01		-0.01
Unstable employment status*Anglo-Saxon market		-0.01		-0.01		0.01		0.01
Unstable employment status*Continental coordinated		0.01		0.01		0.01		0.01
Unstable employment status*Southern state coordinated		0.01		0.01		0.01		0.01
Unstable employment status*Central Eastern and Baltic		0.02		0.02		0.01		0.01

p-values: * p<0.05; ** p<0.01; *** p<0.001; Indicators: working time quality - scale from 0 to 1 (good working time quality); physical environment - scale from 0 to 1 (good physical environment); work intensity - scale from 0 to 1 (high work intensity); social environment - dummy 0 to 1 (good social environment. 25% cutoff); prospects - dummy 0 to 1 (good prospects. 25% cutoff); skills and Discretion - scale from 0 to 1 (good skills and discretion/work quality); skills and discretion - scale from 0 to 1 (high skills and discretion); quality of the social work environment - scale from 0 to 1 (good social work environment); All multivariate analyses are controlled for sex (female); age (means centered) and educational attainment (lower educated).

Employment status and job quality

Table 17: Mediation analysis linking unstable employment status to job quality and quality of working life (standardized estimates) – (continued)

	High work motivation				Adverse self-rated health			
	Bivariate effects	Main and interaction effects model			Bivariate effects	Main and interaction effects model		
	Direct effect	Direct effect	Direct effect	Direct effect	Direct effect	Direct effect	Direct effect	Direct effect
Effects on job quality								
Physical work quality (good)	-0.04***	-0.05***	-0.04***	-0.05***	-0.04***	-0.05***	-0.04***	-0.05***
Work intensity (high)	-0.04***	-0.01	-0.04***	-0.01	-0.04***	-0.01	-0.04***	-0.01
Social work environment (good)	-0.02**	-0.01*	-0.02**	-0.01*	-0.02**	-0.01*	-0.02**	-0.01*
Skills and discretion (high)	-0.15***	-0.15***	-0.15***	-0.15***	-0.15***	-0.15***	-0.15***	-0.15***
Working time quality (good)	0.02**	-0.01	0.02**	-0.01	0.02**	-0.01	0.02**	-0.01
Employment prospects (good)	-0.14***	-0.14***	-0.14***	-0.14***	-0.14***	-0.14***	-0.14***	-0.14***
Effects on quality of working life								
Unstable employment status	-0.03***	0.05*	-0.03***	0.05*	-0.03***	0.05*	-0.03***	0.05*
Physical work quality (good)	0.16***	0.04***	0.16***	0.04***	0.16***	0.04***	0.16***	0.04***
Work intensity (high)	-0.18***	-0.14***	-0.18***	-0.14***	-0.18***	-0.14***	-0.18***	-0.14***
Social work environment (good)	0.29***	0.20***	0.29***	0.20***	0.29***	0.20***	0.29***	0.20***
Skills and discretion (high)	0.30***	0.23***	0.30***	0.23***	0.30***	0.23***	0.30***	0.23***
Working time quality (good)	0.09***	0.01*	0.09***	0.01*	0.09***	0.01*	0.09***	0.01*
Employment prospects (good)	0.28***	0.21***	0.28***	0.21***	0.28***	0.21***	0.28***	0.21***
Female gender	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Age (means centred)	-0.01	-0.02***	-0.01	-0.02***	-0.01	-0.02***	-0.01	-0.02***
Low educated	-0.02***	0.03***	-0.02***	0.03***	-0.02***	0.03***	-0.02***	0.03***
Gallie typology								
Anglo-Saxon market	-0.02**	-0.02*	-0.02**	-0.02*	-0.02**	-0.02*	-0.02**	-0.02*
Northern	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Continental coordinated	-0.06***	-0.01	-0.06***	-0.01	-0.06***	-0.01	-0.06***	-0.01
Southern state coordinated	-0.09***	0.01	-0.09***	0.01	-0.09***	0.01	-0.09***	0.01
Central Eastern and Baltic	-0.12***	-0.04***	-0.12***	-0.04***	-0.12***	-0.04***	-0.12***	-0.04***
Interaction effects								
Unstable employment status*Female gender		0.01		0.01		0.01		0.01
Unstable employment status*Age		0.01		0.01		0.01		0.01
Unstable employment status*Low educated		-0.02*		-0.02*		-0.02*		-0.02*
Unstable employment status*Anglo-Saxon market		0.01		0.01		0.01		0.01
Unstable employment status*Continental coordinated		0.01		0.01		0.01		0.01
Unstable employment status*Southern state coordinated		-0.01		-0.01		-0.01		-0.01
Unstable employment status*Central Eastern and Baltic		-0.02*		-0.02*		-0.02*		-0.02*

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Indicators: working time quality - scale from 0 to 1 (good working time quality); physical environment - scale from 0 to 1 (good physical environment); work intensity - scale from 0 to 1 (high work intensity); social environment - dummy 0 to 1 (good social environment. 25% cutoff); prospects - dummy 0 to 1 (good prospects. 25% cutoff); skills and Discretion - scale from 0 to 1 (good skills and discretion/work quality); skills and discretion - scale from 0 to 1 (high skills and discretion); quality of the social work environment - scale from 0 to 1 (good social work environment); All multivariate analyses are controlled for sex (female); age (means centered) and educational attainment (lower educated).

Selected structural models

In this final section the results of four structural equation models are reported. The choice of these specific models is based on the descriptive analyses reported above. More specifically, three criteria were considered for selecting ‘paths’ between a specific employment status, a series of job quality indicators and a specific quality of working life-outcome:

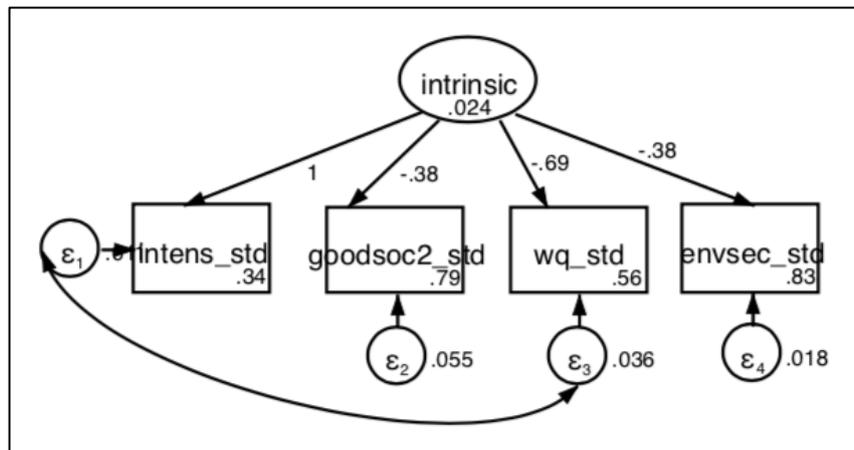
- A moderate to strong association between a given employment status and a given quality of working life indicator;
- Moderate to strong associations between a given employment status and a number of job quality indices;
- Moderate to strong associations between the selected job quality indices and the selected quality of working life outcome.

These three criteria can be seen as necessary conditions for investigating a mediational path model. The following models were finally selected:

- Short-term temporary contracts in relation with satisfaction with working conditions;
- Dependent solo self-employed in relation with adverse general health;
- Self-employed with employees in relation to work-private interference;
- Involuntary part-time and (low) satisfaction with working conditions.

In each of these models, intrinsic job quality is included as a latent concept, composed on the basis of four (manifest) job quality indices: work intensity, social work environment, skills and discretion, and physical work environment (see figure 8). Given the structure of the factor loadings, this latent factor should be interpreted as ‘adverse intrinsic job quality’.

Figure 8: Specification of the latent variable representing the intrinsic work environment



*p-values: * p<0.05; ** p<0.01; *** p<0.001; Fit statistics: RMSEA=0.013; CFI-SB=0.999; SRMR=0.005. Indicators and standardized effects on ‘intrinsic’: work intensity - scale from 0 to 1 (high work intensity) – β 1 (constant); social environment - dummy 0 to 1 (good social environment. 25% cut-off) – β -0.38 (se=0.02)***; skills and Discretion - scale from 0 to 1 (good skills and discretion/ work quality) – β -0.69 (se=0.02)***; physical environment - scale from 0 to 1 (good physical environment) - -0.38 (se=0.02)****

The SEM-models have a path-structure, where variables can have both the status of dependent and independent variable. In tables 18-21, the results reporting is structured according to each dependent variable (bold lines); beneath each bold line every relevant association with that dependent variable is shown. The path structure allows to differentiate between direct and indirect effects, which can be summed to a total effect. For every ‘employment status contrast’ also the bivariate association with the outcome is shown in italics. All analyses have been performed for the whole EU28-sample and stratified for the different production regimes. For the latter only total effects are shown.

Employment status and job quality

Table 18: Standardized parameter estimates for a structural equation model linking temporary contracts of less than 1 year to satisfaction with working conditions

Effects	Overall EU 28			Anglo-Saxon market regime	Northern countries	Continental coordinated regime	Southern state coordinated regime	Central Eastern and Baltic states	
	Direct	Indirect	Total	Total	Total	Total	Total	Total	
Effect on working time quality									
Contrast temporary (< 1 year) with permanent contract	-0.03***		-0.03**	0.01	0.02	-0.01	-0.08***	-0.02	
Effects on prospects									
Working time quality	-0.09***		-0.09***	-0.12***	-0.13***	-0.11***	-0.09***	-0.05***	
Adverse intrinsic working conditions	-0.29***		-0.29***	-0.28***	-0.32***	-0.31***	-0.33***	-0.22***	
Contrast temporary (< 1 year) with permanent contract	-0.10***		-0.10***						
Effects on adverse intrinsic working conditions									
Contrast temporary (< 1 year) with permanent contract	0.11 ***	-0.03***	0.08***	0.02	-0.01	0.05**	0.22***	0.05***	
Effects on low satisfaction with working conditions									
Prospects	-0.12***		-0.12***	-0.15***	-0.09***	-0.11***	-0.09***	-0.15***	
Working time quality	0.02 ***	0.01***	0.03***	-0.01	0.08***	0.01	0.06***	0.02	
Adverse intrinsic working conditions	0.51 **	0.04***	0.55***	0.53***	0.57***	0.57***	0.60***	0.48***	
Contrast temporary (< 1 year) with permanent contract (Bivariate effect)	0.05***			-0.02	0.01	0.03*	0.06***	0.05***	
Multivariate effect	-0.02***	0.07***	0.05***	-0.02	-0.01	0.03*	0.09***	0.05***	

EU28, 6th EWCS (2015); p-values: * p<0.05; ** p<0.01; *** p<0.001; Fit statistics: RMSEA=0.096; CFI-SB=0.841; SRMR=0.056.

Indicators: working time quality - scale from 0 to 1 (good working time quality); physical environment - scale from 0 to 1 (good physical environment); work intensity - scale from 0 to 1 (high work intensity); social environment - dummy 0 to 1 (good social environment, 25% cut-off); regularity - dummy 0 to 1 (medium/high regularity); job security - scale 0 to 1 (High job security); prospects - dummy 0 to 1 (good prospects, 25% cut-off); skills and Discretion - scale from 0 to 1 (good skills and discretion/ work quality); adverse intrinsic working conditions – latent indicator; working time quality, latent indicator. temporary contracts of less than 1 year are contrasted to permanent contracts. The country distribution over the production regimes is as follows: Anglo-Saxon market regime: UK and Ireland; Northern countries: Denmark, Finland, Sweden; Continental coordinated: Belgium, Germany, Luxembourg, the Netherlands, Austria, Slovenia; Southern state coordinated regime: Greece, Spain, France, Italy, Cyprus, Malta, Portugal; Central Eastern and Baltic: Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia;

Employment status and job quality

Table 19: Standardized parameter estimates for a structural equation model linking dependent self-employed without employees to general self-rated health

Effects	Overall EU 28			Anglo-Saxon market regime	Northern countries	Continental coordinated regime	Southern state coordinated regime	Central Eastern and Baltic states	
	Direct	Indirect	Total	Total	Total	Total	Total	Total	
Effects on prospects									
Working time quality	-0.09***		-0.09***	-0.11***	-0.14***	-0.11***	-0.09***	-0.05**	
Adverse intrinsic working conditions	-0.29***	0.04***	-0.25***	-0.22***	-0.29***	-0.28***	-0.29***	-0.19***	
Contrast dep. self-employed with permanent contract	-0.03***	0.01***	-0.03**	-0.01	0.01	-0.02	-0.04**	-0.03*	
Effects on working time quality									
Adverse intrinsic working conditions	-0.39***		-0.39***	-0.41***	-0.34***	-0.35***	-0.42***	-0.44***	
Contrast dep. self-employed with permanent contract	-0.03***		-0.03***	0.01	-0.03	-0.03*	-0.02	-0.04**	
Effects on adverse general health									
Prospects	-0.06***		-0.06***	-0.06*	-0.06*	-0.04**	-0.02	-0.07***	
Working time quality	0.03***	0.01***	0.03***	-0.02	0.06**	0.03*	0.04**	0.02	
Adverse intrinsic working conditions	0.30***	0.01	0.30***	0.26***	0.29***	0.37***	0.27***	0.27***	
Age (means centred)	0.28***		0.28***	0.08**	0.14***	0.28***	0.33***	0.37***	
Low education (ISCED 1 & 2)	0.03***		0.03***	0.03	0.03	0.02	0.05***	0.04***	
Contrast dep. self-employed with permanent contract (Bivariate effect)	0.08***			0.06*	0.05*	0.02*	0.12***	0.11***	
Multivariate effect	0.03***	0.01	0.03***	0.06*	0.04	0.01	0.02	0.04**	

Indicators: working time quality - scale from 0 to 1 (good working time quality); physical environment - scale from 0 to 1 (good physical environment); work intensity - scale from 0 to 1 (high work intensity); social environment - dummy 0 to 1 (good social environment, 25% cut-off); regularity - dummy 0 to 1 (medium/high regularity); job security - scale 0 to 1 (High job security); prospects - dummy 0 to 1 (good prospects, 25% cut-off); skills and Discretion - scale from 0 to 1 (good skills and discretion/ work quality); adverse intrinsic working conditions – latent indicator; working time quality, latent indicator. temporary contracts of less than 1 year are contrasted to permanent contracts. The country distribution over the production regimes is as follows: Anglo-Saxon market regime: UK and Ireland; Northern countries: Denmark, Finland, Sweden; Continental coordinated: Belgium, Germany, Luxembourg, the Netherlands, Austria, Slovenia; Southern state coordinated regime: Greece, Spain, France, Italy, Cyprus, Malta, Portugal; Central Eastern and Baltic: Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia;

Employment status and job quality

Table 20: Standardized parameter estimates for a structural equation model linking self-employed with employees to work-private interference

Effects	Overall EU 28			Anglo-Saxon market regime	Northern countries	Continental coordinated	Southern state coordinated	Central Eastern and Baltic states
	Direct	Indirect	Total	Total	Total	Total	Total	Total
Effects on working time quality								
Adverse intrinsic working conditions	-0.40***		-0.40***	-0.41***	-0.38***	-0.36***	-0.42***	-0.44***
Contrast self-employed with employees against permanent Woman	-0.20*** 0.11***	0.03***	-0.17*** 0.11***	-0.16*** 0.14***	-0.24*** 0.06**	-0.21*** 0.11***	-0.22*** 0.11***	-0.07*** 0.12***
Effects on prospects								
Working time quality	-0.07***		-0.07***	-0.09**	-0.13***	-0.10***	-0.07***	-0.03
Adverse intrinsic working conditions	-0.21***	0.03***	-0.19***	-0.17***	-0.21***	-0.20***	-0.20***	-0.15***
Contrast self-employed with employees against permanent Woman	0.05*** -0.01***	0.03***	0.08*** -0.01***	0.02 -0.01**	0.10*** -0.01**	0.09*** -0.01***	0.04*** -0.01***	0.11*** -0.01
Effects on physical environment								
Woman	0.18***		0.18***	0.15***	0.11***	0.16***	0.17***	0.23***
Contrast self-employed with employees against permanent		0.03***	0.03***	0.04**	0.02*	0.03***	0.01	0.06***
Effect on adverse intrinsic working conditions								
Contrast self-employed with employees against permanent	-0.07***		-0.07***	-0.10***	-0.06*	-0.08***	-0.01	-0.11***
Effects on work-private interference								
Working time quality	-0.20***	-0.01***	-0.19***	-0.30***	-0.20***	-0.23***	-0.16***	-0.15***
Prospects	0.03***		0.03***	0.01	0.03	0.05***	0.02	0.02*
Adverse intrinsic working conditions	0.45***	0.07***	0.52***	0.51***	0.49***	0.50***	0.56***	0.52***
Dual breadwinner	0.02**		0.02**	-0.01	0.02	0.02	0.02	0.01
Woman	0.07***	-0.02***	0.05***	0.04	0.06**	0.06***	0.06***	0.03**
Contrast self-employed with employees against permanent (Bivariate effect)	0.13***			0.05*	0.12***	0.11***	0.17***	0.10***
Multivariate effect	0.12***	0.01	0.12***	0.08**	0.14**	0.09***	0.18***	0.10***

Indicators: working time quality - scale from 0 to 1 (good working time quality); physical environment - scale from 0 to 1 (good physical environment); work intensity - scale from 0 to 1 (high work intensity); social environment - dummy 0 to 1 (good social environment, 25% cut-off); regularity - dummy 0 to 1 (medium/high regularity); job security - scale 0 to 1 (High job security); prospects - dummy 0 to 1 (good prospects, 25% cut-off); skills and Discretion - scale from 0 to 1 (good skills and discretion/ work quality); adverse intrinsic working conditions – latent indicator; working time quality, latent indicator. temporary contracts of less than 1 year are contrasted to permanent contracts. The country distribution over the production regimes is as follows: Anglo-Saxon market regime: UK and Ireland; Northern countries: Denmark, Finland, Sweden; Continental coordinated: Belgium, Germany, Luxembourg, the Netherlands, Austria, Slovenia; Southern state coordinated regime: Greece, Spain, France, Italy, Cyprus, Malta, Portugal; Central Eastern and Baltic: Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia;

Employment status and job quality

Table 21: Standardized parameter estimates for a structural equation model linking involuntary part-time work with working conditions

Effects	Overall EU 28			Anglo-Saxon market regime	Northern countries	Continental coordinated	Southern state coordinated	Central Eastern and Baltic states
	Direct	Indirect	Total	Total	Total	Total	Total	Total
Effects on (low) satisfaction with income								
Involuntary part-time	0.14***		0.14***	0.14***	0.06**	0.11***	0.19***	0.11***
Woman	0.05***		0.05***	0.09***	0.04*	0.06***	0.01	0.06***
Low education	0.12***		0.12***	0.05*	0.09***	0.08***	0.16***	0.07***
Age (means centred)	-0.03***		-0.03***	-0.04*	-0.07***	-0.06***	-0.03**	0.08***
Effects on prospects								
Involuntary part-time	-0.10***		-0.10***	-0.12***	-0.07***	-0.06***	-0.13***	-0.07***
Woman	-0.03***		-0.03***	-0.01	-0.07***	-0.05***	-0.03**	-0.01
Low education	-0.04***		-0.04***	-0.01	-0.04*	-0.03**	-0.06***	-0.02*
Age (means centred)	-0.08***		-0.08***	-0.12***	-0.06**	-0.08***	-0.06***	-0.11***
Effects on working time quality								
Involuntary part-time	0.06***		0.06***	0.06**	-0.01	0.03**	0.09***	0.08***
Woman	0.13***		0.13***	0.15***	0.06**	0.13***	0.12***	0.14***
Age (means centred)	0.08***		0.08***	0.08***	0.06**	0.06***	0.10***	0.07***
Effects on satisfaction with working conditions								
Subjective financial insecurity	0.24***		0.24***	0.17***	0.12***	0.22***	0.21***	0.29***
Prospects	-0.19***		-0.19***	-0.18***	-0.21***	-0.19***	-0.18***	-0.17***
Involuntary part-time	0.03***	0.04***	0.07***	0.06**	0.04*	0.03**	0.09***	0.07***
Woman		-0.01	-0.01	-0.01	0.01*	0.01	-0.01***	-0.01
Low education		0.04	0.04***	0.01	0.02***	0.02***	0.05***	0.02***
Age (means centred)		-0.01	-0.01*	-0.01	-0.01	-0.01	-0.01**	0.03***
Contrast involuntary part-time with full-time workers (Bivariate effect)	0.07***			0.06**	0.04*	0.03***	0.09***	0.07***
Multivariate effect	0.03***	0.04***	0.07***	0.06**	0.04*	0.03**	0.09***	0.07***

EU28, 6th EWCS (2015); p-values: *p<0.05; **p<0.01; ***p<0.001; Fit statistics: RMSEA=0.090; CFI-SB=0.792; SRMR=0.059.

Indicators: working time quality - scale from 0 to 1 (good working time quality); physical environment - scale from 0 to 1 (good physical environment); work intensity - scale from 0 to 1 (high work intensity); social environment - dummy 0 to 1 (good social environment, 25% cut-off); regularity - dummy 0 to 1 (medium/high regularity); job security - scale 0 to 1 (High job security); prospects - dummy 0 to 1 (good prospects, 25% cut-off); skills and Discretion - scale from 0 to 1 (good skills and discretion/ work quality); adverse intrinsic working conditions – latent indicator; working time quality, latent indicator. temporary contracts of less than 1 year are contrasted to permanent contracts. The country distribution over the production regimes is as follows: Anglo-Saxon market regime: UK and Ireland; Northern countries: Denmark, Finland, Sweden; Continental coordinated: Belgium, Germany, Luxembourg, the Netherlands, Austria, Slovenia; Southern state coordinated regime: Greece, Spain, France, Italy, Cyprus, Malta, Portugal; Central Eastern and Baltic: Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia;

Short-term temporary employment in relation with low satisfaction with working conditions (table 18). Employees holding a short temporary contracts are contrasted with employees holding a permanent contract. In the bivariate model, short term temporary contracts are associated with lower satisfaction with working conditions is positive (β 0.05). In a fully fitted structural path model, the direct effect between temporary contract and (low) satisfaction with working conditions becomes negative (β -0.02). This means that the association between short-term temporary contracts and low satisfaction with working conditions is fully mediated by the effects of employment prospects (β -0.12), adverse intrinsic work quality (β 0.51) and working time quality (β 0.02). The total effects of temporary contracts moreover, vary between the categories of the country typology: in Anglo-Saxon and Northern countries there is no significant effect; in the other country types there is a significant association between short temporary contracts and low satisfaction with working conditions. This association is strongest in Southern state coordinated countries (β 0.09).

Dependent solo self-employed in relation with adverse general health (table 19). Dependent solo self-employed are contrasted with employees holding a permanent contract. The bivariate analysis show that – compared to permanent employees – dependent solo self-employed more often report adverse general health (β 0.08). In the fully fitted structural model, this effect becomes reduced (β 0.03), showing that the association between dependent solo self-employment and adverse general health is mainly due to their over-exposure to adverse job quality (e.g. adverse intrinsic job quality) and their older age structure. The adverse total effect on adverse self-rated health of being dependent solo self-employed is only significant in Anglo-Saxon (β 0.06) and Central Eastern and Baltic (β 0.04) countries.

Self-employed with employees in relation to work-private interference (table 20) Self-employed have an elevated risk for encountering work-private interference (β 0.13), compared to employees with a permanent contract. This effect is largely a direct, autonomous effect, as can be seen from the fully fitted structural model: β 0.12. The higher chances of self-employed with employees for being confronted with work-private are present in each country type, although the magnitude of the association varies between β 0.08 in the Northern countries and β 0.18 in Southern state coordinated countries.

Involuntary part-time work and low satisfaction with working conditions (table 21) There is a positive bivariate association between involuntary part-time workers (contrasted with full time workers) and low satisfaction with working conditions (β 0.07). This association is partly mediated by subjective financial insecurity, employment prospects and working time quality, resulting in a direct effect of β 0.03 and an indirect effect of β 0.04 in the fully fitted structural model. In all country types, working involuntary part time is significantly associated with low satisfaction with working conditions, although the magnitude of the effects vary slightly.

In sum, these SEM-models are exemplary for the way ‘employment status’ is associated with ‘quality of working life’. In most cases it concerns an indirect effect. In other words: certain employment status categories are related to specific job quality-characteristics who, in turn, have a direct effect on a quality of working life outcome. Only the strong direct association between self-employed with employees and work-private interference presents a clear exception to this pattern. Furthermore, the stratified analyses show that also for associations with quality of working life, the socio-economic and institutional context of the country regime matters for the strength of the association with employment status.

Conclusion and policy discussion

The main objectives of this research project were (1) to construct a straightforward set of indicators for employment status; (2) to investigate the relation between employment status and job quality; and (3) to assess the associations between employment status, job quality and quality of working life.

Employment status. The main classification of employment status, used in this study, identifies seven employment categories: indefinite contracts, fixed-term contracts of longer duration (more than one year), fixed-term contracts of short duration (less than one year), other employees, dependent self-employed without employees, independent self-employed without employees, and self-employed with employees. We have discussed the prevalence over time (2005-2015) of these employment status categories, as well as their distribution over countries. International variation in employment status was also assessed using the production regime-typology of Duncan Gallie. Although, this typology still renders interesting insights, a country typology is often unable to grasp the entire diversity of country-patterns or to deal with the most recent evolutions in national labour markets (Gallie, 2011). Certainly, for Central Eastern and Baltic countries new classifications might be useful. The classification of employment status has also been described according to socio-demographic and socio-economic background characteristics of the respondents included in the EWCS. Next, we studied the relationship between employment status and job quality, and investigated the intermediate influence of individual-, and relevant country-level characteristics. Finally, we have also studied the relationship of employment status with indicators representing the quality of working life. In these final analyses, aspects of job quality figured as mediators.

In the current section, we reflect on the results of our analyses, while at the same time, consider European-level policy recommendations. These results have also been discussed with a group of experts (see box 2) who were purposefully selected to reflect on our results. Their comments are incorporated in the discussion and policy recommendations below.

Overview of the results

The prevalence of employment statuses over countries and evolution over time.

Permanent waged employment. Permanent wage-employment is still the norm throughout Europe. For many countries, indefinite employment contracts still constitute 70 percent or more of the total labour force. However, for specific countries the dominance of permanent contracts is less evident. In Greece and Cyprus only about 40% of the workforce is in permanent wage-employment. High overall percentages in permanent employment can be partly misleading. The prevalence of permanent employment might be high as a share of total employment; however, permanent employment contracts might be less common among labour market entrants. In fact, additional analyses on the EWCS have confirmed this assumption. Increasing global economic competition, and high unemployment rates have figured as incentives for fixed-term contracts, especially among labour market entrants. Therefore, such new forms of employment, are most often found among the young and other new entrants in the labour market. One consulted expert describes the example of profound changes in the Italian labour market after 2008, particularly among young workers.

Fixed-term contracts. The discussion on the perseverance or disappearance of the permanent contract is thus strongly related to the prevalence of fixed-term contracts. Once more, strong variation across countries can be found, not only in terms of prevalence, but countries also show differences in relative growth or decline of fixed-term contracts over time. The experts we consulted do not find a consistent pattern of change, which probably reflects the difference in policy contexts across countries. Furthermore, according to these experts, the same policies might work differently depending on specific labour market contexts, which could make European-wide policy initiatives difficult. Policy makers should be very much aware of this

when trying to translate successful policy recipes from one context to another. We discuss such European-level initiatives at the end of this discussion.

Self-employment. The prevalence in self-employment differs greatly between EU-countries, also within production regime groups. Moreover, trends over time are heterogeneous. Currently, we find that solo self-employment is increasing, especially in Southern European countries. Of these solo self-employed, a significant share is found in dependent self-employment. Dependent self-employed have relationships with their clients (often there is only one main client) that resemble waged employment relationships. The consulted experts distinguish three reasons for a high prevalence of solo self-employment: (1) '*bogus self-employment*', where workers are formally employed in a supplier-client-relationship, but actually work as employees; (2) '*necessity self-employment*', when self-employment is pursued due to a lack of alternatives on the 'regular' labour market; (3) '*low overall employment protection*', which implies that the 'social protection costs' of being self-employed, compared to being wage-employed are less. In some of the above-mentioned cases, self-employment is seen as a 'negative choice', resulting from a sort of 'opportunity constraint', related to not finding waged employment. In such cases, self-employed workers are often left with sub-optimal social protection.

Part-time employment. The descriptive analyses have shown that part-time employment tends to increase in all European countries. For some countries (Austria, Germany, Italy and Poland) the increase is a lot steeper than for others. According to the experts, overall increases in part-time employment can be explained by: 1) the overall expansion of more flexible forms of employment in light of the need to provide flexible working times closer to employers' needs in service, health, retail and commerce sectors; and 2) 'crisis part-time work', related to economic crisis which confronted some workers with a forced reduction of working hours or a lack of available full-time jobs. This was the case in countries such as Greece, Italy and Spain. In some countries (for example in Austria, Denmark and in the Netherlands), part-time employment was used as a policy measure in order to prevent higher unemployment during the peak years of the economic crisis. Certainly, part-time work is not always to be considered as a voluntary choice from the perspective of the worker. The predominant underlying reasons for working part-time tend to be different from country to country. According to our experts, three types of 'pictures' are emerging regarding part-time work: 1) it can cover both high- and low-skilled jobs (this is more the case in the Netherlands and Sweden); 2) or it can be concentrated solely in low-paid employment (this is more the case in Germany and the U.K.); or 3) it can be seen as irregular and undesirable – and often involuntary (this is more the case in Southern and Eastern European countries). The expert consultation has underlined that part-time employment should not affect the future career, limit progression in the labour market, or affect social protection in later life. Several of our experts have stressed that this should be a priority for policy. In the Council Directive 1997/81/EC of 15 December 1997 concerning the framework agreement on part-time work such an anti-discrimination clause for part-time workers is included (see discussion below).

Socio-economic distribution of employment status.

Investigating the distribution of employment status over demographic and socio-economic characteristics of workers reveals important differences.

Women are overrepresented in employee-categories and are more often in both voluntary and involuntary part-time employment, while men have higher chances to be in self-employment. As previously highlighted by one of the experts we also found that the most 'traditional' form of employment (permanent employment) is more frequent among older age-groups. Consequently, there is a trend in our findings (and supported by the consulted experts) for younger workers, to be more likely than older workers to find themselves in fixed-term jobs, the residual 'other-category', as well as in part-time jobs. Part-time employment, in fact, follows a U-shaped pattern: both the youngest and oldest groups are more frequently in part-time employment. For the younger age groups part-time work is also more often involuntary.

It can only be questioned whether the prevalence of young workers in non-standard forms of employment reflect the preferences of young workers, or reflect a lack of other alternatives.

Higher educated workers find themselves more often in permanent contracts, while primary educated have a higher prevalence for being in short-term fixed contracts, 'other types of employment' and (dependent) solo self-employment. Also, involuntary part-time work is more frequent among the lower educated. Moreover, clear relations between employment status and income are found: in the highest income quintiles permanent contracts are more prevalent, while lower income groups - particularly the lowest quintile - know a higher frequency of temporary contracts and (involuntary) part-time work. Solo self-employment is a dual story in relation to income, showing a higher prevalence in the lowest and the highest quintiles.

In terms of occupational categories, it can be noted that some occupational categories are very much oriented towards permanent contracts (for example clerical support workers, assemblers/plant and machine operators), while in other occupations (such as agricultural workers and managers) permanent employment is not the norm. Depending on the occupational profile, these remaining workers are distributed over particular non-permanent employment statuses. A comparable picture emerges from economic sectors, with high levels of permanent employment in public administration (83%) – and the agricultural sector, construction, other services and commerce and hospitality as sectors with a higher variety in employment statuses.

Associations between employment status and job quality

As it is the majoritarian category in the sample, holders of permanent contracts show job quality scores very similar to the average. However – as some of our experts rightly point out – this finding probably obscures in-group variation: even among permanent contracts large variation in job quality exists. In the multivariable models, permanent contracts served as a reference category.

Longer lasting fixed-term contracts diverge from permanent contracts for a number of indicators of job quality. Work intensity is slightly lower, while also the quality of the social environment, skills and discretion, the chance of receiving training, work schedule regularity, working time quality, job security and employment prospects are significantly lower compared to permanent workers. These relationships held after controlling for potential confounders. For shorter-term fixed contracts, the pattern is very similar, while more pronounced. The analyses have made clear that especially people in short-term temporary employment score worse on several aspects of job quality (such as skills and discretion, job strain, working time quality) compared to permanent contract holders. The relations between fixed-term contracts and various intrinsic job quality indicators show that this is an important group to consider in European-level and national-level policy-initiatives.

Self-employed with employees constitute a relatively favourable group in terms of job quality; they generally feel more secure (higher job security, and employment prospects) than permanent employees. Favourable job quality for self-employed with employees can be explained by them being more inclined to have chosen for self-employment voluntarily and thus seeing self-employment as an opportunity. This group, moreover, represents an established fraction in self-employment, often with higher seniority. 'Independent' solo self-employed (i.e. self-employed without employees), for many job quality indices, show relatively similar patterns as dependent solo self-employed, although the magnitudes of the differences with the average is often smaller. Nevertheless, a few exceptions underline the generally more favourable job quality of 'independent' solo self-employed. The 'dependent' self-employed without employees have low employment prospects, and poor skills and discretion compared to the average over all employment statuses. They also have a less favourable physical and social environment. In contrast, they have lower scores on work intensity, less high job strain, slightly higher working time quality and have less difficulty trying to arrange some time off during work, compared to other employment statuses.

According to the experts, dependent solo self-employed generally hold less attractive jobs, also content-wise – belonging rather to the periphery of the labour market or providing less strategically important activities. There are however, European initiatives trying to improve the overall employment quality of the (solo) self-employed (see policy pointer 2).

Finally, workers in part-time employment (less than 35h/week) show less favourable scores for the quality of their social work environment, training, skills and discretion, regularity, job security and employment prospects, compared to full time employed. At the same time, scores for physical environment, job strain and working time quality are more favourable. In addition, we can generally observe a ‘risk profile’ for involuntary part-time work (for example low demands, but also less favourable job characteristics). According to the experts our results suggest that in terms of overall job quality there can be both ‘more favorable’ (often voluntary) and ‘less favorable’ (often involuntary) part-time jobs. Furthermore, European policy should take into account that part-time work can be both voluntary and involuntary and adjust policy recommendations by considering the dual function of part-time work.

Associations between individual-level socio-demographic characteristics and job quality

While the associations between socio-demographic background characteristics and the indicators of job quality were not the main focus of this study, we did however, find some very interesting patterns of association (see table 11). Note that the below-mentioned associations are controlled for employment status, socio-demographic, workplace characteristics and a selection of macro-level indicators.

For women, a number of job quality indices are better than for men, including better physical work environment, more work schedule regularity and less cases of being called to work at short notice - as well as better working time quality in general. In contrast, women also report higher work intensity, less utilization of skills and discretion and more often difficulties in arranging time off. Looking at age, two contradicting patterns can be seen in terms of job quality. On one hand, job quality tends to improve with age when considering the physical work environment and high work intensity. On the other hand, skills and discretion, receiving training, employment prospects and - more specifically - job security tend to drop with age. The coinciding of the latter factors with age, implies that employability opportunities are gradually becoming lower with age, or could reflect changing preferences for certain job types among older workers. Relations between educational attainment and job quality are showing a clear pattern with tertiary educated having an advantage over middle (reference category) and lower educated in terms of the quality. More specifically, this concerns the physical work environment, skills and discretion, job strain and receiving training. In contrast, work intensity and working time-related indices prove to be less favourable among the higher educated. Higher earners on average report better job quality, however they do also report higher work intensity and lower working time quality. Concerning occupational type, we find more favourable job quality scores among managers, professionals and technicians and professionals compared to clerical support workers. But find generally worse situations among service and sales workers, skilled primary sector workers, plant and machine operators, and also elementary occupations. Finally, as regards to economic sectors, generally speaking, we find favourable job quality scores in financial services and the educational sector, but less favourable scores in agriculture, industry, construction, transport and finally commerce and hospitality, compared to workers in public administration and defence.

Associations between country-level characteristics and job quality

The results concerning country variation in job quality have shown that particularly indicators relating to ‘labour market performance’ and ‘working class power’ (and the institutional ‘outflow’ of this power) are significantly related to a number of job quality indices. To begin with, in countries with a high extent of centralisation in collective bargaining, respondents tended to have higher scores for working time quality. Furthermore, the country-level

unemployment rate showed a significant negative association with skills and discretion and with employment prospects, while the estimate for experiencing high job strain was significantly higher as well. In addition, collective bargaining coverage was positively associated with work schedule regularity. And on top of that, union density showed a negative association with experiencing difficulties in arranging time off during working hours and a positive association with job security and employment prospects.

The relationship between indicators related to ‘labour market performance’ and ‘working class power’ was found to be very intuitive to the experts. As one might expect, collective bargaining – at least on an aggregate scale – balances the interests of employers and employees. These results show, and this was also confirmed during the expert consultation, that trade unions – or social partners in general – and social dialogue can do a great deal in order to improve the way work is organized. The experts deem it important that trade unions are ‘all-inclusive’: meaning that they represent both people in standard and atypical employment. Discussing existing European legislation (see below) on the topic of social dialogue will show that, especially at the European level, social partners have done a great deal to include atypical workers in agreements on working conditions and/or social protection.

The regression analyses stratified by production regimes have shown that the relation between employment status and job quality can differ between production regimes. Most often these differences are manifested in the size of the effects, more so than in the direction of the associations. For example, we generally observe that effects are smaller in the Northern countries, which could reflect an equalization of job quality across employment statuses in these countries. We might even argue that such production regimes reduce the negative impact of some employment statuses on job quality – and that this is related to certain policies, institutional and other characteristics of the labour market.

Employment status, job quality and quality of working life

As it is the most dominant category in terms of frequency, employees with a permanent contract, show scores very similar to the sample average. Workers holding a longer-lasting (more than one year) temporary contract encounter more financial problems, adverse social behaviour, lower satisfaction with working conditions, and find their health and safety more at risk. Most of these findings also hold for short-term (less than one year) temporary contracts. Moreover, these workers also have lower average motivation and engagement, compared to the sample average, while their prevalence of presenteeism is clearly lower.

Dependent solo self-employed, compared to the overall sample, report on average less satisfaction with working conditions, find their health and safety at risk more frequently and count more respondents reporting fair to bad self-rated health. Nevertheless, their motivation is higher than average and their rate of absenteeism lower than average. Independent solo self-employed encounter more financial difficulties and work-private interference. Also, their score on self-rated health is worse. At the same time, this group, is less confronted with adverse social behaviour, is on average more motivated and engaged with work and less often absent from work. The latter finds its mirror image in presenteeism, which is clearly higher, compared to the prevalence of the sample in general. Self-employed with employees have overall the most favourable scores on the quality of working life indices. There are two exceptions, however: work-private interference is problematic for almost a third of them (compared to 22% in the overall sample) and presenteeism peaks at almost 55%.

While full-time workers show results that are fairly close the overall sample scores, voluntary part-timers diverge from the overall sample in a predominantly positive way. In many ways, involuntarily part-time employed present the mirror image of the voluntary part-time employed: clearly lower satisfaction with working conditions, higher prevalence of financial problems, lower motivation, lower engagement, lower mental well-being and a higher prevalence of fair to bad self-rated health. Only their absenteeism rate is clearly lower than in the overall sample.

It appears from the mediation analyses, that the relation between employment status and quality of working life is mediated to a high extent by differences in job quality between the employment status categories. Certainly short-term temporary workers, employment agency workers and dependent solo self-employed have a generally less favourable ‘job quality profile’. Of course, exceptions to that general rule exist: a good example is the problematic work-private interference for self-employed with employees. When focusing on the above-mentioned ‘unstable employment status-categories’, small direct effects remain in relation with work-private-interference (negative), high work motivation (negative) and adverse self-rated health (positive). In more specific analyses, a direct positive relation between short-term temporary work and low satisfaction with working conditions; and between involuntary part-time work and adverse self-rated health have been noted.

Country variation in quality of working life.

For each of the quality of working life outcomes inter country-variation is considerable. However, no clear picture of ‘good’ and ‘bad’ countries emerges: it looks more like every country has a relatively unique combination of particularly bad and particularly advantageous quality of working life characteristics. This is also why we should be careful in transferring successful national policy to other institutional contexts.

The results of mediation and stratified analyses finally show that contextual factors (e.g. educational attainment, or the country of residence) tend to aggravate/attenuate certain associations between employment status and quality of working life.

European-level policy recommendations

As discussed in this report, non-standard forms of employment are changing the labour market, with clear effects on job quality and the quality of working life. As a consequence, European policy makers have to formulate suitable policy initiatives. For example, the European Pillar of Social Rights aims to modernise the rules of employment contracts, and broaden the scope of traditional employment to new and atypical forms of work. Examples of European policy-efforts are discussed below, and possible gaps are identified.

Policy pointer 1 – Improving European legislation on fixed-term contracts

Fixed-term contracts are important for the 21st century competitive economy. For employers, fixed-term contracts help them cope with market uncertainty and the need for flexibility. In addition, fixed-term contracts are frequently used as ‘*screening instruments*’ or ‘*probation periods*’ in order to assess employees before hiring them on a permanent contract (Turmann, 2006). For employees, a fixed-term contract might facilitate first access to the labour market; serve as way to acquire work experience; or as a manner to balance paid work with other activities, such as studies or travelling (Turmann, 2006). However, fixed-term contracts potentially involve disadvantages from the perspective of the worker. They might serve as ‘*a trap*’, when workers find themselves unable to enter a permanent job, or when fixed term employment impedes upward career progression. Also, fixed-term contracts may open the door for abuse and improper use. For instance, when employers use successive fixed-term contracts with the same employee as a cost-cutting or labour legislation evasion-strategy.

In order to prevent improper use, the council of the European Union has already formulated an advice under the Council Directive 1999/70/EC of 28 June 1999 concerning the framework agreement on fixed-term work. While the written directive describes certain imperative goals in regard to the use of fixed-term work, the European Member States are free to devise own laws and legislations in order to achieve such goals. The written directive on fixed-term work has two goals: 1) ‘*to improve the quality of fixed-term work by ensuring the application of the principle of non-discrimination*’ and 2) ‘*to establish a framework to prevent abuse arising from the use of successive fixed-term employment contracts*’. The principle of non-discrimination translates into the idea that a fixed-term worker cannot be treated differently than a permanent worker, solely on the grounds of holding a fixed-term contract (unless this

is justified on objective grounds). Furthermore, the measures to prevent abuse are described as putting restrictions on the maximum total duration of successive fixed-term contracts, the number of renewals, and the possible justifications for renewal of fixed-term contracts. Lastly, the written directive states that employees must be sufficiently informed of possible openings towards indefinite contracts and must be provided training opportunities in order to experience occupational mobility.

Under the influence of the Council Directive 1999/70/EC of 28 June 1999 concerning the framework agreement on fixed-term work, a considerable group of the European Member States has already implemented measures that are in agreement with the directive (such as Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and the United Kingdom) (European Commission, 2008, 2006). The current state of implementation of the written directive in terms of coverage, the principle of non-discrimination and measures to prevent abuse is discussed below, based on two working papers from the European Commission (2006, 2008).

Coverage of the directive. A considerable group of countries has applied the principles of the written directive to all sectors and professions (sometimes with different legislations and laws for public and private sectors). There are however countries (such as Denmark, Estonia, Ireland, Italy, Portugal, Sweden and the UK) that exclude some specific groups (contracts related to sheltered employment, agricultural contracts, contracts in tourism and catering and armed forces contracts) from any legislation on fixed-term work. Estonia furthermore, excludes 13 different groups from its coverage, and Latvia as well formulates a number of exceptions where contracts of unspecified time periods are allowed without restrictions.

Principle of non-discrimination. The written directive has left the phrasing of the principle of non-discrimination quite general, which has caused the Member States to take different approaches in implementing the principle. The first approach is to implement legislation on the equal treatment on almost all aspects of working conditions (such as France, Luxembourg, Malta, the Netherlands, Portugal and Sweden). A second one is to implement the principle only on specific aspects such as duration of work (Belgium, Germany and Italy), pay (Denmark and Germany), seniority criteria (Denmark), receiving training (the UK), occupational health and safety (Slovakia) and leave and remuneration (Italy). A third strategy implements the principle by recognising, in very general phrasing, the principle of non-discrimination without formulating any specific areas or aspects to which it should apply (such as Austria, Estonia, Greece, Latvia, Slovenia and Spain). Furthermore, some countries implement the principle in general labour law, but make no specific mention of fixed-term contracts (Czech Republic, Hungary, Lithuania and Poland). Due to these different approaches in implementation, important aspects that can influence the worker's further career or life progression, often fail to be covered by legislation. In Ireland, equal treatment on pension schemes is not applied to fixed-term workers. In Poland, the possibility of reinstatement after unlawful termination for fixed-term workers is absent. In Slovakia, as a final example, terminating a fixed-term contract before it comes to term with immediate effect is possible, however, highly contested by the country's trade unions.

Measures to prevent abuse. First and foremost, almost all countries have imposed rules upon employers, requiring them to objectify reasons for granting subsequent fixed-term contracts to the same employee. Exceptions are Poland, where no objective reasons are needed; and Hungary, where only a 'rightful interest' needs to be specified. Second, in many countries a maximum number of successive fixed-term contracts within a specific time period is specified (often this restriction is a maximum of four fixed-term contracts in a period of two years, but in other cases the restriction is much stricter allowing for renewal only once). Third, in some countries (such as France, Greece, the Netherlands, and Portugal) there are 'waiting periods' (of three months, or 1/3 of the original fixed-term contract) installed between subsequent fixed-term contracts, in order to rule out the possibility of using successive fixed-term contracts instead of indefinite contracts. In (almost) all countries, breaking or exceeding these rules means that the fixed-term contract will be converted into an indefinite contract. In some

cases, the employer also receives penalties. There are however some examples in which the legislation for preventing abuse is less clear. In Poland, no objective reasons are needed for possible renewal, there is furthermore no maximum limit on duration of fixed-term contracts (except that the periods should ‘not be too long’). Some other countries (the Czech Republic, Italy and Luxembourg) also place less strict rules on the use of successive fixed-term contracts in specific professions (such as seasonal workers and academic employees).

Reviewing the existing legislation (the Council Directive 1999/70/EC of 28 June 1999) at the European level, and investigating the implementation in the Member States we have found that the directive could be revised on a number of specific aspects. The European Commission can also stimulate the member states with the Open Method of Coordination. As such, successful stories of legislation from certain member states can stimulate or create peer pressure for other member states. We derive three concrete recommendations from our assessment of current policies.

Recommendation 1: In reviewing the coverage of legislation on fixed-term contracts in the European Member States we found that many countries often exclude certain sectors (agricultural sector, tourism and catering, casual workers) from the fixed-term work legislations, in order to facilitate flexibility in sectors where it might be needed most. However, as these specific sectors are also quite vulnerable in terms of precarious work (McKay et al., 2012), European Member States should be encouraged to still include some workers from such sectors in the legislation in order to protect them from any potential misuse of fixed-term contracts. In other words, Member States need to be more specific in their exceptions. Excluding a whole sector might involve professions for whom the exception is not needed. As using fixed-term contracts is common practice in such sectors it is advisable to encourage these Member States to especially install legislation on the principle of non-discrimination.

Recommendation 2: The legislation on equal treatment of fixed-term workers is highly fragmented across the Member States. While we recognize that a written directive cannot be too specific in order for it to be applicable to all member states, the directive could be revised by giving (non-binding) suggestions on to which aspects the principle of non-discrimination might apply. Currently, countries install the principle of non-discrimination on only limited aspects of the working conditions of fixed-term workers, causing large gaps in protection from discrimination in some Member States. Important grounds for non-discrimination are pay, seniority criteria, receiving training, duration of work, unemployment protection. Furthermore, the Open Method of Coordination can help share successful stories from individual member states to member states where the directive is less implemented. Such a measure may be very effective in reducing the job quality differences of fixed term contracts between Members Status (with the idea of converging towards higher general standards).

Recommendation 3: Furthermore, while most of the Member States have implemented clear rules on the maximum duration of fixed-term contracts, and also the need for an objective justification of successive contracts, there is one country that includes only the maximum duration rule of ‘not too long’. Poland currently has one of the highest shares of fixed term contracts in the EU. Possibly, the written directive can give more specific examples or suggestions as to the most desirably maximum duration of fixed-term contracts. In general, according to some of the consulted experts, restricting the successive use of fixed-term contracts, in order to facilitate transitions from fixed-term employment to permanent work needs to be (better) implemented.

Box3. Country-specific regulation on fixed-term employment. Examples from the expert interviews

In *Ireland*, policy measures may have played an important role in stimulating transitions between fixed-term work and permanent employment. Under the Protection of Employees (Fixed-Term Work) Act of 2003 (act No. 29/2003), fixed-term workers were offered protection by allowing fixed-term employment (whether or not as different consecutive contracts) for no longer than four years. After four years, a permanent contract is expected to be offered to the employee. Even if they are not made permanent by the employer, they become permanent by law. Two or more recurrent fixed-term contracts that exceed a period of four years in total, and have subsequent ending and starting dates, are also restricted in this law. The Fixed-Term Work Act of 2003 is very much inspired by the written directive on fixed-term employment, at the European level. The advantage of such a law is that it considers both the desirability of fixed-term contracts from the employers' point of view (for example to cope with uncertainty and 'trial' employees), but also prevents from mis-use of successive temporary contracts. A possible perverse effect of such a law would be non-renewal of employees exceeding their four years of employment.

For *Italy*, besides the Job Act of 2014-2015 (which we will discuss later), there is the law 368/2001 (later changed under law no. 247/2007), which tries to abolish some of the restrictions on fixed-term contracts in order to be in line with the labour market's much needed flexibility. However, the law, especially after the adjustments of 2007, also implements measures to protect fixed-term contracts (which is in line with international regulation standards, such as the written directive on fixed-term work). Such measures are: restrictions on systematic succession of fixed-term contracts with the same employer (total duration cannot exceed 36 months in total) and the implementation of interruption periods between two fixed-term contracts with the same employer (Rucci and Brambilla, 2008).

In *Spain*, there is a high prevalence of both fixed-term employment and part-time employment. The consulted expert accounts this to the reform packages of 2012 (ley 3/2012) (OECD, 2013). The most important goal of this reform was to increase the overall possibility for flexibility in the labour market – and needs to be situated in the preceding times of economic difficulty. This reform included measures such as: easing dismissal legislation, instalment of a maximum extension period for fixed-term contracts, and flexibility measures for the use of part-time contracts (OECD, 2013). Fixed-term contracts however, were also protected by the implementation of maximum duration rules, after which such contracts were transferred to permanent employment. The advantage of such reforms is that flexibility allowed employers to respond to economic downturns. The consulted expert however, warns that many of the fixed-term workers simply lose their contracts when the maximum duration period is over.

Source: Country-specific interviewees – Callea (21/07/18 – Italy); Pulignano (10/07/18 – Italy); Whelan (16/07/18 – Ireland); Lopez (02/08/18; Spain)

Policy pointer 2 – Improving the working conditions and social protection of workers in atypical employment (including workers in self-employment)

An important issue in today's debate surrounding atypical forms of employment relates to whether atypical types of jobs are 'stepping stones' to better (regular) employment, or 'dead ends' leaving workers stuck in the periphery of the labour market (European Commission, 2015). Due to atypical work forms, workers may be left without sufficient access to social protection and career opportunities. While this risk should be kept minimal even when holding an atypical job (see non-discrimination measures discussed above), it should at least be restricted to a limited period in a worker's career. The lack of access to social protection and career opportunities can hinder future career development and leave enduring 'scars' regarding social protection (e.g. lower pension rights) (European Commission, 2018).

According to the consulted experts, only when labour market regulation is applied across the entire spectrum of employment protection legislation under the equal-treatment principle, atypical work can have positive consequences for employees (Turmann, 2006).

Improving the quality of atypical jobs has been a priority for the European Commission in the latest years. Under the European Pillar of Social Rights, they have attempted to actively intervene in order to modernise the rules of employment contracts at the European level. An important aspect of this is the access to social protection for both people in atypical forms of employment and in self-employment.

There are several aspects of the European Pillar of Social Rights that apply to the situation of people in atypical employment. However, the most important aspect can be found under principle five of the proposal for the Interinstitutional Proclamation on the European Pillar of Social Rights (COM (2017) 251, final). Under the title '*Secure and adaptable employment*' the proclamation states: '*Regardless of the type and duration of the employment relationship, workers have the right to fair and equal treatment regarding working conditions, access to social protection and training. The transition towards open-ended forms of employment shall be fostered*'. At the same time, the European Pillar of Social Rights describes that the necessary flexibility for employers shall be ensured, that innovative forms of work ensuring high-quality working conditions shall be fostered, and that employment relationships leading to precarious working conditions shall be prevented (including abuse of atypical contracts).

While such objectives are sufficient in order to outline the agenda of the European Commission concerning atypical employment, they also need to be put in actual European legislation. There are currently two key initiatives concerning the social protection and working conditions of atypical workers: the proposal for council recommendation on the access to social protection for workers and the self-employed and the proposal for a directive of the European parliament and of the council on transparent and predictable working conditions in the European Union.

Transparent and predictable working conditions. Already in 1991, the European Commission has constructed a written directive on the transparency of working conditions under the name of the 'written statement directive' (Directive 91/533/EEC). This directive describes that employers are obliged to inform their employees, in a written form, on their working conditions. The directive however, was no longer sufficient to also cover atypical forms of employment (European Commission, 2017). In light of the European Pillar of Social Rights, a proposal for a new directive is put into place: the proposal for a directive of the European parliament and of the council on transparent and predictable working conditions in the European Union. This directive describes a number of pieces of information related to the employment relationship of which the worker needs to be notified in a written form. Furthermore, the directive includes a list of minimum requirements relating to working conditions of workers. While there are much more requirements in the directive, especially article 9 and 10 are relevant to atypical work. These state that there should be a minimum predictability of work in terms of the 'work schedule', and that transitions to other (more predictable and secure) forms of employment should be ensured. In general the proposal of the directive also takes up a relatively broad scope in order to ensure its applicability to all forms of atypical work.

Social protection for workers and the self-employed. The proposal for council recommendation on the social protection for all workers also stems from the European Pillar of Social Rights in the sense that it aims to cover all workers with fundamental labour standards and adequate social protection. Social protection schemes protect workers from social risks including unemployment, illness and old age. However, many atypical workers, including the self-employed, are usually not covered by such schemes. Consequently, the recommendation would include three aims in encouraging Member States to 1) close all formal social protection coverage gaps, 2) provide effective coverage, and allow for the transferability of social protection entitlements between employment statuses and 3) make social protection schemes more transparent. The proposal mentions specific areas to which

this recommendation should apply: unemployment benefits, sickness and health care benefits, maternity and equivalent paternity benefits, invalidity benefits, old-age benefits and benefits in respect of accidents at work. For the self-employed, the recommendation states that formal coverage should be voluntary in terms of unemployment benefits but concerning all other areas formal coverage should be mandatory. The difficulty of the recommendation however, is that there is no agreement on what instrument (in terms of specific legislation or policy recommendations) could be used in order to assure social protection for all, which is also why the Commission aims to install a recommendation instead of a directive.

While there is much discussion on the social protection and working conditions of atypical workers on both the European and the national level, they are also still very recent concerns. This is why very little has been done in terms of actual implementation into (national) legislation. The European Pillar of Social Rights is currently just an agenda for the European Commission to work on. The question is whether or not these recommendations will translate to the European Member States without any binding obligations (as it is a proposal for recommendation instead of an EC directive). Below we discuss possible policy improvements to assure universal working conditions and social protection for all workers.

Transparent and predictable working conditions. As mentioned in the proposal itself the directive on transparent and predictable working conditions would already be an improvement compared to the ‘written statement directive’ of 1999. Its broader scope allows for all workers, including atypical workers to receive transparent and predictable working conditions. As the European Commission’s agenda is certainly clear in this regard and has expanded its previous directive, our main concern mostly lies with the improvement of social protection of workers, which we will discuss below. However, trade unions have asked for a document that is also applicable to the self-employment (European Commission, 2017), consequently we place concerns with the lack of making any reference to workers in self-employment in this new directive. Therefore, the self-employed – including involuntary/economically dependent self-employed – still do not have any perspective to obtain the same rights as those workers who are in an actual employment relationship (European Confederation of Independent Trade Unions, 2017). Therefore, we make the recommendation to make a literal mention of the self-employed in the directive, as such there will be no ambiguity on the applicability of the directive on the self-employed. Furthermore, especially those that fall under the category of ‘*bogus self-employment*’⁹ need to be moved to types of waged employment, which is why identifying mechanisms need to be put in place.

Social protection. While there is a wide recognition that there is a need for social protection for the atypical workers, the proposal of social protection for all workers does not address some specific issues, and/or specific instruments. Furthermore, the proposal currently works under the form of a council recommendation. Meaning that the aim is to provide advice and guidance to Member States for closing formal gaps in social protection. The proposal positively leaves room for flexibility as regards to the choice for Member States to actually implement certain measures, however it would be desirable to come to a clear commitment of individual member states towards providing social protection for all (International Labour Office, 2015c). Furthermore, the recommendation, while presenting clear goals and aims for improving the social protection across the entire spectrum of worker statuses, does not provide concrete suggestions on how to implement fully covered social protection schemes. Below we provide some suggestions on specific policy initiatives that could be included in the recommendation for atypical employees:

Recommendation 1: While there is much encouragement for voluntary based social protection schemes, there should be more stress on putting mandatory universal minimum social security coverage in place (International Labour Office, 2015c). This is also what the

⁹ While there is no officially accepted definition of ‘*bogus self-employment*’ it is considered an employment relationship that falls within the ‘*grey area*’ between waged and self-employment. The difference then between dependent and ‘*bogus*’ self-employment is the deliberate attempt to conceal an employment relationship between the self-employed person and client (Thörnquist, 2015).

European Commission encourages, as voluntary coverage schemes have shown to result in lower coverage rates. Providing income support (in the form of minimum income, or basic income) to the self-employed can be essential. Such forms of support can protect the self-employed from the social risk of unemployment, without damaging the encouragement of self-employment as a desirable employment status (Spasova et al., 2017). Although, minimum protection schemes should be encouraged it involves dangers similar to that of voluntary contribution schemes. More specifically, some workers will contribute very little and will consequently still not be sufficiently covered. Minimum schemes can also undermine necessary solidarity. For example, (young) people might tend to postpone the start of paying larger contributions. Therefore, incentives for increasing coverage should also be encouraged as explained in recommendation 2.

Recommendation 2: As mentioned above, in order to stimulate all-inclusive social protections schemes, social contributions can be based on basic mandatory contribution systems. In addition however, such schemes can leave room for voluntary coverage, or for flexibility in terms of choosing to which worker-category (to which a certain collection of benefits is attached) the contributor is willing to adhere (International Labour Office, 2015b). Such initiatives will facilitate access to social protection for all, however, leave the final choice for the size of the contributions paid to the worker (including self-employed persons). As such, the flexibility-purpose of atypical employment is not compromised (Business Europe, 2017). Lastly, another method to enhance the inclusion of atypical workers in social protection schemes is to shorten the qualifying/ contribution period for unemployment benefits or sickness benefits. Meaning that the time that is required to pay contributions before qualifying for the actual social benefits itself should be shortened (International Labour Office, 2015b; Spasova et al., 2017).

In conclusion, while there are many EU-initiatives in the pipeline concerning the improvement of working conditions and social protection of atypical workers. There is still room for improvement in terms of the inclusion of self-employed workers in the transparency of working conditions directive, and concrete policy recommendations for Member States concerning the social protection of atypical workers (including the self-employed).

Box4. Country-specific regulation on the social protection of self-employed workers. Examples from the expert interviews

In *Greece*, labour market legislation related to self-employment tries to specifically tackle bogus self-employment. One law (Law No. 3846/2010) in particular, states that when the monthly invoices of a self-employed person, over a period of nine months refer to only one employer, the self-employed worker can be considered an employee by the tax office. When this is confirmed, the employer is furthermore responsible for paying the social contributions. While the aim of this policy was to protect people from false self-employment, it had unforeseen negative consequences, which made the law ineffective. More specifically, in many cases the cost of social contributions was held back from the invoice so that the gross cost for the client remained the same, or the contract was simply stopped, after which the self-employed was hired under a new contract, at a lower rate.

In *Spain*, self-employed workers have the possibility to receive some of the same social security benefits than employees (which includes paid holidays, sickness absence, pension). The self-employed have to pay contributions into a public scheme for the self-employed (*'Régimen Especial de los Trabajadores Autónomo'*) in order to receive such social protection. They are however, still not protected in case of unemployment and/or work-related accidents, as these are not included in the special scheme (Eurofound, 2009).

Source: Country-specific interviewees – Lampousaki (12/07/18 – Greece); Lopez (02/08/18 – Spain)

Policy pointer 3 – Improving European legislation on part-time work

Part-time jobs present themselves as a double-edged sword in terms of their function within the contemporary labour market. In some countries part-time work is considered a voluntary and positive choice, often suitable to a certain life phase. In other countries high prevalence of involuntary part-time work shows that it is not always the most desirable employment status. During the expert consultation it was indicated that there should be both the right to ask for part-time work and the right to refuse part-time work.

The European Commission has already installed a written directive in order to improve the quality of part-time work: The Council Directive 1997/81/EC of 15 December 1997 concerning the framework agreement on part-time work. The purpose of this agreement is twofold. Its first aim is to apply the principle of non-discrimination to part-time work. Its second aim is to facilitate the development of voluntary part-time work, but still consider the need for a flexible organisation of work from both the employer and employee perspective. The principle of non-discrimination includes that a part-time worker shall not be treated in a different manner compared to full-time employees, unless the different treatment is justified on objective grounds. The second aim refers to fostering opportunities for part-time work. This means that any obstacles that might limit opportunities need to be eliminated. It also means that an employee is free to refuse the transfer from full-time to part-time work, or vice versa, but also that employers should consider an employee's request for such a transfer. Lastly, employees need to be informed of the possibilities for changing towards part-time or full-time employment within the enterprise, and part-time work needs to be made possible at all levels of the enterprise.

As the written directive stems from 1997 there is already a considerable group of European Member States (such as Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and the United Kingdom) that implemented legislation in accordance with the Council Directive 1997/81/EC concerning part-time work. We will review the implementation of the two most important elements (the principle of non-discrimination and opportunities for part-time work) of the directive, as well as the scope of that implementation, below.

The scope of the directive. While many of the European Member States (Belgium, Germany, Greece, Luxembourg, Portugal, Spain and Sweden) make sure that the legislation covers all workers, there are a few countries who make exceptions. Both Denmark and Ireland for instance choose the possibility for excluding seasonal workers from the legislation. The Netherlands and the UK exclude military personnel, and Austria excludes all public employees, home workers, and managerial staff with important duties. Italy excludes workers in agricultural jobs, and in public administration. Sometimes these exceptions are covered under different legislation (such as in Italy and the UK). There are however, also a number of countries (Czech Republic, Latvia, Poland and Slovakia) that do not differentiate between part-time and full-time work. Therefore, they often have the same protection (European Commission, 2003; Sargeant, 2007).

The principle of non-discrimination. Most countries (such as Austria, Belgium, Denmark, Estonia, France, Germany, Italy, Latvia, Luxembourg, Malta, the Netherlands, Portugal, Slovenia, Spain, Sweden and the UK) have implemented the principle of non-discrimination in almost exact the same manner as specified in the directive. Most of them however, apply the rule very generally and do not specify to which areas of employment/job (quality) the principle may apply. A few countries however, specify only a few areas to which the principle should apply: pay and vocational training (Greece), aspects related to remuneration (Ireland, Luxembourg), length of service, severance pay and probation period (Luxembourg). Other countries furthermore specify certain conditions under which part-time workers are entitled to the same rights as full-time workers, and when they are not. In Finland, Ireland and Slovenia for instance, when working below a certain limit of working hours (for example less than 20% of full-time working hours), workers are not awarded an annual holiday, study leave

and/or pension rights. The Czech Republic furthermore, uses a special formula to calculate annual leave when working less than 60 days. Lastly, there are countries (Cyprus, Czech Republic, Hungary, Lithuania, Poland and Slovakia) that do not specify the principle to part-time work in particular, but have it defined in general labour law (European Commission, 2003; Sargeant, 2007).

Opportunities for changing between part-time and full-time work. Many Member States (Finland, France, Germany, Greece, Hungary, Italy, Latvia, Luxembourg, Malta, the Netherlands, Sweden and the UK) have in fact implemented measures so that transfers between part-time and full-time work (and vice versa) are supported. Furthermore, they also entail that the refusal for working part-time or full-time is not enough reason for dismissal. However, legislation on part-time work is often fragmented. Both within and between Member States. For example, it is possible that within one member state, opportunities for part-time work are defined differently in each particular collective agreement (as is the case in Denmark). In general however, most of the laws and agreements in the Member States are binding for all. There are also differences in legislation between Member States. In Ireland for example, the Labour Relations Commission studies the obstacles for part-time workers, but furthermore, can only make non-binding recommendations. There are also countries (Cyprus, Czech Republic, Estonia and Slovakia) that have not taken any action at all in order to eliminate the obstacles in part-time employment. For most of these Member States, legislation is not put in place as they believe there are no barriers present in the first place (European Commission, 2003; Sargeant, 2007).

When reviewing the implementation of the council directive on part-time work we found that the overall coverage of the implemented legislation is relatively good. Concerning the principle of non-discrimination, there are still a lot of Member States that leave the phrasing of the principle in relatively general terms. Similar to our recommendation in relation to the written directive of fixed-term work, we recommend that the areas of employment conditions to which the principle should apply are specified, as currently there are countries implementing legislation on only a few areas, while for other countries the legislation is very broadly defined, making its application in practice quite ambiguous. As such, more extensive commitment for implementation is needed from individual member states. Possibly, the European level can provide countries with monetary incentives in case of an expansion on part-time work legislation and sharing good practices through the Open Method of Coordination. Furthermore, as we found that many of the Member States had quite complicated legislation concerning part-time work, with many different aspects and exceptions. We recommend that the European level actively tries to stimulate transparency of employment protection legislation concerning part-time work, as such that it is both clear to the employee and employer what the status of part-time work entails. Lastly, we suggest that recommendations need to be put in place in which the issue of part-time work is already addressed at the stage of hiring. Currently, many aspects of the directive refer to people who are already in an employment relation and want to change from full-time to part-time or vice versa. However, the issue of involuntary part-time work is strongly related to the lack of access to full-time jobs when seeking employment. Therefore, the European level might place restrictions on practices such as ‘job sharing’ (a flexible employment practice in which employers hire two separate part-time workers in order to fulfil the work of one full-time worker), so that when there are job-seekers willing to fulfil a full-time job they are not hindered by such practices.

Policy pointer 4 – Active support for improving social dialogue

Principle 8 of the European Pillar of Social Rights is related to the social dialogue and involvement of workers. It immediately shows that, on the European level, increased attention is put on the improvement of social dialogue. Principle 8a and 8c read as follows: ‘a. *The social partners shall be consulted on the design and implementation of economic, employment and social policies according to national practices. They shall be encouraged to negotiate and conclude collective agreements in matters relevant to them, while respecting their*

autonomy and the right to collective action. Where appropriate, agreements concluded between the social partners shall be implemented at the level of the Union and its Member States'. 'c. Support for increased capacity of social partners to promote social dialogue shall be encouraged'. Social dialogue is able to improve working conditions, better match labour-demand and -supply, and respond to a variety of challenges of the new economy.

There are already a couple of examples in which cooperation between the European Commission and social partners has led to agreements that change the way labour markets are organised. For example, the written directive on part-time work, and on fixed-term work. As the European Commission recognises the importance of such social dialogue, the Commission has announced the 'New Start for Social Dialogue'. Later this was formally agreed upon in the quadripartite statement (with council) to support social dialogue at all levels. The new start for social dialogue initiative furthermore included the need for four elements: '1) a closer involvement of the social partners in the European Semester, 2) stronger emphasis on capacity building of national social partners, 3) increased involvement of social partners in EU policy and law-making and 4) a clearer relation between social partners' agreements and the Better Regulation Agenda'.

Reviewing the New Start for Social Dialogue one year after, the European Union has found that while there have been great improvements at the European level (written directives prepared after a consultation of the social partners), social dialogue at the national level could be much more stimulated (European Commission, 2016b). Our expert consultation as well, has shown that in some countries, social partners such as trade unions have relatively weak positions. However, in order to reach inclusive social dialogue at the individual Member States, trade unions need to be inclusive and strengthened. Furthermore, at the national level there is a need for 1) a suitable institutional framework for social partners to participate in social dialogue, and 2) adequate financial resources for building social dialogue capacity. On the European level EU funds could be made available in order to achieve the latter point (European Commission, 2016b).

In conclusion, social dialogue has come a long way on the European level, and cooperation with social partners has caused for a number of recent agreements concerning the organisation of (atypical) labour. Looking at the national Member States however, there is still quite some variation in the capacity of social dialogue. A previous Eurofound-report came to same conclusion (Eurofound, 2017e). Furthermore, we recommend that the European level should actively stimulate and support individual Member States much better in expanding social dialogue. This can be achieved by providing the financial resources for building suitable institutional frameworks and continuing the 'good example' set at the European level. Next to sharing the good example from the European level, we also believe that the interchangement of good examples between member states need to be encouraged. This can be achieved for example, under the Open Method of Coordination.

Summary of the policy-discussion

A study of European policy initiatives and consultation of experts has shown that there have been considerable efforts at the European level in order to improve the employment and job quality of workers in non-standard employment. The most recent initiative in that regard is the European Pillar of Social Rights. Earlier, also the Directive 1999/70/EC on fixed-term work, the proposal for recommendation on access to social protection for all workers, the proposal for a directive on transparent and predictable working conditions and the Directive 1997/81/EC concerning part-time work considered the topic of job quality - in particular for non-standard workers. Finally also the new start for social dialogue should be considered.

On the one hand we found that the above-mentioned initiatives have had some positive consequences. The directive on fixed-term work has caused many European member states to install measures in agreement with the directive (however, the coverage and specificity of such measures strongly varies between countries). Likewise, the Directive 1997/81/EC concerning part-time work has tried to consider both the negative (involuntary part-time

work) and positive (voluntary part-time work) sides of part-time work and has aimed to particularly facilitate voluntary part-time work. In addition, proposals have been installed in order to provide equal treatment regarding working conditions and access to social protection regardless of employment relationships. Finally, social dialogue is increasingly used at the European level in order to formulate the above-mentioned proposals and directives.

On the other hand, the European policy initiatives sometimes do not address specific issues or often use overly ambiguous and general phrasing. Consequently, we frequently observe insufficient and fragmented implementation in individual member states. For example, the principle of non-discrimination, in both the directives on fixed-term and part-time work, is left very general, leaving ambiguity regarding the employment situations on which the equal-treatment principle should apply. Also, in terms of coverage of legislation it is still relatively easy to allow for exceptions: sometimes entire economic sectors are excluded from legislation. Furthermore, recommendations are not obligatory. Consequently, recommendations concerning access to social protection will be very difficult to implement. Stricter enforcement measures are thus needed. In addition, due to a too general translation of European policy suggestions in member states' own legislation, they fail to coherently pursue the intended goals of the policy suggestions. Finally, social dialogue has been improved at the European level, however in some Member States there is still a long way to go in building suitable institutional frameworks for social dialogue. In sum, an increasing amount of initiatives exists at the European level, in order to improve the working conditions and job quality of atypical workers. However, individual member states differ strongly in the implementation of European directives and recommendations. In order to close such gaps, much more debate and interchanges of good examples, for example using the Open Method of Coordination, are needed.

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Appendix 1: Country variation of job quality

Table 22: Countries in relation with job quality (percentages and means, 6th EWCS (2015), all workers)

Country	Physical Environment (Mean score)	High work intensity (Mean score)	Social environment (Mean score)	Skills and Discretion (Mean score)	High strain (%)	Training received %	Regularity (medium-high) %	Working time quality (Mean score)	Called to work at short notice %	Difficulties in arranging time off %	Job security (Mean score)	Employment prospects (Mean score)
<i>P-value</i>	***	***	***	***	***	***	***	***	***	***	***	***
<i>Austria</i>	84.4	32.9	77.3	58.2	10.0	57.2	64.8	73.2	10.5	33.0	0.8	56.2
<i>Belgium</i>	85.7	33.7	77.4	59.7	8.9	53.2	72.4	71.5	9.6	31.4	0.8	56.1
<i>Bulgaria</i>	84.3	26.2	87.5	48.7	9.8	84.6	82.6	73.3	9.1	28.7	0.7	53.0
<i>Croatia</i>	82.6	30.6	82.2	51.6	14.0	74.6	73.5	69.7	12.9	39.4	0.7	52.0
<i>Cyprus</i>	80.3	42.0	82.3	49.4	26.1	77.7	78.8	72.3	11.6	44.6	0.6	49.9
<i>Czech Republic</i>	86.7	27.6	76.0	54.6	8.9	49.0	64.8	67.3	17.2	58.1	0.7	54.1
<i>Denmark</i>	84.9	35.9	77.5	65.8	5.0	62.6	56.0	71.2	12.6	23.8	0.9	64.1
<i>Estonia</i>	83.3	29.4	75.9	63.1	4.1	51.9	65.9	70.7	13.8	30.3	0.7	49.5
<i>Finland</i>	82.9	34.4	79.3	65.9	6.1	46.1	57.9	71.0	13.0	20.1	0.8	58.3
<i>France</i>	79.7	36.4	72.9	59.0	10.6	59.5	68.4	69.1	9.9	36.7	0.8	55.1
<i>Germany</i>	86.1	32.0	75.8	53.0	10.8	59.8	72.0	72.9	12.7	45.5	0.8	55.4
<i>Greece</i>	80.1	37.6	84.6	46.5	20.8	91.6	70.6	65.7	18.6	49.1	0.6	44.7
<i>Hungary</i>	83.9	32.0	82.4	50.3	16.4	75.2	72.4	70.5	11.6	45.8	0.7	53.0
<i>Ireland</i>	86.2	33.8	81.8	61.0	10.3	49.9	67.0	69.7	14.7	22.0	0.8	56.3
<i>Italy</i>	86.6	29.0	72.7	51.0	9.0	70.4	72.2	73.4	9.3	33.3	0.6	41.1
<i>Latvia</i>	83.2	25.7	76.1	49.8	6.6	67.1	73.7	72.4	11.9	27.2	0.7	45.5
<i>Lithuania</i>	82.6	28.6	80.5	52.2	8.0	67.2	70.7	71.7	15.2	33.9	0.7	44.1
<i>Luxembourg</i>	83.9	34.1	78.8	63.2	7.9	51.8	79.0	72.5	8.7	32.1	0.8	59.6
<i>Malta</i>	83.4	37.3	84.4	62.6	2.7	62.0	81.9	70.6	6.1	19.3	0.8	62.5
<i>Netherlands</i>	86.3	30.9	74.0	62.5	7.3	50.0	60.9	73.0	14.6	14.9	0.7	52.2
<i>Poland</i>	83.3	27.5	75.4	52.6	8.8	66.2	70.4	69.9	10.5	34.7	0.6	52.1
<i>Portugal</i>	85.6	28.0	87.2	48.1	13.3	76.0	71.7	73.4	8.3	35.2	0.6	44.8
<i>Romania</i>	78.3	36.3	80.8	50.8	22.1	81.0	72.8	68.9	11.9	33.4	0.7	54.0
<i>Slovakia</i>	84.3	29.4	73.9	52.2	11.1	52.8	72.2	68.0	13.5	51.8	0.8	46.2
<i>Slovenia</i>	83.6	32.3	81.1	60.1	10.0	56.9	68.3	68.6	10.9	39.7	0.7	50.3
<i>Spain</i>	80.1	36.2	85.4	54.5	14.9	68.3	75.6	67.5	13.0	32.1	0.7	47.5
<i>Sweden</i>	83.3	36.9	76.3	62.5	10.5	55.2	57.9	71.0	11.6	21.8	0.8	57.7
<i>United Kingdom</i>	84.9	37.2	79.3	62.4	8.3	50.3	69.2	69.2	15.7	24.5	0.8	58.6
Total	83.5	33.0	79.2	56.2	10.9	62.7	70.6	70.5	12.1	33.8	0.7	52.5

*p-values: * p<0.05; ** p<0.01; *** p<0.001; all results are weighted using W4.*

Appendix 2: Country variation of quality of working life

Table 23: Associations between quality of working life indicators and EU-countries

	Satisf. with WC (high) (%)	Subj. fin. Insecurity (%)	Adverse behaviour (%)	Work-private interference (M)	Motivation (high) (%)	Engagement (high) (M)	Health and safety at risk (%)	Fair to bad SR- health (%)	Mental well-being (good) (M)	Absenteeism (%)	Presenteeism (%)
<i>p-value</i>	***	***	***	***	***	***	***	***	***	***	***
<i>Austria</i>	92.8	31.2	17.1	18.3	67.4	69.2	24.7	20.0	72.5	51.6	36.1
<i>Belgium</i>	89.3	24.1	19.3	21.1	69.8	70.6	25.3	20.2	69.3	54.3	53.1
<i>Bulgaria</i>	82.7	60.7	8.1	17.3	72.0	69.9	25.6	16.5	69.3	29.7	23.0
<i>Croatia</i>	79.1	60.0	10.0	22.9	58.2	64.2	26.9	19.6	66.9	35.7	40.6
<i>Cyprus</i>	84.7	51.2	12.7	25.4	49.4	66.4	22.1	8.2	66.0	39.7	43.5
<i>Czech Rep.</i>	89.9	34.4	16.6	18.2	59.1	67.8	13.4	14.7	73.3	44.1	28.7
<i>Denmark</i>	91.0	9.8	24.7	21.8	70.5	72.9	20.2	17.9	71.3	63.0	61.7
<i>Estonia</i>	90.3	44.5	22.2	21.3	64.0	67.0	31.9	38.4	68.0	39.5	43.5
<i>Finland</i>	91.6	18.3	20.2	23.6	75.4	69.3	25.0	20.8	70.5	64.2	51.1
<i>France</i>	79.7	41.7	24.0	23.3	60.8	67.5	33.9	17.4	64.9	40.7	62.1
<i>Germany</i>	88.8	27.6	15.6	16.8	59.6	67.8	17.9	23.0	71.1	57.1	32.5
<i>Greece</i>	76.7	75.4	8.8	26.9	58.7	66.4	23.9	9.6	67.2	32.9	46.4
<i>Hungary</i>	85.9	53.7	9.1	17.1	58.3	64.8	18.0	21.5	67.5	28.7	30.1
<i>Ireland</i>	89.2	33.7	18.9	19.6	70.3	71.0	20.9	9.6	71.3	46.2	52.4
<i>Italy</i>	82.2	47.2	9.9	22.7	62.7	65.0	12.7	32.1	64.8	51.0	27.4
<i>Latvia</i>	82.1	52.2	18.2	19.7	61.2	67.5	33.8	39.7	67.5	32.0	33.0
<i>Lithuania</i>	82.6	32.9	15.6	19.9	47.3	69.2	27.7	38.2	67.9	40.3	25.4
<i>Luxembourg</i>	84.0	22.4	18.9	22.9	65.5	68.0	27.2	19.4	66.9	52.7	59.2
<i>Malta</i>	86.4	31.1	14.1	23.7	70.9	70.3	26.9	18.8	67.9	64.4	69.3
<i>Netherlands</i>	92.1	14.1	27.7	18.7	74.0	75.1	19.6	17.3	73.0	49.3	47.3
<i>Poland</i>	86.6	39.4	11.1	22.1	54.6	63.4	19.7	25.2	65.3	41.3	23.7
<i>Portugal</i>	86.5	52.5	4.4	20.2	62.3	65.5	13.4	29.5	69.6	19.1	20.3
<i>Romania</i>	88.5	43.0	14.1	23.7	61.4	66.7	21.7	26.6	69.5	19.9	30.4
<i>Slovakia</i>	83.4	46.0	19.8	20.3	50.4	65.9	23.5	25.5	65.8	43.4	42.7
<i>Slovenia</i>	82.5	41.1	16.0	19.2	65.2	68.7	34.6	23.2	68.3	39.7	54.8
<i>Spain</i>	81.7	44.8	10.2	24.9	63.9	66.9	35.8	21.5	73.7	27.3	43.7
<i>Sweden</i>	84.6	11.8	21.3	23.1	61.7	69.3	46.1	20.3	67.9	59.2	57.2
<i>United Kingdom</i>	88.7	21.4	20.3	22.9	66.1	66.9	18.0	17.5	64.0	50.7	59.2
Total	85.7	37.5	15.9	21.4	63.3	68.0	25.2	21.8	68.9	43.7	43.9

p-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; All results are weighted using weighting factor 'W4'. (M) = Mean value. (%) = Percentage of exposure category.

Appendix 3: Description of macro-level indicators

Table 24: Overview of the macro-level indicators tested in this study, organised according to broad theoretical categories.

Dimension/ indicator	Description	Unit	Source	Link to data
Economic development				
<i>GDP per capita in PPS</i>	Gross domestic product (GDP) is a measure for the economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. The volume index of GDP per capita in Purchasing Power Standards (PPS) is expressed in relation to the European Union (EU28) average set to equal 100. If the index of a country is higher than 100, this country's level of GDP per head is higher than the EU average and vice versa. Basic figures are expressed in PPS, in other words a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries. Please note that the index, calculated from PPS figures and expressed with respect to EU28 = 100, is intended for cross-country comparisons rather than for temporal comparisons.'	Pct	EUROSTAT	http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do http://ec.europa.eu/eurostat/web/products-datasets/-/tec00114
<i>Real GDP growth rate</i>	Percentage change on previous year. Gross domestic product (GDP) is a measure of the economic activity, defined as the value of all goods and services produced less the value of any goods or services used in their creation. The calculation of the annual growth rate of GDP volume is intended to allow comparisons of the dynamics of economic development both over time and between economies of different sizes. For measuring the growth rate of GDP in terms of volumes, the GDP at current prices are valued in the prices of the previous year and the thus computed volume changes are imposed on the level of a reference year; this is called a chain-linked series. Accordingly, price movements will not inflate the growth rate.	Pct	EUROSTAT	http://ec.europa.eu/eurostat/web/products-datasets/-/tec00115&lang=en http://ec.europa.eu/eurostat/web/national-accounts/data/main-tables
Innovative nature of the economy				
<i>R&D expenditure/GDP</i>	Gross domestic expenditure on R&D (GERD). The indicator provided is GERD (Gross domestic expenditure on R&D) as a percentage of GDP. 'Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications' (Frascati Manual, 2002 edition, § 63).	Pct	EUROSTAT	http://ec.europa.eu/eurostat/web/products-datasets/-/t2020_20&lang=en

Employment status and job quality

Table 24: Overview of the macro-level indicators tested in this study, organised according to broad theoretical categories (continued)

Dimension/ indicator	Description	Unit	Source	Link to data
Employment knowledge-intensive activities	An activity is classified as knowledge intensive if tertiary educated persons employed (according to ISCED97, levels 5+6 or ISCED11, levels 5 to 8) represent more than 33% of the total employment in that activity. The definition is built based on the average number of employed persons aged 15-64 at aggregated EU-27 level in 2008 and 2009 according to the NACE Rev. 2 at 2-digit, using the EU Labour Force Survey data.	Pct	EUROSTAT	http://ec.europa.eu/eurostat/data/database?p_p_id=NavTreeportletprod_WAR_NavTreeportletprod_INSTANCE_nPqeVbPXRmWQ&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_col_id=column-2&p_p_col_count=1 → htec_kia_emp2 http://ec.europa.eu/eurostat/cache/metadata/Annexes/htec_esms_an8.pdf
Skill level workforce/ productivity				
Share of tertiary educated 25-64 years old	Tertiary education: this aggregate covers ISCED 2011 levels 5, 6, 7 and 8 (short-cycle tertiary education, bachelor's or equivalent level, master's or equivalent level, doctoral or equivalent level, online code ED5-8 'tertiary education'). Data up to 2013 refer to ISCED 1997 levels 5 and 6.	Pct	EUROSTAT	http://ec.europa.eu/eurostat/data/database?p_p_id=NavTreeportletprod_WAR_NavTreeportletprod_INSTANCE_nPqeVbPXRmWQ&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_col_id=column-2&p_p_col_count=1 → edat_lfse_03 http://ec.europa.eu/eurostat/cache/metadata/en/edat1_esms.htm
GDP/hour worked	Labour productivity per hour worked is calculated as real output (deflated GDP measured in chain-linked volumes, reference year 2010) per unit of labour input (measured by the total number of hours worked). Measuring labour productivity per hour worked provides a better picture of productivity developments in the economy than labour productivity per person employed, as it eliminates differences in the full time/part time composition of the workforce across countries and years. In this case, nominal labour productivity per hour worked has been used, taking EU28 as reference point.	Pct	EUROSTAT	http://ec.europa.eu/eurostat/en/web/products-datasets/-/TSDEC310 http://ec.europa.eu/eurostat/cache/metadata/en/nama10_esms.htm http://ec.europa.eu/eurostat/data/database?node_code=tsdec310 → tsdec310/ nama_10_lp_ulc
Economic globalisation/ integration in the global market/ competitiveness				
Exports of goods and services as % of GDP	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.	Pct	World Bank	http://databank.worldbank.org/data/reports.aspx?source=2&series=N.E.EXP.GNFS.ZS&country=#

Employment status and job quality

Table 24: Overview of the macro-level indicators tested in this study, organised according to broad theoretical categories (continued)

Dimension/ indicator	Description	Unit	Source	Link to data
<i>Employment in foreign enterprises</i>	Employment in foreign controlled enterprises as a share of total domestic employment. Foreign affiliate statistics (fats) deal with enterprises that control enterprises abroad (outward fats) or are controlled by foreign enterprises (inward fats). In this context, enterprise A is deemed to be controlled by an enterprise B when B controls, whether directly or indirectly, more than half of the shareholders' voting power or more than half of the shares. This indicator describes the share of employment held by foreign controlled enterprises in the reporting country divided by the total employment in the reporting country.	Pct	EUROSTAT	http://ec.europa.eu/eurostat/web/products-datasets/-/tps00004
<i>Labour cost per hour</i>	Labour costs are the expenditure (in Euro) by employers, with the purpose of employing staff. The labour costs include: employee compensation (wages and salaries), employers' social security contributions, and employment taxes (considered labour costs) minus any subsidies received. However, labour costs do not include vocational training costs, recruitment costs or spending on working clothes.	Scale/ Euro	EUROSTAT	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lc_lci_lev&lang=en%20-%202015 → lc_lci_lev http://ec.europa.eu/eurostat/cache/metadata/en/lc_lci_lev_esms.htm
Working class power/institutionalisation				
<i>Union density</i>	Union density rate, net union membership as a proportion of wage earners in employment (Num*100/WSEE) (item = 'ud')	Pct	ICTWSS Database v5.1	http://www.uva-aias.net/en/ictwss
<i>Collective bargaining coverage</i>	Unadjusted bargaining (or union) coverage rate: proportion of all wage earners, WCB*100/WSEE (0-100) (item = 'unadjcov')	Pct	ICTWSS Database v5.1	http://www.uva-aias.net/en/ictwss
<i>Collective bargaining centralization</i>	Summary measure of centralisation of wage bargaining, with union authority and concentration at multiple levels (item= 'cent')	Scale (0-98)	ICTWSS Database v5.1	http://www.uva-aias.net/en/ictwss
Labour market performance				
<i>Unemployment rate</i>	EUROSTAT - Unemployed persons are persons aged 15-74 (here 64) who were without work during the reference week, were currently available for work and were either actively seeking work in the past four weeks or had already found a job to start within the next three months.	Pct	EUROSTAT	http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do --> Ifsa_urgan
<i>Temporary employment rate</i>	Temporary employees as percentage of the total number of employees, by sex, age and country of birth (%) – age 16-64.	Pct	EUROSTAT	http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do --> Ifsa_etpgan

Disclaimer: This working paper has not been subject to the full Eurofound evaluation, editorial and publication process.

Table 24: Overview of the macro-level indicators tested in this study, organised according to broad theoretical categories (continued)

Dimension/ indicator	Description	Unit	Source	Link to data
Social protection for the working aged population				
<i>Net social protection benefits</i>	The ESSPROS summary data on expenditure on social protection consists of expenditure related to social benefits, administration costs and other expenditure. Specifically, these social benefits consist of: sickness/healthcare benefits, disability benefits, old age benefits, survivors' benefits, family/children benefits, unemployment benefits, housing benefits and social exclusion benefits. The net social protection expenditure is shown as a percentage of GDP.	Pct	EUROSTAT	http://ec.europa.eu/eurostat/cache/metadata/en/spr_esms.htm --> spr_net_ben http://ec.europa.eu/eurostat/statistics-explained/index.php/Social_protection_statistics
<i>Unemployment benefits expenditure</i>	In Eurostat database, ESSPROS data on expenditure and receipts, data on net social protection benefits as well as data on Pension beneficiaries for the total of schemes are currently disseminated. This data represents all social protection benefits for the function 'unemployment' as a share of GDP.	Pct	EUROSTAT	http://ec.europa.eu/eurostat/web/social-protection/data/database → [spr_exp_gdp] http://ec.europa.eu/eurostat/cache/metadata/en/spr_esms.htm
<i>Active labour market policies</i>	Activation-Support - LMP participants per 100 persons wanting to work (source: DG EMPL) – Active labour market policies LMP measures cover interventions that provide temporary support for groups that are disadvantaged in the labour market and which aim at activating the unemployed, helping people move from involuntary inactivity into employment, or maintaining the jobs of persons threatened by unemployment: Training; Employment incentives; Supported employment and rehabilitation; Direct job creation; Start-up incentives	Pct	EUROSTAT	http://ec.europa.eu/eurostat/web/labour-market/labour-market-policy/database --> lmp_ind_actsup http://ec.europa.eu/eurostat/cache/metadata/en/lmp_esms.htm
<i>Passive labour market policies</i>	Activation-Support - LMP participants per 100 persons wanting to work (source: DG EMPL) – LMP supports cover financial assistance that aims to compensate individuals for loss of wage or salary and support them during job-search (that is to say mostly unemployment benefits) or which facilitates early retirement: Out-of-work income maintenance and support; Early retirement	Pct	EUROSTAT	http://ec.europa.eu/eurostat/web/labour-market/labour-market-policy/database --> lmp_ind_actsup http://ec.europa.eu/eurostat/cache/metadata/en/lmp_esms.htm

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