The validation of a multidimensional indicator for precarious employment in Europe: prevalence, evolution and distribution.

Abstract

The changing nature of employment in recent decades, due to an increased emphasis on flexibility and competitiveness in European labour markets, has gained importance as a topic in both occupational health and industrial relations research. In that context, the phenomenon of precarious employment is often used to describe and analyse flexible employment arrangements at the bottom of the labour market. Existing indicators for precarious employment intend to transcend simple dichotomies of standard versus non-standard work by recognising the multidimensional nature of employment precariousness. This article aims to validate a typological approach towards (the multidimensional nature of) precarious employment, by comparing it with specifications based on the idea of a summed scale. Proxies for the different aspects of precarious employment are derived from three waves of the European Working Conditions Survey (2005, 2010 and 2015). The prevalence, cross-national distribution, evolution and socio-economic profile of the different precarious employment specifications are reported.

Keywords

Employment quality, precarious employment, employment conditions, employment relations, EU27

As a result of the increased emphasis on flexibility and competitiveness in European labour markets, employment has changed in broadly two directions in recent decades. These directions can be described respectively as a "low road" and "high road" towards flexibility. Both entail a certain amount of de-standardisation of employment features, but they differ in the approach and the extent to which flexibility is introduced. For the highly valued jobs of the "high road", flexibility – mainly temporal and functional – is introduced in combination with generally favourable employment characteristics. For the "low road" jobs situated at the bottom of the labour market, flexibility is obtained by means of atypical employment forms and overall detrimental employment conditions and relations (Bosch, 2004).

A substantial amount of research has looked into the "low road towards flexibility" and the resulting phenomenon of precarious employment. A large part of this literature focuses specifically on the instability created by specific contract types (e.g. Ciairano et al., 2010; Ferrie et al., 2008). However, approaches that only take into account employment stability are too narrow, since precariousness is not necessarily confined to temporary forms of employment. Precarious employment situations arise from a lack of bargaining power of certain groups of workers and this power deficit affects multiple aspects of the work experience (Cappelli, 1995; Benach et al., 2014). A multidimensional approach is therefore necessary to study precarious employment in all its complexity. Unfortunately, there is no consensus on how to measure precarious employment in a multidimensional way, which makes it difficult to gain insight in its prevalence in Europe and the potential negative consequences for the workers involved (Benach et al., 2016; Julià et al., 2017a).

In this article, the benefits of a typological measurement approach towards precarious employment will be shown, by comparing it with two alternative specifications based on a summed scale. The two approaches differ in their conceptual view of precariousness. In case of a summed scale, employment precariousness is conceived as a gradational matter, which means that it is possible to determine the exact amount of precariousness in each job. In case of a typology, the configuration of employment conditions and relations is used as a benchmark and the assumption is that jobs cannot simply be ranked from low to high employment precariousness. Jobs can be precarious in more than one way and it is difficult to determine the exact level of precariousness. The comparison of the different specifications concerns the prevalence, the evolution, the cross-national distribution and the socio-demographic profile of precarious employment in the EU27.

1. Background

1.1 Precarious employment as a result of imbalanced power relations

Although employees and employers have a relationship of mutual dependence, the power imbalance that exists between them is – to a certain extent – inherent to the phenomenon of waged labour (Sisson, 2008). Employees need to sell their labour power in order to make a living and want to do this under the best possible circumstances. Employers, for their part, want to reduce the costs of labour and thus benefit from offering less attractive employment conditions (Korpi, 1983; Sisson, 2008). In most situations (and certainly in segments of the labour market with low added value), this results in an advantage for the employers because they can select which employees they will hire. In contrast, those employees with unique skills or employed in sectors/occupations characterised by labour shortages will find themselves in a powerful individual bargaining position (Roemer, 1982; Cappelli, 1995). In the period after the Second World War, this power imbalance between workers and employers was reduced by the introduction of both collective bargaining procedures and protective employment legislation (Esping-Andersen, 1990; Rubery and Grimshaw, 2003).

In the last quarter of the 20th century, however, the power imbalance between workers and employers was pushed to extremes because important changes such as the development of new technologies and the growth of the service sector led to high unemployment rates among certain categories of workers (Lapido and Wilkinson, 2002). Unemployment increases the competition in the labour market and thus affects employees' bargaining power in a negative way (Streeck, 2014). Under those circumstances, workers are more inclined to accept unattractive or downright adverse employment characteristics. At the same time, the power position of employers became stronger because – due to the globalisation of the economy – they had the option (and could threaten) to move production to countries with lower labour costs and/or less extensive employment regulation. This led to even more pressure on trade unions and national governments to agree with the de-standardisation of employment conditions (Standing, 2011).

In other words, precarious employment situations – and the fact that they are unequally distributed among workers – are the result of asymmetrical power relations in the sphere of work (Crompton, 2008). Workers with skills that are scarce and/or desirable in the labour market have a stronger individual bargaining position than workers with skills that are considered less valuable (Standing, 2011). This implies that the first group is more likely to end up in high-quality employment situations, while the latter group of workers

has no other option than to accept precarious employment situations. Obviously, the power deficit from the part of workers affects more than only the stability of employment or the level of wages, but also factors such as training opportunities, working times and possibilities for participation and communication. Therefore, precarious employment is to be conceived as a multidimensional phenomenon.

1.2 Recent multidimensional conceptualisations of precarious employment

The growing awareness of the multidimensional nature of precarious employment has manifested itself in a number of conceptualisations. These usually entail that precarious employment is contrasted with the Standard Employment Relationship (SER) as a 'golden standard' of good employment (e.g. Rodgers, 1989; Vosko, 2006; Amable, 2006; Campbell and Price, 2016; Ferreira, 2016). The SER emerged in Europe and the US in the period after the Second World War and is characterised by permanent, full-time and life-long employment with an attractive wage, benefits and social protection (Bosch, 2004; Benach et al., 2014; Kalleberg and Marsden, 2015). Some authors have included multiple aspects of the SER, but did not combine them in a comprehensive indicator for precarious employment (De Moortel et al., 2014; Puig-Barrachina et al., 2014a; Scott-Marshall and Tompa, 2011). Here, we give a short overview of those recent studies concerned with the actual construction of a precarious employment indicator which has been used in empirical research.

1.2.1 Overall indicators

A first overall indicator is the Employment Precariousness Scale "EPRES" (Amable, 2006; Benach and Muntaner, 2007). The EPRES contains six dimensions that reflect the unequal power relations underlying precarious employment situations: (1) instability (contract duration), (2) disempowerment (individual-level bargaining over employment conditions), (3) low wages, (4) social rights (entitlement to vacation, sick leave,…), (5) vulnerability (defencelessness to unfair or abusive treatment) and (6) the capacity to exercise rights. The EPRES has been validated and studied in relation to health outcomes among Spanish salaried workers (Vives et al., 2010; Vives et al., 2013; Vives et al., 2015; Benach et al., 2015; Julià et al., 2017b).

A summed scale for precariousness was also used to study the quality of employment in Belgium (Vanroelen et al., 2013; Bosmans, et al., 2016) and Europe (Eurofound, 2013). In these studies, data from the European Working Conditions Survey were used to operationalise the theoretical "Employment Quality" concept. This concept contains seven

dimensions of the SER for which de-standardisation has been witnessed: (1) employment stability, (2) material rewards, (3) workers' rights and social protection, (4) working time arrangements, (5) employability opportunities, (6) collective organisation and (7) interpersonal power relations (self-reference removed; Julià et al., 2017a). The exact set of EQ proxies differs between the reports, mainly depending on the EWCS-wave that was used. In the most recent Belgian report, each of the seven dimensions was given an equal weight in the scale, in order to avoid that dimensions composed of multiple items would have more weight in the overall indicator (Bosmans et al., 2016).

In their study on Finnish wage-earners, Pyöriä and Ojala (2016) included five criteria: (1) atypical employment relationship (temporary labour or agency work), (2) realised labour market risk (at least one spell of unemployment in the past five years), (3) fear of labour market risk (are layoff, dismissal and/or unemployment considered a threat?), (4) poor prospects of employment (assessment of the chance to find a new job) and (5) low earnings (lowest income quartile). Their overall indicator, 'the precariat', contains those workers characterised by at least three of these criteria.

The Precariousness Work Index (PWI) was developed by Ferreira (2016) on Colombian survey data. This index consists of five dimensions: (1) social protection and security (health insurance, pension provision,…), (2) income security (income and benefits), (3) stability, (4) secure and decent conditions at work (workplace safety, working hours,…) and (5) social dialogue and participation (labour association or trade union affiliation). The five dimensions are given an equal weight in the calculation of the PWI.

A final example of an overall indicator for precarious employment is the Employment Precarity Index (EPI), developed by Lewchuk (2017). The EPI is made up of 10 indicators that are assigned the same weight in the index and reflect both the form and features of the employment relationship: (1) Do you usually get paid if you miss a day's work?, (2) Do you have one employer, whom you expect to be working for a year from now, who provides at least 30 hours of work a week, and who pays benefits?, (3) In the last 12 months, how much did your income vary from week to week?, (4) How likely will your total hours of paid employment be reduced in the next six months?, (5) In the last three months, how often did you work on an on-call basis?, (6) Do you know your work schedule at least one week in advance?, (7) In the last three months, what portion of your employment income was received in cash?, (8) What is the form of your employment relationship (short-term, casual, fixed-term contract, self-employed, permanent part-time, permanent full-time)?, (9) Do you receive any other employment benefits from your current employer(s), such as a drug plan, vision, dental, life insurance, pension, etc.? and

(10) Would your current employment be negatively affected if you raised a health and safety concern or raised an employment-rights concern with your employer(s)?.

1.2.2 Typological approach

The disadvantage of an overall indicator for employment precariousness is that specific information about the configuration of employment conditions and relations is lost. Two jobs can have an identical score on the summed scale, even if they have a different combination of employment characteristics. To tackle this issue, a typological approach towards the multidimensional nature of precarious employment in empirical research has been applied (self-reference removed). This approach departs from the seven-dimensional Employment Quality concept described in the previous section and uses Latent Class Cluster Analysis to transform this theoretical concept into a typology of employment arrangements.

The typological approach tends to yield five ideal-typical employment arrangements that can be distinguished in the European labour market (self-references removed). The first job type is labelled 'SER-like', because of its overall beneficial employment features and the strong resemblance to the SER-model of employment. The second type of employment contains stable and financially sustainable jobs with standard working times but limited rewards, a lack of training opportunities and poor employment relations. Jobs resembling this type contain only the basic elements of an employment relationship, which is why this type of employment is labelled 'instrumental'. The 'precarious unsustainable' job type is characterised by overall adverse employment quality features, but specifically by high probabilities of low income and involuntary part-time employment. In other words, this type of employment is financially unsustainable in the absence of economic support at the level of the household. The fourth employment type is labelled 'precarious intensive' because of its overall adverse features and the very high probability of de-standardised working time arrangements. The last job type, 'portfolio jobs', is distinguished by overall beneficial employment characteristics, except for adverse working time arrangements (self-references removed).

The same technique has also been applied on Belgian data (self-reference removed). The resulting typology contains three employment arrangements that overlap almost completely with the European job types: standard, instrumental and portfolio jobs. The main difference between both typologies is that for Belgium, only one type of precarious employment is found (self-reference removed). This precarious job type is characterised

by overall adverse employment conditions, but specifically by high probabilities of instability, a low income and involuntary part-time employment.

1.3 De-standardised employment features in Europe over time

A growing body of literature investigates the polarisation of job quality in Western labour markets (Eurofound, 2015a; Fernandez-Macias, 2012; Green et al., 2013; Prosser, 2016; Vallas and Prener, 2012). In a review on the topic, Gallie (2017) concludes that ambiguity remains about how similar the process of polarisation is across countries. However, there is evidence of polarisation between the mid-1990s and mid-2000s for Europe as a whole and this process appears to have become both more intense and more general in the recent period of economic crisis (Gallie, 2017). This trend towards polarisation appears to be interwoven with the growth of precarious employment in Western labour markets (Prosser, 2016). The question that remains to be answered is to what extent precarious employment in Europe has actually increased in recent years. An indirect way to verify this is to examine the evolution of the different dimensions of precariousness separately.

Between 2001 and 2012, temporary employment grew with 25% in the EU27. In the same period, permanent jobs grew with 7% (Eurofound, 2015b). Temporary employment seems to have increased strongly in some countries (e.g. Spain, Portugal, Italy, France and the Netherlands), but decreased in others (Denmark, Finland and Norway). For evolutions in the share of low-waged jobs, results are inconclusive. Gautié and Schmitt (2010) find that the United Kingdom, the Netherlands and Germany have seen substantial increases in the share of low-waged jobs since the early 1990s. However, this trend was not seen in countries such as France and Denmark, where a much smaller proportion of workers is confronted with low pay. Internationally comparable indicators – OECD's 'incidence of low pay'[i] and Eurostat's 'proportion of low-wage earners'[ii] – paint a slightly different picture, because they remained more or less stable over time for most EU27 member states. In some countries (e.g. Latvia and Lithuania), a decrease in the incidence of low pay can be observed. The OECD also provides a set of indicators on the strictness of employment protection[iii], which show that employment protection has remained stable or declined for most EU27 countries. Nevertheless, some countries with very low levels of protection (e.g. the Czech Republic, Poland and Hungary) have increased the strictness of their regulation for the use of temporary contracts. Many Western countries witnessed an increase in part-time employment[iv] since the 1970s. This increase has been particularly strong in the Netherlands, Germany, Ireland, Belgium and Italy. In Norway and Sweden, however, the share of part-time employment is stabilising or even decreasing. A study by Eurofound (2015a) shows a positive trend for overall working time quality – meaning that non-

standard and excessive working hours became less prevalent – in Europe from 1995 to 2010. Exceptions are Germany and the Netherlands (working time quality remained stable), as well as Denmark and Sweden (decrease in working time quality). Participation in employer-sponsored training[v] seems to have decreased in some countries (e.g. Bulgaria and Lithuania) and increased in others (e.g. Denmark, Spain, Italy, the Netherlands and Portugal). Eurofound (2015a) shows a significant upward trend in training opportunities across the EU15 from 1995 to 2010, but a decrease in the level of training was seen for Denmark and Finland. The Nordic countries and Belgium are characterised by high and stable trade union density rates above 50% (Liagre, 2012; Visser, 2006). In most other countries, trade union density declined strongly (Visser, 2006). This is the case for Austria, Poland and Portugal (despite an initial high trade union density), as well as for Ireland, France, Germany, Greece, etc. (Liagre, 2012). Finally, Eurofound (2015c) has monitored the exposure to abusive treatment at the workplace, showing a decline in the share of employees reporting exposure to physical violence and a more or less stable share reporting bullying/harassment or unwanted sexual attention at work. The general conclusion from this summary is that the extent of de-standardisation varies according to the country and the specific indicator under examination.

1.4 Objectives

This article serves two main purposes. In first instance, we aim to compare different ways to measure precarious employment in a multidimensional manner. More precisely, we want to validate a typological approach towards employment precariousness. That is why three different specifications – all grounded in the Employment Quality concept – will be compared: a summed scale, a dichotomy based on the summed scale and the precarious job type(s) emerging from a typological approach. In second instance, this article aims to provide an overview of precarious employment in Europe. Therefore, we will study the prevalence and evolution of each precarious employment specification for the EU27 as a whole, as well as for the individual member states. In this context, the socio-economic distribution of the different specifications for precarious employment is also discussed.

2. Methods

2.1 Data

The analyses are performed on a pooled dataset from the fourth (2005), fifth (2010) and sixth (2015) wave of the European Working Conditions Survey. The EWCS is a cross-sectional survey organised every five years since 1990 by the European Foundation for

the Improvement of Living and Working Conditions (Eurofound). All employees aged 18-64 with an employment contract and living in a EU27 member state are included in the analyses (N=71,520).

2.2 Employment Quality indicators

The seven dimensions of employment quality are represented by 13 proxy-indicators. The operationalisation of these indicators in the current study is based – as much as possible – on previous studies using the same theoretical concept (self-references removed). Details are shown in table 1.

Table 1 Operationalisation of Employment Quality dimensions and indicators

Dimension	**Indicator**	**Operationalisation**	**Categories**
Employment stability	Type of contract	Information about the nature and length of the employment contract	Permanent contract Temporary contract of at least 1 year Temporary contract shorter than 1 year Temporary employment agency contract
Material rewards	Income level	Net monthly earnings from the main paid job in country-specific quartiles	1st quartile 2nd quartile 3rd quartile 4th quartile
	Non-wage benefits	Receives fringe benefits (medical services, access to shops, etc.)?	Yes No
Workers' rights and social protection	Uncompensated exceptional working times	Information about performing and receiving compensation for Sunday work and overwork	Yes (uncompensated exceptional WT) No (no or only compensated exceptional WT)
Working time arrangements	Long hours	Mean number of working hours per week	40 hours or less Between 40 and 48 hours More than 48 hours
	Schedule unpredictability	Information about schedule changes and how much in advance employees know about these changes	No/low (no or known several weeks before) Medium (known several days before) High (known the day before) Very high (known the same day)
	Working times regularity	Working the same number of days every week, the same number of hours every day, fixed starting and finishing times?	No/low ('no' on at least two out of three) Medium ('no' on one out of three) High ('yes' on all three)
	Involuntary part-time employment	Combination of the actual and preferred number of working hours per week	Full-time (>34 hours) Part-time (<35 hours & preferring <35) Involuntary PT (<35 hours & preferring ≥35)

Employability opportunities	Training opportunities	Received training paid by the employer, on-the-job or on-site in the previous 12 months?	Yes No
Collective organisation	Information about occupational health and safety issues	How well informed about occupational health and safety issues?	Very well or well informed Not very well informed Not at all well informed
	Working times setting procedure	Information about the degree of say regarding the setting of working times	A certain degree of freedom (can choose between several fixed schedules, adapt working hours within certain limits or determine working hours entirely) No freedom at all (working hours are set by the company with no possibility for changes)
Interpersonal power relations	Employee involvement	Does the employee have a say in the choice of his/her working partners?	No (rarely/never) Yes (sometimes/most of the time/always)
	Abusive treatment at work	Has the respondent been subjected at work to unwanted sexual attention, physical violence or sexual harassment over the past year?	Yes No

2.3 Employment precariousness scale

To create a summed scale for employment precariousness, the 13 indicators are recoded into variables ranging from 0 (reflecting highest quality) to 1 (reflecting lowest quality). Then, a subscale is created for each of the dimensions by summing and averaging the proxies representing that dimension. Since the correlation with the other working hours indicators is too weak, 'involuntary part-time employment' is treated as a separate scale (instead of being integrated in the working times scale). This results in eight subscales representing different elements of employment precariousness. For the construction of the rewards scale, information about the 'non-wage benefits' indicator is used in case of a missing value on the income indicator. Finally, the overall scale is calculated as the mean score of the eight subscales and transformed to a 0-100 range. In addition, a dichotomous indicator for precarious employment is created, isolating those workers with the 20% most precarious scores on the summed scale. This threshold was chosen because it corresponds to the size of the most precarious employment arrangement (see infra.) in the employment quality typology, the precarious intensive job type (19.1%).

2.4 Employment quality typology

To construct an employment quality typology, the same 13 indicators are included in a Latent Class Cluster Analysis (Vermunt and Magidson, 2002). LCCA is a non-parametric and person-centred technique that uses the distribution of indicators over the sample to create an empirical typology. Employees are rearranged into a limited number of categories, based on the pattern of employment conditions and relations characterising their jobs. Direct effects of the country of residence on the proxies are allowed for, in order to take into account that the meaning of the indicators varies across countries. Direct effects between schedule unpredictability, working times setting procedure and working times regularity are also included, since these variables are measuring related concepts and showed high remaining residuals in the best-fitting model. Missing data are directly modelled in the likelihood function, using the other observed characteristics and thus assuming they are missing at random (MAR).

The most suitable typology is selected based on two criteria: formal indicators of model fit and the substantive meaning of the resulting clusters. This procedure yields a five-category typology as the most parsimonious model. The extent of improvement in BIC-, AIC- and CAIC-values suggests an optimal solution between four and six clusters. Finally, the model with five clusters is selected because the meaningfulness of a fifth job type is clear, while

the (small) sixth job type, suggested by the six-cluster solution, is less straightforwardly interpretable.

Table 2 presents the associations between the job types and the manifest indicators for the selected five-cluster solution. This typology strongly resembles the cluster solutions found in previous studies using the same procedure on data from only one EWCS-wave (self-references removed). The first type of employment (30.7%), 'SER-like employment', is characterised by overall beneficial employment features. The second employment type can be described as 'instrumental employment' (25.1%): stable jobs with beneficial working times, but with limited rewards or training opportunities and poor employment relations. The third type, 'precarious intensive employment' (19.1%), is distinguished by generally adverse features and specifically by highly de-standardised working time arrangements. The fourth cluster is labelled 'precarious unsustainable employment' (15.9%) because of the overall low employment quality in combination with very high probabilities of a low income and involuntary part-time employment. The last job type, 'portfolio employment' (9.1%), is characterised by overall beneficial employment features, except for high probabilities of uncompensated exceptional working times, long working hours and low working times regularity. Because this article focuses on precarious employment, only the two precarious job types will be discussed in the remainder of the article.

2.5 Analyses

Descriptive analytical techniques are used to compare the two latent job types (precarious intensive jobs and precarious unsustainable jobs) to the two specifications for precarious employment based on a summed scale. In first instance, bivariate Pearson correlation coefficients between the different specifications and the thirteen proxy indicators for employment quality are shown. In second instance, the prevalence of the specifications is presented per country: the mean employment precariousness score on a scale from 0 to 1 and the proportions of the dichotomy and the two precarious job types. In third instance, the overall and country-specific prevalence of the specifications in the three EWCS-waves is shown: the mean employment precariousness score on a scale from 0 to 100 and the proportions of the two precarious job types. Finally, the socio-demographic profile of the different specifications for precarious employment is presented. This is done by showing the overall mean of the three specifications in the sample and comparing it to the mean in different socio-demographic subgroups of the sample.

Table 2 Conditional probabilities and overall prevalence of the employment quality proxy-indicators

Job type	**Overall prevalence**	**SER-like**	**Instrumental**	**Precarious intensive**	**Precarious unsustainable**	**Portfolio**
Cluster size		0.3075	0.2515	0.1909	0.1593	0.0909
Type of contract						
Permanent	0.8649	0.9480	0.8565	0.8234	0.7204	0.9438
Temporary ≥1y	0.0794	0.0407	0.0754	0.1074	0.1450	0.0494
Temporary <1y	0.0392	0.0084	0.0476	0.0533	0.0891	0.0048
Temporary agency	0.0165	0.0029	0.0205	0.0159	0.0455	0.0021
Income level						
1st quartile	0.2346	0.0248	0.2367	0.2182	0.7726	0.0123
2nd quartile	0.2414	0.1957	0.3671	0.3165	0.1542	0.0430
3rd quartile	0.2600	0.3490	0.2866	0.2935	0.0529	0.1823
4th quartile	0.2639	0.4305	0.1096	0.1718	0.0203	0.7624
Non-wage benefits						
No	0.7945	0.6741	0.8872	0.8915	0.8616	0.6238
Yes	0.2055	0.3259	0.1128	0.1085	0.1384	0.3762
Uncompensated exceptional working times						
No	0.7657	0.9394	0.9999	0.3380	0.8488	0.2553
Yes	0.2343	0.0606	0.0001	0.6620	0.1512	0.7447
Long working hours						
≤40 hours	0.7977	0.9792	1.0000	0.3630	1.0000	0.1561
40-48 hours	0.1115	0.0202	0.0000	0.3771	0.0000	0.3797
>48 hours	0.0908	0.0006	0.0000	0.2599	0.0000	0.4643
Schedule unpredictability						
No/low	0.8027	0.8381	0.8517	0.6514	0.7891	0.8881
Medium	0.0853	0.0821	0.0611	0.1314	0.1050	0.0316
High	0.0596	0.0461	0.0430	0.1125	0.0640	0.0323
Very high	0.0524	0.0337	0.0442	0.1047	0.0418	0.0480
Working times regularity						

No/low	0.2865	0.2695	0.0784	0.3963	0.3055	0.6565
Medium	0.2121	0.2602	0.1206	0.2358	0.2551	0.1778
High	0.5014	0.4702	0.8011	0.3679	0.4394	0.1657
Involuntary part-time employment						
FT	0.8199	0.8728	0.9726	0.9968	0.1592	0.9993
PT	0.1344	0.1164	0.0231	0.0008	0.5836	0.0004
Involuntary PT	0.0457	0.0108	0.0043	0.0024	0.2572	0.0003
Training opportunities						
No	0.4767	0.2852	0.6665	0.5672	0.5547	0.2737
Yes	0.5233	0.7148	0.3335	0.4328	0.4453	0.7263
Information about occupational health and safety issues						
Very well/well	0.8948	0.9439	0.8789	0.8554	0.8506	0.9328
Not very well	0.0779	0.0444	0.0918	0.1070	0.1004	0.0527
Not at all well	0.0273	0.0117	0.0293	0.0377	0.0490	0.0145
Working times setting procedure						
Certain freedom	0.3117	0.4176	0.1015	0.1858	0.3669	0.7023
No freedom	0.6883	0.5824	0.8985	0.8142	0.6331	0.2977
Employee involvement						
No	0.6452	0.5346	0.7571	0.7264	0.7676	0.3246
Yes	0.3548	0.4654	0.2429	0.2736	0.2324	0.6754
Abusive treatment						
No	0.9296	0.9337	0.9591	0.8914	0.9135	0.9429
Yes	0.0704	0.0663	0.0409	0.1086	0.0865	0.0571

3. Results

3.1 Internal validity of the precarious employment specifications

To show the difference between the three specifications for precarious employment, bivariate correlations with the constituting employment quality indicators are presented in table 3. All correlations in the first column are positive and most are fairly strong. A worse score on a specific indicator thus contributes directly to a higher score on the employment precariousness scale. Also for the specification isolating the 20% highest scores on the scale, the correlations with all proxies are positive and significant. The precarious intensive job type is positively correlated with all proxy-indicators, except for 'involuntary part-time employment'. The precarious unsustainable job type shows particularly high correlations with the proxies for low income and involuntary part-time employment, thus reflecting this job type's distinctive pattern in terms of employment quality.

3.2 The cross-country distribution of precarious employment

Figure 1 shows the distribution of overall employment precariousness and the 20% highest scores across the EU27. The mean employment precariousness score for the EU27 is 31.3. Differences between countries are fairly small compared with the total variation in the sample (0 – 89.5). Finland has the lowest (23.8) and Greece the highest (37.2) score. In general, Northern-European member states have the lowest scores for employment precariousness, while Southern- and Eastern-European countries are situated at the top of the distribution. However, there are some countries that deviate from this pattern, such as Estonia (lower score than expected based on the general pattern of Eastern-European countries) and France (higher score than expected based on the general position of Western-European countries). The distribution of the dichotomy follows more or less the same pattern, but differences between countries are more pronounced.

Figure 2, presenting the cross-national distribution of both precarious job types, shows that countries with a high share of precarious intensive jobs often have a low(er) share of precarious unsustainable jobs and vice versa. However, some countries have high shares of both types (e.g. the United Kingdom), while also countries with low shares of both exist (e.g. Finland). The distribution in figure 2 also demonstrates that countries with an almost identical score on the summed scale can differ strongly regarding the prevalence of the two precarious job types. This is the case for Latvia and France, as well as for Slovakia and the Netherlands.

Table 3 Bivariate Pearson correlation coefficients between the precarious employment specifications and employment quality indicators

	Employment Precariousness	**20% most precarious jobs**	**Precarious intensive jobs**	**Precarious unsustainable jobs**
Type of contract	0.326***	0.297***	0.050***	0.215***
Income level	0.448***	0.292***	0.079***	0.447***
Non-wage benefits	0.387***	0.195***	0.141***	0.089***
Uncompensated exceptional WT	0.433***	0.386***	0.607***	-0.103***
Long working hours	0.215***	0.186***	0.573***	-0.238***
Schedule unpredictability	0.207***	0.172***	0.218***	0.001n.s.
Working times regularity	0.103***	0.107***	0.166***	0.048***
Involuntary PT employment	0.318***	0.290***	-0.258***	0.848***
Training opportunities	0.586***	0.375***	0.108***	0.084***
Info about occupational health and safety issues	0.217***	0.190***	0.069***	0.078***
Working times setting procedure	0.311***	0.166***	0.161***	-0.057***
Employee involvement	0.346***	0.198***	0.099***	0.123***
Abusive treatment	0.145***	0.121***	0.084***	0.035***

n.s. $p>0.05$, *$p<0.05$, **$p<0.01$,***$p<0.001$

Figure 1 Mean employment precariousness score per country and distribution of 20% most precarious respondents over the EU27

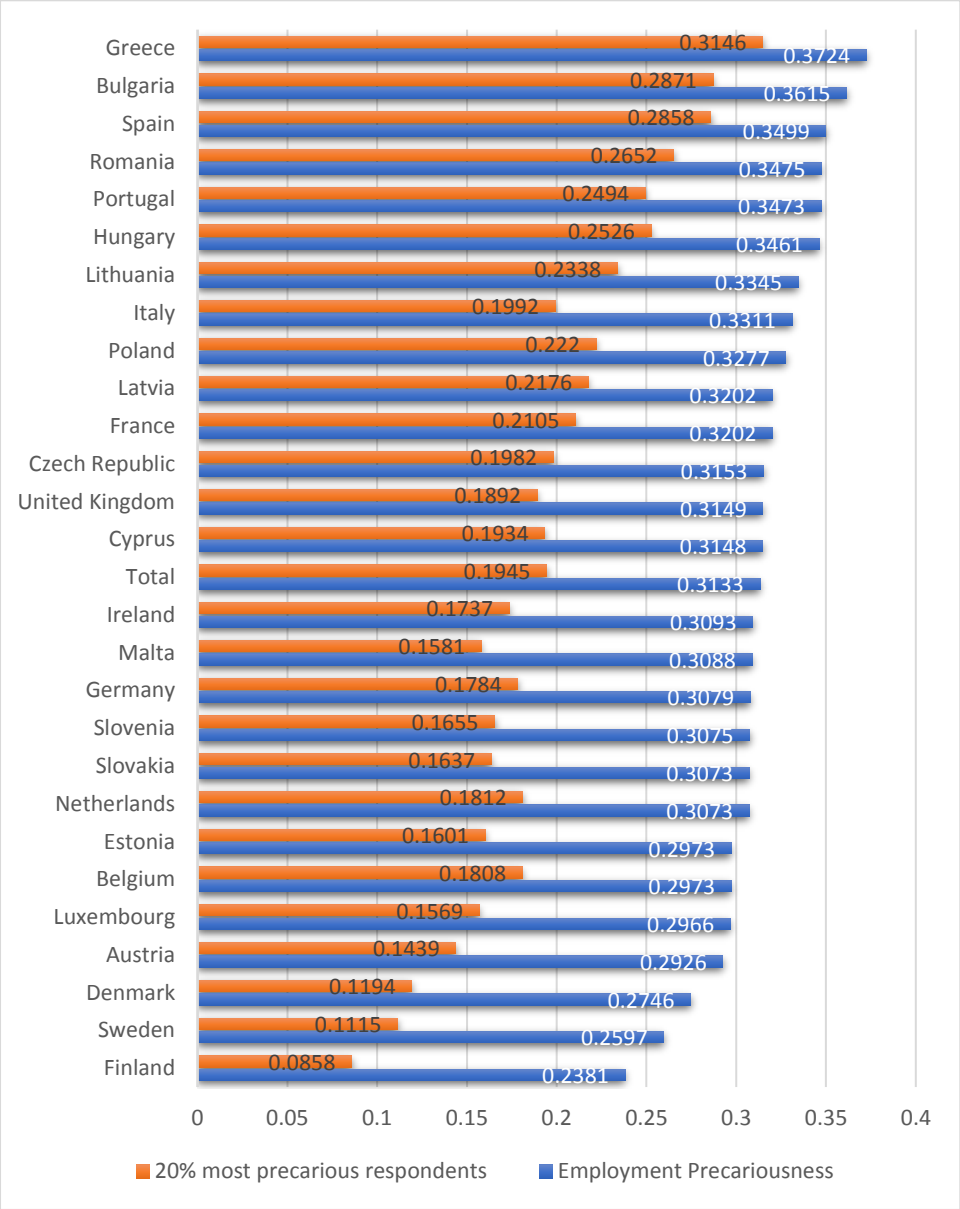
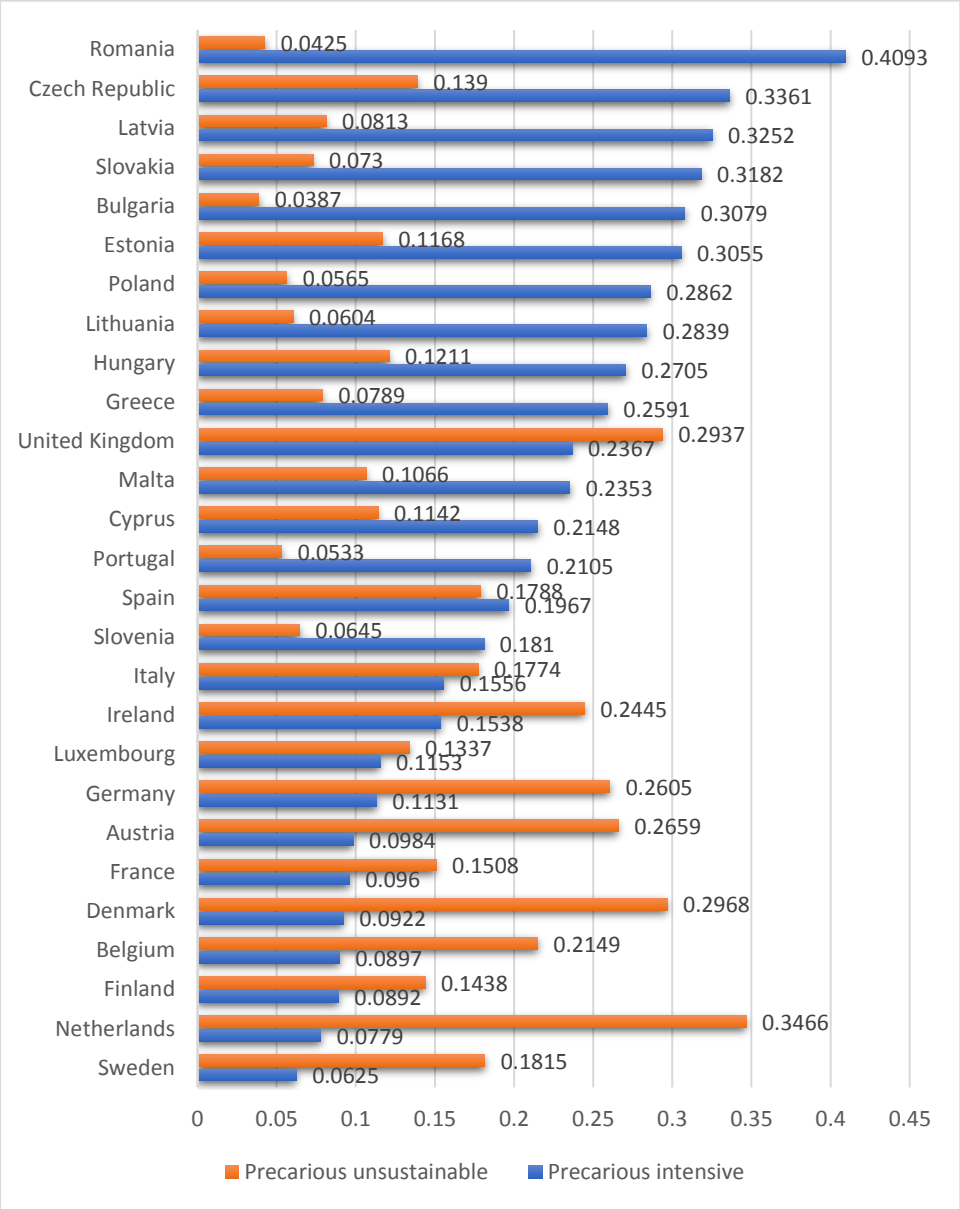


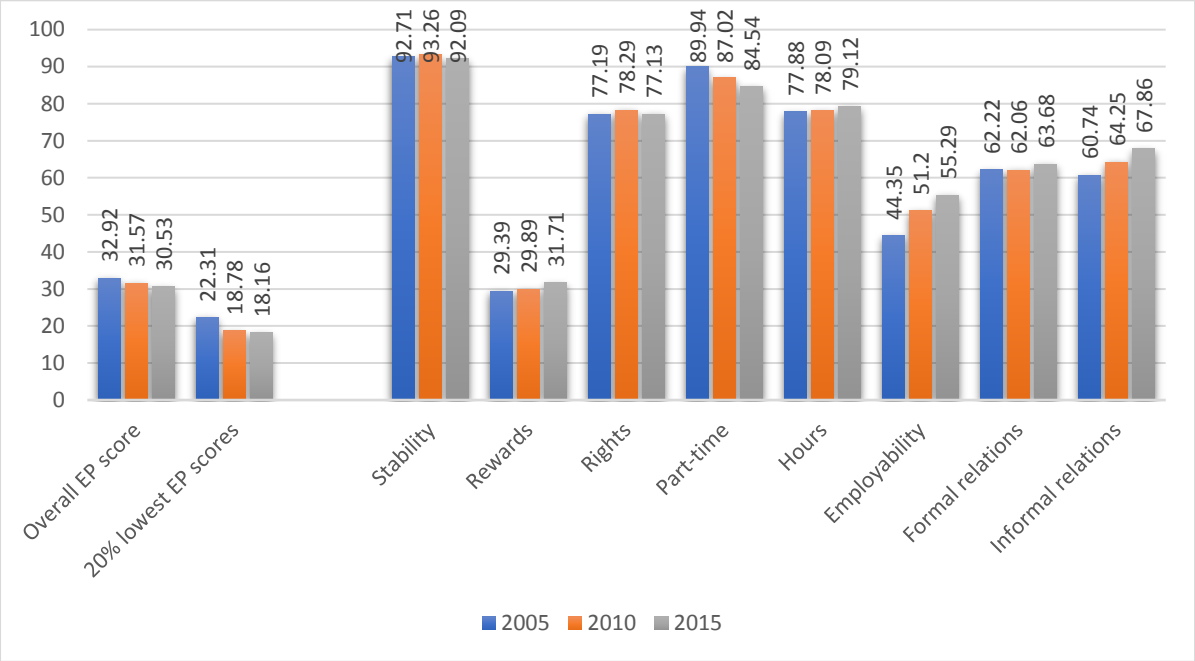
Figure 2 Cross-national distribution of the precarious job types in the typology (%)



3.3 The evolution of precarious employment

The evolution of overall employment precariousness and the eight employment quality dimensions over the three EWCS-waves is shown in figure 3. The mean precariousness score for the EU27 has decreased slightly between 2005 and 2015, from 32.9 to 30.5. The figure indicates that most dimensions remained more or less stable over time at the EU-level. Exceptions are 'employability' and 'informal relations' (showing improvement) and '(involuntary) part-time employment' (showing deterioration over time).

Figure 3 Mean score of the employment precariousness scale and the eight employment quality dimensions in the three EWCS-waves



The prevalence of the two precarious job types has evolved in opposite directions. The precarious unsustainable job type has become more prevalent in the EU27 from 2005 (12.8%) until 2015 (17.8%). This observation is in accordance with the change seen for the dimension 'involuntary part-time employment' in figure 3. The prevalence of the precarious intensive job type has decreased over time, from 23.2% in 2005 to 17.8% in 2015.

Country-specific evolutions in the employment precariousness scale and the precarious job types are shown respectively in figure 4 and figures 5 and 6. In most countries, the overall precariousness score remained stable or decreased slightly between 2005 and 2015. For some countries (Romania, Poland, Slovakia, Latvia, Estonia and Finland) a more pronounced decline is noticed. For the precarious intensive job type, a decrease over time can be seen. This decline was most prominent in countries with a very high prevalence of this job type, such as Romania, Latvia, the Czech Republic and Slovakia. Almost all countries witnessed an increase in precarious unsustainable jobs between 2005 and 2015. This increase was largest in Germany, Austria, Italy, Cyprus and the Netherlands.

Figure 4 Country-specific employment precariousness score in the three EWCS-waves

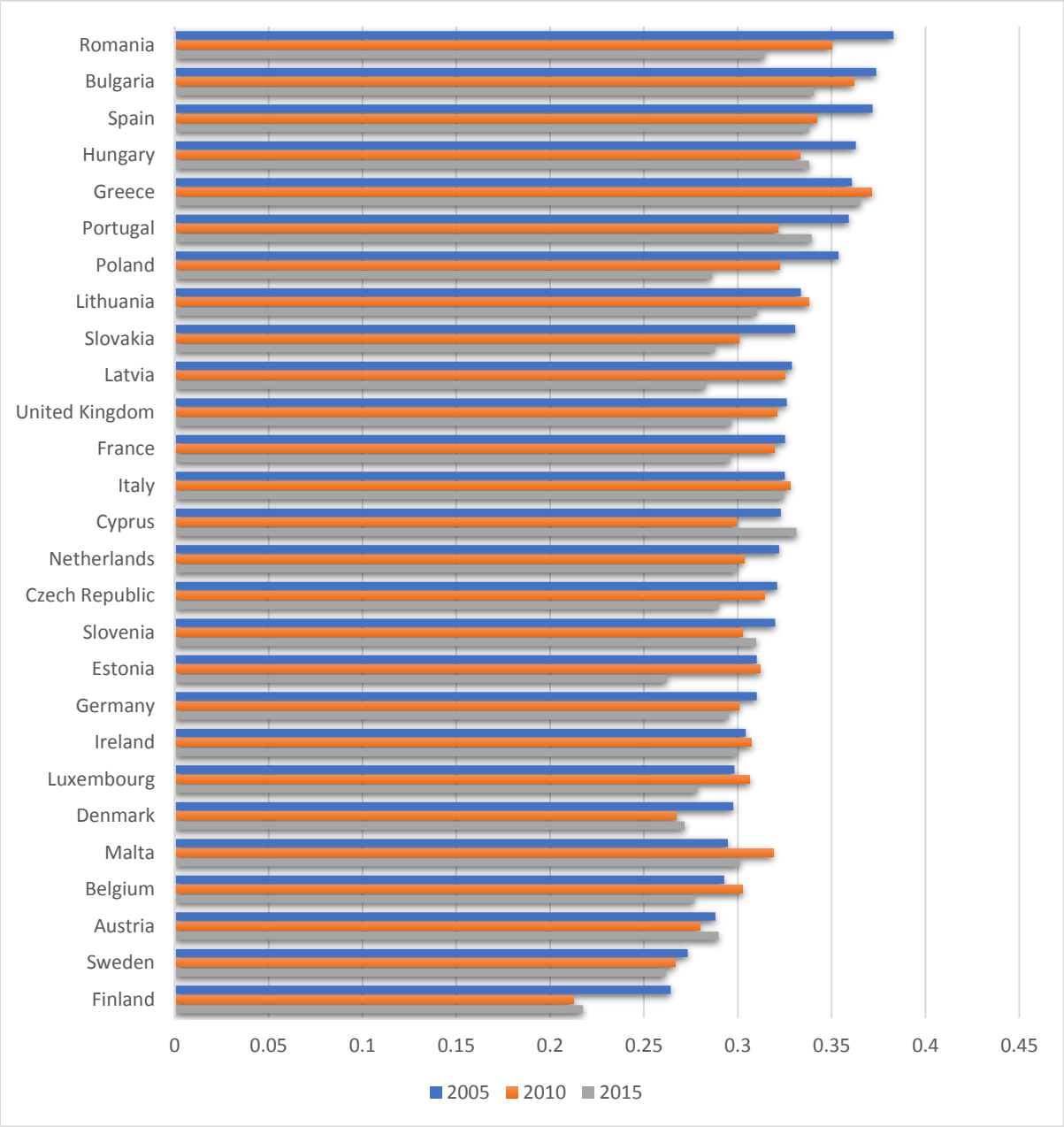


Figure 5 Country-specific prevalence of the precarious intensive job type in three EWCS-waves (%)

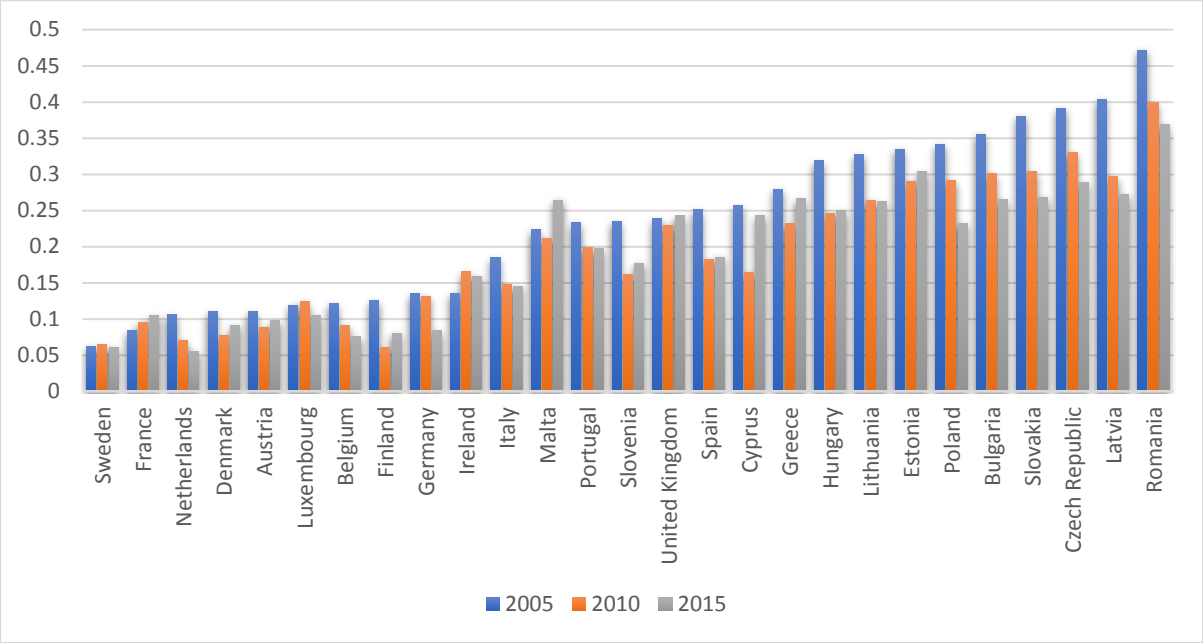
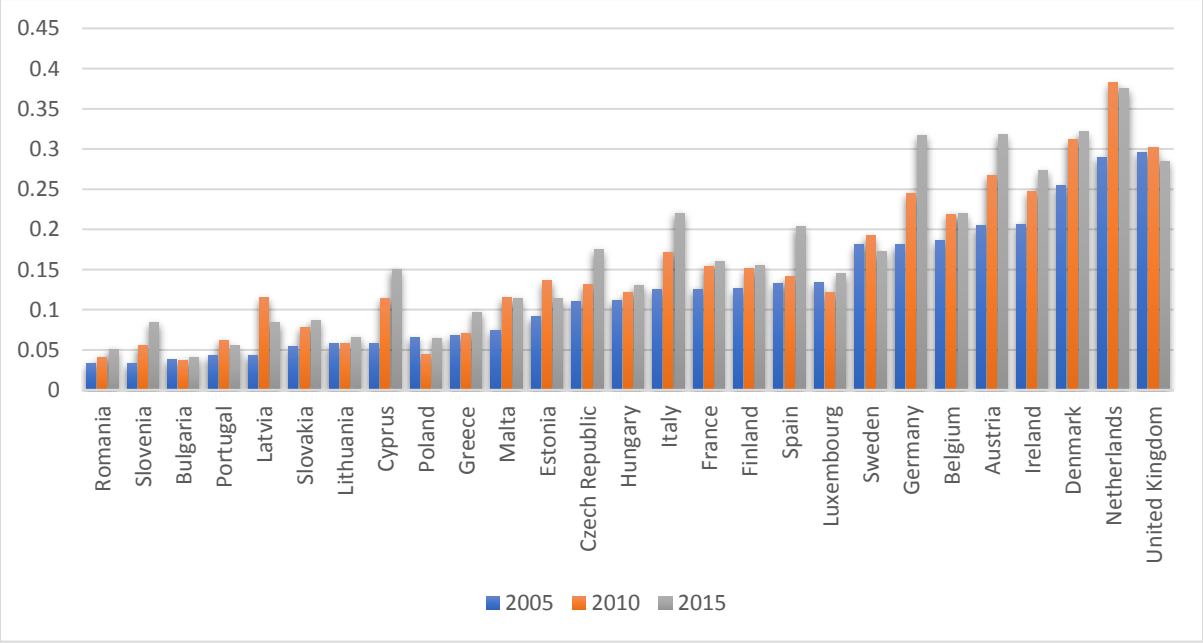


Figure 6 Country-specific prevalence of the precarious unsustainable job type in three EWCS-waves (%)



3.4 Socio-demographic distribution of precarious employment

The socio-demographic profile associated with the precarious employment specifications is presented in table 4. Precarious intensive jobs are more prevalent among men than among women, but the opposite is true for precarious unsustainable jobs. The overrepresentation of women in this job type is very large. The relation between sex and the specifications based on the summed scale is small but significant: women are more often confronted with precarious employment. All measures show that precarious employment is more common among young workers than among middle-aged or older workers. Precarious intensive jobs are notably less prevalent among the high-educated. A clear gradient is seen for precarious unsustainable jobs and the specifications based on the employment precariousness scale: the higher the educational level, the lower the risk of precariousness. Considering occupation, precarious intensive jobs are overrepresented among blue-collar workers and underrepresented in high-skilled white-collar occupations. The precarious unsustainable job type is overrepresented in low-skilled and underrepresented in high-skilled (blue-collar) occupations. Overall employment precariousness is more often found in low-skilled (blue-collar) workers and less often in high-skilled white-collar workers. Finally, the association between the precarious employment specifications and sector is examined. Precarious intensive jobs are overrepresented in the hotel and restaurants sector and the agricultural sector, but underrepresented in the financial sector. Precarious unsustainable jobs are overrepresented in the other services sector and also in the hotel and restaurants sector, while they are not often found in the utilities and construction sectors. A high score on the employment precariousness scale is more prevalent in the hotels and restaurants sector, the agricultural sector and the retail sector, but less prevalent in the utilities sector and the financial sector.

Table 4 Distribution of mean conditional probabilities over socio-economic characteristics for the three precarious employment specifications

	Precarious intensive	**Precarious unsustainable**	**EP scale**	**Top 20% EP scores**
Mean in sample	0.19	0.16	0.31	0.19
Sex	***	***	***	***
Men	0.21	0.08	0.30	0.17
Women	0.17	0.24	0.32	0.22
Age	***	***	***	***
18-29	0.22	0.22	0.34	0.27
30-49	0.19	0.15	0.31	0.18
50-64	0.18	0.17	0.31	0.17
Educational level	***	***	***	***
Low	0.22	0.23	0.36	0.29
Medium	0.22	0.17	0.32	0.21
High	0.13	0.13	0.27	0.12
Occupation	***	***	***	***
Low-skilled blue-collar	0.24	0.20	0.36	0.29
High-skilled blue-collar	0.23	0.07	0.32	0.18
Low-skilled white-collar	0.21	0.24	0.33	0.25
High-skilled white-collar	0.13	0.13	0.27	0.11
Sector	***	***	***	***
Agriculture, hunting, forestry & fishing	0.31	0.12	0.35	0.28
Mining, quarrying & manufacturing	0.19	0.09	0.30	0.15
Electricity, gas & water supply	0.16	0.05	0.26	0.10
Construction	0.23	0.06	0.31	0.17
Wholesale & retail trade	0.24	0.21	0.34	0.26
Hotels & restaurants	0.38	0.26	0.41	0.47
Transport, storage & communication	0.21	0.11	0.30	0.18
Financial intermediation	0.09	0.09	0.24	0.06
Real estate activities	0.14	0.16	0.30	0.17
Public administration	0.16	0.12	0.28	0.13
Other services	0.16	0.25	0.32	0.19

n.s. $p>0.05$, *$p<0.05$, **$p<0.01$,***$p<0.001$

4. Discussion

This article departs from a power resource perspective to understand the occurrence of precarious employment situations in Europe (Korpi, 1983; Crompton, 2008). Structural changes to Western economies in recent decades have had far-reaching consequences for the nature of employment in many countries, because they undermined the bargaining position of workers and strengthened the power position of employers (Cappelli, 1995). The current power deficit of certain groups of workers affects not only the stability of employment, but has consequences for the total package of employment conditions and relations characterising their jobs. A multidimensional approach towards precarious employment is therefore necessary to be able to study this phenomenon in all its complexity. The goal of this article was twofold: to compare different multidimensional specifications of employment precariousness and to shed light on the situation regarding precarious employment in Europe. A set of 13 proxy indicators was transformed into a summed scale, a dichotomous indicator (based on the summed scale) and two precarious job types originating from a Latent Class Cluster Analysis. For each of these specifications, the association with the proxy indicators, cross-national distribution, evolution and socio-demographic profile is reported.

One of the main conclusions of this article is that the typological approach is preferable to the specifications for precarious employment based on a summed scale. Although they are derived from the exact same set of proxy indicators, the three specifications lead to different conclusions about precarious employment in Europe. The main advantage of the typological approach is that two precarious job types are discerned, each with a distinct profile in terms of employment conditions and relations. This means that the typological approach demonstrates the existence of heterogeneity among precarious employment situations.

A very interesting observation in this regard is that the mean scores of countries on the employment precariousness scale appear to mask large cross-national variation in the dominant type of precarious employment. Countries with a high prevalence of precarious intensive jobs usually have a lower share of precarious unsustainable jobs and vice versa. This means that not only the extent, but also the type of flexibilisation differs between countries. The existence of different models of flexibility in Europe was observed by other authors as well (Duell, 2004; Philips and Eamets, 2007; Ignjatovic, 2012; Broughton et al., 2016). The Scandinavian countries (especially Denmark and Sweden, because the position of Finland is less clear) are characterised by highly flexible labour markets, in which both employer- and employee-centred working time arrangements are used

extensively (Ignjatovic, 2012; Broughton et al., 2016; Chung and Tijdens, 2013). In accordance with our findings, the Nordic countries seem to use part-time employment as the primary source of flexibilisation (Philips and Eamets, 2007; Ignjatovic, 2012; Broughton et al., 2016). The Continental countries (France, Germany, Luxembourg, Belgium, Austria and the Netherlands) appear to have somewhat less flexible labour markets that are characterised by high part-time employment rates and a low(er) share of temporary contracts (Philips and Eamets, 2007; Ignjatovic, 2012; Broughton et al., 2016). In the Netherlands and Germany, particularly high levels of very small part-time jobs are observed (Broughton et al., 2016). The results from our analyses point out that Germany, Austria, the Netherlands and (to a lesser extent) Belgium are characterised by high proportions of precarious unsustainable jobs. This is not the case for Luxembourg and France. The Anglo-Saxon member states, Ireland and the UK, have flexible labour markets in which both temporary and (marginal) part-time employment are present (Philips and Eamets, 2007; Broughton et al., 2016). Our findings suggest that precarious unsustainable jobs are the dominant type of precarious employment in Ireland, whereas both precarious intensive and precarious unsustainable jobs are often found in the UK. The Central- and Eastern-European countries (Estonia, Latvia, Lithuania, Bulgaria, Hungary, the Czech Republic, Poland, Slovakia, Slovenia and Romania) show an overall low utilisation of flexible forms of employment (Ignjatovic, 2012; Philips and Eamets, 2007; Broughton et al., 2016). However, our results point out that high shares of precarious intensive jobs can be found in most of these countries. This apparent contradiction can be explained by the fact that temporariness is only one aspect of employment precariousness. The probability of a permanent contract in the precarious intensive job type is still 82%, but these open-ended contracts appear to go hand in hand with other adverse employment quality features. This observation highlights the necessity of a multidimensional approach towards precarious employment, because taking only the stability aspect of employment into account would mean that these permanent jobs associated with low employment quality remain undetected. Finally, the Southern-European countries (Greece, Italy, Spain and Portugal) are characterised by fairly limited labour market flexibility in terms of employment forms (Duell, 2004; Philips and Eamets, 2007; Ignjatovic, 2012; Broughton et al., 2016). Chung and Tijdens (2013) also show a very limited use of flexible working time arrangements in these countries. Our results show the existence of variation between the Southern-European countries. Precarious intensive jobs are often found in Greece and Malta. Both Portugal and Spain have a share of precarious intensive jobs close to the average in the EU, but Portugal has a very low proportion of precarious unsustainable jobs whereas this job type is more often found in Spain. Italy and Spain have comparable shares of precarious unsustainable jobs, but Italy has a lower proportion of precarious intensive jobs than Spain.

Considering the evolution of precarious employment in Europe, our results again indicate that the specifications based on the summed scale hide evolutions in the prevalence of both precarious job types. The share of precarious intensive jobs has decreased in Europe between 2005 and 2015, while the share of precarious unsustainable jobs has increased in the same period. In a report for the European Parliament, Broughton et al. (2016) state that the most common contract type in Europe is still a permanent, full-time contract. In most countries, however, this type of contract is increasingly replaced by more flexible forms of employment (Broughton et al., 2016). The prevalence of part-time work – and in particular the share of small part-time jobs – is high and increasing in many European countries (Broughton et al., 2016). The share of fixed-term contracts, in contrast, has not changed significantly in most European countries (Broughton et al., 2016).

Previous studies have documented that precarious employment is more often found among workers in a socially disadvantaged position (Vives et al., 2010; Eurofound, 2013; Puig-Barrachina et al., 2014b; Benach et al., 2015; Pyöriä and Ojala, 2016). Our results confirm this conclusion. It is also clear that, yet again, the typological approach provides more information about the socio-demographic distribution of precarious employment than the specifications based on the summed scale. A difference that cannot be perceived when using the summed scale, is that precarious intensive jobs are more prevalent among men and blue-collar workers, whereas precarious unsustainable jobs are overrepresented among women and low-skilled employees.

The results presented in this article have important implications for (European) policy makers. Since different European countries have distinct configurations of precarious employment arrangements, it is most unlikely that one universal policy approach would have the same effect in every country. Ideally, policy measures designed to reduce or prevent the occurrence of precarious employment should take into account the specific labour market situation and social security system of the country under consideration. Of course, this does not mean that policy makers cannot learn from the good practices in other countries. In this context, the Danish principle of 'flexicurity' is often mentioned as a promising strategy to achieve an even-handed balance between employment flexibility and security for workers (Madsen, 2004; Keune and Jepsen, 2007; Hemerijck, 2013). The Scandinavian countries have high trade union densities and high collective bargaining coverage, elements that play an important role in safeguarding generous social protection for workers (Philips and Eamets, 2007; Broughton et al., 2016). The combination of strong collective bargaining procedures, active labour market policies with guidance for workers

and extensive social security implies that employees in flexible forms of employment are better protected in these countries (Madsen, 2004; Broughton et al., 2016).
Also in other European countries, these elements could play an important role in the reduction and prevention of precarious employment, although it remains unclear how the general 'flexicurity' principle is to be translated in concrete policy measures for other labour markets, with different power relations and traditions (Ignjatovic, 2012; Philips and Eamets, 2007). The example of the Nordic countries makes clear that more (collective) power resources for workers can lead to the introduction of flexibility based on compromises between employees and employers or at least to the introduction of flexibility in a context of regulation and protection. In other words, non-standard forms of employment occurring in a sound framework of legislation, collective bargaining and adequate social security are likely to benefit both employers' need for flexibility and employees' need for security.

Of course, this article also has some limitations. An important limitation concerns the use of a sample comprised of only workers. This means that our results about the prevalence of precarious employment can be biased by changing proportions of workers, unemployed or individuals in other forms of labour market inactivity. It could be possible, for instance, that certain countries with a low prevalence of precarious employment are characterised by high unemployment rates or a high share of individuals in bogus self-employment. Another limitation stems from the use of cross-sectional data. The trends in the prevalence of precarious employment over time are thus based on the comparison of three cross-sectional waves of the same survey and not on data following a group of respondents over time. For the purpose of this article, however, cross-sectional data suffice because they show what happens with the prevalence of precarious jobs on the level of national labour markets. A final limitation is related to the use of a pooled dataset containing data from three waves of the EWCS. As a result, the selection of proxy indicators for employment quality is limited to those items available in the three waves. The presence of an employee representative, for example, could not be used as a proxy because this question was only introduced in the fifth wave of the EWCS (2010).

The main conclusion of this article is that the choice for a specific measurement approach has important consequences for the picture that is painted of precarious employment. Although the typological approach and the summed scale are both multidimensional measures, the amount of data reduction is much larger in the case of an overall indicator, because employment quality dimensions can level each other out. Therefore, a summed scale potentially hides the heterogeneity within the category of precarious employment. The typological approach distinguishes two types of precarious employment, each with a

specific profile in terms of employment conditions and relations. This approach allows to conceive precarious employment as a heterogeneous phenomenon, while at the same time transforming a multitude of employment features into a useful tool for studying labour market trends.

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