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Cross-national variations in the prevalence of health-related employment and working conditions. Descriptive report.

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Content

Abstract

Background: Health and health equity has many social determinants, however work is the origin of many important determinants of health (Marmot et al., 2008: 1663). Poor quality of work (QOW) can damage a person's health. According to Gallie (2002) the quality of work is at risk due to among others labour market restructuring. Especially the quality of lower-skilled jobs require a general improvement. An important evolution in the quality of work is the rise of forms of flexible employment (Kim et al., 2011: 1). A flexible workforce is seen as good for economic competitiveness, but brings with it an effect on health (Marmot et al., 2008: 1663).

The analyses in this report follow a four-dimensional concept of the quality of work which includes: (1) task content, (2) working conditions, (3) employment conditions and (4) employment relations (Vets, De Witte & Notelaers, 2009: 3-4). We have selected different indicators that are argued to fit within the four conceptually identified dimensions. Task content is assessed by the concept of 'job control' - existing of two subscales: skill discretion and autonomy. Working conditions are assessed by the by the 'psychological demands' of a job. Employment conditions and relations are measured by an employment quality typology, including different aspects related to employment conditions and employment relations.

Objective: The main goal of this report is to explore the European, country-specific and country-cohort (2004/5 vs. 2010) specific prevalence of the different QOW components and three health indicators. This corresponds to the objective 2.1.1. in the protocol of SOPHIE - WP3: "*O.1. To analyse and interpret changes (2005-2010) in key health-affecting characteristics of work and employment.*"

Methods: The European, country-specific and country-cohort-specific prevalence of the different QOW components and health indicators is assessed in a descriptive analysis. We will use data derived from the European Social Survey (ESS) round 2 (2004/2005) and round 5 (2010).

Results: In comparison to 2004, a reduction in good self-reported health and an increase in mental well-being and work-related HSR were observed. The income situation, career opportunities and say of the average employee became less "precarious" between 2004 and 2010. In contrast, the working time arrangements, training opportunities and degree of collective organisation worsened. Between-country variation is found for all QOW components and health indicators.

1. Introduction

This report is part of the third work package of the SOPHIE project. Its first objective is to analyse and interpret changes in the prevalence and population distribution of key health-affecting characteristics of employment and work between times of economic prosperity (2004/5) and economic crisis (2010) in Europe and investigate their impact on key health (equity) outcomes – with special attention to vulnerable groups and inter-country differences. This report provided an answer on the first part of this objective: "*To analyse and interpret changes in the prevalence and population distribution of key health-affecting characteristics of employment and work between times of economic prosperity (2004/5) and economic crisis (2010) in Europe*".

As a result of globalisation, deregulation of labour markets and increased competition, labour markets are characterised by restructuring, downsizing, temporary and short term contracts (László et al., 2010). European countries are increasingly showing new forms of work organisation and flexible employment (Benavides, Benach, Diez-Roux, & Roman, 2000). On top, Upward of 2007 Europe and other parts of the world are experiencing an economic crisis. This recession is characterised by significant declines in economic activity, a rise in unemployment, depressed housing markets, an increasing number of people living in poverty and the rise in national debt (World health Organisation, 2011).

The standard employment system experiences a transitional phase, while flexible, destandardized labour is developing on a global basis. The Fordist system with mass consumption, mass production and standard full-time employment is transforming into neo- or post-Fordist production system. In this new employment pattern unemployment disappears and reappears in new types of generalised risky underemployment, such as part-time work (Edgell, 2006).

However, some research suggest that the growth of non-standard work may have stalled or that there has been a resurgence of standard work. The majority of paid jobs remain full-time, permanent and physically located in a specific place of work (the firm). On the other hand, employers seek to achieve more flexibility from within their standard workforce by varying the numbers of hours they work and by varying tasks they perform. The distinction between standard and non-standard work is no longer as clear-cut as in the past (standard work becoming less secure and some non-standard work (part-time work) is becoming more secure) (Edgell, 2006).

Also Bosch (2004) prefers to speak of change of the standard employment relation, rather than the erosion of the standard employment relation. The form of the standard employment relation is adapted to social changes. One of the important social changes is the entry of women on the labour market. Because both partners of the household are now economically active, family responsibilities are handled together. As a consequence the need for income, work hours, training, career paths will become more flexible. Workers will alternate between periods of full-time employment, part-time employment and career breaks (parental or educational leave)(Bosch, 2004).

In the context of this discussion, authors like Bosch (2004) refer to a de-standardisation in two directions: a "low road", implying low intrinsic quality jobs, characterised by low skill levels and flexible contracts (contractual flexibility) and non-standard working times (temporal flexibility).; and

on the other hand a "high road", implying high intrinsic quality jobs, characterised by high skill levels, and long/flexible working hours (temporal flexibility) in combination with high demands in terms of task variation, employability and problem-solving behaviour (functional flexibility). Within the "low road", nowadays, organisations are less tempted to offer good working conditions to for instance temporary workers because they do not belong to the core of the organisation (Wagenaar, Taris, & Irene, 2012).

In sum, the dual labour market theory argues that the labour market is increasingly divided into a primary and a secondary market (Doeringer, P.B. & Poire, 1971). Proponents of the dual labour market theory assume that bit by bit, Standard Employment Relations (moderate demands and control (passive and low strain jobs), standard working hours, fixed contracts and settings, ... lose ground for both the high road and the low road (Gallie, 1991) Jobs in the primary labour market (high road) are characterised by high wages, good working conditions, employment stability, chances of advancement, etc. While jobs in the secondary labour market are characterised by low wages and fringe benefits, poor working conditions, high labour turnover, little chance of advancement, etc. The workers from the primary market may have to face more stressful working conditions to match higher performance requirements, while workers from the secondary market may face more contractual disadvantages (Cottini & Lucifora, 2010) and less attractive work in terms of task variation and autonomy.

This report concentrates on the health-affecting characteristics of employment and work. In doing so - and in line with the above assumptions, the characteristics of work are analytically subdivided in four categories. In Dutch they are called the four A's of the labour situation; (1) task content (Arbeidsinhoud), (2) working conditions (Arbeidsomstandigheden), (3) employment relations (Arbeidsverhoudingen) and (4) employment conditions (Arbeidsvoorwaarden). Task content refers to the characteristics of the specific tasks a person has to execute. Working conditions refer to the physical and psychological conditions in which the work is executed. Both (1) and (2) can be considered as "intrinsic features of a work task". Employment conditions refer to the conventions between the employer and the employee about the working conditions. Employment relations refer to the social relationships at the company. The latter (3) and (4) can be considered as the "boundary conditions" under which work is performed - they can also be conceived as the "quality of employment" (in contrast with the intrinsic quality of work). (Vets, Witte, & Notelaers, 2009).

There is empirical evidence that bad quality of work and employment negatively affects a person's health (Benavides et al., 2000)(Gimeno, Benavides, Amick, Benach, & Martínez, 2004)(Datta Gupta & Kristensen, 2008). But also the treat of unemployment has been linked to adverse health outcomes, particularly coronary heart disease (Ostry et al., 2000). The same holds for low quality or precarious employment conditions (Benach, J., Vanroelen, C., Vives, A. & De Witte, 2012).

Main objectives covered in this report are:

1. To compare countries in terms of quality of work and employment
2. To assess the overall association between quality of work and employment and various socio-demographic factors and work environment
3. To compare countries in terms of self-rated health, mental well-being and perceived work-related health and safety risk, as well as its evolutions between 2004 and 2010.
4. To compare all associations in the second and fifth European Social Survey, conducted in 2004/5 and 2010 respectively.

2. Data

2.1. Sample

The data source for this analyses is the cross-national European Social Survey (ESS), which includes micro level information from a representative sample of workers from EU-countries. In the 2004/5 and 2010 rounds, additional work- and employment-related indicators have been surveyed. The ESS also contains information on self-reported health and well-being outcomes.

We focus on people in salaried employment. Information on central concepts of the quality of work and employment are not available for the self-employed, therefore only people in salaried employment are included.

2.2. Measures

We selected different indicators of quality of work and employment from the 2004/5 and 2010 ESS data, that are argued to fit within the four conceptually identified dimensions. The intrinsic content of work tasks is assessed by the items 'autonomy', 'skill discretion' and 'job control'. Working conditions are assessed by the item 'psychological demands'. Social support is included in the analyses to complete the job demand-control-support model of Karasek (Karasek, R. & Theorell, 1990) - and may be related to the "quality" of employment relations. Autonomy, skill discretion, job control, psychological demands and social support are considered to be the intrinsic job characteristics. Employment conditions and relations are measured by an employment quality typology, including 6 different sub-dimensions on which a job can be qualified as "precarious".

2.2.1. Intrinsic job characteristics

Scales were developed to operationalize skill discretion, autonomy, job control, psychological demands and social support. All scales concerned were normalised to a range of 0-1. Every employee was given a scale score summing up scores on each of the questions belonging to the scale.

Three items measure the degree in which an employee can use his or her skills (*Skill discretion*): (1) variety in work; (2) job requires learning new things and (3) how long for somebody with the right qualifications to learn to do your job well (α=0.70). Three items measure the descision authority (*Autonomy*) of an employee: (1) allowed to decide how daily work is organised; (2) can decide time start/finish work and (3) allowed to choose/change pace of work (α=0.71). *Job Control* or decision latitude is measured by the summing of the scales Skill discretion and Autonomy. Psychological demands (*Demands*) include 2 items: (1) never enough time to get everything done in my job and (2) job requires work very hard (α=0.50). Although the internal consistency of both items is very low, we have chosen to use a summed scale, which is in accordance with previous research (Gimeno et al., 2004).

Whenever an item was missing on the skill discretion, autonomy or demands scale, this item was attributed a value using expectation-maximisation as imputation method, because we have strong evidence that the data are not missing completely at random. As an additional sensitivity analyses

the imputated and an non-imputated sum scale (applying listwise deletion of missing values) have been correlated, showing very high correlations between both scales.

Job control and psychological demands were subsequently dichotomised at the median of the 2010 sample (of all selected countries) creating low and high categories of on the on hand job control and on the other hand psychological demands. Subsequently, four job quadrants are created combining high demands and low control (high strain jobs), high demands and high control (active jobs), low demand and low control (passive jobs) and low demands and high control (low strain jobs).

The newly developed scales for skill discretion, autonomy, job control and psycholoigal demands were rescaled into two- (low and high) and three-level (low, medium and high, using tertiles) variables. Two level variables are used to describe the distribution of the items across countries. Three level variables are used to describe the distribution of the items across population groups in the cross-national 2010 sample.

Social support (*Support*) was assesed using the following question: 'In current job: I can get support/help from my co-workers when needed', with as response categories 'not at all true', 'a little true', 'quite true' and 'very true'.

2.2.2. Precarious employment characteristics

Precarious employment is measured using a 6 dimensional concept: (1) employment instability, (2) low income, (3) working time arrangements, (4) non-permanent employability opportunities, (5) collective disorganization and (6) imbalanced personal power relations.

Employment instability is measured by the employment contract (0 = permanent and 1 = non-permanent). Low income is measured by a subjective measure for the household income. We created a variable that combines the items: (1) feelings about household's income nowadays and (2) financial contribution to the household.

Subjective income is an ordinal scale with 0 = sufficient income (main earner and contributory earner), 0.5 = too low income (contributory earner) and 1 = too low income (mean earner). An income is defined as being too low when the respondent mentions that it is difficult to very difficult to cope on present household income.

Dimension 4, working time arrangements, is measured by a scale combining 4 items : (1) working weekends; (2) working evenings/nights; (3) working overtime at short notice and (4) intensive working hours. There is a correlation of 0.439 between working weekends and working evening and nights. The two indicators are combined in a scale (α=0.65). This scale represents working on unsocial hours. In a second step, we added 'working overtime at short notice' and 'intensive working hours' to this scale, to create a scale measuring the precariousness of the working time arrangements (α=0.62). Working time arrangements is also measured by the employment status (0 = full-time, 0.5= part-time and 1 = involuntary part-time employment), however, this item is kept separate from the

other working time items. Involuntary part-time employees are those employees who are working part-time hours (overtime included), but actually want to work full-time hours (> 35h).

Dimension 5 is measured by (1) career opportunities and (2) a yes or no question with regard to having improved one's skills during the last 12 months. Career opportunities was assessed using the following question: 'current job: Good opportunities for advancement' and response categories were 'agree strongly', 'agree', 'neither agree nor disagree', 'disagree' and 'strongly disagree'. A three-level variable was created combining 'agree strongly' and 'agree' (low precarious), 'neither agree nor disagree' (medium precarious) and 'strongly disagree' and 'disagree' (high precarious).

Dimension 6, collective disorganisation, is measured by trade union membership (0 = member and 1 = no member).

Dimension 7, imbalanced personal power relations (say), is measured by a scale of 11 categories for allowed to influence policy decisions.

All items range from 0-1 with 1 being the most precarious employment situation. Whenever an item was missing on the subjective income, working time arrangements or involuntary part-time scale, this item was attributed a value using expectation-maximisation as imputation method, because we have strong evidence that the data are not missing completely at random. Also in this case, the imputated scales are very highly correlated to scales using listwise deletion of missing variables.

2.2.3. Health indicators

Perception of a work-related health and safety risk is assessed using the following question: 'current job: My health or safety is at risk because of my work' and response categories were 'not at all true', a little true', 'quite true' and 'very true'. The variable was dichotomised as 'yes' versus 'no' risk ('not at all true').

The dependent variable self-rated health (*SRH*) was operationalized by the single question: 'How is your health in general?'. The response categories were 'very good', 'good', 'fair' and 'bad'. A three-level variable was created combining 'very good' and 'good' (good health), 'fair' (fair health) and 'bad' (bad health) to describe variation across countries.

A scale was developed to operationalize the level of mental well-being (*well-being*). Well-being include: (1) last two weeks I have felt cheerful and in good spirits, (2) last two weeks I have felt calm and relaxed and (3) last two weeks I have felt active and vigorous. The scale was normalised to a range of 0-1 (α=0.79). The scale was rescaled into three levels (low, medium and high). The cut-off points were chosen to reflect each third of the 2010 sample. Whenever an item was missing on the mental well-being scale, this item was attributed a value using expectation-maximisation as imputation method, because we have strong evidence that the data are not missing completely at random. Also in this case the correlation with the same scale using listwise deletion was very high.

2.2.4. personal and company characteristics

At the individual level socio-demographic factors and work environment characteristics are examined (see table 1).

Table 1. Individual level and work environment characteristics

Variables	Categories
Socio-demographic factors	
Age	16-29/30-49/50 or older
Gender	Male/Female
Education	Primary (ISCED 0-1) /Secondary (ISCED 2-4) /Tertiary (ISCED 5-6)
Born in country	Yes/No
Belong to ethnic minority	Yes/No
Work environment	
Company size	less than 10/10-24/25-99/100-499/ 500 or more
Job categories	Armed forces/Legislators, senior officials and managers/Professionals/Technicians and associate professionals/Clerks/Service workers and shop and market sales workers/Craft and related trades workers/Plant and machine operators and assemblers/Elementary occupations
Industry	Agriculture, mining/manufacturing/Construction, electricity supplies, retail, finance, property services/ Hotel, restaurant/ Research & technology/ Services, others / Education/ Public services

2.2.5. Potential data problems

To describe the prevalence of skill discretion, autonomy, job control and psychological demands across countries, the continuous scores were dichotomized into high and low categories at the median of the cross-national 2010 sample. Many authors (Smith, Silverstein, Fan, Bao, & Johnson, 2009)(Leroux, Brisson, & Montreuil, 2006) use the median cut-off to create high or low control and high or low demands. The median cut-off point divides the sample in most cases correctly in two parts of 50%, except for psychological demands were 58.1% of the employees have a high demand job (see column 2 in table 2). As a consequence of the distribution of the values of the pshychological demands scale, the cut-off point could not be placed exactly on the median. In the analyses, the results will be interpreted taking into account the percentages of employees in each category.

Questions could rise about the validity of the median cut-off points. In stead of using median score to create high and low categories, we could dichotomise at the mean of the cross-national 2010 sample. To test the validity of the median cut-off points, we compared the median and mean scores of the the scales (see column 4 in table 2). The differences between the median and mean scores are not too big (between 0.00 and 0.02 points on a scale from 0 to 1).

Table 2. Median and mean cut-off values

	using the overall median cut-off points of the 2010 sample Low	High	*Difference between overall and country-specific median*	*Difference between median and mean score*	*Difference betw. median of 2010 and pooled sample*
Skill discretion	52.0%	48.0%	-0.09 to 0.24	0.59-0.56= 0.02	0.00
Autonomy	50.0%	50.0%	-0.13 to 0.24	0.51-0.50= 0.01	0.01
Job control	50.1%	49.9%	-0.12 to 0.17	0.53-0.53= 0.00	0.01
Psych. demands	41.9%	58.1%	-0.13 to 0.13	0.38-0.39= -0.01	0.00

Dichotomising the scales at the median or the mean of the cross-national 2010 sample does not influence the results to a large degree. For example, when we order the 14 EU-member states according to prevalence of high autonomy jobs in 2010 using median and mean cut-off points, we see no great differences in the consecution of countries. Only Portugal and Czech Republic switch places. However, country differences are larger using the median cut-off point. The mean takes into account the outliers, so the prevalance goes up and down according to small population groups who score extremely high or low compared to the majority. For instance, in Greece most workers score low on autonomy, but there is a small group who scores very high on autonomy, so they lift the mean (see figure 1).

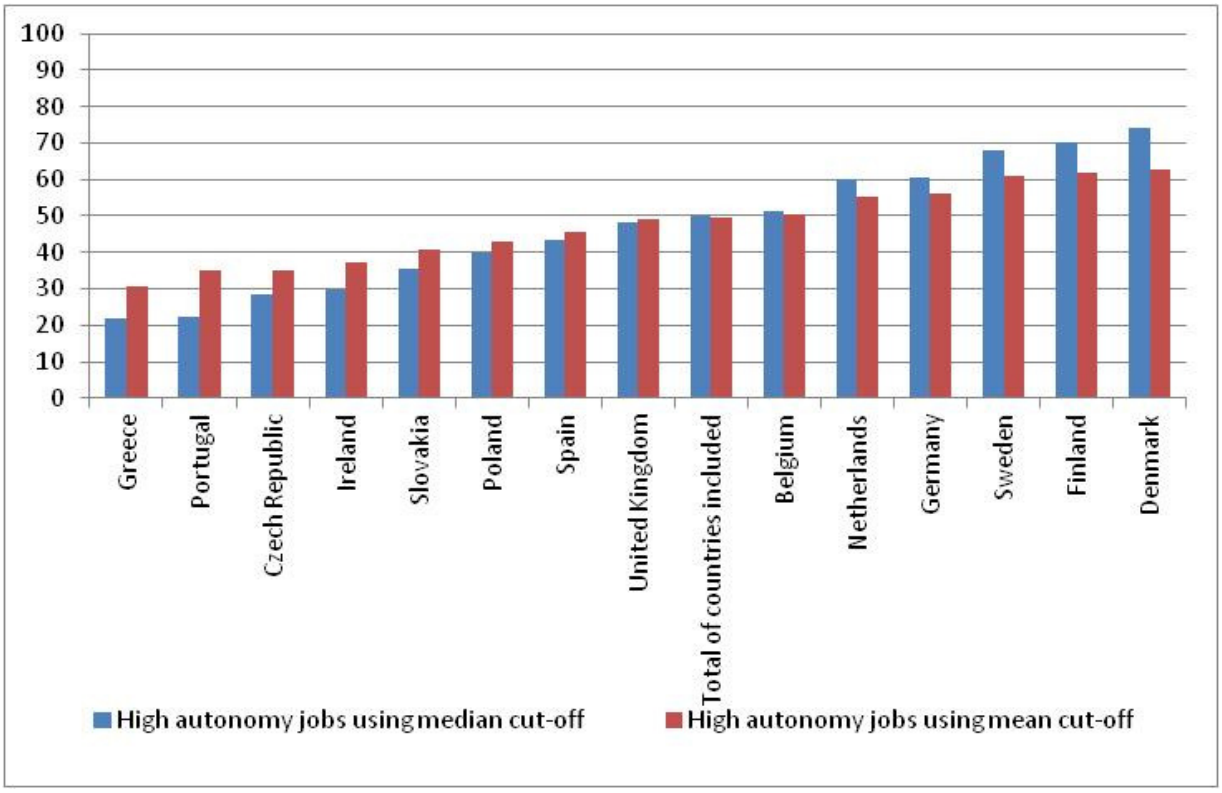

Figure 1 Prevalence of high autonomy jobs across 14 EU-member states in 2010 using median and mean cut-off points

To describe the prevalence of skill discretion, autonomy, job control and psychological demands across countries, the continuous scores can be rescaled into a three-level variable representing each third of the 2010 sample (low, medium and high). Using a two-level variable (median cut-off point) or

a three-level variable to describe differences across countries does not influence the results a lot. For example, when we order the 14 EU-member states according to prevalence of high autonomy jobs using median and tertile cut-off points, we see no great differences in the consecution of countries. Some countries switch places, but no major shifts occur (see figure 2).

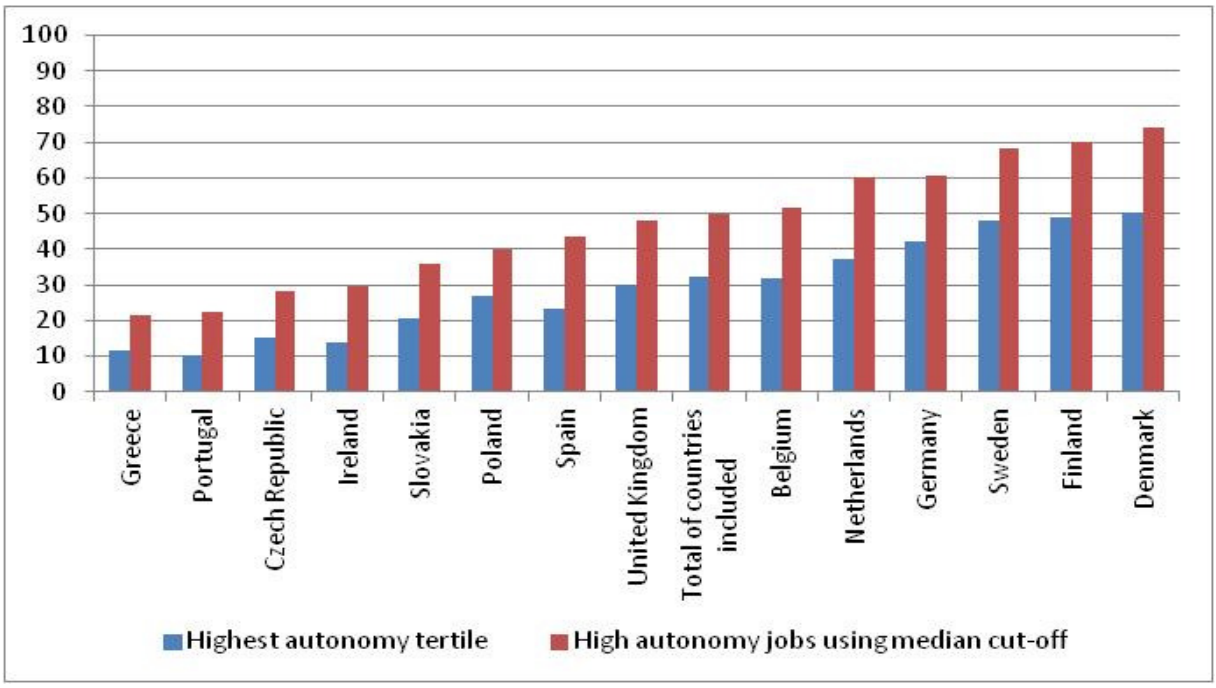

Figure 2 Prevalence of highest autonomy tertile and high autonomy jobs using median cut-off across 14 EU-member states in 2010

Using a two-level variable (median cut-off point) or a three-level variable to describe differences across research years does influence the results to some extend. The biggest difference is that using a three-level variable gives more significant results. The differences in prevalence of high skill discretion jobs across research years reached statistical significance for Germany, Poland, Czech Republic, Portugal and the total of the countries included when using the three-level variable for skill discretion. However the differences reached statistical significance ($p \leq 0.05$) only for Germany and Poland using the two-level variable. Using the two-level variable, the German and total sample shows a growth in high autonomy jobs. This growth is also seen using the three-level variable, but the three-level variable also shows a significant growth in Poland and Spain and a significant decline in Ireland (see figure 3). The differences in prevalence of high control jobs across research years reached statistical significance for the same countries using the three- or two-level variable for control. Using the two-level variable to describe differences across countries and research years should not be problematic, because significant results using a two- or a three-level variable are in the same direcion and show the same consecution of countries. Therefore, the "most conservative" option - median cut-off - might be preferred. Moreover, median cut-off points facilitate interpretion and are frequently used in previous research (for instance to recreate the four job quadrants), therefore median cut-off points are used to dichotomise skill discretion, autonomy, job control and psychological demands.

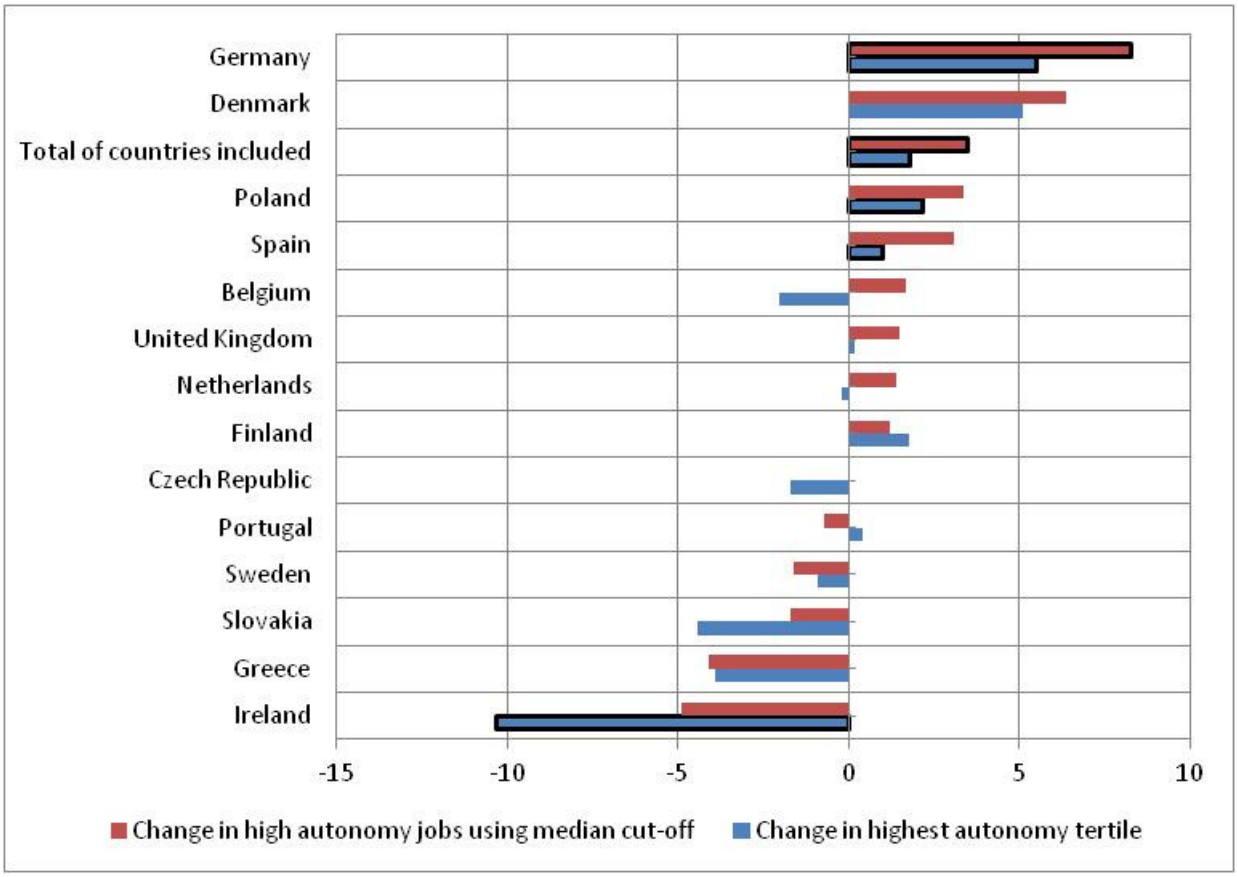

Figure 3 Change in highest autonomy tertile and high autonomy jobs using median cut-off across 14 EU-member states between 2004 and 2010 (significant results are boxed)

Another question could rise about the reference group to determine the median. A median cut-off point is determined using the 2010 sample. One could expect different results between using the median of the 2010 sample in general or the country-specific median of the 2010 sample. For example, in the Czech Republic, the median for psychological demands is 0.5, while the overall median is 0.3750. Czech respondents with a score of 0.38 on the psychological demands scale are coded 1 (high demands) using the overall median and 0 (low demands) using the country-specific median. When we compare the country-specific medians to the overall medians, we can see differences up to 0.24 points on a scale from 0 to 1 (see column 3 in table 2)[1].

One could also expect different results using the median of the pooled sample (2004/5-2010). The change of prevalence of skill discretion, autonomy, job control and psychological demands is analysed by comparing the percentages in the low and high categories between 2004 and 2010. For skill discretion and psychological demands the median cut-off point for the 2010 sample or the pooled sample are the same (respectively 0.5878 and 0.3750). For autonomy, using the median cut-off from the pooled data or 2010 sample does not exhibit big differences in the results, the medians lie very close together (respectively 0.50 and 0.51). For job control, the median using the 2010 sample or pooled sample differs (respectively 0.53 and 0.54). But dichotomising the job control scale using the different cut-off points does not exhibit big differences in the results. Looking at the

[1] The dichotomised variable using the country specific cut-ff points shows smaller inequalities when assessing the associations between the intrinsic job characteristics and the individual level factors. This is because part of inequalities can be explained by country differences.

prevalence of high control jobs, the order of the countries does not change a lot. The Netherlands and Belgium switch places and Greece and Ireland switch places (see figure 4).

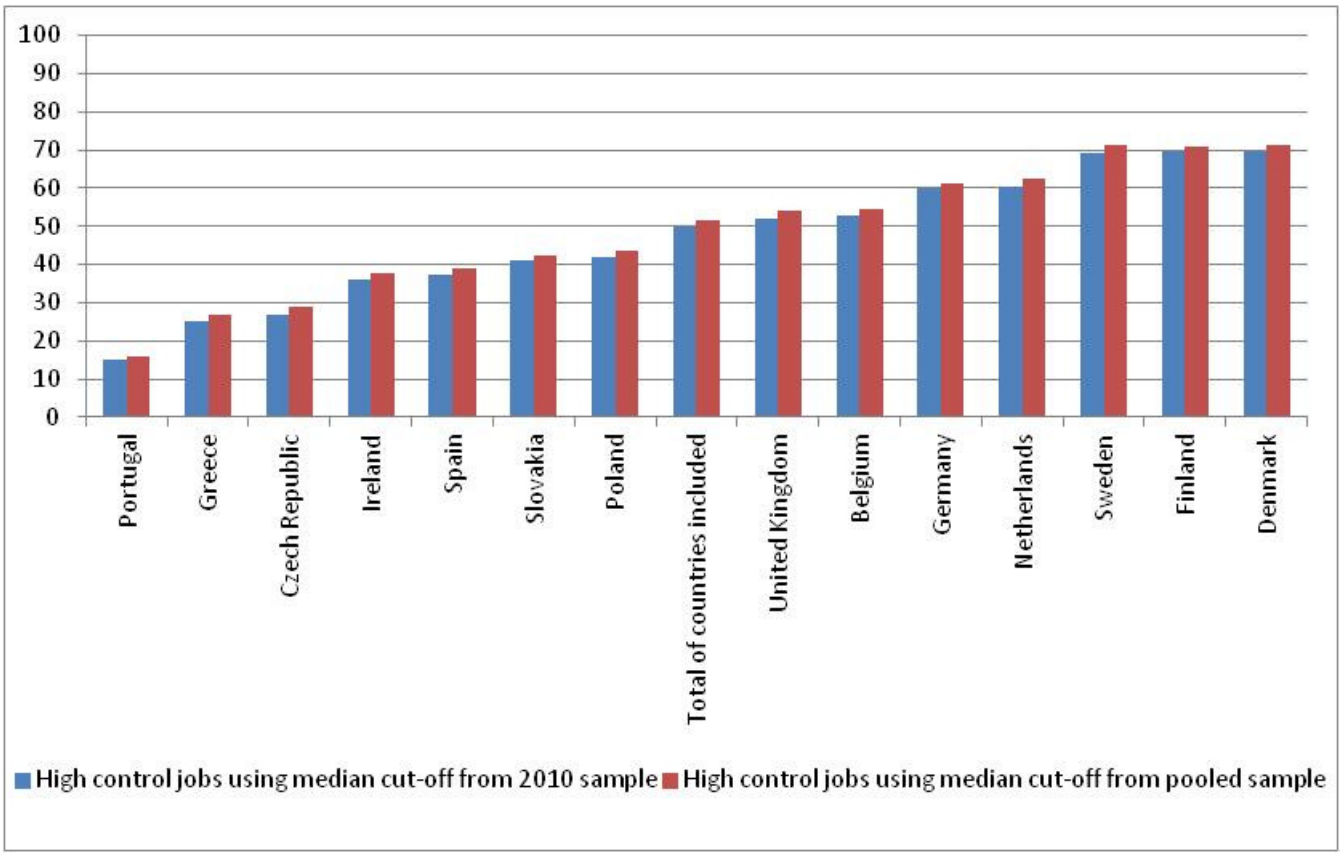

Figure 4 Prevalence of high control jobs across 14 EU-member states in 2010 using median cut-off of 2010 sample and pooled sample

Looking at the evolution in high control jobs between 2004 and 2010, the relative size of the changes does not differ a lot. Only, the negative change of the Netherlands, becomes a positive change. But the changes in high control jobs are not significant for the Netherlands using either of the cut-off points (see figure 5).

When exploring the distribution of the job characteristics across population groups, three-level variables are used. Three level variables are expected to be more precise to describe these differences. Using two-or three-level variables, the interpretation of the results remains the same, but the effects are bigger for the two-level variable. Three-level variables give more nuanced results.

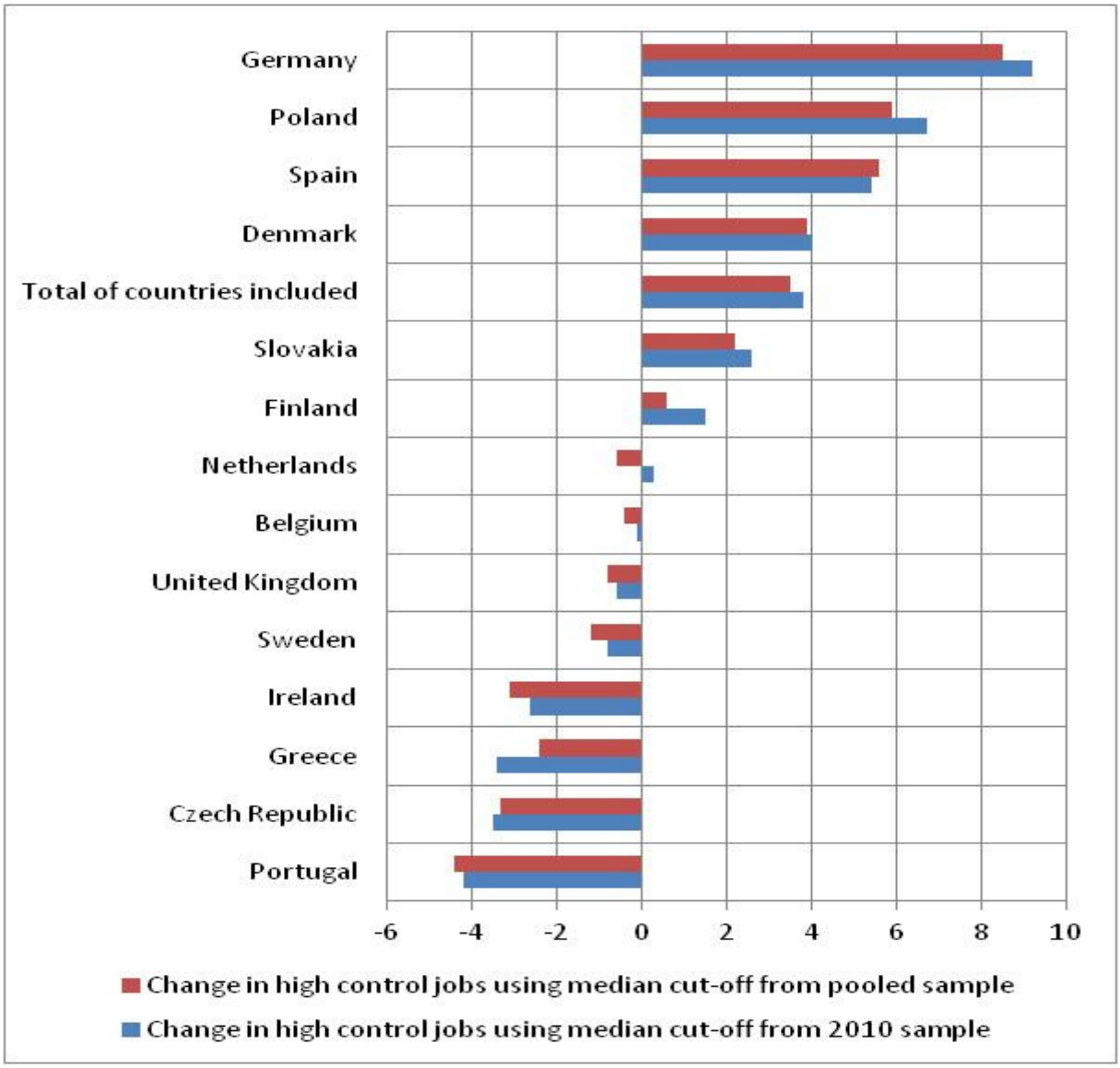

Figure 5 Change in high control jobs across countries between 2004 and 2010 using 2010 sample and 2004-2010 sample median cut-off points

2.3. Country comparison

Taken together the 2004/5 and 2010 ESS was conducted in 23 EU-member states. We can compare date from 16 EU-member states (Belgium, Czech Republic, Germany, Denmark, Spain, Finland, United Kingdom, Greece, Ireland, Netherlands, Poland, Portugal, Sweden, Slovakia, Estonia and Slovenia).

Table 3 presents the unweighted data from the 16 EU-member states. Overall 51.0% of the people in salaried employment were male in 2004, compared to 49.0% in 2010. Around one fifth of the people in salaried employment were in the age category '16 -19 years old', one fourth were in the age category '50 years and older' and more than half were between 30 and 49 years old. In some EU-member states we see differences in the age distribution across research years. For instance in Belgium, Poland, Slovakia and Slovenia we see an increase of sometimes more than 10% in the oldest age category.

Table 3. Unweighted data of the respondents

Country	Years	n	Age groups (%) 16-29 years	30-49 years	50 years and older	Male sex (%)
Belgium	2004	717	23.2	59.7	17.2	56.2
	2010	716	17.7	55.4	26.8	49.4
Czech Republic	2004	1197	17.3	51.0	31.7	54.1
	2010	1003	19.0	54.3	26.6	53.9
Germany	2004	1093	16.0	55.9	28.1	53.5
	2010	1325	16.8	50.5	32.7	55.3
Denmark	2004	725	14.7	53.5	31.9	48.4
	2010	726	10.6	52.9	36.5	51.7
Spain	2004	699	25.9	58.3	15.8	57.4
	2010	706	16.8	61.5	21.7	52.5
Finland	2004	885	16.6	51.3	32.1	47.2
	2010	730	16.6	49.6	33.8	48.9
United Kingdom	2004	768	18.5	56.4	25.1	48.2
	2010	994	20.0	51.5	28.6	44.9
Greece	2004	598	18.7	64.9	16.4	56.5
	2010	688	17.3	67.2	15.6	47.5
Ireland	2004	892	23.1	48.4	28.5	47.1
	2010	756	22.6	55.7	21.7	43.3
Netherlands	2004	777	14.0	58.3	27.7	52.0
	2010	788	15.0	55.7	29.3	48.6
Poland	2004	590	27.8	57.3	14.9	52.4
	2010	696	27.6	46.6	25.9	54.2
Portugal	2004	705	23.0	56.2	20.9	44.8
	2010	651	17.4	55.8	26.9	45.0
Sweden	2004	983	17.0	50.4	32.7	51.9
	2010	710	14.9	50.8	34.2	47.3
***Slovak*ia**	2004	599	21.6	54.9	23.5	54.7
	2010	672	12.0	52.8	35.2	43.7
Estonia	2004	912	20.9	46.7	32.3	43.0
	2010	762	15.5	49.9	34.6	43.3
Slovenia	2004	555	22.7	60.1	17.2	50.9
	2010	532	14.9	60.0	25.0	48.6
Total	2004	12696	19.5	54.5	25.8	51.0
	2010	12455	17.3	54.0	28.7	49.0

Table 4 presents the weighted data from the 16 EU-member states. Overall we see (for 2004/5 and 2010) a small dominance of males among people in salaried employment of approximately 52.0%. The weighted or unweighted data present more or less the same age distributions. Because of the weights the number of respondents (n) changed in all 16 EU-member states according the size of the population (n varied from 48 in Estonia (2010) to 3102 in Germany (2010)).

Table 4. Weighted Respondents[2]

Country	Years	n	Age groups (%)			Male sex (%)
			16-29 years	30-49 years	50 years and older	
Belgium	2004	347	23.2	59.7	17.2	56.2
	2010	378	17.7	55.4	26.8	49.4
Czech Republic	2004	357	16.5	53.2	30.2	53.2
	2010	405	19.7	55.4	24.9	53.4
Germany	2004	2725	16.4	56.2	27.4	53.6
	2010	3102	17.2	50.9	31.9	56.3
Denmark	2004	213	14.7	53.5	31.9	48.4
	2010	209	10.6	52.9	36.5	51.7
Spain	2004	1527	25.9	58.1	16	57.4
	2010	1469	16.8	60.5	22.7	51.8
Finland	2004	188	16.6	51.3	32.1	47.2
	2010	173	16.6	49.6	33.8	48.9
United Kingdom	2004	2080	20.3	54.7	25.1	50.3
	2010	2210	21.9	50.1	28	46.9
Greece	2004	235	20.3	62.1	17.6	55.6
	2010	236	17.7	64.7	17.6	47.4
Ireland	2004	127	28.3	43.4	28.3	47.1
	2010	107	24.9	52.6	22.5	45.1
Netherlands	2004	561	15.6	55.1	29.3	52.5
	2010	604	15.7	53.8	30.5	49.2
Poland	2004	1074	27.8	57.7	14.6	53
	2010	1274	27.8	46.9	25.2	54.3
Portugal	2004	300	24.6	53.9	21.5	46.3
	2010	288	19.1	54.3	26.6	47
Sweden	2004	372	17.0	50.4	32.7	51.9
	2010	370	14.9	50.8	34.2	47.3
Slovakia	2004	176	21.6	54.9	23.5	54.7
	2010	185	15.3	47.8	36.9	46.4
Estonia	2004	52	20.9	46.7	32.3	43.0
	2010	48	15.5	49.9	34.6	43.3
Slovenia	2004	66	22.7	60.1	17.2	50.9
	2010	67	14.9	60.0	25.0	48.6
Total	2004	10400	20.5	55.8	23.7	52.9
	2010	11124	19.2	52.4	28.4	51.6

[2] We used the combined weights (pweight*dweight) because if comparing data from two or more countries with reference to the average (or combined total) of those countries, the combined weights need be applied. If comparing data from two or more countries but without reference to the average (or combined total) of those countries, only the design weights need be applied.

2.3.1. Estonia and Slovenia

Estonia and Slovenia are excluded from the analyses because of unlikely and often extreme results. When we look at intrinsic job characteristics. Slovenia reports that almost 70% of the employees have a high skill discretion job in 2010. While the second highest percentage of high skill discretion jobs is 62.4% in Sweden, followed by the remaining Scandinavian countries and the West-European countries. The first East-European country to report a high percentage of high skill discretion jobs is Slovakia with only 47% of employees reporting to be in a high skill discretion job. Estonia and Slovenia also report extremely high means for support (respectively 0.60 and 0.70). These are again the highest results, compared to the other the countries.

Especially, the comparison of the ESS2004/5 and ESS2010 of Estonia and Slovenia lead to suspicions of unreliability. Estonia and Slovenia have a tendency to report the highest changes compared to the other countries (for instance in skill discretion, autonomy, demands, support, etcetera). The changes in passive jobs are unusually large in Estonia (-17.3%). The second highest percentage of change in passive jobs is -8.0% in Portugal, followed by -7.5% in Slovenia. The first East-European country to report a high percentage of change in passive jobs is Slovakia with only -5.0%. When we look at the evolution of high autonomy jobs, Estonia reports an increase of 13.3% and Slovenia of 8.4%. While the second highest increase is only 4.9% in Ireland and 4.1% in Greece, followed by Slovakia with 1.7%.

Also the changes in quality of employment are peculiar. When we look at the change in training opportunities for Estonia between 2004 and 2010, we see an increase of employees reporting to receive training last 12 months of respectively +7.7%, which is again the highest change, compared to the other countries. Also the change in power relations for Estonia between 2004 and 2010 is the highest of all countries and again relatively high compared to the others.

These elements led to the decision to exclude Estonia and Slovenia from the analyses due to suspicions of incomparability of research waves and incomparability of the country's workforce to the other European workforces.

Therefore, this study will focus on 14 EU-member states that have participated both in 2004/5 as in 2010 (i.e. Belgium, Czech Republic, Germany, Denmark, Spain, Finland, United Kingdom, Greece, Ireland, Netherlands, Poland, Portugal, Sweden and Slovakia). The weighted sample sizes of each wave in a country varied from 107 in Ireland (2010) to 3102 in Germany (2010) (cf. Table 4). Approximately 52% of the participants were male and more than half are between 30 and 49 years old. We ended up with a sample of approximately 10,500 employees in salaried employment per wave (10,283 in 2004/5 and 11,009 in 2010). The sample is representative of the EU workforce distribution according to gender and age.

3. Methods

To compare countries in terms of quality of work and employment and the three health indicators. the association between countries and each quality of work, employment and health characteristic is studied using the χ^2 test ($p \leq 0.05$).

Differences in the percentages of people in salaried employment from 2004/5 on one hand and 2010 on the other hand in relation to country and the quality of work and employment characteristics are examined by a three-dimensional cross-tabulation with a test on significance by χ^2 ($p \leq 0.05$). The same holds for the percentages of people in salaried employment from 2004/5 on one hand and 2010 on the other hand in relation to country and the three health indicators.

To assess the overall association between quality of work and employment and various socio-demographic factors and the work environment in 2010, we computed chi-squared values for the association using cross-table analyses ($p \leq 0.05$).

Two level variables are used to describe the distribution of QOW and employment components across countries. Continuous scales skill discretion, autonomy, job control and pshychological demands were divided in two parts according to values equal to the median cut-off of the 2010 sample. However, to facilitate interpretation of the distribution of the QOW and employment components across population groups and work environments continuous scales were divided into three parts according to values equal to each third of the 2010 sample, this was the case for skill discretion, autonomy, job control, psychological demands, working time arrangements, career opportunities and say. Associations between the occupational indicators and personal characteristics that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.

These descriptive analyses will provide the background information for more detailed multivariate analyses, as is specified in the further objectives of WP3. In their own regard, they provide an insightful picture on the evolution of the European labour market in the crucial period 2005-2010.

4. Results

4.1. Intrinsic job characteristics

4.1.1. Skill discretion

We divided the 2010 sample in two parts according to values as close as possible to the median cut-off. Using this approach, 48% of the 2010 sample reports to be in a high skill discretion job. There are wide and statistically significant differences across countries ($p < 0.001$), when the population-wide cut-off value is used. In the Swedish sample, using the overall cut-off point, 37.6% of the employees find themselves in low skill discretion jobs. In contrast, in Portugal, applying the same rule, 83.3% of the employees find themselves in low skill discretion jobs. Meaning that in 2010 more Swedish then Portugese workers were in high skill discretion jobs, using the European-wide cut-off criterion. In this way, the Scandinavian, Southern, West-European and Eastern European countries are clearly distinguished from each other. In Sweden, Finland and Denmark the highest proportion of high skill discretion jobs is found. Portugal, Spain and Greece report the lowest prevalence of high skill discretion jobs (see Figure 6).

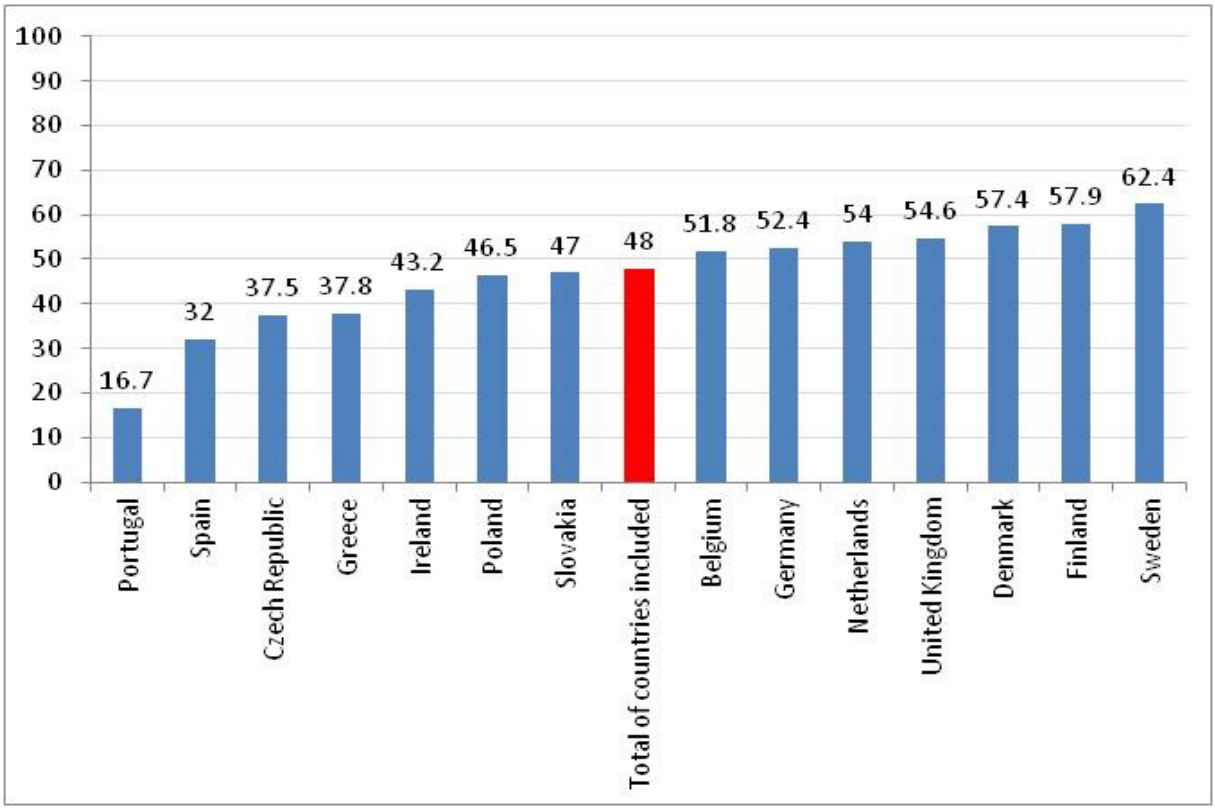

Figure 6. Prevalence of high skill discretion jobs across 14 EU-member states in 2010

In the 2004 sample, using the same 2010 cut-off point as the reference value, 45% of the workers reports high skill descretion (in 2010 this was 48%). Thus, overall, when using the 2010 criterion, the proportion of employees working in high skill discretion jobs increased slightly. However, the overall pattern hides clear differences across countries, showing improvements in Poland, Germany and Slovakia, while status quo or decrease in the relative amount of highs skill discretion jobs in all other countries. Nevertheless, the differences in prevalence of high skill discretion jobs by research year

only reached statistical significance ($p \leq 0.05$) for Germany and Poland[3]. The part of the German and Polish sample representing employees with high skill discretion increased about 7% between 2004 and 2010 (see Figure 7).

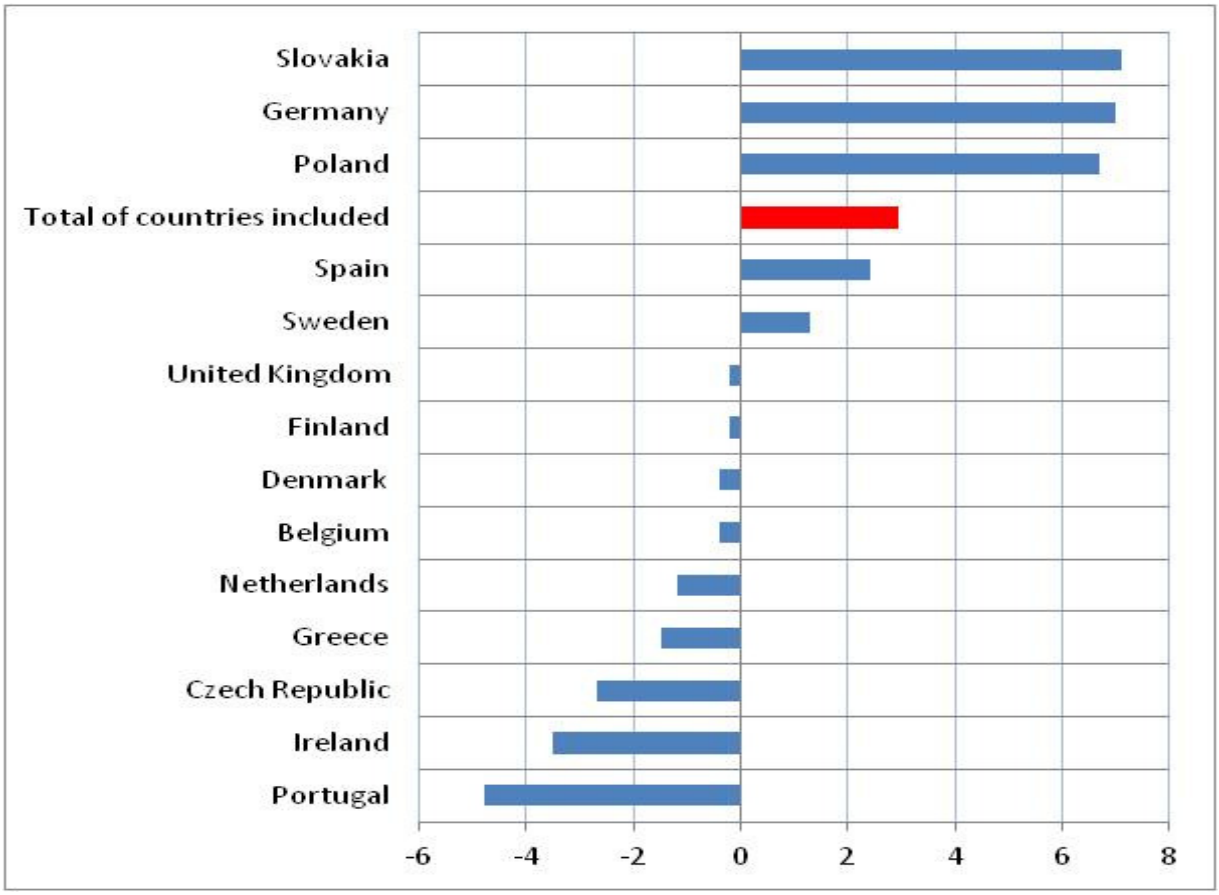

Figure 7. Percentage of change for high skill discretion across 14 EU-member states between 2004 and 2010

4.1.1.1. Distribution of high skill discretion jobs across population groups and research

Skill discretion (low, medium and high) is not equally distributed across population groups. Low skill discretion jobs are more frequently found among women (39.7%), younger employees (16 to 29 years old) (40.4%) and low educated workers (59.3%). High skill discretion jobs are more frequently found in employees born in the country where they are interviewed (32.0%), compared to immigrants (25.0%), as well as in employees who do not belong to an ethnic minority (31.5%).

Skill discretion is not equally distributed across occupations, organisations and industries. High skill discretion jobs are more frequently found among legislators, senior officials and managers (51.6%) and professionals (48.0%), compared to elementary occupations (8.7%) and plant and machine operators and assemblers (16.7%). When looking at economic sectors, high skill discretion is more frequently found in large organisations (42.1% in organisations with 500 or more employees), compared to small organisations (24.3% in organisations with under 10 employees) – and also in the education sector (46.6%) and in research and technology (37.1%), while the lowest frequencies are seen in the hotel, restaurant sector (14.7%) and retail, finance and property services (24.0%).

[3] The differences in prevalence of high skill discretion jobs across research years reached statistical significance for Germany, Poland, Czech Republic, Portugal and the total of the countries included when using the three-level variable for skill discretion.

While between 2004 and 2010 the percentage of high skill discretion jobs increased with about 2.4% this increase was not equally distributed across population groups. Between 2004 and 2010 the percentage of high skill discretion jobs increased for women (+3.4%), for employees between 30 and 49 years (+2.9%), for employees born in the country of interview (+2.6%) and for those who do not belong to an ethnic minority (+2.3%). Furthermore, between 2004 and 2010 the percentage of high skill discretion jobs decreased for employees with low education (-2.8%) and increased for employees with medium education (+3.0%).

The change in skill discretion is also not equally distributed across occupations, organisations and industries. The percentage of high skill discretion jobs increased in plant and machine operators and assemblers (+4.5%) and technicians and associate professionals (+8.1%). In organisations with 100 to 499 employees, the percentage of high skill discretion jobs decreased with 1.6%, while in organisations with 500 or more employees high skill discretion jobs increased with 6.2%. Between 2004 and 2010 the percentage of high skill discretion jobs increased in the services (public services excluded) (+2.4%), manufacturing (+3.2%), education (+5.2%), hotel, restaurant (+6.6%) and in research and technology (+7.2%). In construction the percentage of high skill discretion jobs decreased (-0.4%).

4.1.2. Autonomy

For the prevalence description of job autonomy the same methodology as with skill discretion was used. There are wide and statistically significant differences across countries ($p < 0.001$), when applying the population-wide cut-off value. Again, the Scandinavian countries more frequently report a high prevalence of high autonomy jobs. Southern European countries report the lowest prevalence of high autonomy jobs. The distribution of high autonomy jobs across countries is similar to the distribution of high skill discretion jobs (compare figure 6 to figure 8). Spain reports a relatively high percentage of high autonomy jobs compared to the other Southern European countries (43.4%). Ireland report a relatively low percentage of high autonomy jobs compared to the other West-European countries (29.7%).

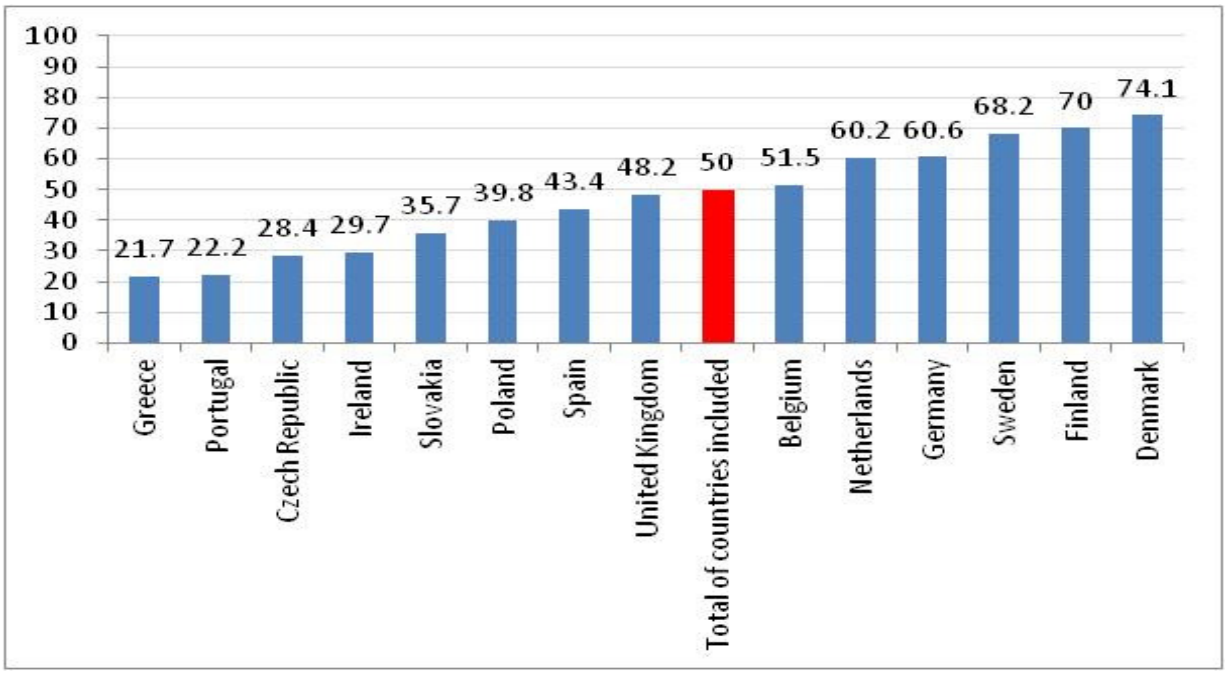

Figure 8. Prevalence of high autonomy jobs across 14 EU-member states in 2010

Looking at the 2004 sample, using the same cut-off point which divided the 2010 sample in two equal parts, 46.5% of the workers report high autonomy jobs. In other words, the relative amount of high autonomy jobs increased with more than 3 percent. There are differences across countries in the growth or decline of high autonomy jobs. However the differences in prevalence of high autonomy jobs by research year reached statistical significance ($p \leq 0.05$) only for Germany and the total of the countries included[4]. The part of the German and the total sample representing employees with high autonomy jobs increased respectively with about 8.3% and 3.5% between 2004 and 2010 (see figure 9). Ireland shows a relatively large decrease of jobs with high autonomy compared to the other West-European countries, but this decline is not significant.

[4] The differences in prevalence of high autonomy jobs across research years reached statistical significance for Germany, Spain, Ireland, Poland and the total of the countries included when using the three-level variable for autonomy.

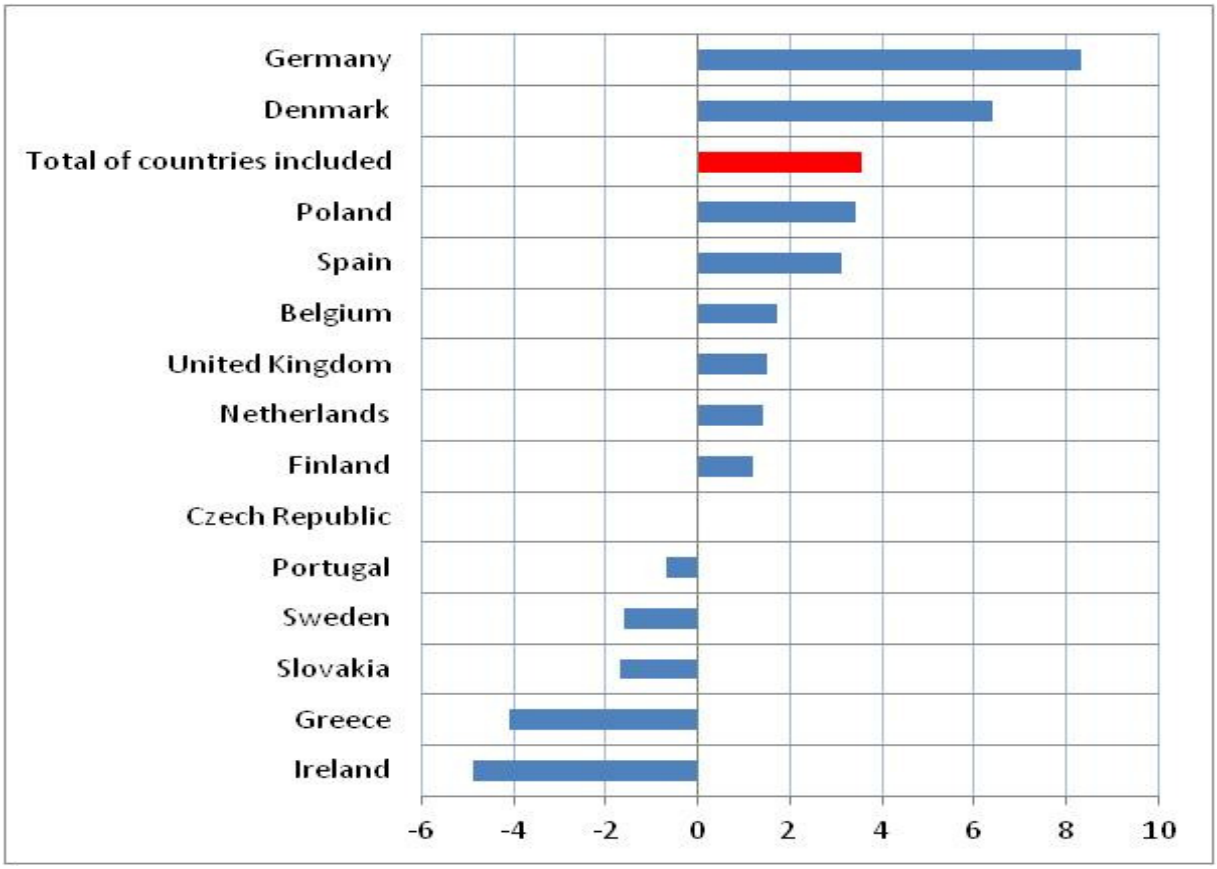

Figure 9. Change of high autonomy across 14 EU-member states between 2004 and 2010

4.1.2.1. Distribution of high skill autonomy jobs across population groups and research years

High autonomy jobs are not equally distributed across population groups: they are more frequently found among men (35.0%), older employees (34.4% in age category '50 years and older'), highly educated workers (44.8%), employees born in the country where they are interviewed (32.9%) and employees who do not belong to an ethnic minority (32.5%).

Furthermore, high autonomy jobs are not equally distributed across occupations, organisations and industries. First of all, high autonomy jobs are more frequently found among legislators, senior officials and managers (61.6%), while low autonomy jobs are more prevalent in elementary occupations (55.6%) and plant and machine operators and assemblers (53.5%). Moreover, high autonomy jobs are more frequently found in large organisations (39.7% in organisations with 500 or more employees) and in the research and technology sectors (49.2%), as well as in public services (44.9%). The lowest frequencies of high autonomy are seen in for instance the hotel, restaurant sector (17.8%), other services (29.1%) and service workers and shop and market sales workers (14.3%).

The percentage of high autonomy jobs increased between 2004 and 2010, but this increase is not equally distributed across population groups. Women report the biggest decrease of low autonomy jobs (-4.4%), compared to men (-1.9%). While the decrease among women goes along with an increase in medium autonomy jobs (+2.7%), the decrease among men goes along with an increase in high autonomy jobs (+2.0%) (see figure 10).

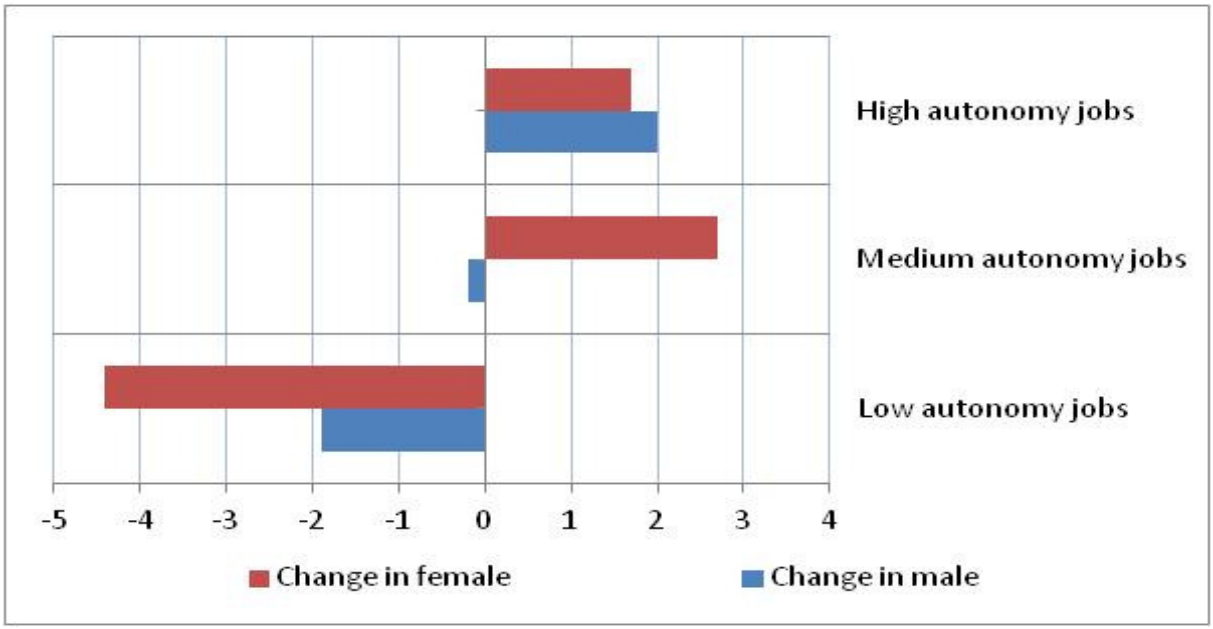

Figure 10 Percentage of change in level of autonomy by gender between 2004 and 2010

Employees between 16 and 29 years old report the biggest increase in high autonomy jobs (+3.9%), compared to employees between 30 and 49 years old (+1.4%). Low educated employees report an increase in low autonomy jobs (+3.9%), while medium educated employees report a decrease (-2.8%). Employees born in the country of interview benefit from an increase in high autonomy jobs (+2.3%), compared to immigrants for whom a slight decrease in high autonomy jobs is seen (-1.4%). However immigrants report a bigger decrease of low autonomy jobs (-5.5%) and a higher increase in medium autonomy jobs (+6.9%), compared to employees born in the country of interview (respectively -2.9% and +0.7%). Workers who do not belong to an ethnic minority report an increase in medium autonomy jobs (+1.2%) and a decrease in high autonomy jobs (-1.7%).

The increase of high autonomy jobs is not equally distributed across occupations, organisations and industries as well. High autonomy jobs increased among professionals (+5.5%) and technicians and associate professionals (+2.7%). In establishments with less than 10, between 100 and 499 and more than 500 employees low autonomy jobs decreased. The decrease of low autonomy jobs in establishments with less than 10 and between 100 and 499 employees is compensated by an increase in high autonomy jobs (respectively +1.9% and +2.8%). The decrease of low autonomy jobs in establishments with more than 500 employees is compensated with an increase in medium autonomy jobs (+4.2%) (see figure 11). In the construction, electricity and supplies industry medium and high autonomy jobs increased (respectively +5.4% and +3.6%), while in the hotel, restaurant sector a relative increase in low autonomy jobs is seen (+4.5%).

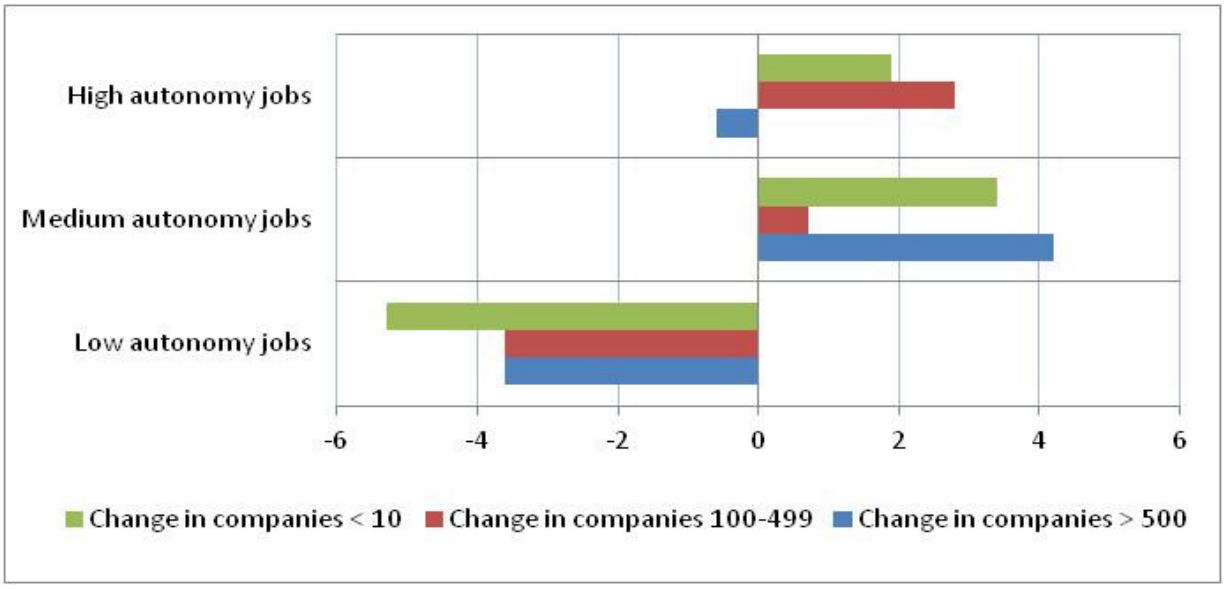

Figure 11 Percentage of change in level of autonomy by establishment size between 2004 and 2010

4.1.3. Control

Job control is calculated as the mean of the skill discretion and job autonomy scales. With the 2010 sample-wide cut-off point put at the median value (49.9%) of the sample, again wide and statistically significant differences across countries are seen. The Scandinavian countries more frequently report a high prevalence of high control jobs. The West-European countries have higher percentages of high control jobs, compared to the Southern and Eastern European countries. Southern European countries report the lowest prevalence of high control jobs. Spain reports a relatively high percentage of high control jobs compared to the other Southern European countries (37.4%). Ireland report a relatively low percentage of high control jobs compared to the other West-European countries (36.1%) (see figure 12).

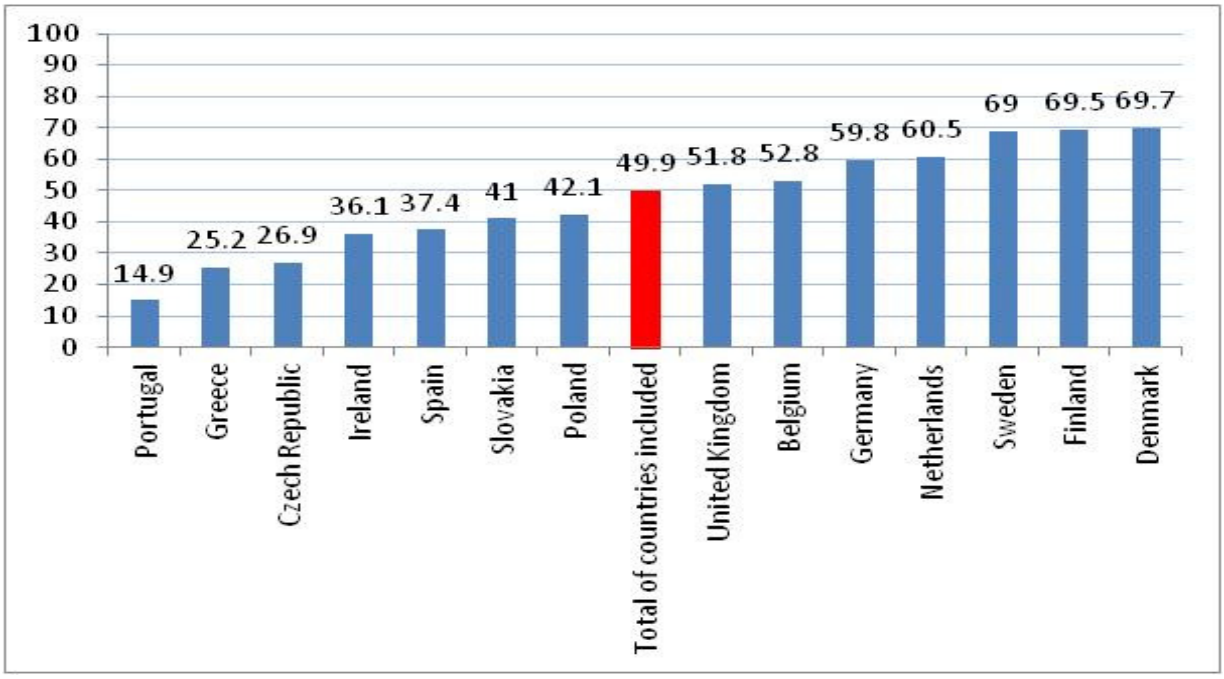

Figure 12. The percentage of high control for 14 EU-member states in 2010

Looking at the 2004 sample, using the same cut-off point which divided the 2010 sample in two equal parts, 46% of the workers report high control. Meaning that the relative number of workers in high job control increased between 2004 and 2010. There are differences across countries in the growth and decline of high control jobs. However the differences in prevalence of high control jobs by research year reached statistical significance ($p \leq 0.05$) only for Germany, Spain, Poland and the total of the countries included[5]. The 2010 German, Spain, Poland and total sample representing employees with high control jobs increased between 3.8% and 9.2% between 2004 and 2010 (see Figure 13).

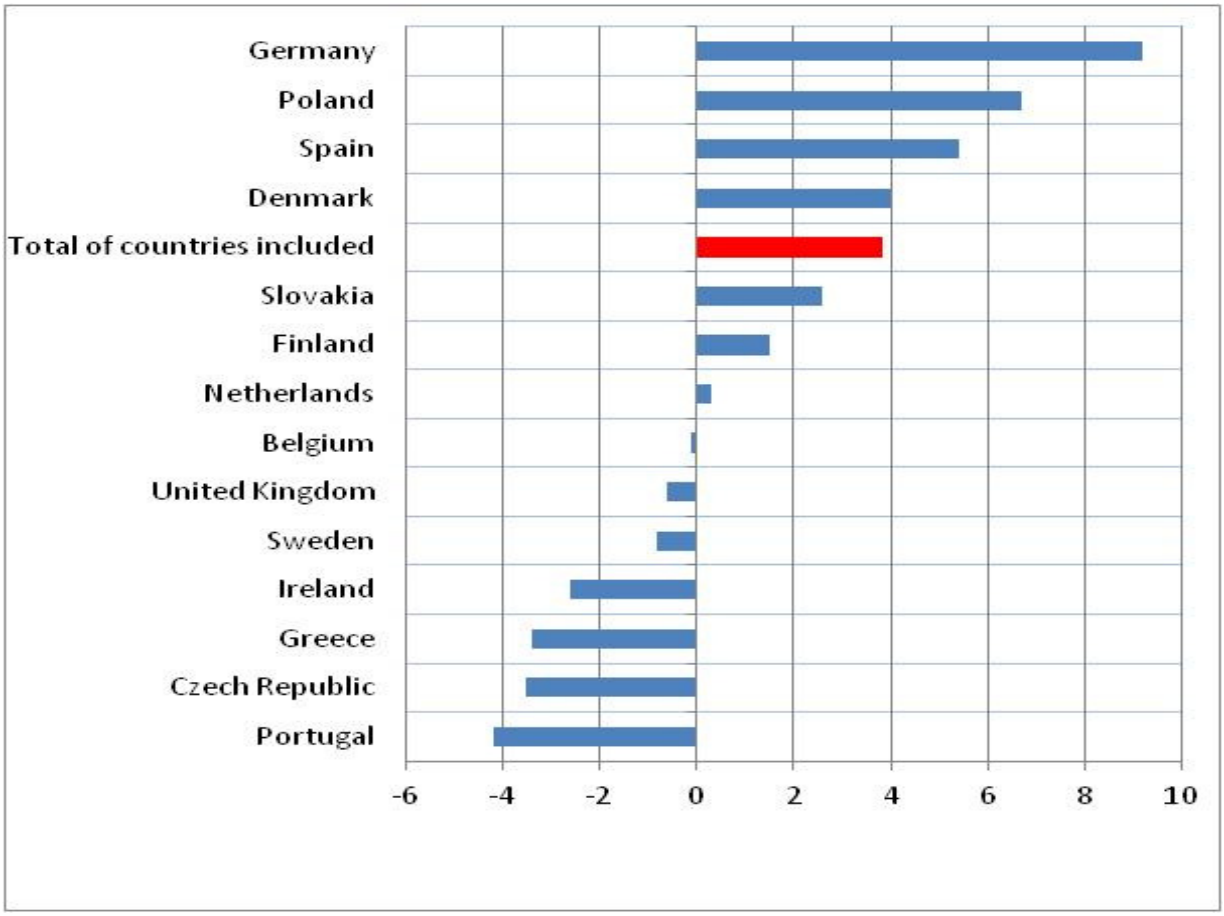

Figure 13 The percentage of change in level of control for the 14 EU-member states between 2004 and 2010

4.1.3.1. Distribution of high control jobs across population groups and population years

Control is not equally distributed across different population groups. Low and medium control jobs are more frequent among women (respectively 35.8% and 34.6%), while high control jobs are more frequent among men (36.7%). Low control jobs are more frequently found in low educated (56.1%) and younger (between 16 and 29 years old) workers (40%). Also 44.9% of immigrants and 47.9% of employees who belong to an ethnic minority are in low control jobs, compared to 32.3% of the employees born in the country of interview and 32.7% of the employees that do not belong to an ethnic minority.

[5] The differences in prevalence of high control jobs across research years reached statistical significance for the same countries when using the three-level variable for control.

Control is neither equally distributed across occupations, organisations and industries. Professionals (52.9%) and Legislators, senior officials and managers (63.0%) more frequently report a high level of control. Elementary occupations more frequently report a low level of control (67.1%) (see figure 14). Low control jobs are more frequently found in small organisations (40.4% in category 'under 10'), as well as in the hotel and restaurant sector (59.8%), while high control jobs are more frequently found in large organisations (44.6% in category '500 or more') and in the research and technology sector (50.6%).

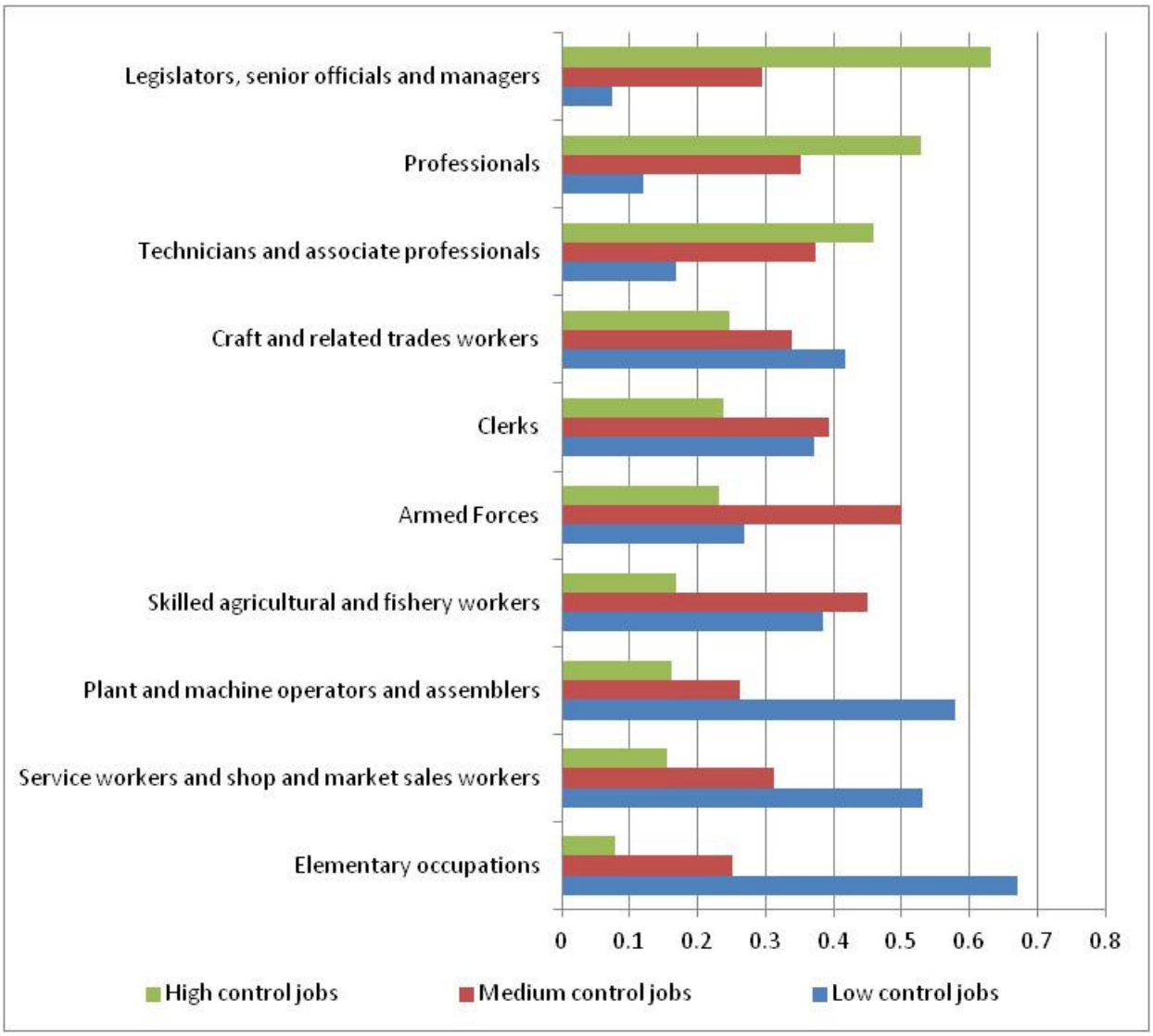

Figure 2 Level of control at work by occupation (isco9)

The prevalence of high control jobs increased both for men (+3.4%) as for women (+3.5%), but women report a larger decrease of low control jobs (-3.8%) (see figure 15). Employees between 16 and 29 years old report the highest increase in high control jobs (+4.4%) and medium control jobs (+0.7%). Employees between 30 and 49 years old report an increase of 3.5% in high control jobs.

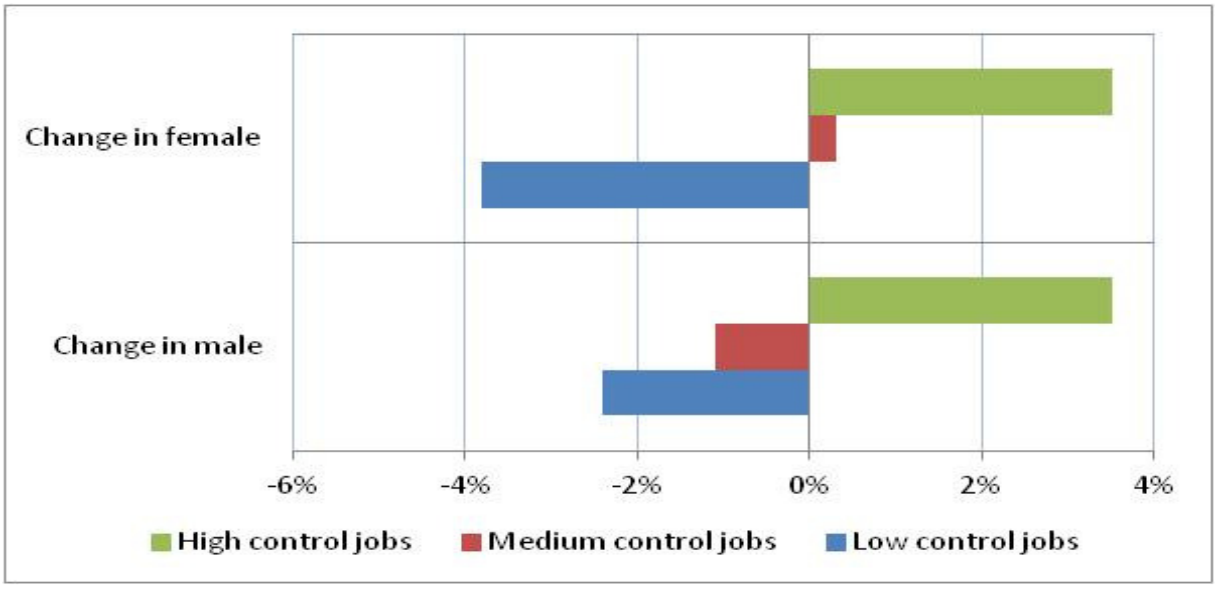

Figure 15 Change in job control between 2004 and 2010 by gender

High control jobs decreased among low educated employees (-2.5%) and increased among medium educated employees (+2.4%). Employees born in the country of interview and employees who do not belong to an ethnic minority report an increase in high control jobs (both +3.6%), while the increase for immigrants and employees who belong to an ethnic minority is not significant.

The relative amount of high control jobs increased among professionals, technicians and associate professionals and plant and machine operators and assemblers and decreased among legislators, senior officials and managers (-0.9%). In a company with less than 10 employees, 100 to 499 and more than 500 employees the percentages of high control jobs has increased (respectively 3.9%, 2.2% and 6.1%). In construction (+6.8%), research and technology (+11.4%) and education (+6.2%) the prevalence of high control jobs has increased. In the public services the prevalence of high control jobs has decreased (-0.7%), while the prevalence of medium control jobs has increased (+6.1%).

4.1.4. Psychological demands

We divided the 2010 sample in two parts according to values as close as possible to the median cut-off. This led to a sample-wide cut-off point allocating 58% of the respondents in an above-median (high) demand job. Looking at the separate countries, using the same cut-off point which devided the 2010 sample in two parts, most countries are not devided in the same way. For Spain, Sweden, Ireland, UK, Slovakia and Portugal a greater part of the respondents find themselves in a high demand job, compared to the total sample. In Poland, the Czech Republic, Denmark and Greece a smaller part of the respondents find themselves in a high job demands situation, compared to the overall sample (see figure 16).

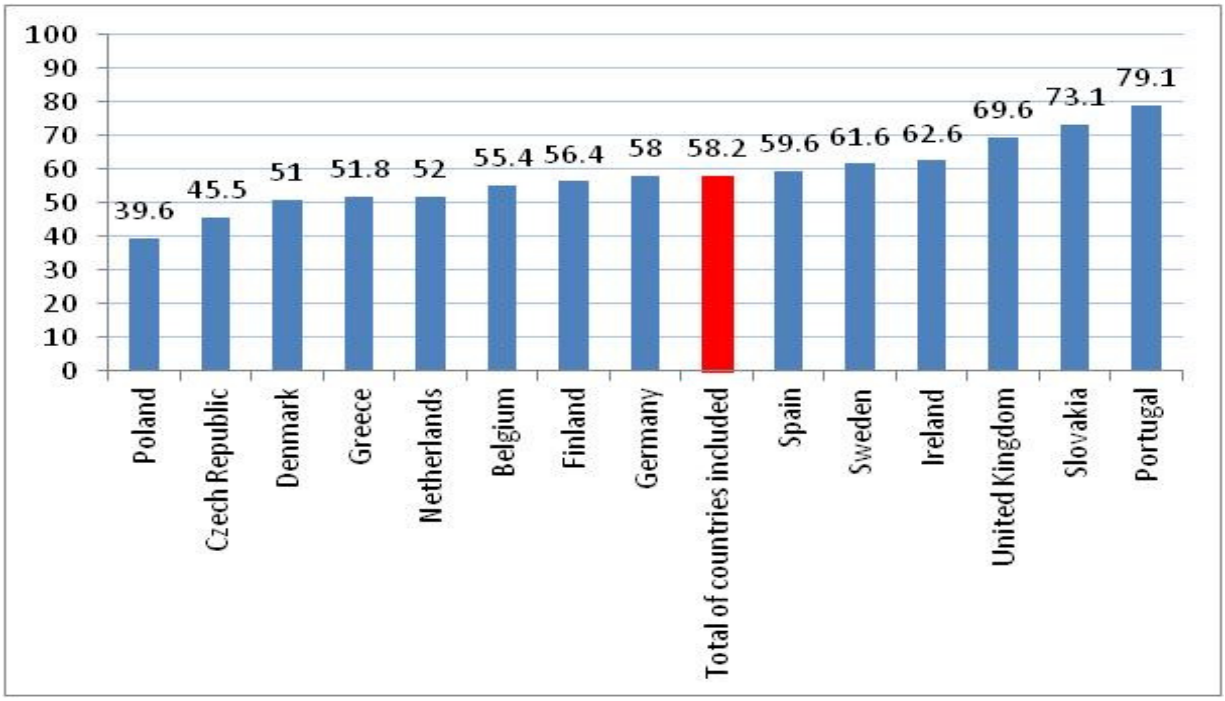

Figure 16 The distribution of high demand jobs across 14 EU-member states in 2010

Looking at the 2004 sample, using the same cut-off point which divided the 2010 sample in two parts, 55.8% of the workers report high demands. In other words, in 2010 the number of respondents reporting high demands has risen with more than 2%. There are differences across countries in the growth and decline of high demand jobs. However the differences in prevalence of high demand jobs by research year reached statistical significance ($p \leq 0.05$) only for Germany, Spain, Greece, Poland, Portugal and the total of the countries included[6]. In the 2010 sample, the relative amount of German, Spanish, Greek and Portugese respondents reporting high job demand increased, compared to their respective 2004 sample (see figure 19). For Poland, the opposite pattern occurred, The biggest increase in high demand jobs is found in Greece (+11.7%), despite that Greece had one of the lowest level of demands in 2010. Portugal had the highest percentage of high demand jobs in 2010 (79.1%), this is partially because of the relatively large increase in high demand jobs in Portugal (+10%) (see figure 17).

[6] The differences in prevalence of high demand jobs across research years reached statistical significance for the same countries and the UK when using the three-level variable for demands.

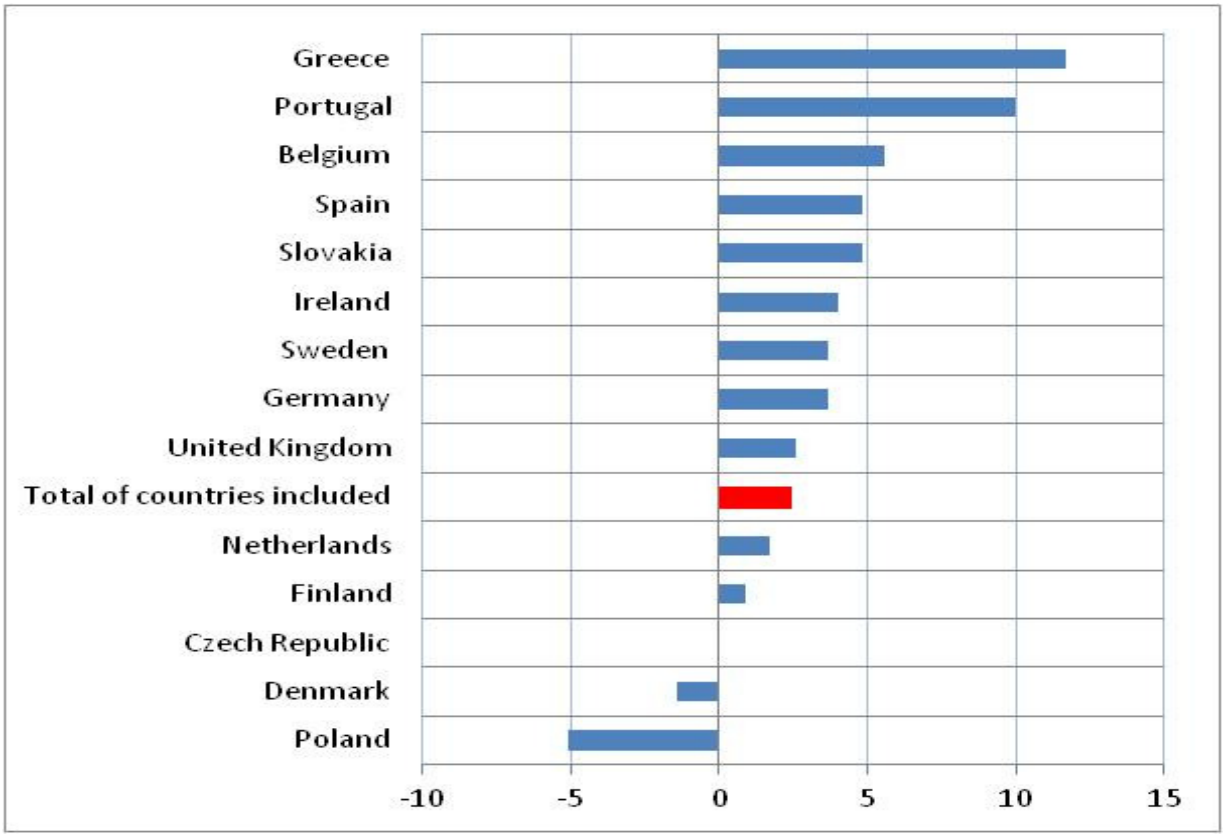

Figure 17 The distribution of change (%) in high demand jobs across 14 EU-member states between 2004 and 2010

4.1.4.1. Change in distribution of high demand jobs across population groups and research years

Psychological demands are not equally distributed across different population groups. High and low demands are more frequently found among women (respectively 39.4% and 19.6%), while medium demands are more frequently found among men (44.0%). High demand jobs are more frequently found in highly educated workers (46.2%), older employees (42.2% in category 50 years and older) and immigrants (42.3%).

Demands are also not equally distributed across occupations, organisations and industries. High demand jobs are more frequently found in legislators, senior officials and managers (52.2%), professionals (46.8%), large organisations (43.0% in category '500 or more') and in the education sector (46.7%). Low demand jobs are more frequently found in elementary occupations (23.9%) and clerks (25.1%), as well as in small organisations (21.0% in category 'under 10') and in retail, finance and property services (20.3%).

When we look at the changes of job demand by gender, we see a higher increase of high demands in women (+3.6%), compared to men (+1.7%). Employees in the age categories '30-49 years' and '50 and over' report an increase of job demands (respectively +1.8% and +5.0%), while the change in job demands of younger workers is not significant. Employees with medium and high educational attainment, employees born in the country of interview and employees that do not belong to an ethnic minority report an increase of high demand jobs (respectively +3.5%, +1.6%, +2.2% and +2.5%), while the changes in their counterparts are not significant. The biggest increase of high demand jobs is found among immigrant employees (+5.9%).

High demand jobs increased for technicians and associate professionals and plant and machine operators and assemblers (respectively +8.4% and +6.1%). In a company with under 10 employees, 10 to 24, 25 to 99, 100 to 499 and more than 500 employees the percentages of high demand jobs has increased with respectively (2.5%, 1.0%, 0.9%, 4.2% and 4.5%). In retail (+5.5%), other services (+0.9%) and public services (+9.5%) the percentage of high demand jobs has increased, while in education the percentage of high demand jobs decreased (-0.1%).

4.1.5. Job quadrants

In the cross-national 2010 sample one third of the workers has an active job, one fourth of the workers has a high strain job, one fourth has a passive job, and one fifth has a low strain job. There are statistically significant differences across countries ($p < 0.001$). Portugal is an exception, compared to the other 13 EU-member states, the relative amount of high strain jobs is remarkably higher (67.5%) (see figure 18).

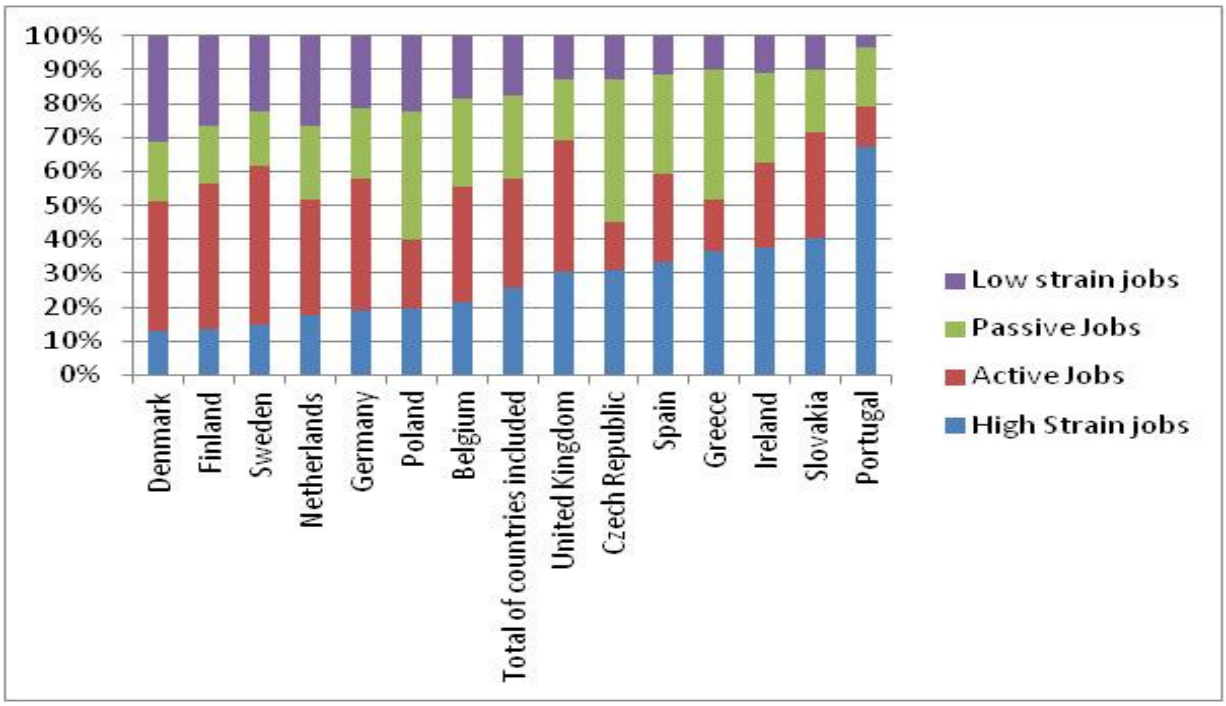

Figure 3 Distribution of job quadrants (sorted by high strain jobs) across 14 EU-member states in 2010

There are wide differences across countries in the growth and decline of the four job quadrants. However the prevalence of the four job quadrants by research year reached statistical significance ($p \leq 0.05$) only for Germany, Spain, Greece, Poland, Portugal and the cross-national 2010 sample. Portugal reports an increase of 12.3% in high strain jobs, while all other type of jobs have decreased (see figure 19). Germany, Spain, Greece and Poland report an increase of active jobs, whereby Germany and Spain show the biggest increase in active jobs (respectively +6.7% and +4.9%). This is a consequence of their significant increase in job control and psychological demands. Portugal, Germany and Spain report a decrease in passive jobs. Poland reports the biggest decrease of high strain jobs (-7.3%) and a considerable increase in low strain jobs (+4.5%). This can be explained by the large decrease of demands in Poland (-5.2%). In general we can say, that for the 14 EU-member states the prevalence of active jobs has increased (+3.1%) and that of passive jobs has decreased (-3.2%). This reflects the significant increase of psychological demands and job control in the 14-EU-

member states. In general low strain jobs have increased a bit (+0.8%) and high strain jobs have decreased a bit (-0.7%).

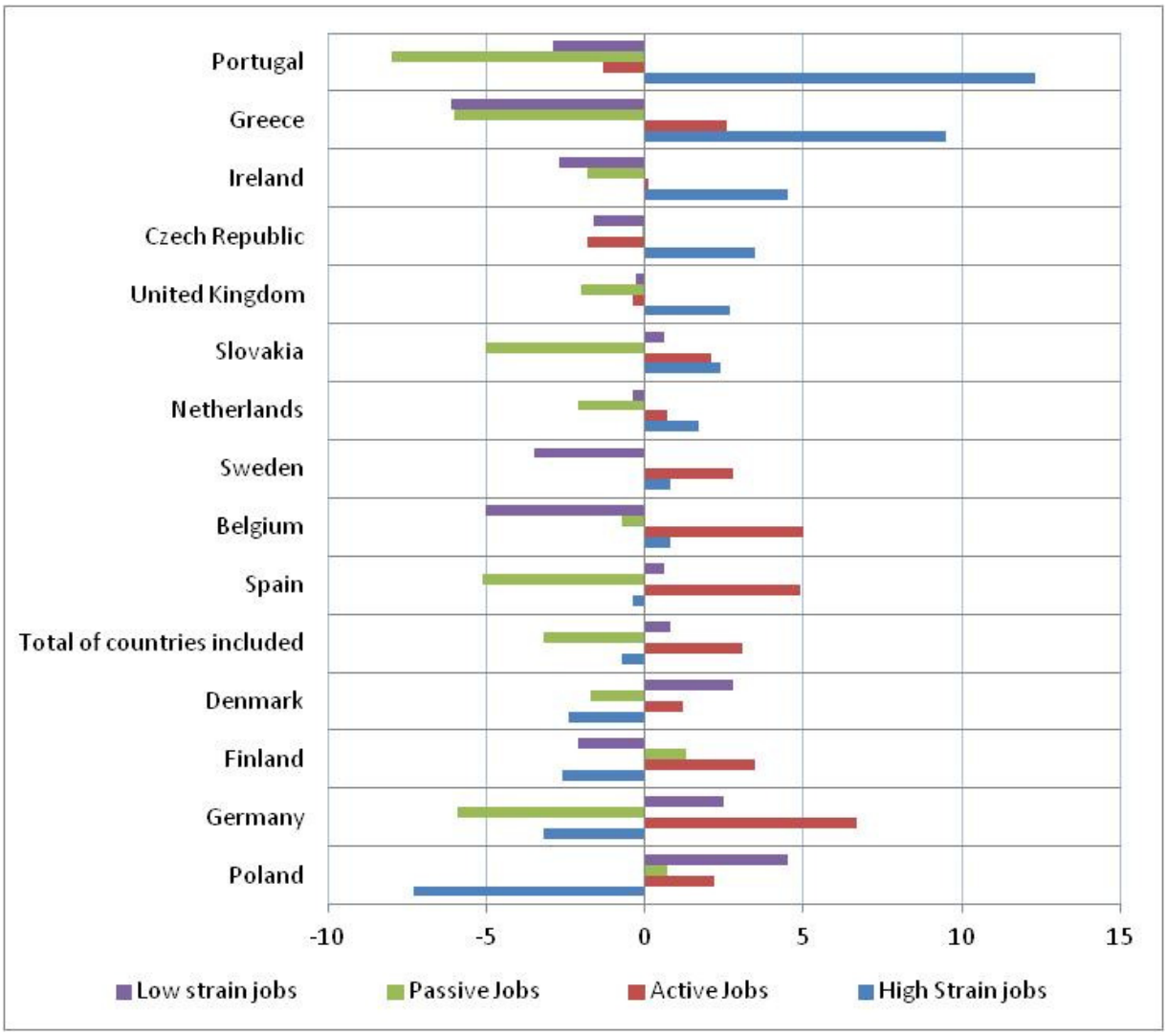

Figure 19 Percentage of change in job quadrants across 14 EU-member states between 2004 and 2010

4.1.5.1. The distribution of the job quadrants across population groups and research years[7]

The four job quadrants are not equally distributed across population groups. High strain jobs and passive jobs are more frequently found among women (respectively 27.2% and 25.8%). Active and low strain jobs are more frequently found among men (respectively 34.5% and 18.1%). Low strain jobs are more frequently found among older employees (17.7% in category '50 years and older'). High strain jobs and passive jobs are more frequently found among the youngest employees (respectively 29.8% and 28.7%), immigrants (respectively 33.8% and 27.5%) and employees who belong to an ethnic minority (respectively 36.3% and 27.3%). Active jobs are more frequently found in the oldest age categories (34.8% in category '30-49 years' and 34.0% in category '50 years and older'), the native population (33.0%) and employees who do not belong to an ethnic minority (32.7%). High strain and passive jobs are more frequently found in employees with low educational attainment (respectively 37.9% and 34.1%), while low strain and active jobs are more common in employees with high educational attainment (respectively 19.8% and 49.2%).

[7] Associations that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.

High strain and passive jobs are more frequently found in elementary occupations (respectively 42.0% and 40.1%). Active jobs are more prevalent in Legislators, senior officials and managers (58.5%), while low strain jobs are more common in technicians and associate professionals (23.5%). Active and low strain jobs are more frequently seen in large organisations (for instance, 43.2% active jobs and 18.7% low strain jobs in category '500 or more'). High strain and passive jobs are more frequently found in small organisations (for instance 27.3% high strain jobs and 29.0% passive jobs in category 'under 10'). High strain (45.0%) and passive jobs (29.4%) are also more common in the hotel and restaurant sector, while active jobs are also more often reported in education (44.4%), research and technology (43.8%) and public services (39.5%). Low strain jobs are more frequently found in public services and research and technology (both 23.1%).

Men and women report the same changes in job quadrants between 2004 and 2010: High strain and passive jobs decreased and active and low strain jobs increased. But the changes in women are more pronounced. For instance, the prevalence of passive jobs decreased for both genders, but the decrease for women was -5.0% and for men -1.6% (see figure 20).

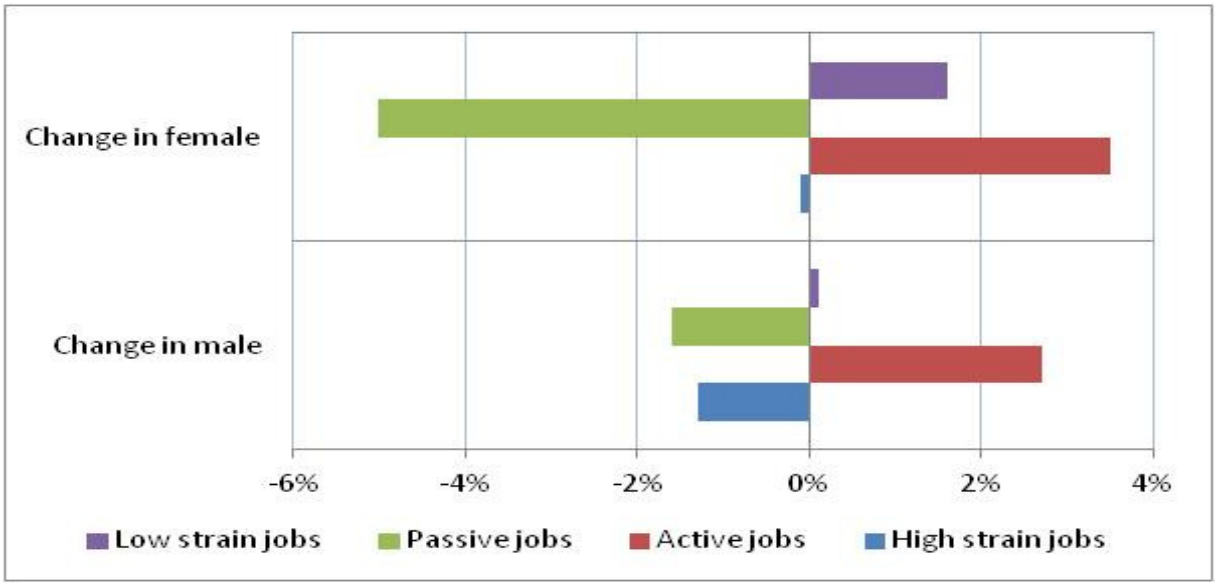

Figure 20 Percentage of change in job quadrants by gender between 2004 and 2010

Different evolutions are seen across the three age categories. For instance, high strain jobs decreased between 2004 and 2010 for employees of 16-29 (-0.6%) and 30-49 (-1.7%) years old, but increased for the oldest age category (+2.0%). Active jobs increased for all age categories, but the most for employees between 30 and 49 years old (+3.6%) (see figure 21).

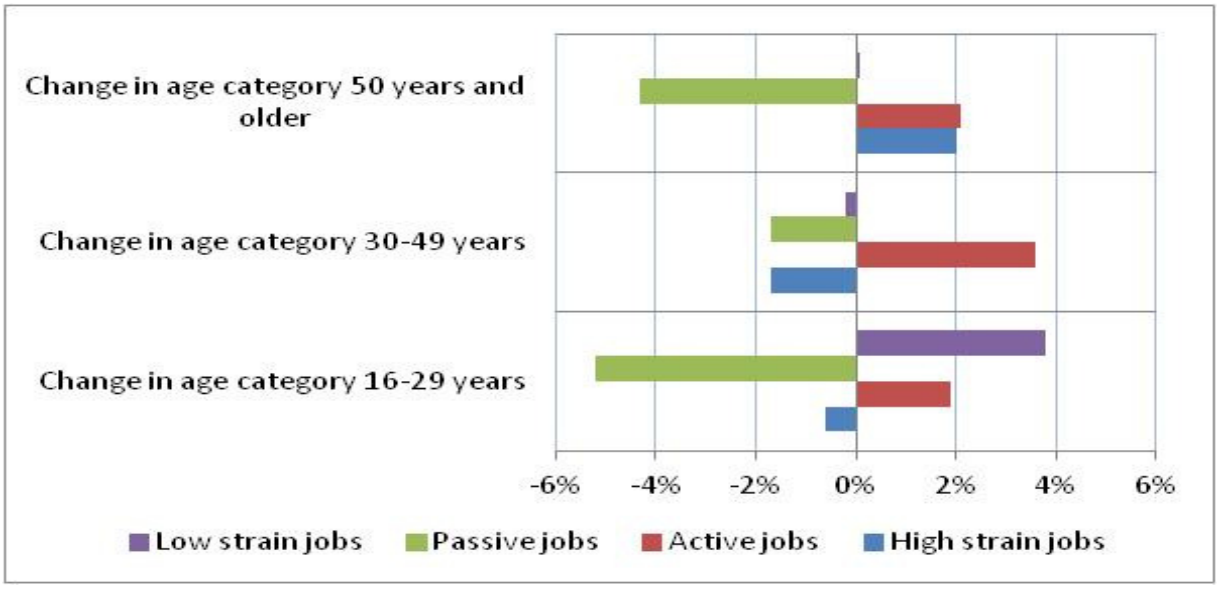

Figure 21 Proportion of change in job quadrants by age category between2004 and 2010

The biggest changes are reported by low educated employees: High strain jobs increased with 4.7%, active and passive jobs decreased with -4.8% and -0.2%. This evolution can be explained by an increase in psychological demands and a decrease in job control for low educated workers. Employees with medium educational attainment report a decrease in passive jobs (-3.4%) and a rise in active jobs (+2.5%). High educated employees report the highest increase in active jobs (+3.8%) (see figure 22). Active and low strain jobs increased for employees born in the country of interview (+3.1% and + 0.9% respectively) and for employees who do not belong to an ethnic minority (+3.0% and + 0.8% respectively).

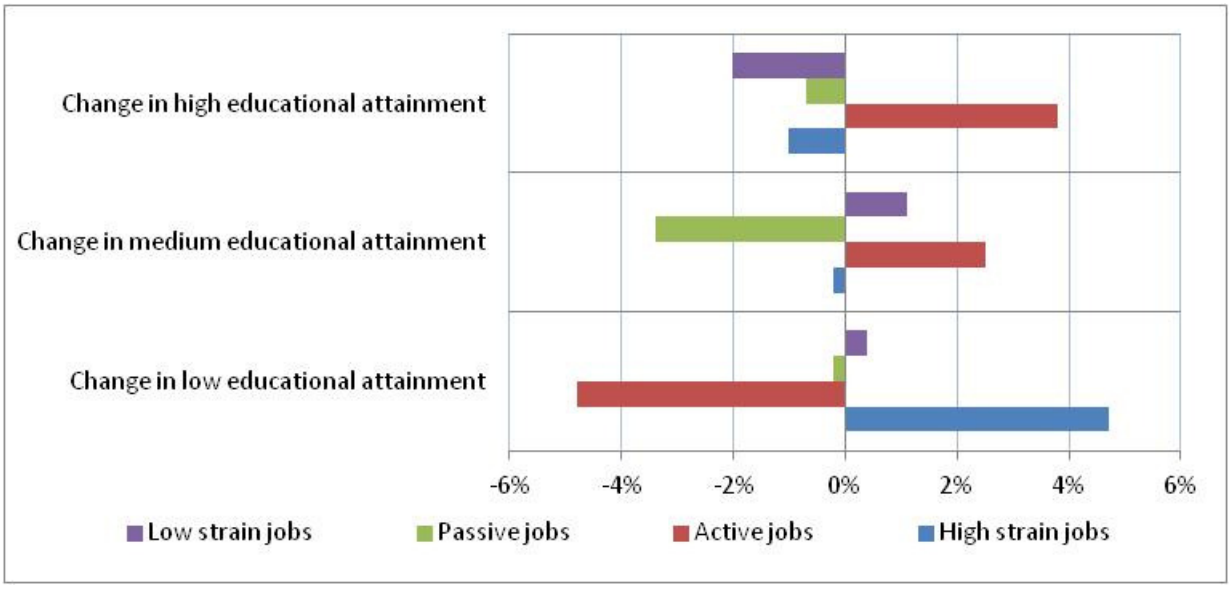

Figure 22 Proportion of change in job quadrants by educational attainment between2004 and 2010

When we look at the distribution of the changes in the four job quadrants by occupation, we only see significant changes for elementary occupations, clerks, professionals, technicians and associate professionals and skilled agricultural and fishery workers. For clerks, professionals, technicians and associate professionals and skilled agricultural and fishery workers, passive jobs decreased and active

jobs increased. Active jobs decreased (-2.5%) for elementary occupations. The prevalence of low strain jobs increased for elementary occupations, clerks, professionals, technicians and associate professionals between 2004 and 2010 (see figure 23).

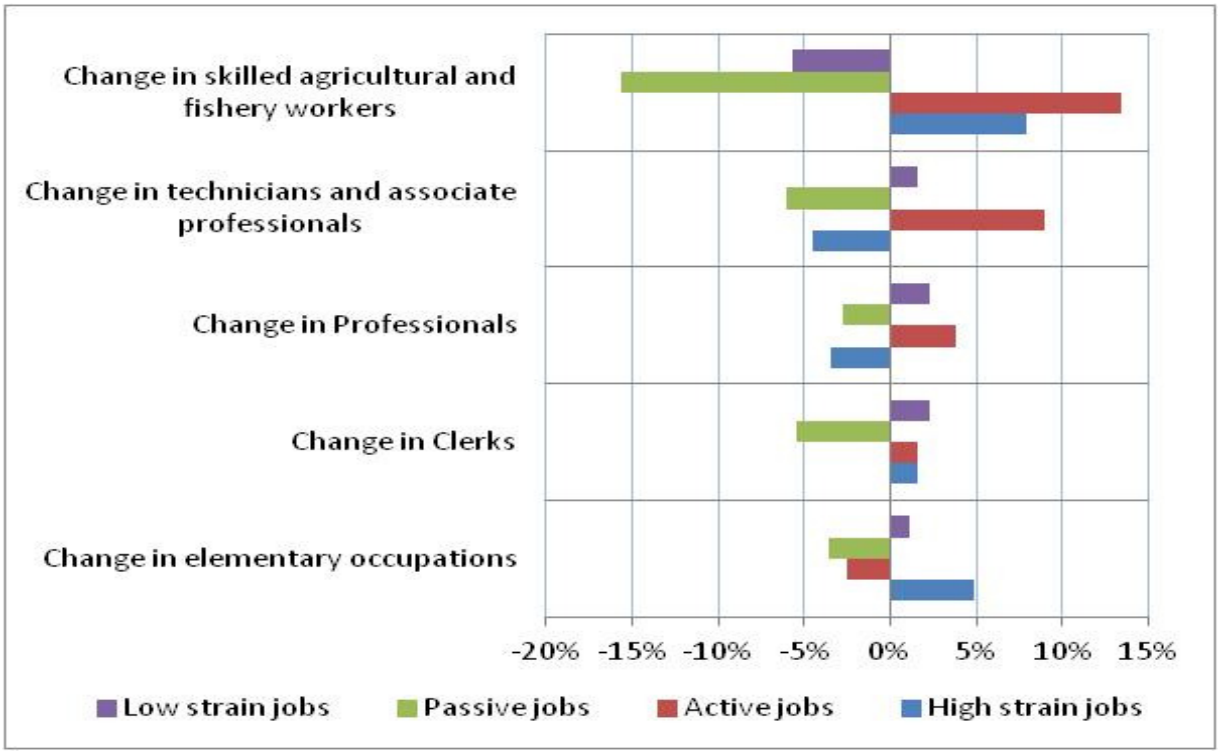

Figure 23 Change in job quadrants by occupation (isco9) between 2004 and 2010

Organisations with under 10 and more than 500 employees report a rise in active jobs. Organisations with 100 to 499 employees report an increase in high and low strain jobs (+1.9% and +2.0% respectively) (see figure 24).

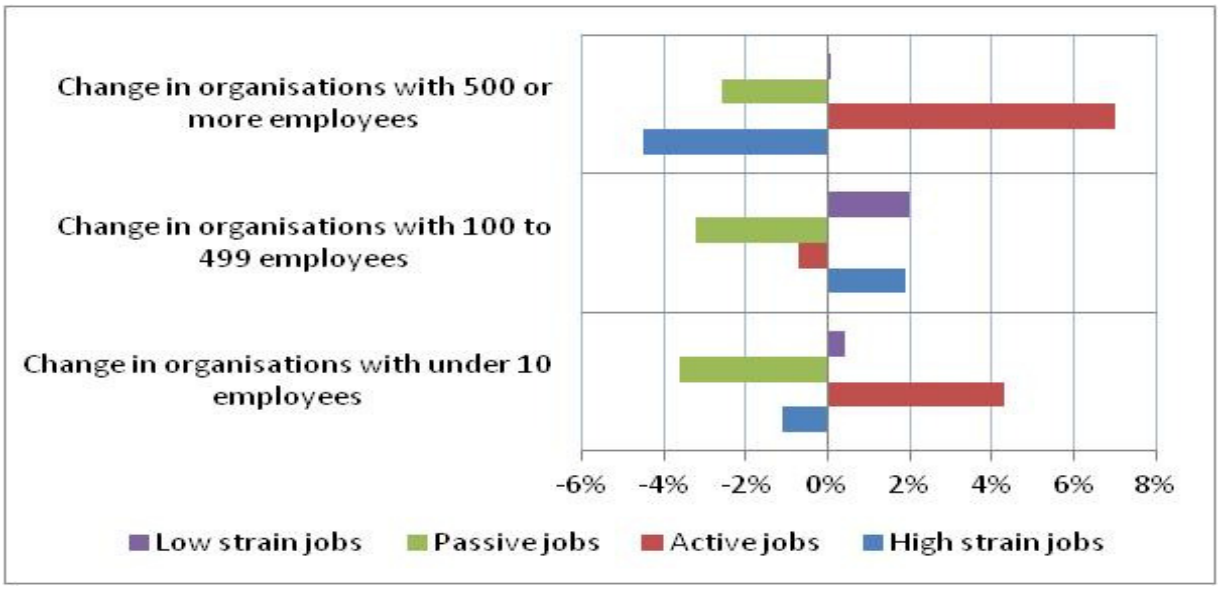

Figure 24 Proportion of change in job quadrants by establishment size between 2004 and 2010

Active and low strain jobs increased in the construction; restaurant, hotel; research and technology and education sector, while passive jobs decreased in these sectors. High strain jobs increased in the hotel, restaurant sector (+9.9%) and the construction industry (+1.4%), but decreased in the research and technology (-4.8%) and education sector (-1.0%) (see figure 25).

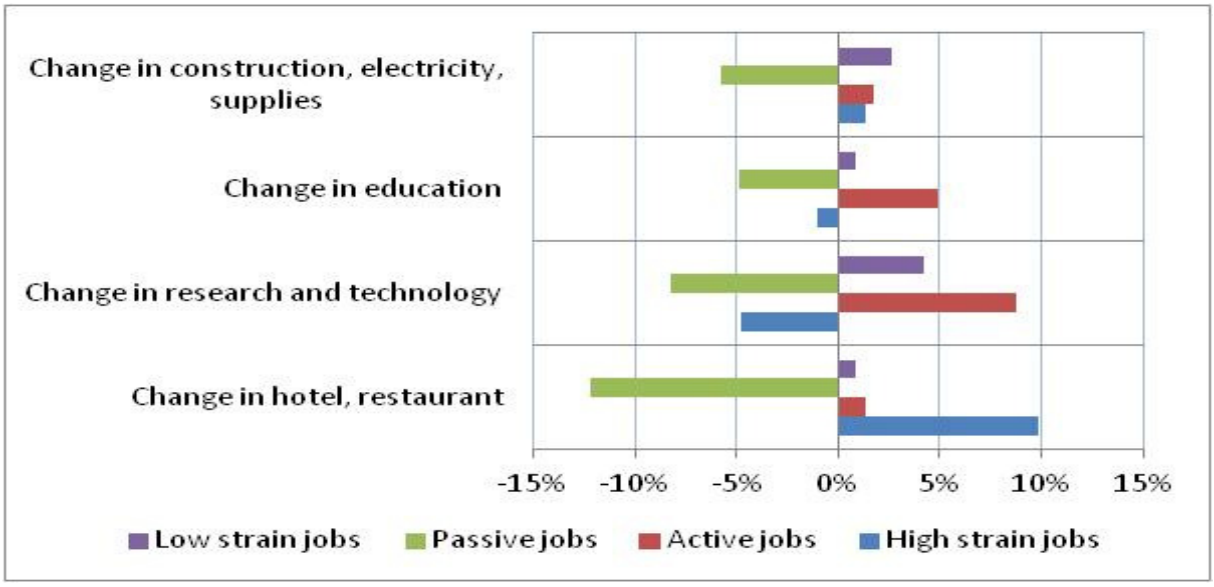

Figure 25 Proportion of change in job quadrants by industry between 2004 and 2010

4.1.6. Social support

Social support was assesed using a 4 point scale with respons categories: 'not at all true', 'a little true', 'quite true' and 'very true'. There are wide and statistically significant differences in workers who report no social support at all across countries ($p < 0.001$). The Scandinavian countries report the lowest prevalence of workers reporting no social support from their co-workers. The highest prevalence of workers who report no social support is found in Portugal. Again we can distinguish Southern and Eastern countries on one hand and West-European and Scandinavian countries on the other hand (see figure 26).

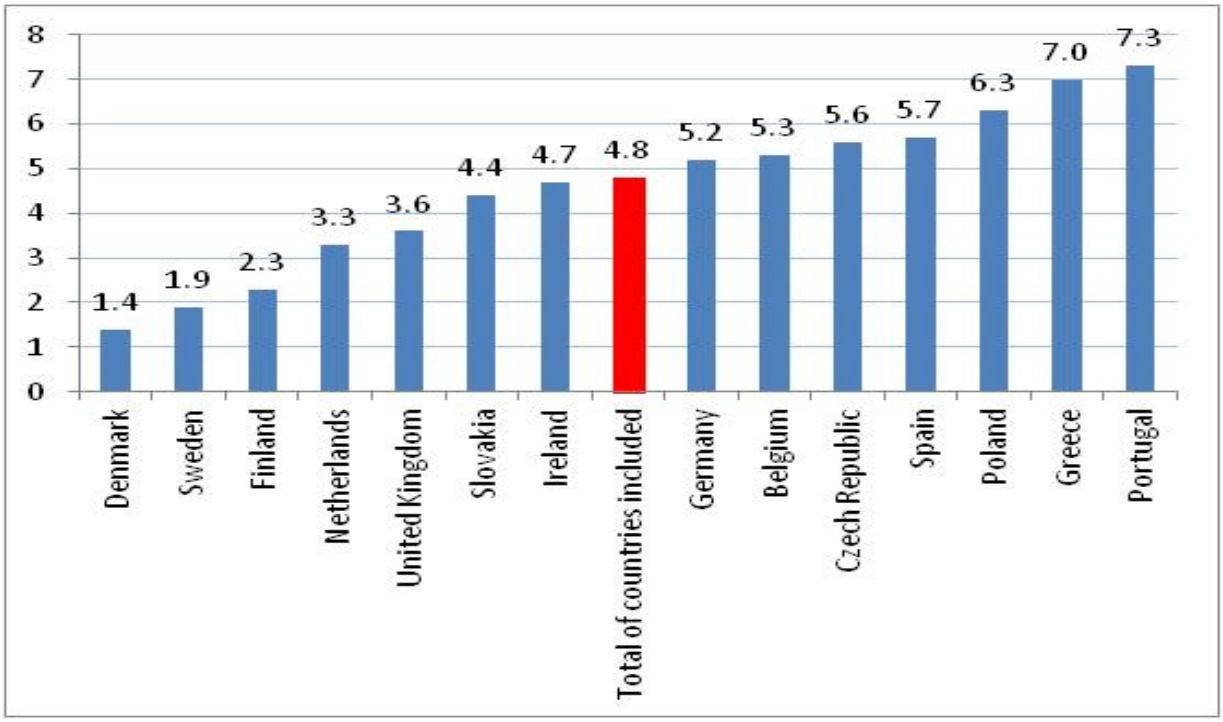

Figure 26 Percentage of social support category 'not at all true' across 14 EU-member states in 2010

Looking at the 2004 sample, 5.5% of workers report no social support at all (in 2010 this was 4.8%). There are differences across countries in the growth or decline of social support. However the differences in prevalence of social support by research year reached statistical significance ($p \leq 0.05$) only for Czech Republic, Germany, Spain, the UK, Poland, Portugal and the total sample. German and Portugese workers report a rise in the proportion perceiving no social support in 2010, compared to 2004. Workers from Poland, Spain, UK and the Czech Republic less frequently report no social support in 2010, compared to 2004 (see figure 27).

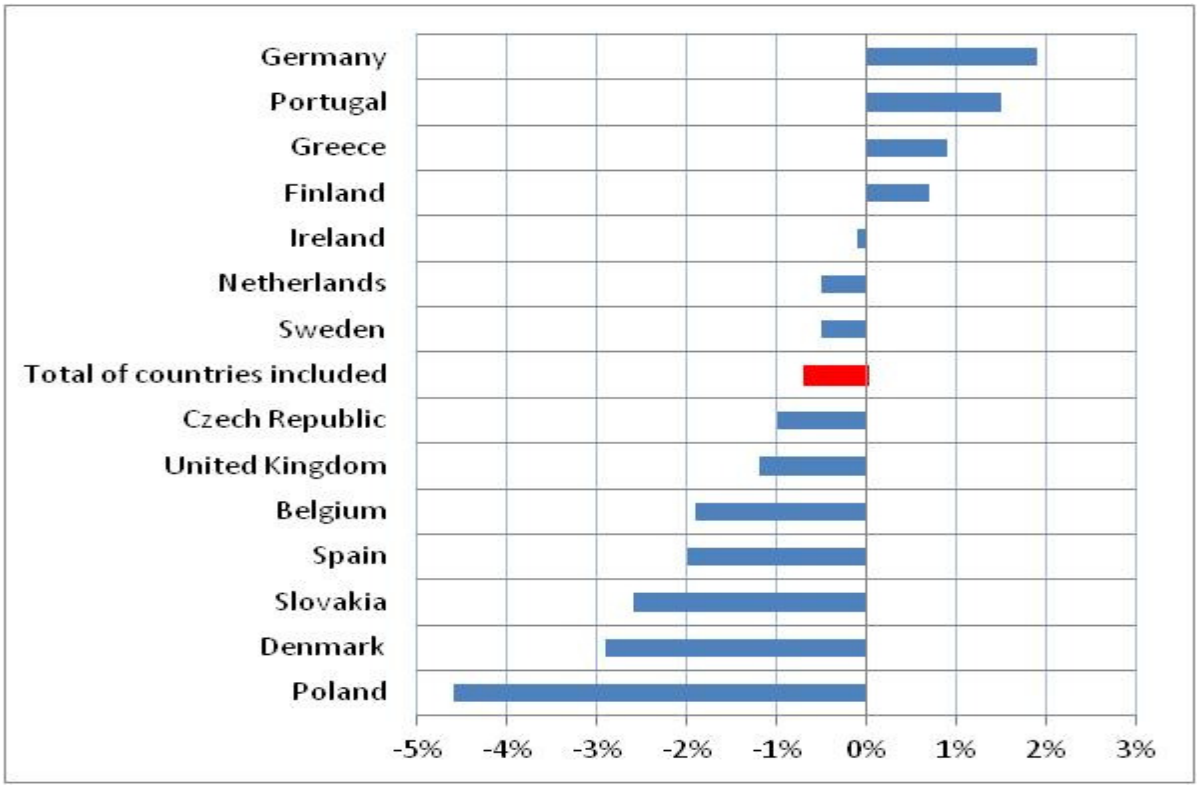

Figure 4 Change in support across 14 EU-member states between 2004 and 2010

4.1.6.1. Distribution of social support across population groups and research years[8]

Social support is not equally distributed across population groups. Women more frequently report that they cannot at all get help from co-workers when needed (5.4%), but also that it is very true that they can get help (42.9%). Older employees (50 and over) more frequently report that it is not at all true that they can get help from co-workers when needed (6.6%), while younger employees more frequently report that this is very true (46.8%). Furthermore, low educated employees more frequently report that they cannot at all get support (8.1%) compared to high educated employees (2.4%). Immigrants more frequently report that they cannot at all get support (6.5%), compared to employees born in the country of interview (4.6%). Employees who do not belong to an ethnic minority more frequently report that it is very true that they can get support (42.3%), compared to employees who do belong to an ethnic minority (33.6%).

Between 2004 and 2010 the prevalence of workers reporting 'very true' on the statement of getting help from co-workers increased among men (+5.8%), women (+6.0%), workers 30 to 49 year old (+6.4%), 16 to 29 years old (+8.2%), low (+3.0%), medium (+6.5%) and high educated workers (+5.3%), employees born in the country of interview (+5.6%), immigrants (+10.4%), employees who do not belong to an ethnic minority (+5.7%) and employees who do belong to an ethnic minority (+8.0%).

Social support is neither equally distributed across occupations, nor across company sizes or economic sectors. Technicians and associate professionals and legislators, senior officials and managers more frequently report that it is very true that they can get support (respectively 47.3% and 46.1%), compared to plant and machine operators and assemblers (32.3%) and elementary occupations (34.0%). The prevalence of workers reporting that it is very true that they can get help

[8] Associations that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.

increased in professionals, technicians and associate professionals, clerks, service workers and sales market workers, craft and related trades workers and elementary occupations. However the prevalence increased the most in technicians and associate professionals (+9.4%). In large organisations more frequently higher level of support is reported, compared to small organisations. The public sector is best of as to co-workers support (47.4% in category very true). When comparing the 2010 and the 2004 data, it becomes apparent that the prevalence of workers reporting that it is very true that they can get help increased in all establishment sizes with a range from +3.2% in the smallest organisation and +11.3% in the largest, as well as in the agriculture, mining industry (+7.0%), the manufacturing industry (+5.3%), the construction industry (+8.5%), the research and technology sector (+7.4%), the other services (+6.9%) and public services (+7.5%).

4.2. Precarious employment characteristics

4.2.1. Employment (in)stability

The (in)stability of the employment is measured by contract type (non-permanent or permanent). There are statistically significant differences across countries ($p < 0.001$). However the differences are small: All 14 EU-member states have a high prevalence of permanent contracts (between 70.5% in Poland and 92.3% in Denmark). Poland (70.5%), Spain (77.4%) and the Netherlands (83.0%) report the lowest prevalence of permanent contracts (see figure 28).

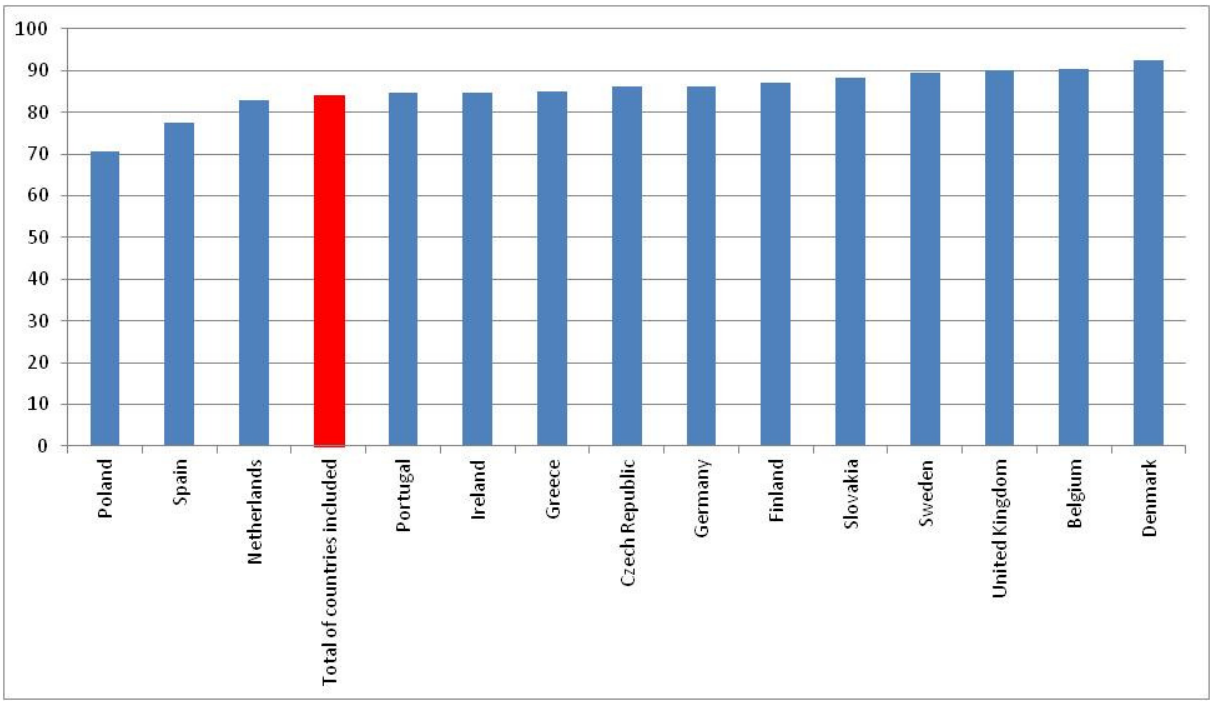

Figure 58 Percentage of permanent contracts across 14 EU-member states in 2010

There are differences across countries in the growth or decline of permanent contracts. However the differences in prevalence of permanent contracts by research year reached statistical significance ($p \leq 0.05$) only for Germany. Between 2004 and 2010 the prevalence of permanent contract decreased in Germany (-3.2%) (see figure 29).

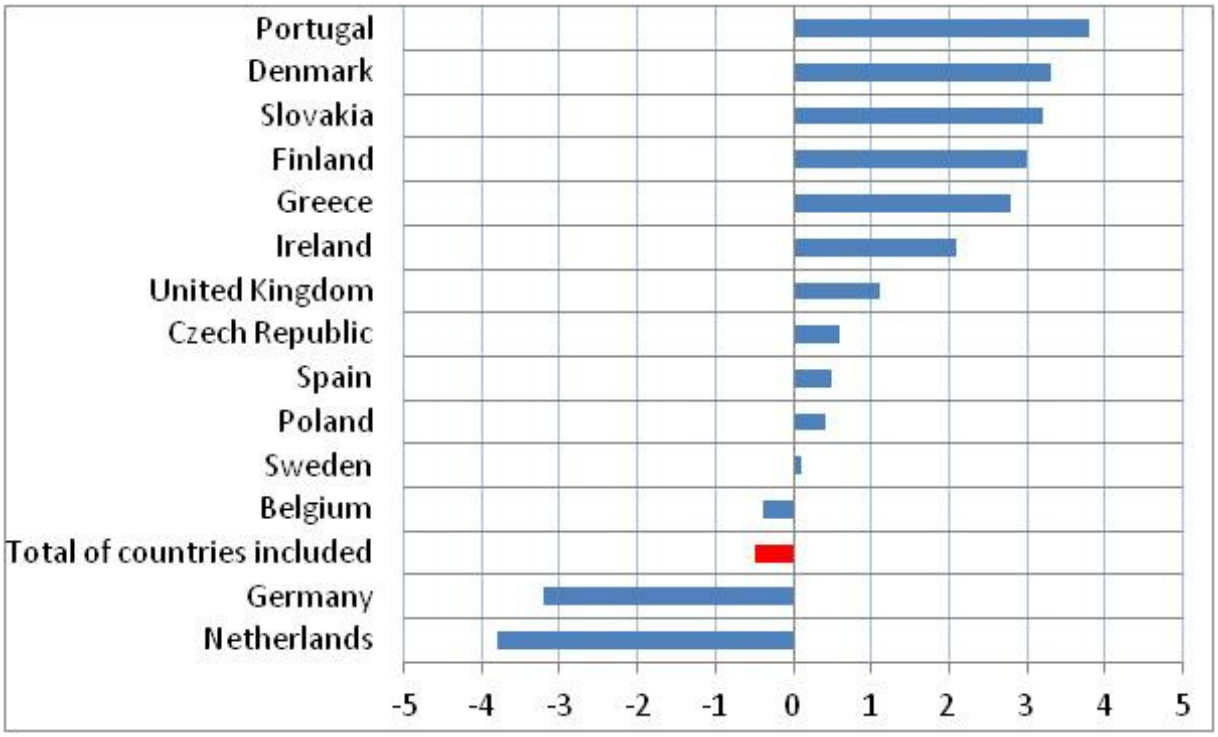

Figure 6 Percentage of change in permanent contracts across 14 EU-member states between 2004 and 2010

4.2.1.1. Distribution of employment (in)stability across population groups and research years[9]

Employment stability is not equally distributed across population groups. Men (85.2%), employees of 50 years and older (91.4%), high educated workers (85.4%) and employees who do not belong to an ethnic minority (84.5%) more frequently report permanent contracts. Women (-1.9%), employees between 16 and 29 years old (-3.5%) and low educated workers (-2.9%) report a decrease in permanent contracts between 2004 and 2010, while immigrants report an increase (+6.7%).

Employment stability is also not equally distributed among occupations, organisations and industries. Legislators, senior officials and managers (89.5%), clerks (87.5%) and technicians and associate professionals (86.6%) report the highest proportions of permanent contracts. Skilled agricultural and fishery workers (28.0%) and elementary occupations (23.3%) more frequently report non-permanent contracts, In large companies the prevalence of permanent contracts is higher as well. Moreover, permanent contracts are more frequently found in the manufacturing industry (88.5%) and public sector (88.3%), while non-permanent contracts are more frequently found in the agriculture, mining (25.2%) and the hotel and restaurant sector (24.2%).

Technicians and associate professionals (-2.3%); retail, finance, property service (-2.2%); public (-3.5%) and other services (-3.9%) report a decrease in permanent contracts. The manufacturing industry reports an increase in permanent contract of 3.9% when the 2010 and 2004 data are compared (see figure 30).

[9] Associations that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.

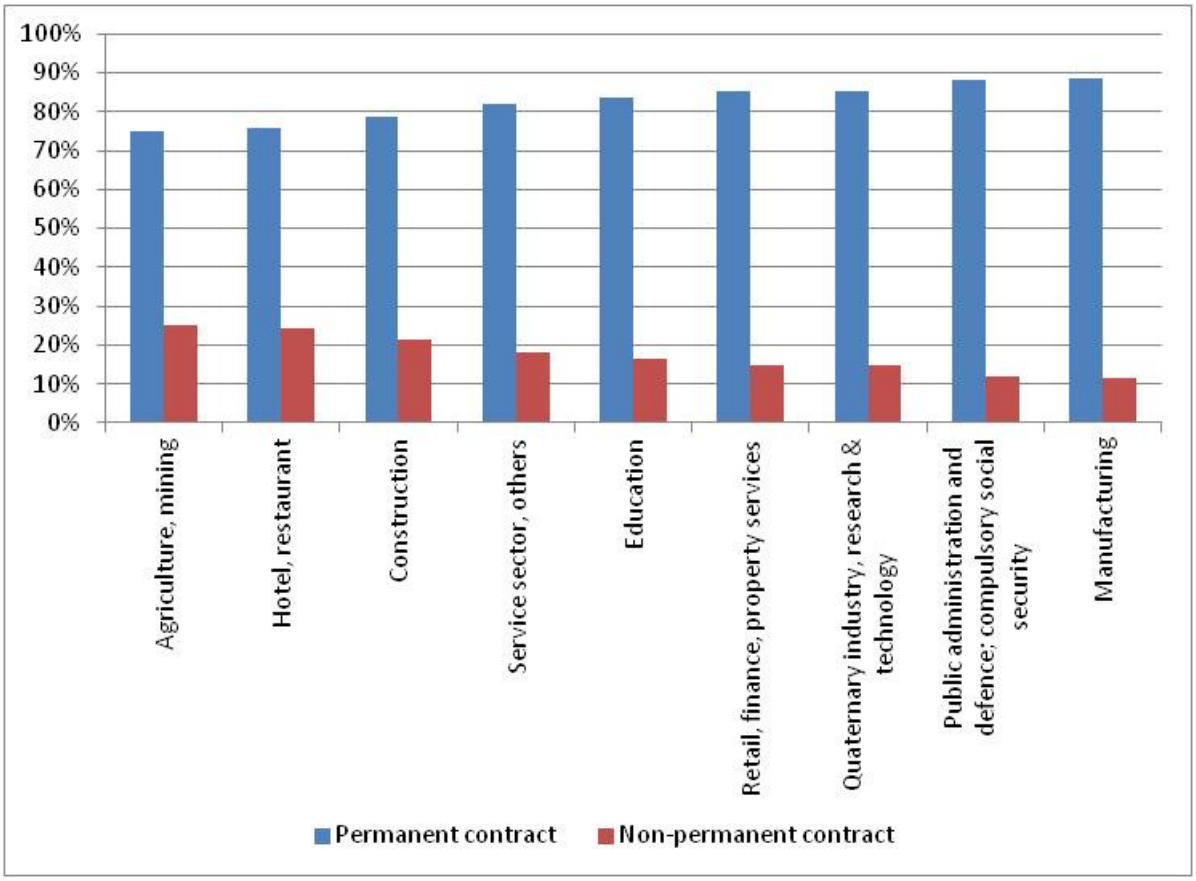

Figure 30 Proportion of permanent or non-permanent contracts by industry in 2010

4.2.2. Low income

In the cross-national 2010 sample most employees report a sufficient household income (regardless of being main or contributory earner). There are wide and statistically significant differences across countries ($p < 0.001$). Employees from Greece report the worst income situation: more than 50 percent of the employees in salaried employment reports that their household income is too low. The Scandinavian countries show the highest prevalence of sufficient income (97.5% in Denmark, 95.5% in Sweden and 91.2% in Finland). Also most other West-European countries are doing well, with Ireland being an exeption. Ireland displays a relatively high prevalence of workers reporting too low income (20.7%), compared to the other West-European countries (for instance 15.8% in Belgium and 8.2% in the Netherlands). The Southern and Eastern European countries show the highest prevalence of employees reporting to have too low income (see figure 31).

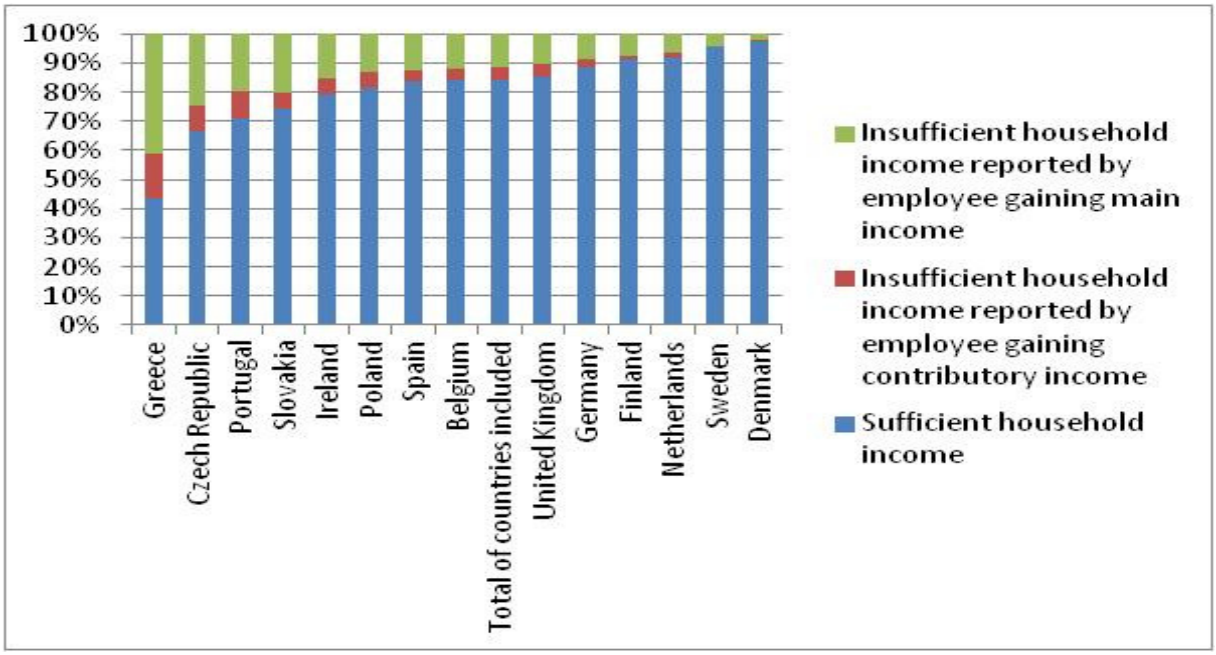

Figure 31 Distribution of income categories across 14 EU-member states in 2010 (%)

Quite some differences across countries in the growth or decline of a sufficient or too low (main or contributury) income are seen. The differences in income categories by research year reached statistical significance ($p \leq 0.05$) for Greece, the UK, Ireland, Poland, Slovakia and the total sample. The high prevalence of too low income of Greece and Ireland can be explained by their large decrease of sufficient income between 2004 and 2010 (respectively -15.7% and -14.6%) (see figure 32). Poland and Slovakia show a large increase of people reporting sufficient income (respectively +12.6% and +17.9%). For the UK there is an increase in insufficient household for employees gaining the main income of the household.

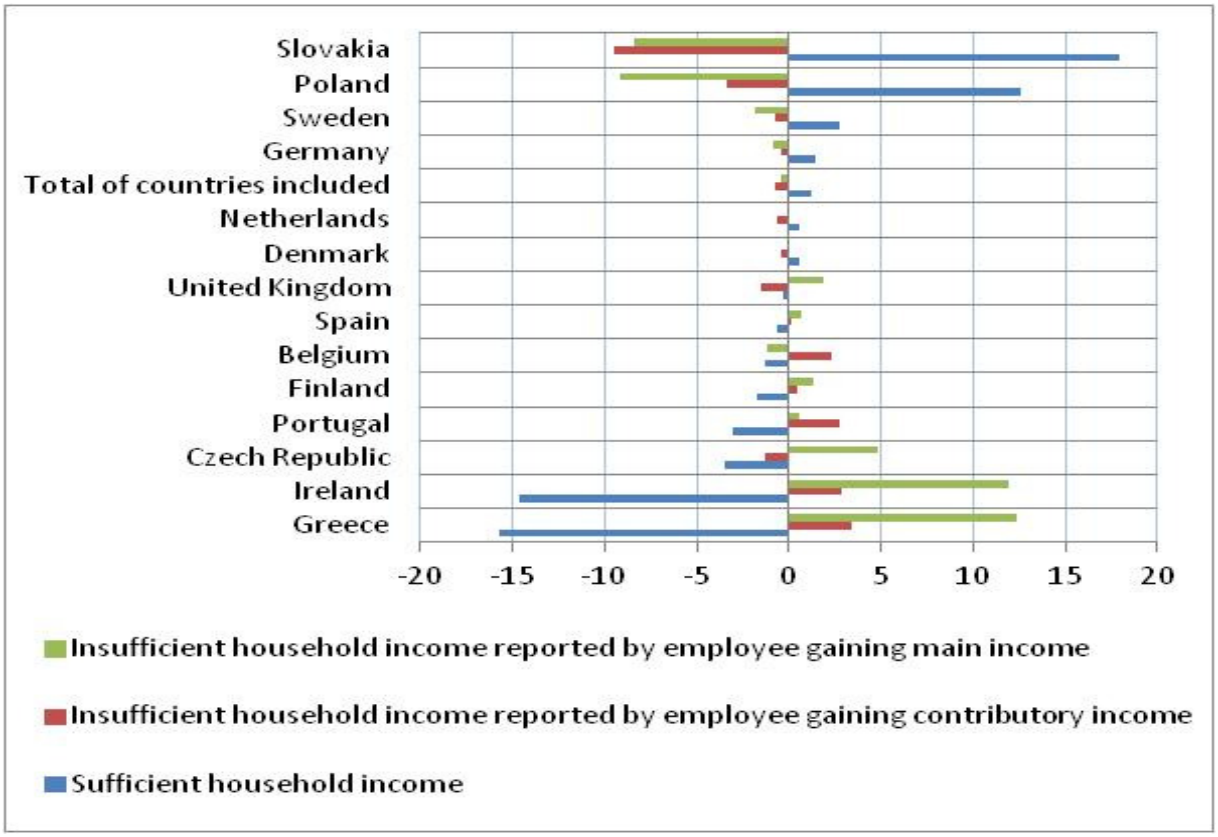

Figure 32 Percentage of change in income categories across 14 EU-member states between 2004 and 2010

4.2.2.1. Distribution of subjective income across population groups and research years[10]

Women (17.0%) and low educated workers (23.5%) are more frequently found in a too low income situation. A Sufficient household income and an insufficient household income reported by an employee gaining the contributory income of the household is also more frequently found among younger employees (this might be because of different financial responsibilities and because a large group might still live with their parents). An insufficient household income reported by an employee gaining the main income is more frequently found in the age category 30-49 years. Employees born in the country of interview (84.5%) and employees who do not belong to an ethnic minority (84.3%) show a high prevalence of sufficient income. When comparing 2010 and 2004, men, employees between 30 and 49 years old, with medium educational attainment, immigrants and employees who belong to an ethnic minority report an increase of sufficient income (+1.6%, +1.8%, +0.9%, +7.7% and +14.3% respectively).

A sufficient income is more frequently found among legislators, senior officials and managers and professionals, in large organisations (91.1% in organisations with 500 or more employees) and in the public sector (91.2%). An insufficient household income reported by an employee gaining the contributory income of the household is more frequently found among service workers and shop and market sales workers (9.9%), in the smallest organisations (6.8% in organisations with under 10 employees) and in the retail, finance and property sectors (5.7%). An insufficient household income reported by an employee gaining the main income of the household is more frequently found among

[10] Associations that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.

skilled agricultural and fishery workers (25.6%), in the smallest and second smallest establishment size categories (both 14.0%) and in the hotel and restaurant sector (15.9%). Craft and related trades workers report an increase of sufficient income (+5.6%) between 2004 and 2010. The same holds for employees in construction and research and technology (+6.9% and +3.3% respectively).

4.2.3. working time arrangements

The scale 'Working time arrangements' combines four precarious employment conditions, namely working weekends, working evenings/nights, working overtime at short notice and intensive working hours. On a scale from zero to one, with one indicating the most precarious situation, the average score for precarious working time arrangements in the cross-national 2010 sample is 0.34 (see figure 33). There are statistically significant differences across countries ($p < 0.001$): the scores range from 0.26 in the Netherlands to 0.39 in Czech Republic. The positions of Portugal (0.27) and Ireland (0.26) are notably good. Despite Portugal's and Ireland's low control, high demands and low income, they show good scores for working time arrangements. The Eastern European countries and Germany report the most precarious working time arrangements.

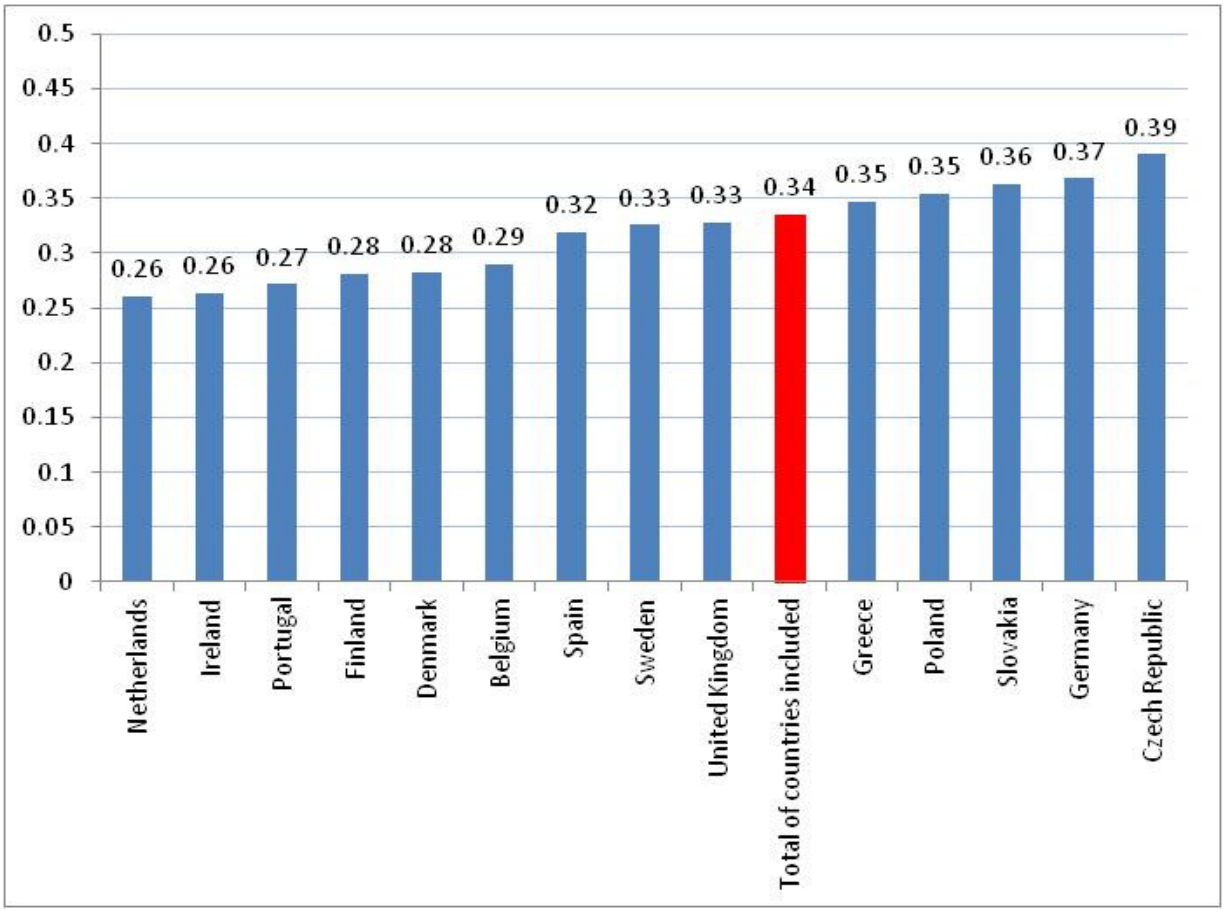

Figure 7 Mean of precarious working time arrangement across 14 EU-member states in 2010

The differences in working time arrangement scores by research year reached statistical significance ($p \leq 0.05$) in Germany, Spain, UK, Poland and the total sample. Looking at the Polish sample, the average score for precarious working time arrangements decreased with 0.04 points between 2004 and 2010. Remember that the Eastern European countries report the most precarious working time arrangements, so the working time arrangements of Poland improved. Germany (+0.03) shows an

increase in precarious working time arrangements, while they stagnated in Spain and the UK (see figure 34).

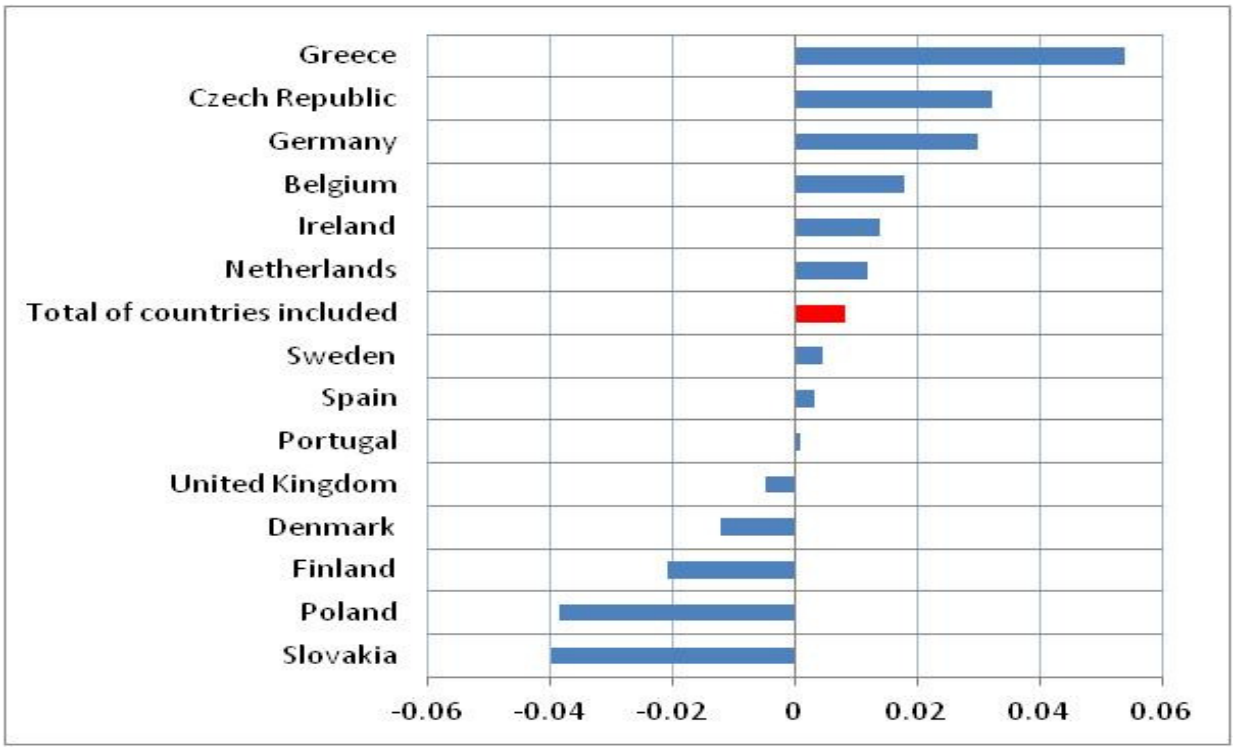

Figure 34 Percentage of change in precarious working time arrangements across 14 EU-member states between 2004 and 2010

4.2.3.1. The distribution of working time arrangement across population groups and research years[11]

The continuous scale 'Working time arrangements' was rescaled into a three-level variable representing each third of the 2010 sample (low, medium and high) to examine the distribution across population groups and research years. The data reveals that good working time arrangements are not equally distributed across population groups. High precarious working time arrangements are more frequently found among men (45.2%), employees between 16 and 29 years old (36.7%), highly educated workers (39.2%) and immigrants (36.4%). Low precarious working time arrangements are more frequently seen in employees of 50 years and older (35.8%).

Good working time arrangements are not equally distributed across occupations, organisations and industries. High precarious working time arrangements are more frequently found in legislators, senior officials and managers (53.0%), skilled agricultural and fishery workers (44.2%), large organisations (38.9% in category 500 or more employees), the hotel, restaurant sector (54.2%) and the agriculture and mining industry (47.6%). Low precarious working time arrangements are more frequently found in clerks (52.7%) and elementary occupations (44.3%), small organisations (37.4% in category under 10 employees), public services (45.2%) and education (43.0%).

Women, employees over 49 years old, highly educated workers, natives, employees who do not belong to an ethnic minority and technicians and associate professionals report an increase in

[11] Associations that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.

medium and high precarious working time arrangements. In organisations with more than 500 employees and other services only the high precarious working time arrangements increased. Only legislators, senior officials and managers; the research and technology sector and public services report a decrease high precarious working time arrangements. But, in general, between 2004 and 2010 the level of precariousness of working time arrangements hardly changed.

4.2.4. Involuntary part-time

Another dimension of precarious working time arrangements is the employment status (full-time, part-time or involuntary part-time job). There are statistically significant differences across countries ($p < 0.001$). In the Eastern European countries we found the highest prevalence of full-time jobs and in the Netherlands, the UK and Ireland the lowest. The highest prevalence of involuntary part-time jobs are found in Greece and Ireland (see figure 35).

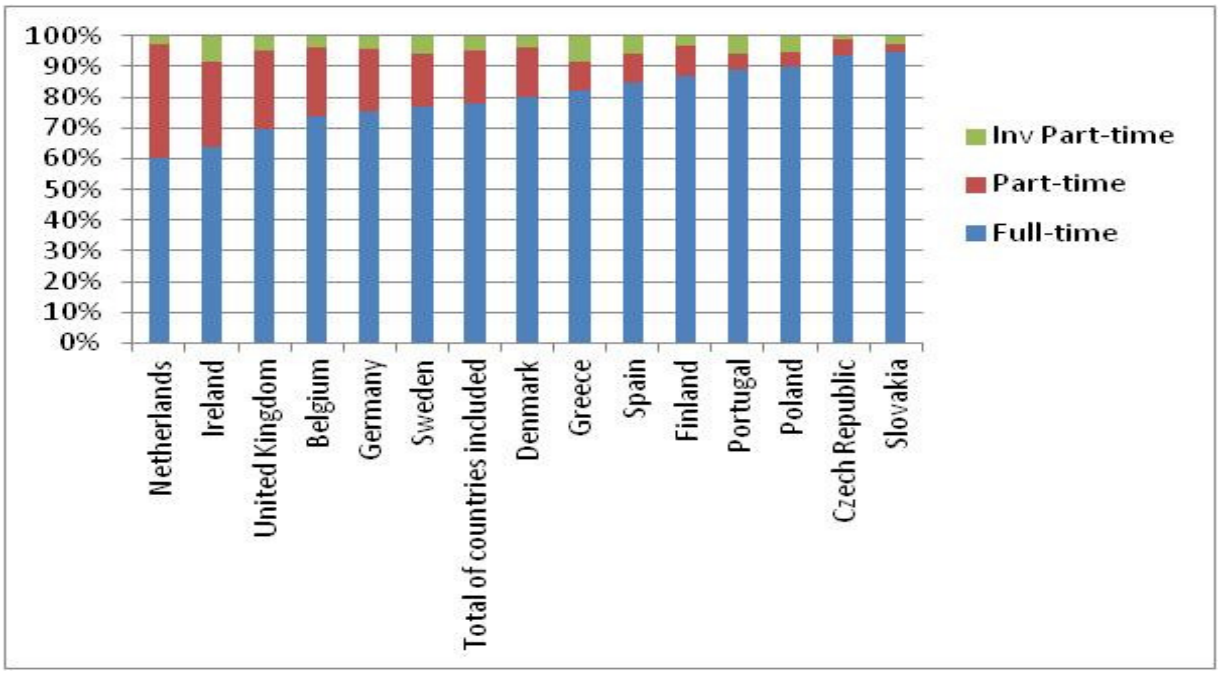

Figure 35 Percentage of full-time, part-time and involuntary part-time jobs across 14 EU-member states in 2010

Significant differences in change in the distribution of employment status by research year ($p \leq 0.05$) are seen for Germany, Spain, Sweden and the total sample. When we look at the differences between the 2004 and 2010 cross-national sample, we see a rise in part-time and a fall in full-time employment. In Sweden, Germany and Spain involuntary part-time employment increased. In Sweden (+2.4%) there was a larger increase of involuntary part-time employment between 2004 and 2010, compared to the other countries. Sweden also reports the biggest increase of part-time employment (see figure 36).

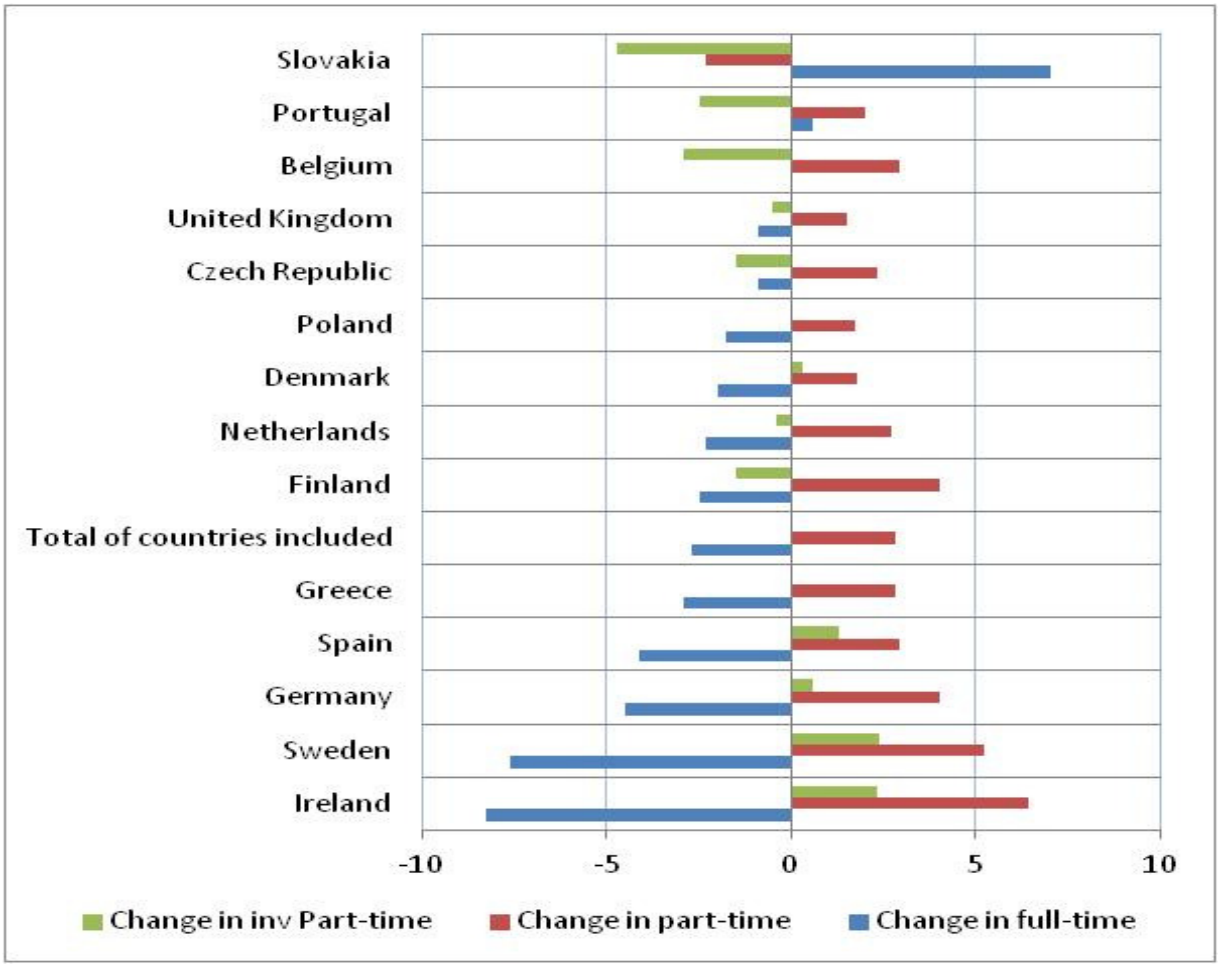

Figure 36 Percentage of change in full-time and (involuntary) part-time employment between 2004 and 2010 across 14 EU-member states

4.2.4.1. Distribution of employment status across population groups and research years[12]

Full-time, part-time and involuntary part-time contracts are not equally distributed across population groups. Full-time contracts are more frequently found among men (91.3%), employees between 16 and 29 years old (79.8%) and high educated workers (79.6%). Part-time contracts are more frequently found among women (30.3%), employees over 49 years, low educated workers (20.4%) and immigrants (18.4%). Involuntary part-time employment is more frequently found among women (5.8%), employees between 16 and 29 years old (8.0%), low educated workers (5.6%), immigrants (4.7%) and employees who belong to an ethnic minority (9.2%).

Full-time, part-time and involuntary part-time contracts are not equally distributed across occupations, organisations and industries. Full-time employment is more frequently found in craft and related trades workers (93.8%), legislators, senior officials and managers (91.4%), plant and machine operators and assemblers (91.1%), large organisations (84.3% in category 'more than 500 employees'), the manufacturing (92.6%) and construction (89.7%) industry. Part-time employment is more frequently found in elementary occupations (23.5%), clerks (25.3%), service workers and shop and market sales workers (29.6%), small organisations, the education (27.5%), other services (28.6%) and hotel, restaurant (23.1%) sector. Involuntary part-time employment is more frequently found in

[12] Associations that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.

service workers and shop and market sales workers (8.5%), small organisations and in the hotel, restaurant sector (9.3%).

When we look at the differences between the ESS2004 and ESS2010, we see, for all 14 EU-member states combined, a rise in part-time and a fall in full-time employment. The level of involuntary part-time employment is the same for the 2004 and 2010 sample. This trend is apparent in men and women, but the changes are bigger for women (for instances -3.7% full-time employment for women, compared to -1.1% for men). The same trend appears among employees between 30 and 49 years old, natives, employees who do not belong to an ethnic minority and with medium and high educational attainment, but the changes are more apparent for employees with medium educational attainment.

The trend did not manifests itself equally across occupations, organisations and industries: in clerks, service workers and shop and market sales workers, plant and machine operators and assemblers, in the retail, finance, property services and other services we can see a rise in part-time, a fall in full-time employment and no big changes in involuntary part-time employment. In the hotel, restaurant sector we see a relatively large decrease of involuntary part-time employment (4.2%), next to the general trend. In the research and technology industry, we see an increase in full-time employment (+4.9%) and a decrease in part-time employment (-6.3%). The rise of part-time and fall of full-time employment is also most visible in the smallest organisations.

4.2.5. Employment opportunities

Employment opportunities is measured by two indicators: (1) having received training during the last 12 months and (2) the extent that the current job offers good opportunities for advancement. On a scale from zero to one, with one being the most precarious situation, the average score for precarious career opportunities in the cross-national 2010 sample is 0.53 (see figure 37). There are statistically significant differences across countries ($p < 0.001$). The scores range from 0.44 in the Netherlands to 0.65 in Czech Republic. The best career opportunities are found in the West-European countries (except for Germany). Germany (0.57) has a relatively high score for precarious career opportunities compared to the other West-European countries. The most precarious career opportunities are found in Czech Republic (0.65), Denmark (0.61) and Slovakia (0.59).

Training opportunities are measured by a yes/no question. There are wide and statistically significant differences across countries ($p < 0.001$) in training opportunities. The Scandinavian and West-European countries report the most training. Ireland has a relatively low prevalence of training compared to the other West-European European countries (71.3% had no training in 2010). The Southern and Eastern European countries report the least training last 12 months (see figure 38).

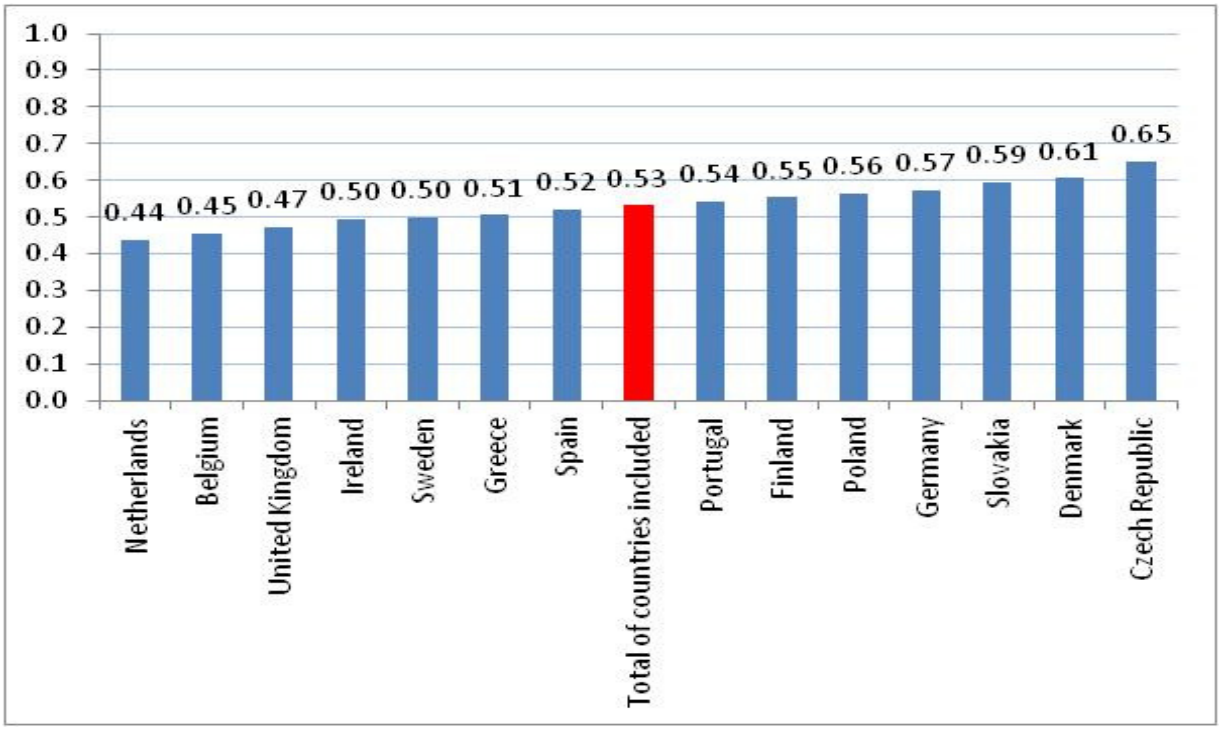

Figure 8 Mean of precarious career opportunities in 2010 across 14 EU-member states

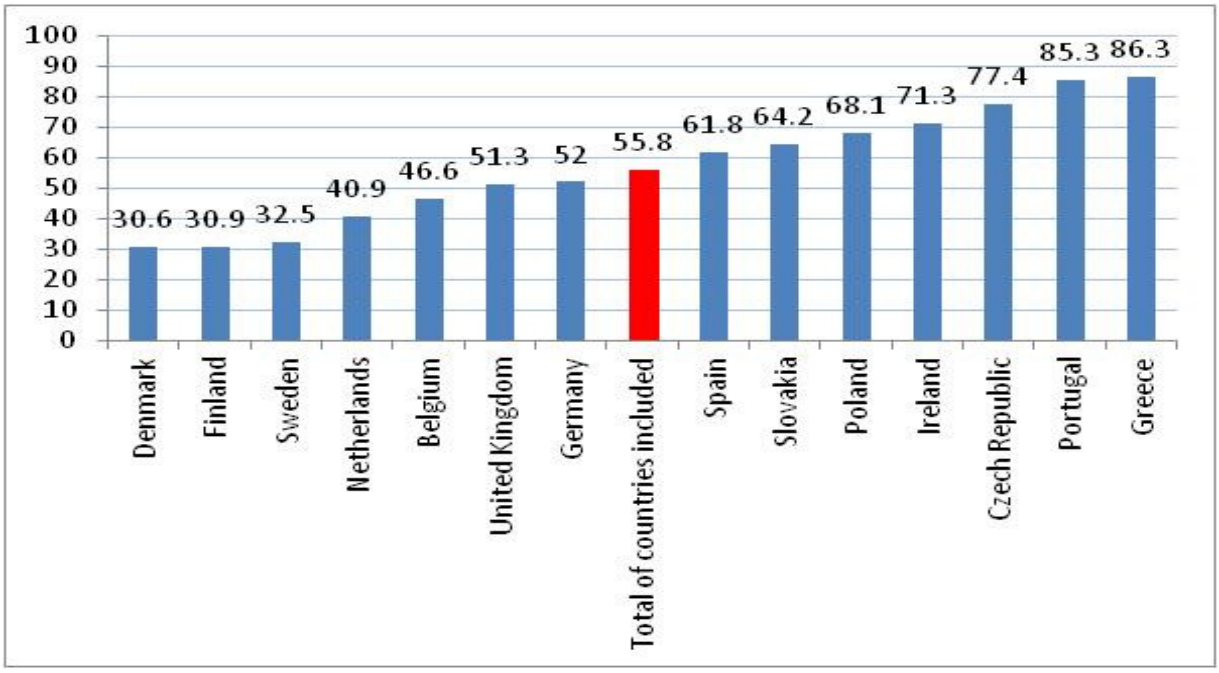

Figure 38 Proportion of employees who had no training in 2010 across the 14 EU member states

There are differences across countries in the growth or decline of career and training opportunities. However the differences in career opportunities by research year reached statistical significance ($p \leq 0.05$) only for Germany, Spain, Poland and the total sample. The differences in training opportunities by research year reached statistical significance ($p \leq 0.05$) only for Czech Republic, Germany, the UK, Ireland and Poland. Between 2004 and 2010 the precariousness of career opportunities increased in Spain, while it decreased in the total sample, Germany and Poland (see figure 39). The Czech

Republic, Poland, the UK and Ireland report a decrease in formal training during the last 12 months, while Germany reports an increase for the same indicator (see figure 40).

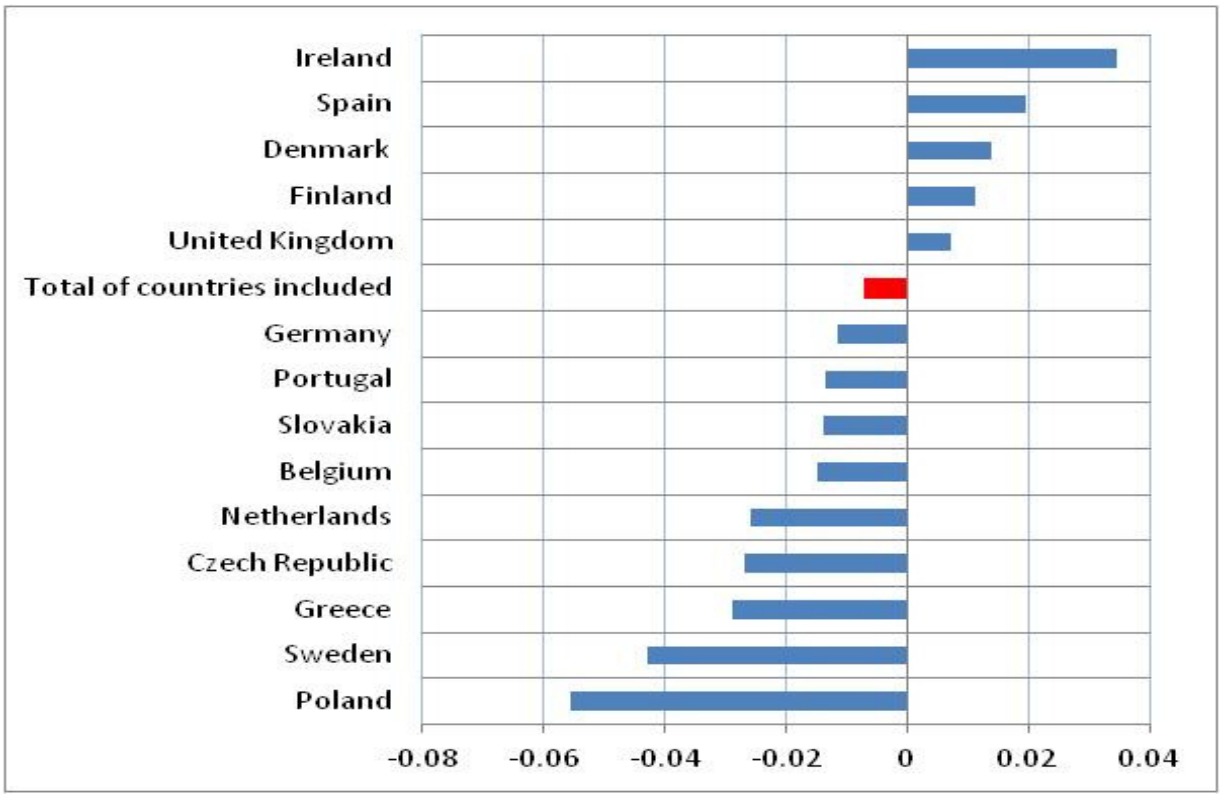

Figure 39 Change of precarious career opportunities across 14 EU-member states between 2004 and 2010

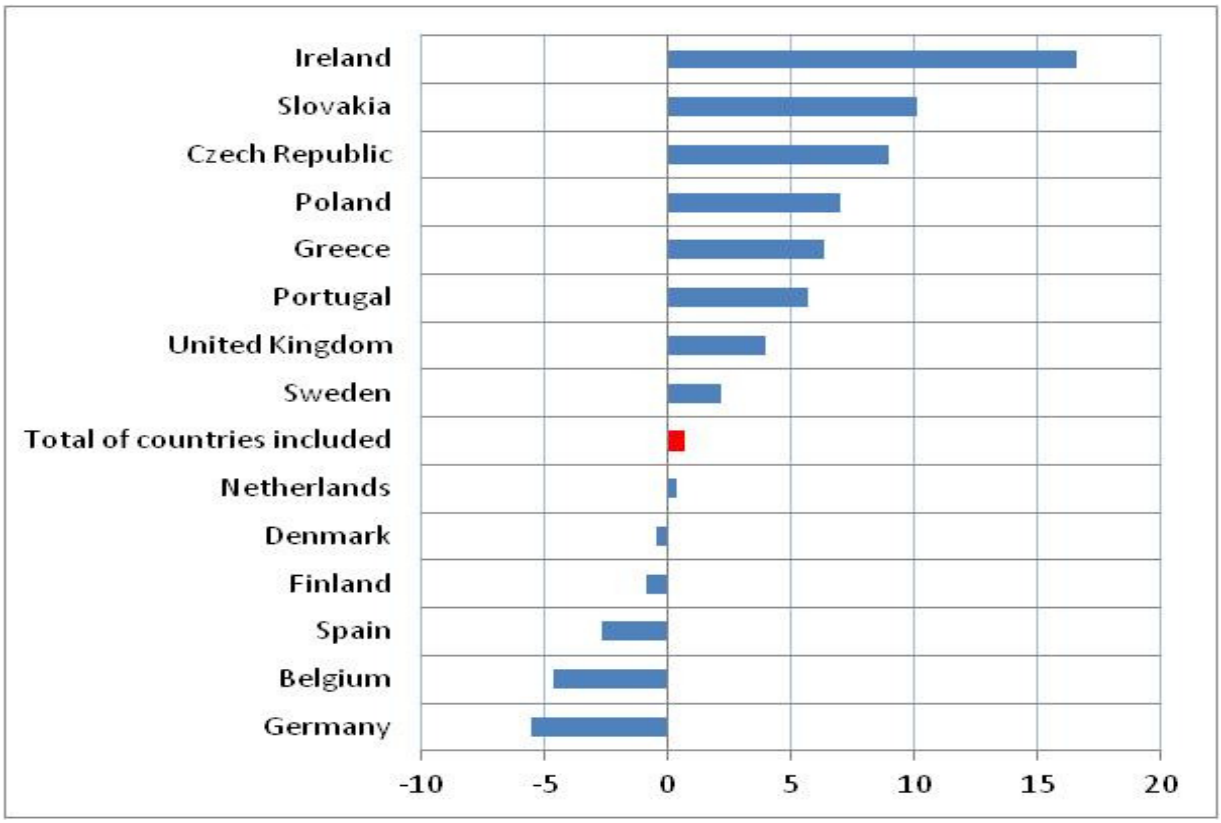

Figure 409 Change in no training across 14 EU-member states between 2004 and 2010

4.2.5.1. Distribution of career and training opportunities across population groups and research years[13]

Career and training opportunities are not equally distributed across population groups. Women have a worse score for high career opportunities (44.3%), compared to men (34.6%) (see figure 41). No gender differences were found for training opportunities.

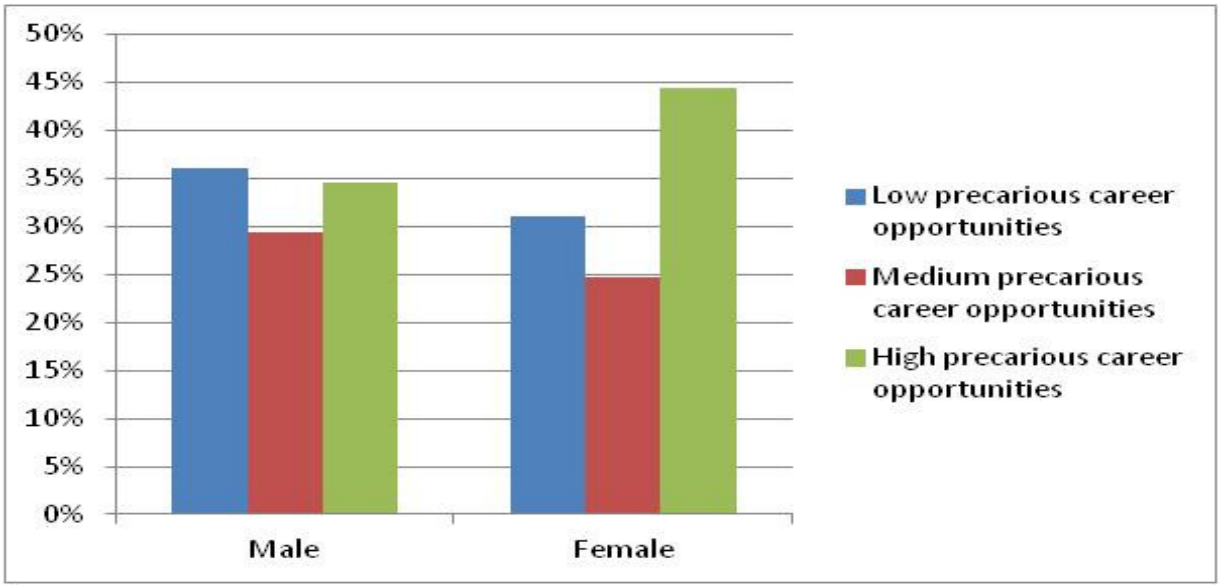

Figure 41 Percentage of precarious career opportunities for 14 EU member states in 2010

Employees of 50 years and older (50.8%), employees with low and medium educational attainment (respectively 42.5% and 42.6%), employees who do not belong to an ethnic minority (39.4%) and natives (39.4%) are more frequently found in the category of high precarious career opportunities (50.8%). Employees between 30 and 49 years old more frequently report good training opportunities (46.5%), while bad training opportunities are more frequently found among low educated workers (77.7%), immigrants (54.9%) and employees who belong to an ethnic minority (62.2%).

The percentage of high precarious career opportunities decreased for men (-3.5%), employees between 16 and 29 years old (-6.1%), employees between 30 and 49 years old (-1.0%), employees with low and medium educational attainment (respectively -2.8% and -1.8%), immigrants (-7.0%) and employees who do not belong to an ethnic minority (-1.1%). The percentage of women and employees with low and high educational attainment who did not receive training the last 12 months increased with respectively 3.0%, 6.8% and 5.7%. The percentage of immigrant employees who did not receive training last 12 months decreased with 4.5%.

Career and training opportunities are not equally distributed across occupations. Low precarious career opportunities are more frequently found among legislators, senior officials and managers (47.3%), while high precarious career opportunities are more frequently found among elementary occupations (59.1%) and clerks (49.0%). The percentage of high precarious career opportunities increased for clerks (+6.2%). The situation for elementary occupations did not further deteriorate, because the percentage of low precarious career opportunities increased for elementary occupations (+5.6%). They also increased for craft and related trades workers (+7.3%). Elementary occupations

[13] Associations that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.

are more frequently found with bad training opportunities (84.1%), compared to professionals (32.2%). Between 2004 and 2010 the training opportunities deteriorated for legislators, senior officials and managers and service workers and shop and market sales workers (respectively +7.2% and +5.6% of the employees report not to receive training last 12 months).

Career and training opportunities are not equally distributed across organisations and industries. An establishment with under 10 employees is more frequently found in high precarious career opportunities (43.8%), compared to an establishment with 500 or more employees (32.8%) (see figure 42). An establishment with under 10 employees is also more frequently found to have bad training opportunities (69.8% had no training last 12 months).

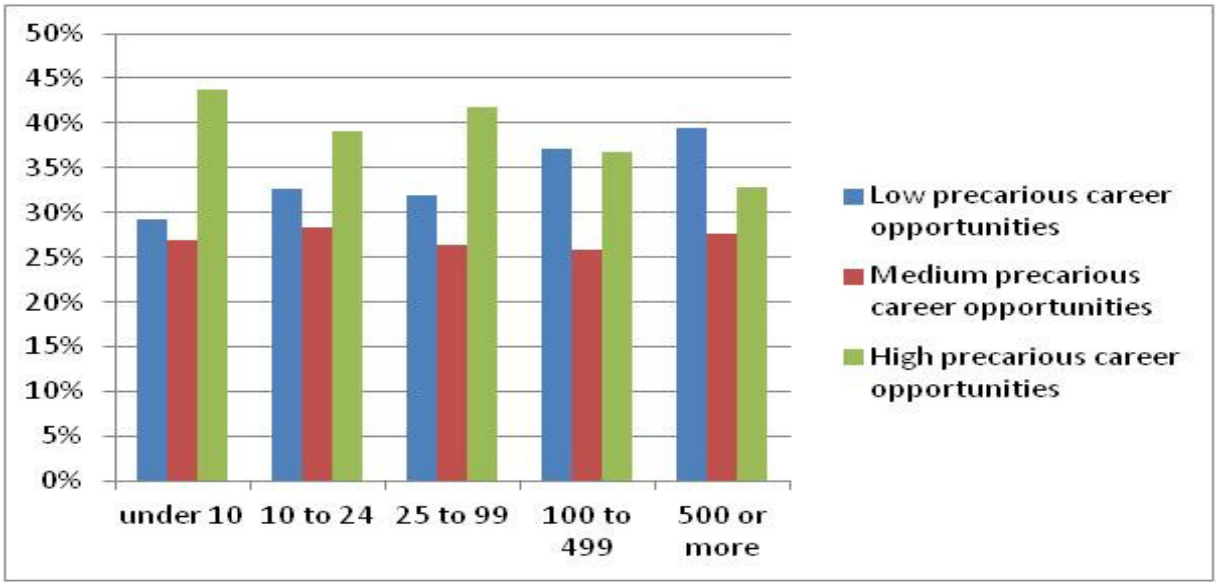

Figure 42 Percentage of precarious career opportunities of 14 EU member states in 2010 by establishment size

Employees in the education sector are more frequently found in high and low precarious career opportunities (45.4% and 31.2% respectively). They also have the best training opportunities (only 35.5% report no training last 12 months). The worst training opportunities exist in the hotel and restaurant sector (76.4% report no training last 12 months).

The percentage of high precarious career opportunities decreased in establishments with 100 to 499 employees (-1.2%), the manufacturing industry (-5.5%), the construction industry (-4.7%) and the research and technology sector (-4.9%). The percentage of employees who did not receive training during the last 12 months increased in the manufacturing industry (+3.9%) and other services (4.3%).

4.2.6. Collective representation

In the cross-national 2010 sample 26.5% of the people in salaried employment are member of a trade union (see figure 43). There are wide and statistically significant differences across countries concerning collective representation ($p < 0.001$). The prevalence of trade union membership ranges from 84.8% in Denmark to 14.7% in Spain. The break-up between Southern and Eastern countries on one hand and West-European and Scandinavian countries on the other hand is again clear in this figure (also apparent in control, income and employment opportunities, later also apparent in employment relations).

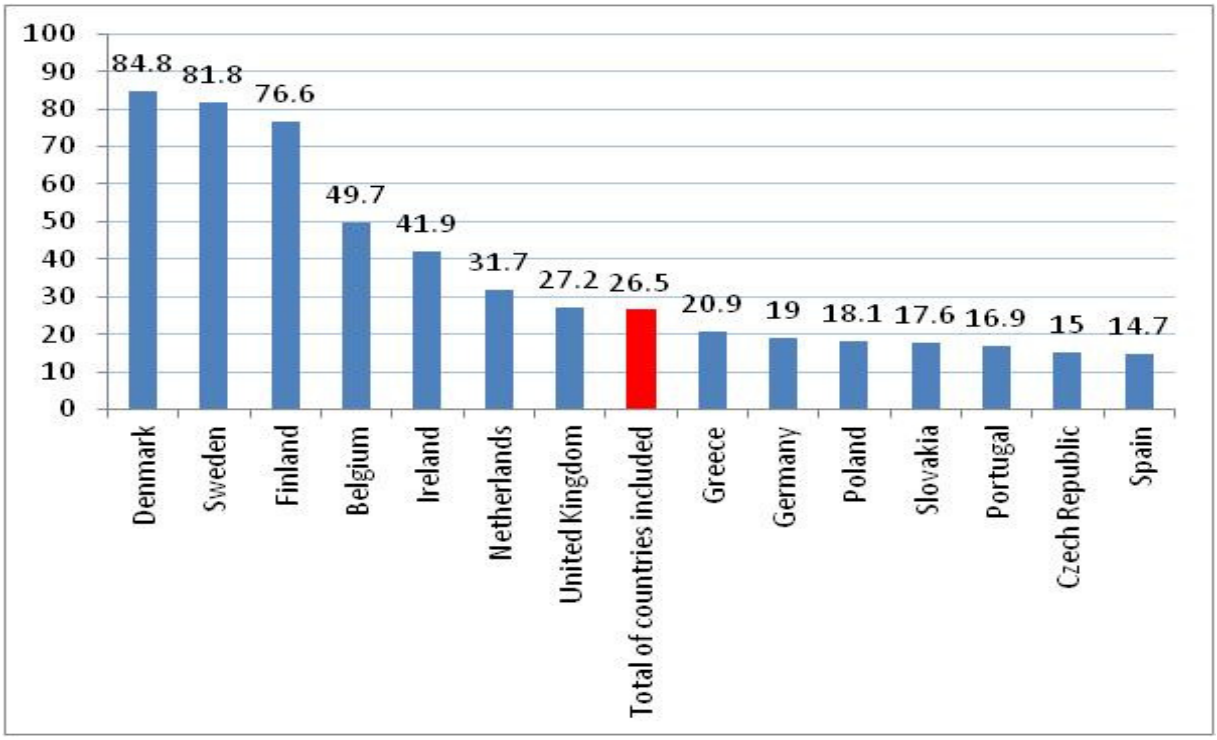

Figure 43 Prevalence of trade union membership across 14 EU-member states in 2010

There are differences across countries in the growth or decline of trade union membership. However the differences in trade union membership by research year reached statistical significance ($p \leq 0.05$) only for Spain, Greece, the Netherlands, Poland, Portugal, Sweden and the total sample. The prevalence of trade union membership decreased in Greece, the Netherlands, Poland, Portugal, Sweden and the total sample and increased in Spain (+4.4%) (see figure 44).

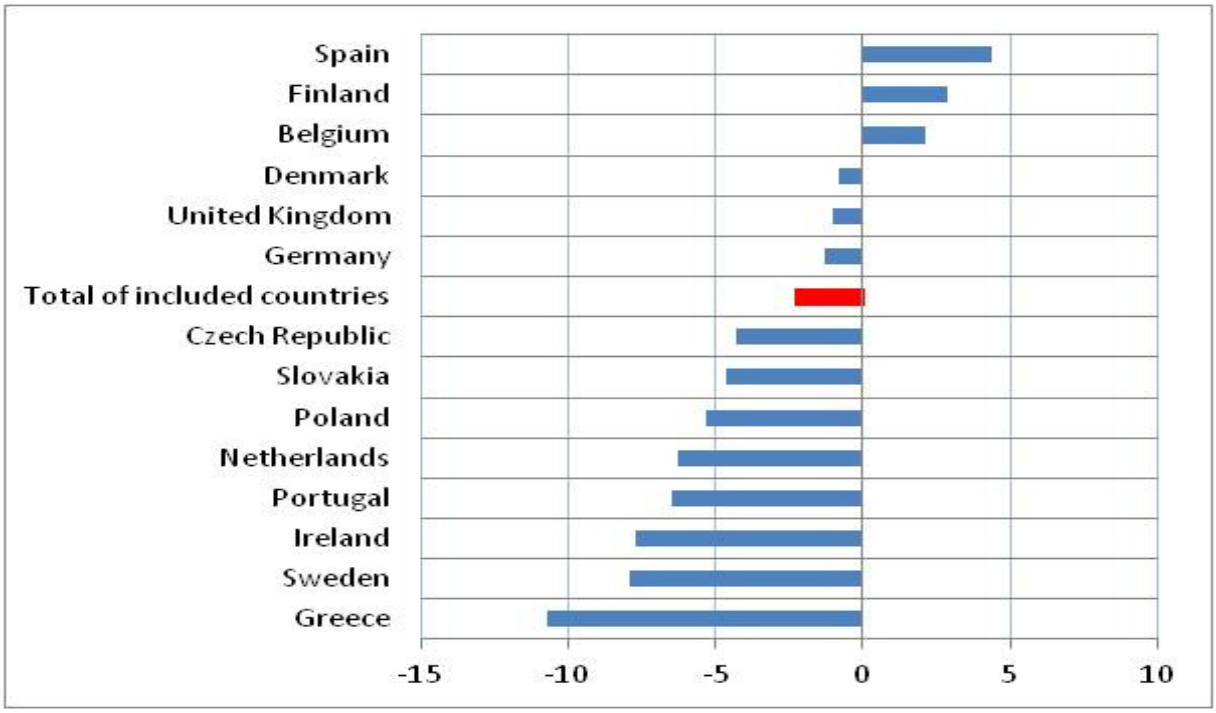

Figure 44 Percentage of change in trade union membership between 2004 and 2010 for 14 EU-member states

4.2.6.1. The distribution of collective representation across population groups and research years[14]

Trade union membership is not equally distributed across population groups. Employees between 16 and 29 years old more frequently report not to be a trade union member (87.2%), compared to employees of 50 years and older (67.8%). Highly educated workers (29.9%) and natives (24.7%) report more frequently to be a member of a trade union. Between 2004 and 2010 the percentage of trade union membership decreased among men (-3.3%), 16 to 29 year olds (-3.0%), 30 to 49 year olds (-2.4%), employees over 49 years (-4.1%), natives (-2.4%), employees who do not belong to an ethnic minority (-2.4%) and employees with low and medium educational attainment (respectively -5.9% and -2.9%).

Looking at occupational groups, it can be seen that professionals (31.3%), technicians and associate professionals (28.9%) and plant and machine operators and assemblers (28.6%) are more frequently a member of a trade union, compared to skilled agricultural and fishery workers (10.3%). In addition, workers from small organisations (under 10 employees) more frequently report not to be a member of a trade union (86.4%), compared to large organisations (500 or more employees) (62.4%). People from the hotel and restaurant sector report more frequently not to be a trade union member (93.0%) than most of the other sectors.

The percentage of trade union memberships decreased in organisations with 2 to 24 employees (-2.7%), with 25 to 99 employees (-5.4%), with 100 to 499 employees (-3.0%), with more than 500 employees (-5.1%), in the retail sector (-3.2%), the research and technology sector (-4.0%), the education sector (-6.7%), professionals (-4.0%), clerks (-3.9%), skilled agricultural and fishery workers (-12.7%)[15], craft and related trades workers (-4.7%) and elementary occupations (-6.0%).

4.2.7. Imbalanced power relations (say)

On a scale from zero to one - with one indicating the most precarious situation - the average score for precariousness of say in the cross-national 2010 sample is 0.63 (see figure 45). There are wide and statistically significant differences across countries ($p < 0.001$). The highest score is found in the Eastern European countries (0.80 in Czech Republic), the lowest score is found in the Scandinavian countries (0.46 in Denmark). Spain shows a low score on precariousness of say (0.56), compared to the other Southern European countries (0.70 in Greece and 0.63 in Portugal). Ireland and Germany show a high score on precariousness of say compared to the other West-European European countries.

[14] Associations that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.
[15] Large change might be due to small sample size (n=178)

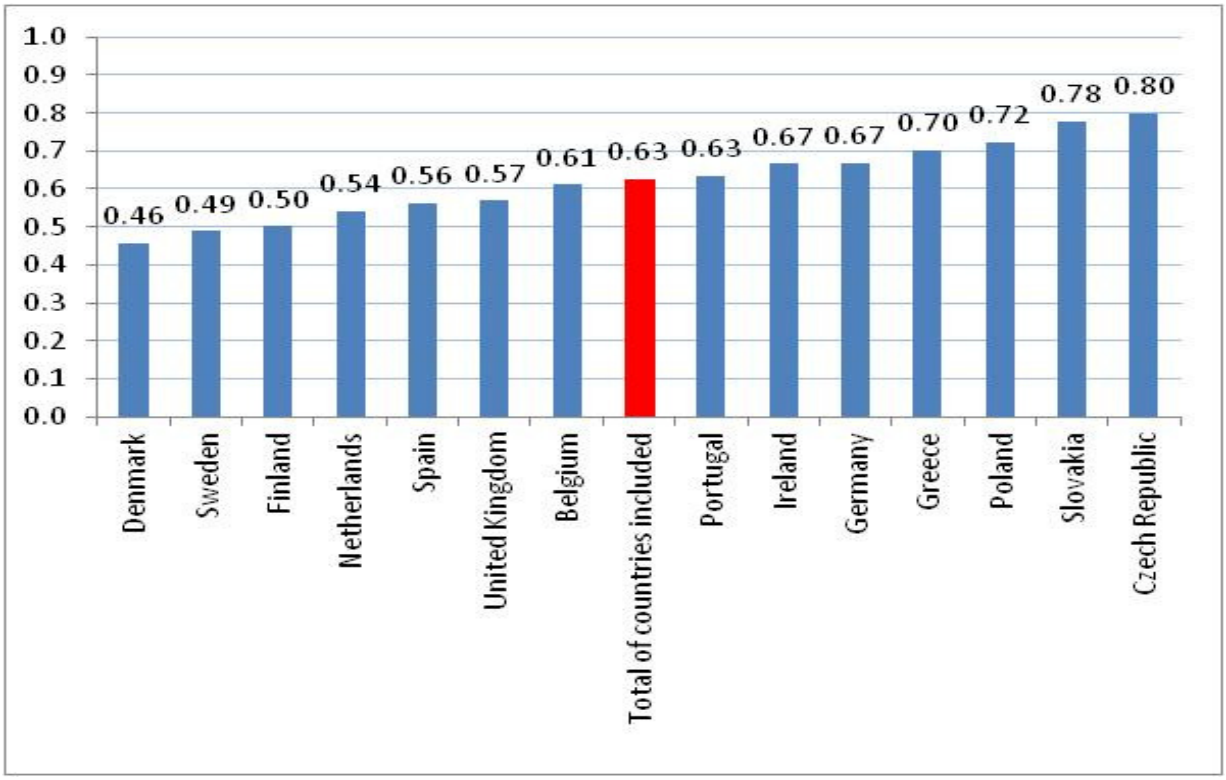

Figure 45 Mean of precariousness of say across 14 EU-member states in 2010

There are differences across countries in the growth or decline of the say-score. Significant changes are seen ($p \leq 0.05$) for Germany, the UK and the total sample. Between 2004 and 2010 the precariousness of say decreased in the cross-national (-0.01), the UK (-0.00) and the German (-0.04) sample (see figure 46).

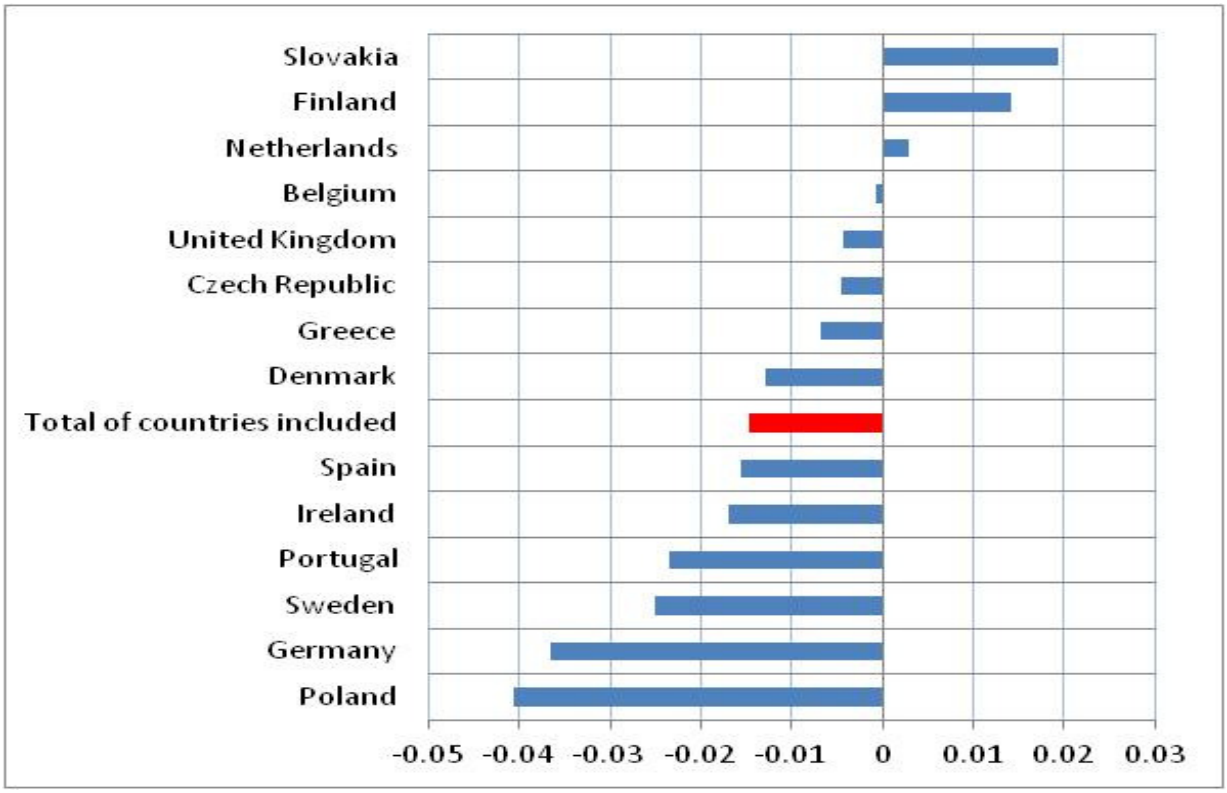

Figure 46 Percentage of change in allowed to decide (say) across 14 EU-member states between 2004 and 2010

4.2.7.1. Distribution of say across population groups and research years[16]

To facilitate interpretation, the continuous scale 'Say' was rescaled into a three-level variable (favourable, medium and unfavourable say) representing each third of the 2010 cross-national sample. Say is not equally distributed across population groups. Women (36.7%), employees between 16 and 29 years old (40.7%), immigrants (38.8%) and employees who belong to an ethnic minority (40.2%) more frequently report unfavourable say-scores, while highly educated workers more frequently report more favourable scores (47.4%).

Between 2004 and 2010 unfavourable say decreased among men (-0.03%), women (-2.5%), 30 to 49 year olds (-2.2%), employees born in the country of interview (-1.1%), immigrants (-4.2%), employees who do not belong to an ethnic minority (-1.2%) and employees who belong to an ethnic minority (-3.7%). The percentage of unfavourable say only increased among low educated workers (+4.6%).

Plant and machine operators and assemblers (55.8%), elementary occupations (59.6%), organisations with 100 to 499 employees (39.4%), employees in the agriculture, mining industry (44.5%) and manufacturing industry (44.5%) more frequently report unfavourable say. Small organisations (with under 10 employees) more frequently favourable say (40.4%).

The percentage of unfavourable say decreased in technicians and associate professionals (-0.8%) and clerks (-7.3%), only in craft and related trades workers the prevalence of an unfavourable say-score increased (+1.9%). The percentage of unfavourable say decreased in organisations with under 10 employees (-4.8%) and with 25 to 99 employees (-1.4%) and with more than 500 employees (-3.6%). The percentage of unfavourable say also decreased in the research and technology industry (-6.6%).

[16] Associations that did not reach statistical significance at $p \leq 0.05$ on the chi-squared test are not reported.

as well as in the public services (-8.0%), while it increased in the category of "other services" (+1.9%) and the educational sector (+3.4%).

4.3. Health outcomes

Finally also differences between countries in subjective health, mental well-being and the perception of a work-related health and safety risk (HSR) have been analysed ($p < 0.001$). Employees from Greece (91.6%), Ireland (89.7%) and Belgium (85.2%) more frequently report to be in good health, compared with the general cross-national score. Employees from Germany (63.8%), Slovakia (70.8%) and Czech Republic (73.0%) less frequently report to be in good health. Germany is an exception among the West-European countries, all other West-European countries report lower percentages of bad health. Greece is an exception among the Southern European countries, all other Southern European countries report higher percentages of bad health. Greece reports the lowest percentage of bad health (0.4%). A break-up is seen between the Scandinavian and the West-European countries on one hand and the Southern and Eastern European countries on the other hand, with Greece and Germany being an exception (see figure 47).

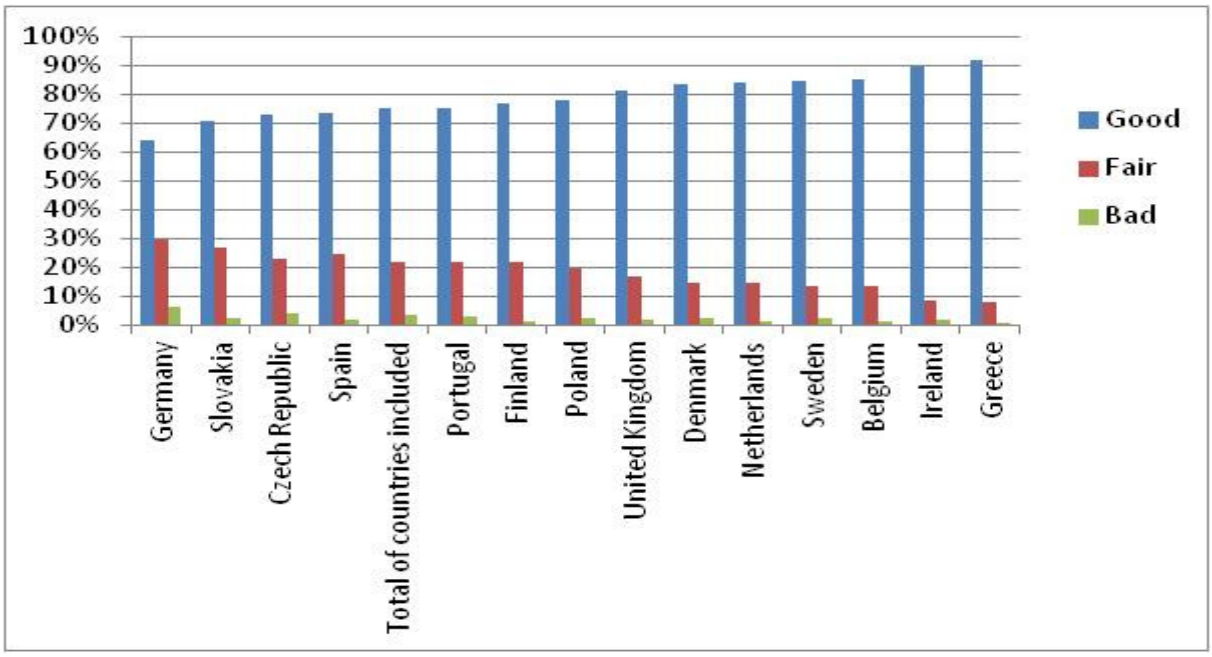

Figure 47 Level of self-reported health across 14 EU-member states in 2010

Ireland (54.2%) and Portugal (47.9%) report the highest scores on high well-being, followed by Slovakia, the Netherlands and Denmark (see figure 48). Employees with the worst well-being scores are found in Finland, the Czech Republic and Greece.

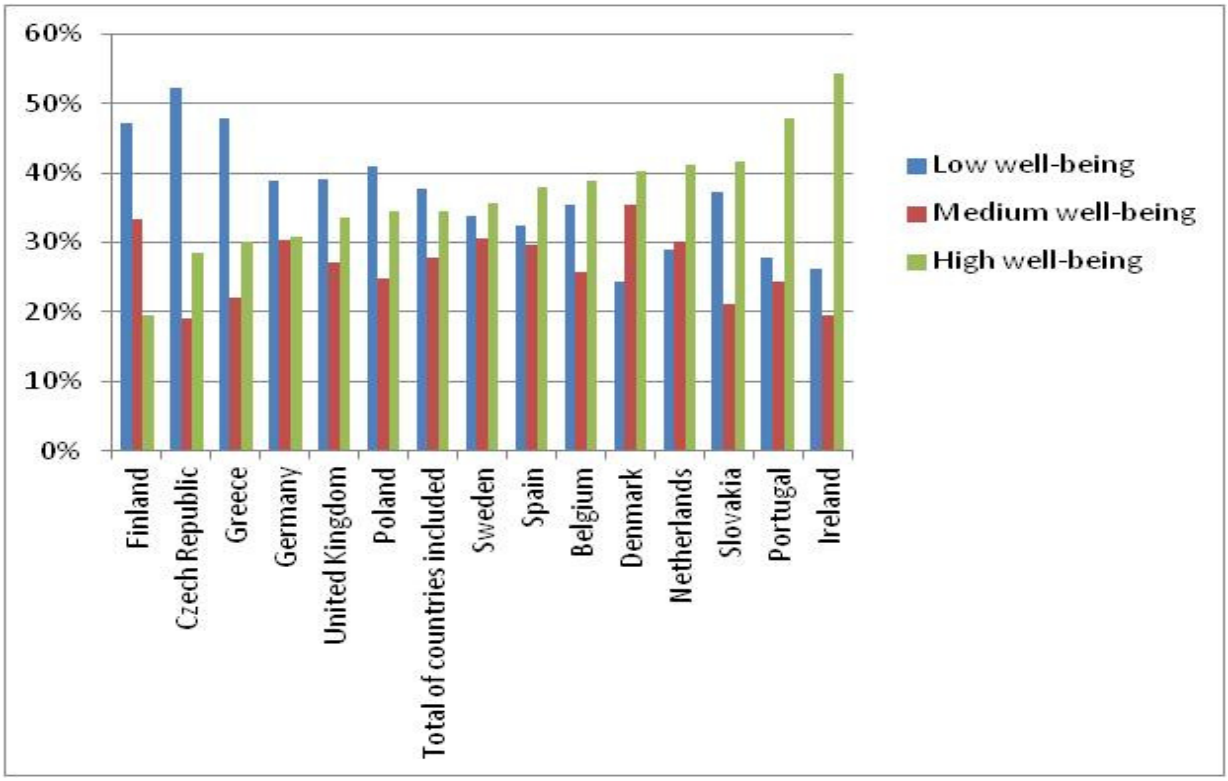

Figure 48 Level of well-being across 14 EU-member states in 2010

The Eastern European countries more frequently report that their health or safety is at risk because of their job (see figure 32). Also Sweden (55.7%) and Finland (51.2%) have high scores for this outcome. Denmark (35.0%), Portugal (35.3%) and the Netherlands (39.8%) less frequently report that their health or safety is at risk because of the job (see figure 49). Remember that these three countries also report a high mental well-being and a relatively good subjective health.

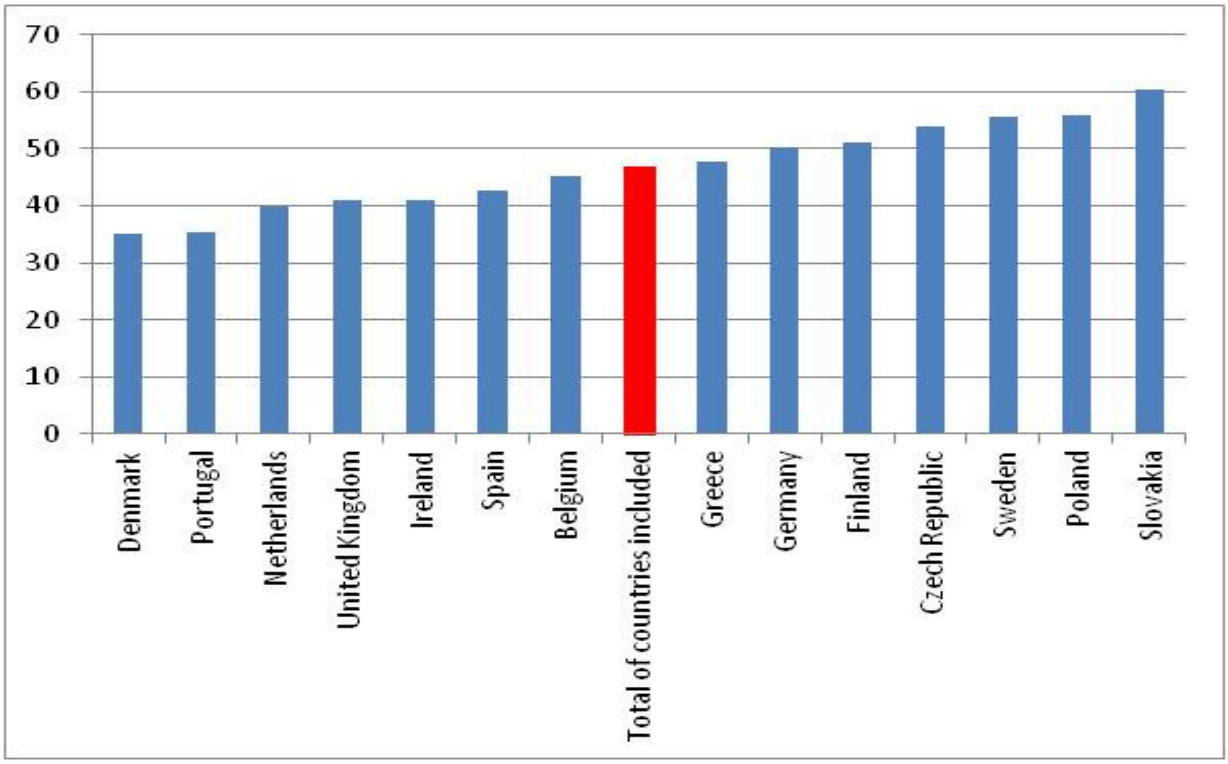

Figure 49 Percentage of people reporting that their health/safety is at risk because of their job across 14 EU-member states in 2010

There are differences across countries in the growth or decline of self-reported health, mental well-being and the perception of a work-related HSR. The differences in self-reported health between 2004 and 2010 reached statistical significance ($p \leq 0.05$) for Germany, the UK, Poland, Portugal and the total sample. In the Portuguese (+11.1%) and Polish sample (+6.3%) self-reported good health increased between 2004 and 2010, while in the overall sample (-2.2%), the German (-8.5%) and the UK sample (-2.4%) self-reported good health decreased significantly (see figure 50).

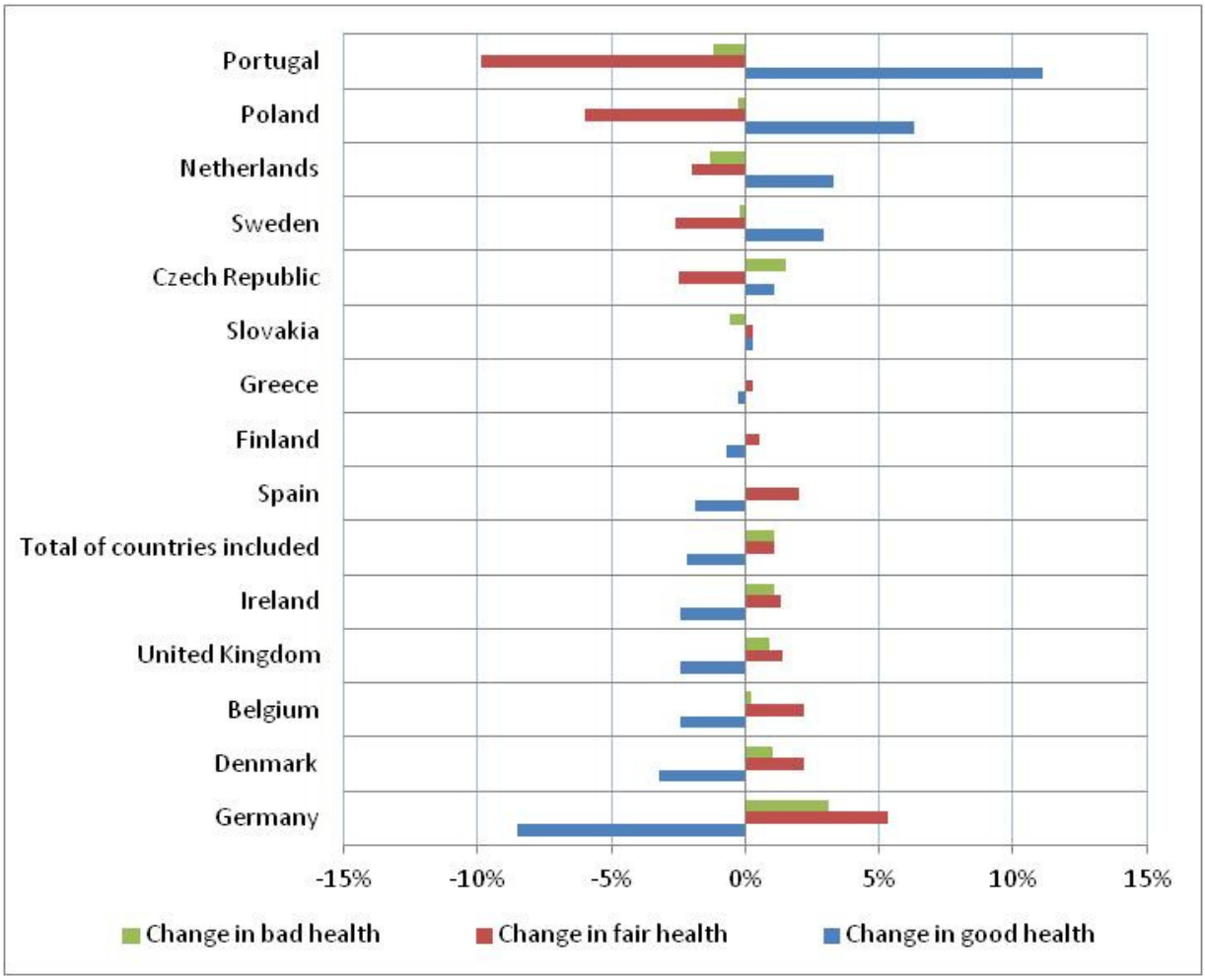

Figure 50 Change in self-reported health across 14 EU-member states between 2004 and 2010

The differences in mental well-being by research year reached statistical significance ($p \leq 0.05$) only for Spain, the UK, the Netherlands, Poland, Portugal, Slovakia and the total sample. Between 2004 and 2010 the mental well-being of the overall sample increased (+4.3% in high well-being). Only in Slovakia (+15.3% in high well-being) and Portugal (+21.9% in high well-being) the mental well-being level changed notably (see figure 51). The UK and the Netherlands also report an increase in high well-being levels (respectively +9.4% and + 8.1%). Both the Spanish and Polish display a larger increase in medium well-being levels, compared to their increase in high well-being levels.

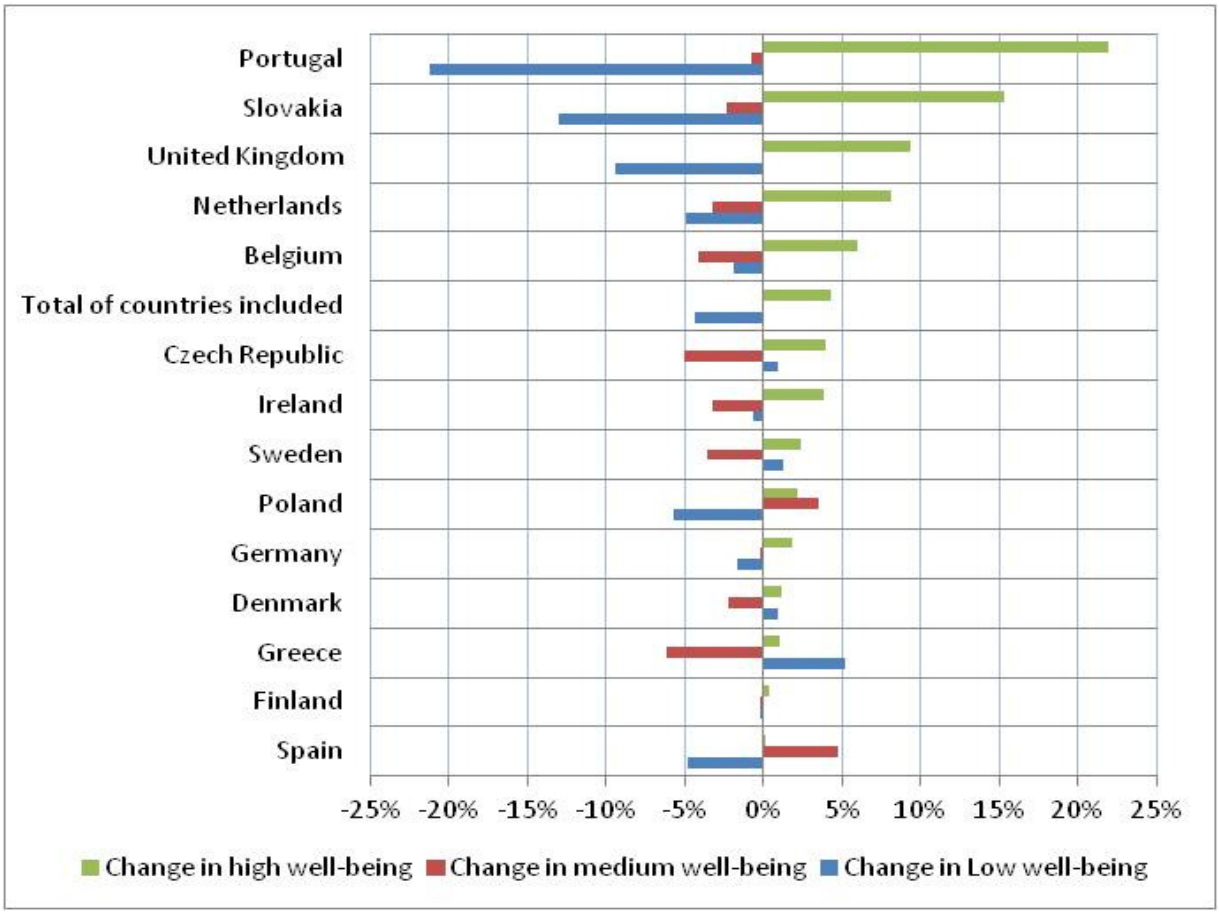

Figure 51 Percentage of change in level of well-being across 14 EU-member states between 2004 and 2010

The differences in the perception of a work-related HSR by research year reached statistical significance ($p \leq 0.05$) for Germany, Ireland, Poland and the total sample. Between 2004 and 2010 employees reported a decline in the perception of a work-related HSR in Poland (-5.7%). An opposite pattern is seen for Germany (+7.1%) and Ireland (+12.9%) (see figure 52).

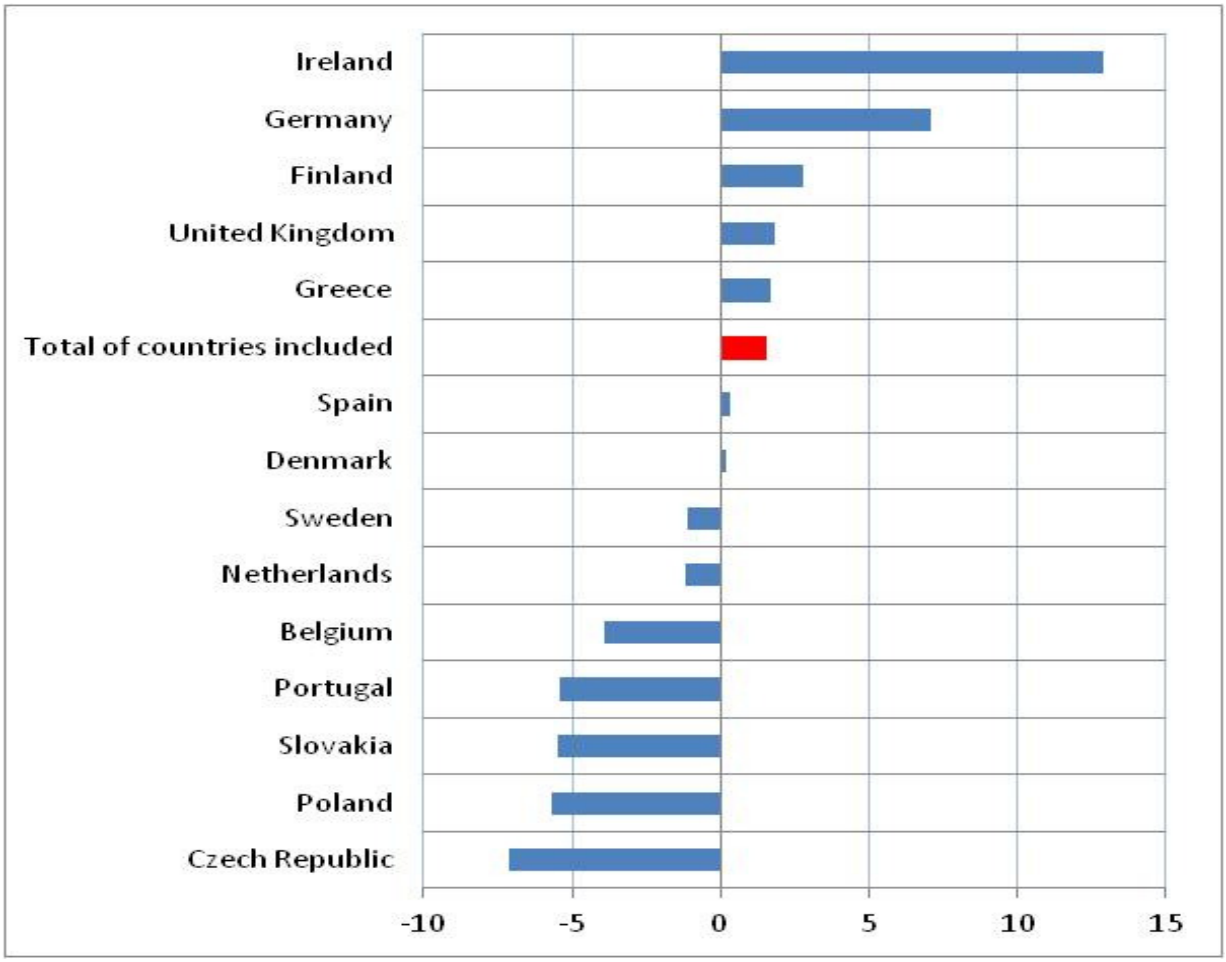

Figure 52 Percentage of change in risk across 14 EU-member states between 2004 and 2010

5. Conclusion

High percentages of skill discretion, autonomy, job control and social support were found in the Scandinavian and West-European countries. Portugal showed the highest percentages of psychological demands, whereas Poland showed the lowest. The Scandinavian and West-European countries show the highest percentages of active jobs, the Czech Republic of passive jobs. Portugal of high strain jobs and Denmark of low strain jobs.

High percentages of precarious income, low training opportunities, low collective organisation and unfavourable say were found in Southern and Eastern European countries. High percentages of unfavourable working time arrangements (unsocial hours, etcetera) were observed in Eastern European countries. The other dimension of working time arrangements, being part-time or involuntary part-time employed over being full-time employed, is more frequently found in West-European countries. Poland showed the highest percentage of non-permanent contracts, whereas Denmark showed the lowest. The Czech Republic showed the highest percentage of low career opportunities, whereas the West-European countries showed the best scores for career opportunities.

Good quality of work and employment is not equally distributed across population groups and various work environments. Women, low educated workers, immigrants, employees who belong to an ethnic minority, employees from small organisations, the hotel, restaurant sector and elementary occupations are more vulnerable to most of the indicators for an adverse quality of work and employment. Furthermore, we found indications for skill polarization of the European workforce. For instance, high control jobs decreased among low educated employees and increased among medium educated employees. This is in line with previous research which reveals that the crisis has highlighted the polarization of the labour force (Vaughan-Whitehead, 2011). According to Vaughan-Whitehead (2011) the crisis negatively affected already existing work inequalities.

When the 2004 and 2010 samples are compared for the intrinsic job characteristics, a reduction in social support and an increase in autonomy, job control and psychological demands were observed between 2004 and 2010. There was a larger increase of control in comparison with psychological demands. As a consequence, in comparison to 2004, a reduction in passive and high strain jobs and an increase in active and low strain jobs was found.

With regard to the quality of employment conditions and relations, in comparison to 2004, the income situation, career opportunities and say of the average employee became less "precarious" in 2010. In contrast, the working time arrangements, training opportunities and degree of collective organisation worsened. The crisis affected certain employment conditions, as can be seen by the increase of unfavourable working time arrangements.

Due to the crisis the workforce had to make employment adjustments. These adjustments differ across countries and across different categories of workers (Vaughan-Whitehead, 2011: 2). Our findings reveal that the crisis did not hit equally hard in every country, as clear between-country differences are found in the evolution of different QOW and employment components. For instance, there are differences across countries in the growth or decline of permanent contracts. A possible explanation could be the policy responses of the governments as they are important determinants of a better or worse coping with the economic crisis (Vaughan-Whitehead, 2011: 1).

With regard to the health outcomes, Greece and Ireland showed the highest percentage of good self-reported health, whereas Germany showed the lowest. In contrast, Ireland also showed the highest percentage of high mental well-being, whereas Finland showed the lowest. Benach, Gimeno and Benavides (2004: 22) also found the worst health outcomes[17] for Finland and the best for Ireland using the third European Survey on working conditions 2000. The Eastern European countries showed the highest percentages of work-related HSR, Denmark showed the lowest. In comparison to 2004, a reduction in good self-reported health and an increase in mental well-being and work-related HSR were observed.

[17] stress, backache, muscular pains, low job dissatisfaction and fatigue

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