



Quality of Work in Europe

An Empirical Analysis on the Basis of the EWCS 2015

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JEL classification:

J28: safety; accidents; occupational health; work satisfaction and related public policy

J81: working conditions

Summary

Employee satisfaction signals whether employees consider the quality of their own job to be good. The share of workers in a country that are satisfied with their job is thus a measure of the quality of the jobs in an economy as a whole.

In this context, the quality of work in the European Union and in the individual Member States is high. Around 86 percent of workers in the European Union are satisfied with their employment relationship. In Germany, this figure is slightly higher, at 88%. This corresponds to the figure from 2010. In many countries, particularly in Central and Eastern Europe, the level of job satisfaction between 2010 and 2015 rose from a relatively low level to a level comparable to that in Germany. Empirical evidence of a creeping deterioration in quality of work is therefore lacking both in Germany and in the European Union as a whole. There is no political pressure to act in this context.

Econometric estimates made using the Employment Samples for the European Union and Germany show that appreciation and recognition expressed in terms of money, growth perspectives and praise have greater weighting in determining whether an employee is satisfied with their job. Equally important is a good social environment in the workplace. The empirical findings also suggest that, in many places, workplace characteristics which are perceived to be generally detrimental and which in themselves are associated with a lower degree of job satisfaction are compensated by working conditions that are perceived as being supportive. As a result, quality of work is considered good by the employees in these cases when a holistic view is taken.

1. Introduction

Quality of work is on the political agenda at European level under the heading “Improving working conditions” (EU Commission, 2017) and at the national level under the heading “Good work” (German Federal Government, 2013; BMAS, 2016). It serves as a guide in the world of politics and as a starting point for labour market and social policy initiatives. It is therefore all the more important to keep abreast of the concept of quality of work. The focus here is on the question of what actually constitutes good work, good working conditions and a high quality of work.

This empirical analysis continues the series of studies from the Cologne Institute for Economic Research, which has been critically observing the discussion around quality of work since 2011 (e.g. Lesch et al., 2011; Hammermann/Stettes, 2013, 2015, 2016 and 2017, Schäfer et al., 2013; Stettes, 2016). Using an approach similar to that used by Hammermann and Stettes (2013), this analysis will look beyond Germany and consider the extent to which jobs in the Member States of the European Union are perceived as good by employees.¹

To this end, the first step is to recapitulate the approach used to measure quality of work, and to assess quality of work both in the European Union as a whole, and in the individual Member States (Section 2). The relationship of these characteristics to quality of work and their relevance are described in detail in Section 3. Section 4 concludes with some labour market policy implications.

¹ For reasons of better legibility, the masculine form has been used throughout.

2. Work satisfaction as an indicator of quality of work

2.1 The normative approach

The answer to questions about what constitutes good work or how many jobs in a country, sector or company have a high quality should not be separated from the normative perspective occupied by the viewer. Schäfer et al. (2013) provide an overview of the multitude of approaches used to determine the quality of work in a national economy on the basis of official or survey data. The fact that each of these approaches is based on a normative reference framework is, in itself, legitimate. This should be explicitly stated, however, as the associated assessment scale is not derived from the standards, expectations and perceptions of the employees themselves at all in places, and sometimes only indirectly, or at least not consistently (for a critical appraisal, see Schäfer et al., 2013).

For example, the question arises as to whether all characteristics considered by the employees themselves to be relevant have been taken into account, or can be taken into account based on the data situation. In cases involving the construction of indices in particular, it is also open to question whether the characteristics taken into account are given the same weighting as that given by the employees themselves. As a rule, it is assumed that all employees demand the same standards of work and that these individual standards are constant over time. The contextual conditions under which the employees take up or perform their work as well as any changes to these are therefore generally outside the field of consideration. This applies to social and economic conditions as well as to personal living conditions.

The meaningfulness of the different approaches as a general quality indicator should be questioned in particular if the conclusions drawn deviate significantly from the evaluations given by the employees themselves of their jobs. In a free market economy, the characteristics of a workplace can be considered neutral provided the underlying employment relationship complies with the institutional framework conditions on the national labour market and the basic fundamental rights of employees are not violated. A job is not good or bad, or of high or inferior quality, by virtue of the fact that it is subject to a particular contract type (for example, permanent vs. fixed-term or temporary employment) or is associated with a certain work environment (e.g. high time pressure vs. low time pressure, high vs. low autonomy or shift work vs. no shift work). If such characteristics are viewed positively, neutrally or negatively from the employees' point of view, this will be revealed in bivariate or multivariate analyses as a significant relationship between these characteristics and work satisfaction.

Job satisfaction shows how the different characteristics of a job are implicitly weighted and holistically assessed by the workers themselves (cf. Clark, 1998, 15; Hamermesh, 1977; Locke, 1976). However, it is also used as a quality indicator in the criticism. Eurofound (2012a, 10) points out, for example, that there can be differences between job satisfaction and the fulfilment of individual needs and demands. While this is true, it is not a counter-argument. The needs and demands of individual employees are generally known only to the individuals themselves and are not discernible by an external observer. The level of job satisfaction is, at the very least, indicative of whether and to what extent the individual expectations of an employee, taken holistically, are met by a job (Albers, 2008, 157). Employees position themselves in jobs which they deem have the most favourable employment conditions for them, and only a few find themselves in a permanent job with which they are generally dissatisfied because their own demands are not being met to a significant extent. If, for example, a high salary is more important than flexibility of working time, it is preferable to take up or maintain employment relationships in which the employee is satisfied with the salary, but not necessarily with the flexibility of working time.²

This point illustrates the normative starting point of an approach that focuses on job satisfaction as an indicator of quality of work. The actors on the labour market conclude contracts on the basis of bilateral declarations of intent. An employment contract concluded between an employer and an employee indicates that an employment relationship in the agreed form is seen by both sides as the best available alternative among the existing possibilities. During this negotiation process, both the employer and employee must deal with the demands of their respective counterparts as regards the different characteristics of the employment relationship. The extent to which it is ultimately possible to enforce one's own demands in these negotiations or in the later employment relationship depends on a variety of factors at both an individual and a contextual level.

The fact that the small differences in job satisfaction between countries do not correspond with the clear differences in objectively measurable variables has therefore also been criticised (e.g. Muñoz de Bustillo-Llorente / Fernández-Macías, 2005). This criticism overlooks the fact that job satisfaction is influenced by the extent to which workers are able to adapt to the characteristics of a job (Aziri, 2011, 79 et seq.) as well as by the comparison between one's own experiences and the alternatives (Levy-Garboua/Montmarquette, 2004). It also depends on the conclusions drawn by employees when comparing their activities or status with those

² Job satisfaction is therefore an important predictor of voluntary job change (Albers, 2008, 157; Clark, 2005; Stettes, 2011).

of other employees (relative deprivation), even if the objective characteristics of the job remain unchanged (Brown et al., 2005; Clark and Oswald, 1996). The comparative yardstick used by employees is quite different in Mexico than it is in Germany, for example. In other words, irrelevant alternatives play no role in forming judgments as to whether work is perceived as good or bad. They have no influence on the decision as to whether a person voluntarily enters into or terminates a contract with a particular employer, nor on how the employment relationship plays out.

Finally, job satisfaction has an advantage over the indicators in all other approaches in that its validity as an approximation of quality is retained even if the preferences and perceptions with regard to working conditions change over time, or if other control groups are taken into account. It is also an important predictor of people's general well-being, even outside of working life (Eurofound, 2012b, 13f.). In this context, job satisfaction is also of general political interest.

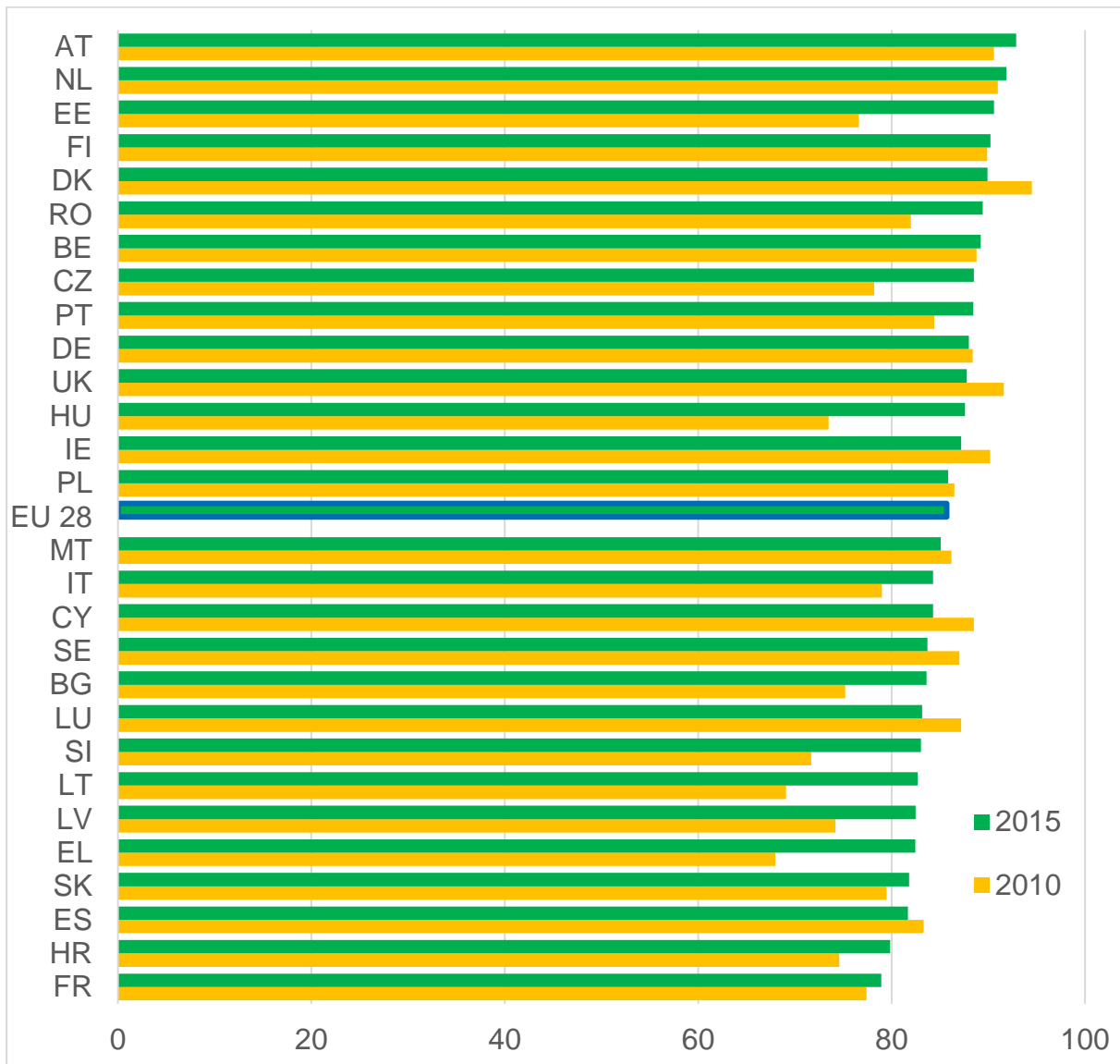
2.2 Overview of the extent of job satisfaction in the EU-28

What about quality of work in the European Union? First of all, it is striking that around 86 percent of the workforce in the 28 Member States of the European Union were satisfied with their work in 2015 (see Figure 1). In Germany, this figure was somewhat higher than in the overall sample, at 88 percent of workers. In 2015, the share in three countries – Austria: 92.9 percent, the Netherlands: 91.9 percent, and Estonia: 90.6 percent – was significantly higher than in Germany, but was lower in another 14 countries.³ The differences between the individual countries as well as between the countries and the European average should not be overestimated, however. Although the share of satisfied employees in France is the lowest, at around 9 percentage points lower than Germany and some 7 points lower than the European Union average, the majority of French people are actually satisfied with their jobs – eight out of ten to be precise.

³ In twelve countries, the likelihood of an employee being satisfied with their job is significantly lower than in Germany when personal characteristics (e.g. gender, age, health status, household composition, etc.) and general occupational characteristics (e.g. occupation, industry, company size, leadership position, etc.) are taken into account.

Figure 1: Job satisfaction in the European Union

Share of satisfied or very satisfied employees as a percentage, 2010 and 2015



Sources: EWCS 2010 and 2015; own calculations

Database – European Working Conditions Survey

This study is based on the European Working Conditions Survey (EWCS) 2015 (Eurofound, 2017). Since 1991, this survey has been one of the most important databases for the reporting of the European Foundation for the Improvement of Living and Working Conditions (Eurofound) and was carried out for the sixth time in 2015. In this sixth wave, 43,850 employees from 35 European countries were interviewed about their working conditions. In addition to the EU-28 – including 2,093 from Germany – workers in Montenegro, Serbia, Turkey, Albania, Macedonia, Switzerland and Norway were also interviewed.

The analysis presented here is limited firstly to the Member States of the European Union (EU-28) and secondly to active workers. The self-employed and dependent employees on maternity leave, parental leave, etc. were disregarded. The examined sample size was therefore reduced to around 28,000 people, including a good 1,600 employees in Germany. As a result of the sample adjustment, the following descriptive findings differ from those reported by Eurofound itself (Eurofound, 2016).

Multivariate analyses were carried out to check statistical correlations (mainly logistic regressions or tobit estimates). The focus of the regression analyses is on the relationship between job satisfaction and various aspects of working life under otherwise identical conditions in terms of personal (gender, age, etc.) and occupational characteristics (company size, industry, classification of occupation, etc.). A causal link cannot be investigated on the basis of the cross-sectional analysis. Indeed, the aspects under analysis may influence the results in one direction or the other, or may interact with one another. In addition, correlations between the independent variables were examined in separate econometric estimates in order to verify validity.

The ISCO-08 classification used here is an amendment of the ISCO-88 by the International Labour Organization which, in contrast to the German system of occupational classification, does not strictly speaking group individuals according to occupation – but rather according to activity, in the sense of the tasks and duties which a person performs. Due to missing or implausible data, the number of persons taken into account in the various individual analyses is once again significantly lower.

The EWCS 2015 also makes clear that, by comparison with the EWCS 2010, quality of work has not deteriorated in recent years. In 2010, around 84 percent of Europeans (at this time the EU-27) were satisfied with their jobs (calculation for dependent employees from the EWCS 2010 (Eurofound, 2010)). In 2015, this figure was around 85% (also for the EU-27 countries). Furthermore, the newly added Member State of Croatia recorded a significant increase in job satisfaction of around 5 percentage points, to 79.9 percent, between the two observation periods. In many other countries, in particular those in which job satisfaction deviated downwards quite markedly from the average in 2010, the share of satisfied or very satisfied employees has risen significantly. These mainly include Central and Eastern European countries (Estonia, Lithuania, Hungary: +14 percentage points, Slovenia: +11 percentage points, Czech Republic: +10 percentage points and Bulgaria, Latvia: +8 points) as well as Greece (+15 points). In Germany, job satisfaction has remained at a more or less constant high level (cf. Hammermann/Stettes, 2013, 96). This implies that if a trend is observed at all, it will likely be positive and will likely indicate an increase in the subjectively perceived quality of work.

The results presented thus far on the basis of the EWCS 2015 already permit an initial conclusion to be drawn. The quality of work in Europe meets the requirements and expectations of the majority of the workforce. There is no evidence of any fundamental need for regulatory action at the national or even EU level to counteract a supposed negative development in working conditions. It is a debatable point whether improvements could still be made on a satisfaction rating of 79 percent for France, 86 percent for the EU-28 sample overall and 88 percent for Germany. When it comes to individual companies in particular, the fact that one in five or one in every ten employees is dissatisfied can lead to reflections on how to increase satisfaction, thus strengthening employee loyalty to the company and increasing motivation and commitment.

Wherever an improvement in quality of work is striven for – whether at the political or individual company level – the question arises as to which job characteristics must be given weighting. To determine this, information is needed regarding which characteristics are correlated with job satisfaction and how much potential influence each characteristic possesses.

2.3 Potential determinants of job satisfaction

Thus a logistic regression was subsequently estimated in which job satisfaction was used as a dependent dichotomous variable (“very satisfied” or “satisfied” = 1, “not very satisfied” or “not at all satisfied” = 0) and a number of characteristics were used which describe the individual, the work, and the work environment. The primary focus here is on the characteristics that employees use to describe their professional activities and their work environments. Personal characteristics such as gender, age, health status and household composition as well as employment-biographical and employer-related characteristics such as type of occupation, educational/training background, seniority, company size, part-time employment, industry affiliation and the existence of occupational representation were taken into account only as control variables, but not explicitly presented (cf. Table A1).

The selected indicators which are of particular interest here were allocated to six areas (see Overview A1):⁴

- **Gratification:** Four variables indicate the extent to which employees feel they are suitably valued. The hypothesis here is that a permanent lack of

⁴ These groupings have only been made for the sake of clarity.

recognition with regard to salary or career prospects, as well as to non-monetary types of recognition, results in a lower probability of job satisfaction.

- **Employment prospects:** Three further variables represent subjective job security (the fourth, omitted category serves as a reference variable). It is assumed, in principle, that a high level of job security correlates positively with job satisfaction, and that the worse the employee's perception of alternative options is, the stronger this correlation becomes. In addition, the characteristic "Employment term" is also considered; this depends, however, on the conditions of the contract type as regards labour law, which are of only partial relevance to the individual employment prospects of an individual or of a job.
- **Working time schedule:** Four variables define the key features of the working time schedule in which employees perform their duties. In this context, it is assumed that deviations between desired and actual length of working time, a low level of autonomy with regard to working time and work outside of usual working hours (e.g. as part of a shift system) or at the weekend tend to lower the probability of being satisfied with one's job.
- **Work type and content:** A total of ten variables describe the characteristics of the job. It is often assumed that the incidence of a respective reference category and/or a higher value for a single instance will correlate with a higher probability of job satisfaction. Within the context of an ergonomic model, these would be understood as resources (cf. Hammermann/Stettes, 2015, 117).
- **Stresses:** Seven variables are considered which characterise working conditions. It is generally accepted that these could be perceived as potential stresses and should therefore correlate negatively with job satisfaction. These represent stresses within the meaning of an ergonomic model in which a negative stress sequence could be assumed (cf. Hammermann/Stettes, 2015, 117).
- **Social environment:** Finally, there are four variables which describe the social environment of employees in the workplace. It is assumed here that employees are more satisfied with their work the more support they receive from colleagues and managers.

The selection of the independent variables, their thematic assignment and also their operationalisation differ somewhat from our previous examination using the data from the EWCS 2010 (Hammermann/Stettes, 2013). This is also due to the fact that the EWCS 2015 survey has changed in some respects compared to its predecessor survey. Furthermore, in contrast to the Eurofound (2016) analyses, the present analyses have largely dispensed with the creation of sub-indices for thematically related factors. This means, in principle, that each variable is viewed individually, regardless of its content, and that no explicit weighting or standardisation of the partially different dimensions is performed within one of the six areas. Exceptions to

this include indices relating to degree of influence, complexity and autonomy, as well as to physical stresses and potentially harmful environmental influences. The reader is asked to refer to the separate interpretation at the appropriate points. On the other hand, no sub-indices have been created that comprise all the variables of a given area.

Overview 1: Factors influencing job satisfaction

Significant correlations in binary logistic estimates

	EU-28		DE	
	1	2	1	2
Gratification				
Wage satisfaction	+++	+++	+++	++
Career satisfaction	+++	+++	+++	+++
Recognition of good work	+++	+++	+++	
Praise and appreciation from immediate boss	+++	+++	+++	++
Employment prospects				
Job security and good job market opportunities	+++	+++		
Job security and bad job market opportunities	+++	+++		
Job insecurity and bad job market opportunities	---		---	---
Employment term	---			-
Working time schedule				
Difference between preferred and actual working hours	---	---	---	
Flexible working time arrangements	+++	++	++	
Weekend work	---			
Shift work	---		---	
Work type and content				
Training	++	++		
On-the-job training	++			
Medium complexity	-			++
High complexity	---			
Medium level of autonomy				
High level of autonomy				
Index relating to degree of influence	+++	+++	+++	+++
Satisfied with own work performance	+++	+++	+++	
Meaningful work	+++	+++	+++	
Suitably qualified for job	+++	++		
Stresses				
Days with more than 10 working hours	---	---		-
Reduction of rest periods	--	-		
Index relating to potentially harmful environmental influences	---	--		
Index relating to physically-demanding activities	---	---		---
Fast working pace	---		--	
Time pressure	---	--	---	-
Work interruptions	---	--	---	--
Social environment				
Getting on well with colleagues	+++	+++	+++	
Good cooperation with colleagues	+++	+++	+++	+++

	EU-28		DE	
	1	2	1	2
Support from managerial staff	+++	+++	+++	
Harassment	---	---	---	---

1 Models with separate assessment of the six areas. 2 Complete model with simultaneous assessment

+++/++/+ (- - -/- -/-): positive (negative) significant at a 1% / 5% / 10% error level

For details see tables A2 and A3

Sources: EWCS 2015, own calculations

Overview 1 gives an overview of the results of binary logistic regressions using the EU-28 sample (cf. Table A2 for details) and the sample for Germany (cf. Table A3 for details). In addition to a complete model which takes into account all potential determinants simultaneously, consideration was also given to models in which, in addition to personal and employer-related as well as occupational biographical characteristics, the variables for only one area were used.

The analysis based on the EU-28 sample largely confirms that the perception of appreciation, job security, workplace characteristics that support employees, and a good social environment correlate with a higher probability of job satisfaction. On the other hand, potential workplace stress characteristics are often associated with a lower level of job satisfaction. The statistical correlation is still not very significant for all individual potential determinants, however. Level of autonomy does not seem to play any role in the separate examination of work type and content, which are, however, closely correlated with degree of influence.

A separate look at employees in Germany reveals that the overall number of workplace characteristics which are significantly correlated with job satisfaction is generally lower than in the EU-28 sample. In essence, however, this confirms that the assessment of one's own performance in the form of remuneration, career opportunities, etc. as well as a good social environment play important roles. Against the background of the other potential influencing factors, working time schedule no longer appears to be as important as for employees within the European Union as a whole. The same is true of job security and a range of other workplace characteristics which could, generally speaking, be perceived as either supportive or as stresses.

3. Relevance of influencing factors

In the first instance, the results in Overview 1 on the basis of logistical estimates (Tables A2 and A3) only provide information relating to whether a specific work characteristic is significantly correlated with the probability of a worker in one of the EU Member States or in Germany being satisfied with their job. To determine the extent to which a work characteristic influences the level of job satisfaction and thus how relevant it is to job satisfaction, more in-depth analyses are required. These are discussed in more detail below.

Average marginal effects for the EU-28 sample and the German sample were calculated as a robustness check. These provide information relating to the number of percentage points by which the probability of job satisfaction increases or decreases on average when the characteristic of interest is present (for nominally-scaled variables) or changes by one unit (for metric variables). For this reason, when the characteristic of interest changes by one unit, the probability change for each person in the sample is estimated on the basis of their personal, employer-related and occupational biographical characteristics, as well as the working conditions they experienced. These probability changes are then averaged over the entire sample (Williams, 2012).

3.1 Gratification

The degree to which we feel our work is appreciated and recognised not only shows a highly significant association with job satisfaction – it is also particularly relevant. On average, the probability of overall job satisfaction increases by 9.1 percentage points if the employee is satisfied with their pay (cf. Table A2). With a 95% probability, this corresponds to an increase of between +7.6 and +10.6 percentage points. This represents the most significant effect with regard to all other potential influencing factors. Our analysis thus differs considerably from similar Eurofound analyses (2016) in which logarithmic net income is used as the remuneration variable. This is completely unsuitable as an indicator for the evaluation of one's own workplace, because factors outside of the workplace are used to determine the value. Satisfaction with one's income, on the other hand, takes into account both an individual's subjective perception of income as compensation for work performed, as well as relative comparisons with reference income (Schmidt, 2017).

The analysis of the marginal effects using the sample comprising only employees in Germany shows that, at +4.4 percentage points, the average effect intensity is significantly lower in Germany. The 95% confidence interval extends from +0.9 percentage points, i.e. relatively low, to 7.9 percentage points, which is relatively

significant. The different effect intensities and interval limits in the two samples also show that, while an influencing factor can correlate significantly with job satisfaction, this will have a different weighting in each country.

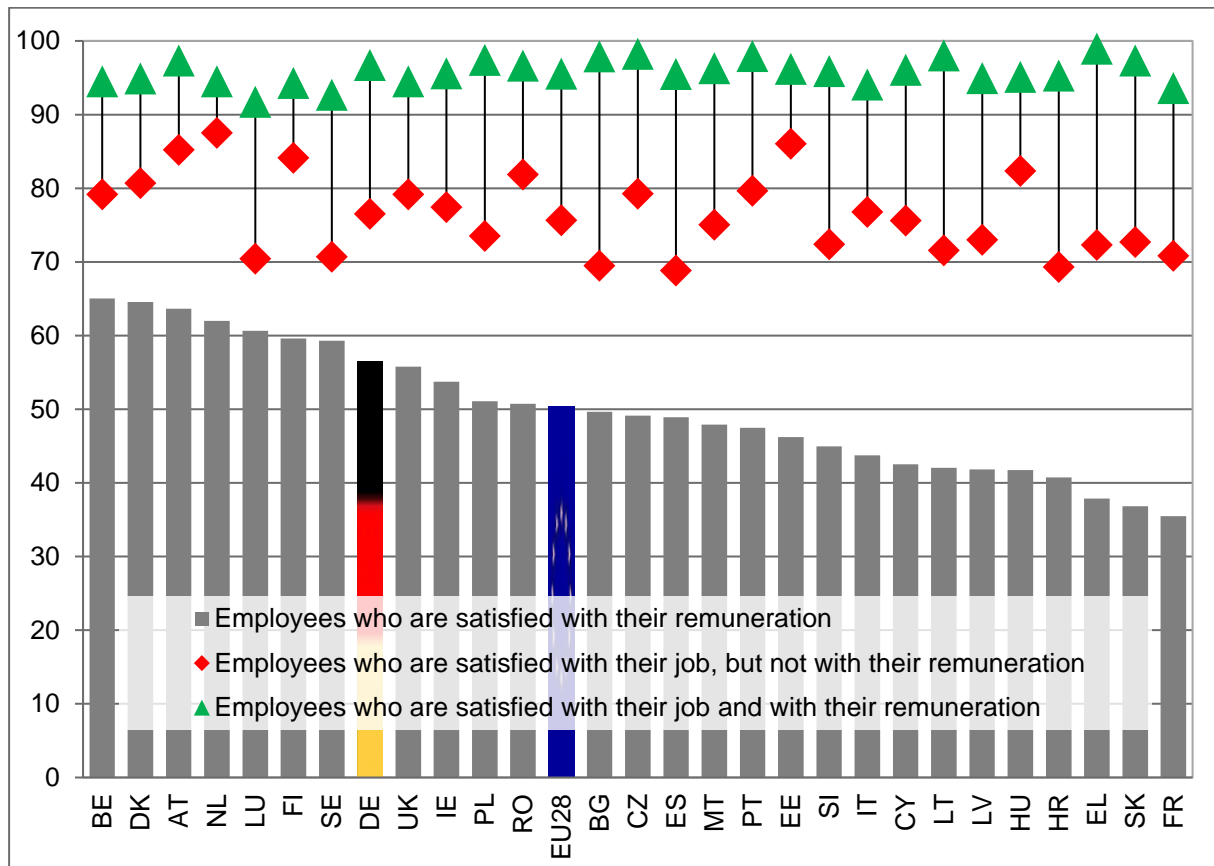
Figure 2 shows, by way of illustration, the share of employees in the Member States of the European Union who are satisfied with their jobs, divided into two cases: firstly, employees who are satisfied with their remuneration. Secondly, employees who are not satisfied with their remuneration. In addition, Figure 2 also illustrates the share of employees for which the first case applies (satisfied with remuneration). The difference in share is not an expression of a one-dimensional relationship, it rather entails the comparison of working conditions to illustrate the differences between several positively correlated workplace characteristics. The difference in share is therefore not to be confused with the average marginal effect.⁵

With regard to the entire EU-28 sample, half of all workers are dissatisfied with their remuneration. Nevertheless, three-quarters of those dissatisfied with their remuneration are satisfied with their job overall. Among those who feel adequately remunerated, almost all (around 95 percent) are satisfied with their job overall. With regard to employees in Germany, the difference in share of employees is comparable (76.5 percent vs. 96.7 percent). In a number of countries, including Austria (12.1 percentage points), Finland (10.1 percentage points), the Netherlands (7 percentage points), Estonia (10.2 percentage points) and Hungary (12.8 percentage points), job satisfaction in these two employee groups remains relatively similar. The differences between these groups in Bulgaria (28.4 percentage points), Spain, Greece and Lithuania (26.5 percentage points in each case) and Croatia (26 percentage points), on the other hand, are relatively large.

Figure 2 also indicates an interesting correlation. The extent of the difference between the shares of satisfied employees in the two groups shows a significant negative correlation with the size of the share of employees who feel adequately remunerated (Pearson correlation coefficient: -0.536). The two countries of Estonia and Hungary, where relatively few employees are satisfied with their income but where the differences in share are small, are therefore the exceptions. It is also noteworthy that the share of employees in France who are satisfied with their wage is very small, at just over a third.

⁵ The number of cases in the samples is too small in the majority of countries to carry out separate econometric estimates with the complete set of variables.

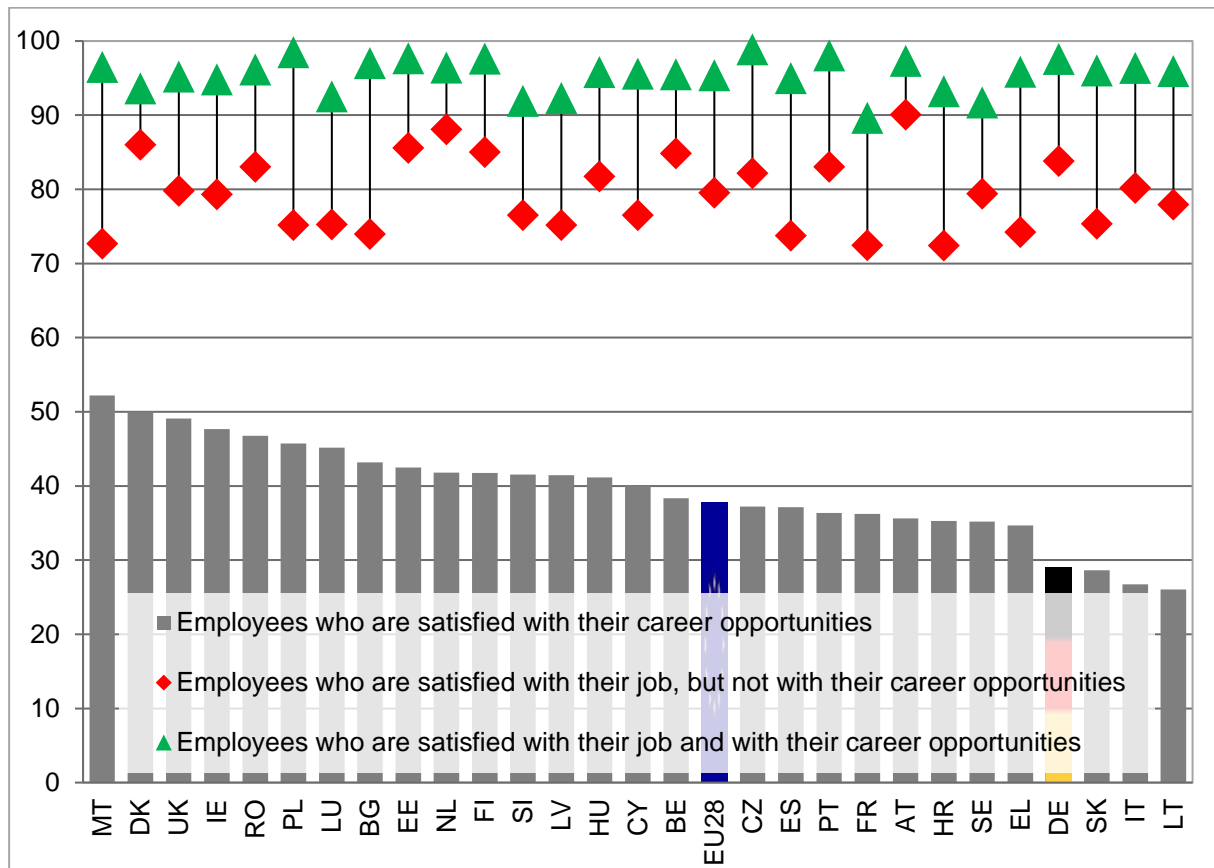
Figure 2: Job satisfaction and wage satisfaction
Share of employees as a percentage, 2015



Sources: EWCS 2015, own calculations

A similar phenomenon also tends to be observed when looking at the extent to which job satisfaction increases when an employee is satisfied with their career prospects. The bivariate correlation between the difference in share of satisfied employees and the size of the share of employees who are optimistic with regard to their career opportunities is significantly negative (Pearson's correlation coefficient: -0.50) – notwithstanding the outlier of Malta, which achieved the limit values in both categories (Figure 3). Germany is one of the countries where employees are relatively reserved in their assessment of their prospects for professional development. Fewer than three in ten employees assess these as good. At the same time, the level of job satisfaction among the remaining seven out of ten employees remains relatively high (just under 84 percent). The findings indicate that other workplace characteristics can compensate for unfavourable career opportunities.

Figure 3: Job satisfaction and career satisfaction
Share of employees as a percentage, 2015



Sources: EWCS 2015, own calculations

Table A3 shows that, all other things being equal – i.e. without compensation through other favourable working conditions – good development prospects result in a relatively significant increase in the probability of job satisfaction (+9.3 percentage points). In fact, the lower limit of the 95% confidence interval is actually higher than the average marginal effect intensity for wage satisfaction. In this context, career opportunities are much more important for German employees than satisfaction with their current wage. This could indicate that company pathways for promotion or opportunities for competitive advancement combined with corresponding salary increases would attract relatively high attention and enjoy acceptance among employees. When it comes to the EU-28 sample overall, on the other hand, it is clear that the effect intensity of satisfaction in terms of wage dominates that of satisfaction with career prospects. The lower limit of the confidence interval for wage satisfaction is roughly the same as the upper limit of the confidence interval for career satisfaction (Table A2).

An employee's remuneration or their promotion to a better-paid position serves as an expression of the company's appreciation and recognition with regard to employee

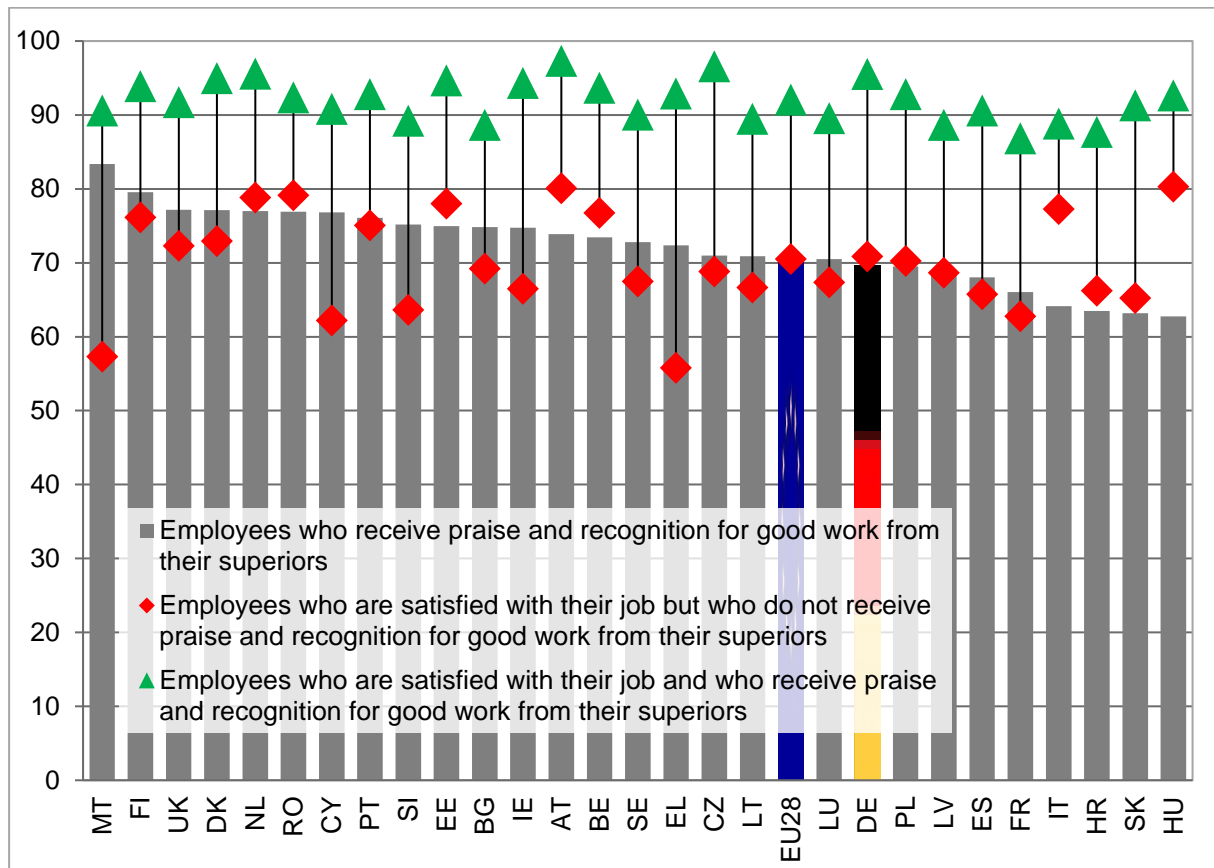
performance, which ultimately also pays off in materialistic terms. Employees can also receive appreciation and recognition without this making its way – directly or indirectly – to their bank account. In our previous study, we were unable to establish a significant link between job satisfaction and feedback culture (Hammermann/Stettes, 2013, 99). This shows that feedback, in itself, is not perceived as appreciation. In contrast to the neutral feedback concept in the EWCS 2010, the current survey asks explicitly about praise and recognition for good performance. The results show a clear, positive correlation with job satisfaction: the likelihood of job satisfaction increases by 3.8 percentage points (4.2 percentage points) among employees in the European Union (in Germany) when they receive praise and recognition for good work from their line manager. In Germany, therefore, non-monetary recognition is almost as important as monetary recognition. The analysis carried out here implies that employees expect authentic recognition in the form of words or attention in the event of good performance.

Against this background, it is pleasing to see that in all Member States of the European Union the vast majority of employees feel appreciated by their immediate superiors (Figure 4). In other words, management staff perform better than their reputation would suggest in this respect from the point of view of their employees. In contrast to wage and career satisfaction, there is no significant correlation between the extent of the difference in share among the employees in a country who are satisfied with regard to management behaviour and the share of employees praised for good work.

In view of the low effect intensity, the differences in share illustrated in Figure 4 are relatively large. Considering the EU-28 sample average, for example, the difference in the share of satisfied employees is just under 22 percentage points, and is thus even higher than for wage satisfaction. This suggests that it is fairly common for a lack of recognition from one's immediate superiors to be associated with other workplace characteristics that also have a negative impact on job satisfaction for many employees.⁶

⁶ Separate estimates of the association between recognition and the other potential influencing factors confirm this finding. For example, workers in the European Union who receive non-monetary recognition also feel more valued in material terms, have more resources, are exposed to fewer workplace stresses and experience a supportive social environment. This also applies to employees in Germany, though the correlation is weaker here.

Figure 4: Job satisfaction and positive feedback from superiors
Share of employees as a percentage, 2015

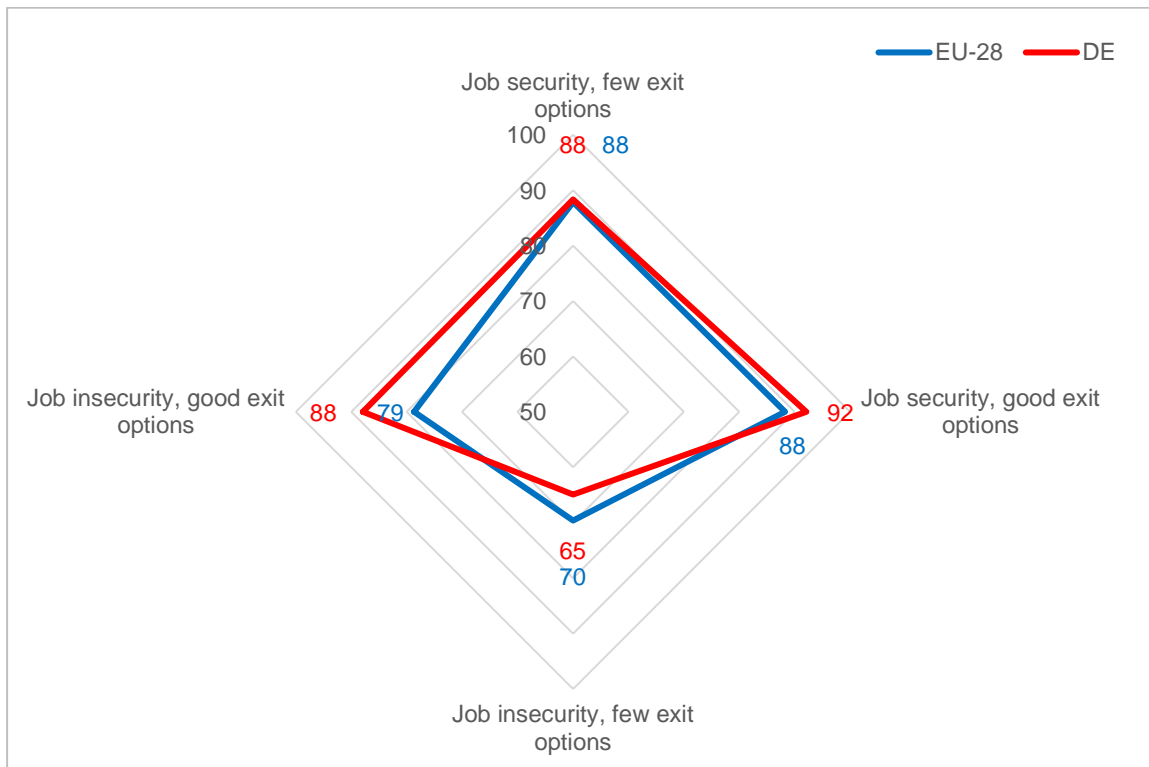


Sources: EWCS 2015, own calculations

3.2 Employment prospects

The share of employees who are satisfied with their jobs is at its lowest both in the European Union as a whole and in Germany when there is a combination of relative job insecurity and limited prospects for alternative employment with similar earning potential (Figure 5). On the other hand, an individual with job security in the European Union has a higher probability – +5.7 percentage points (no exit options with comparable earning potential) and +4.0 percentage points (with exit options with comparable earning potential) – of being satisfied with their current employment relationship (Table A2). A similar relationship is not apparent for Germany, however (Table A3).

Figure 5: Job satisfaction and employment perspectives⁷
Share of satisfied employees as a percentage, 2015



Sources: EWCS 2015, own calculations

The findings are less clear with regard to temporary employment relationships. Unlike in the European Union as a whole, whether an individual has concluded a permanent employment contract with their employer does not have a significant influence on job satisfaction in Germany, when considered separately from employment prospects.⁸ In both samples, however, employees are individually assessed as having a higher risk of losing their jobs within the next six months if their employment contract is not concluded on a permanent basis. This applies to fixed-term employment contracts as well as to temporary agency work and any other explicit or implicit agreements on the basis of which an employment relationship is established.

The empirical results imply that employment prospects, in comparison to other characteristics, ultimately have a lesser impact on individually perceived quality of work than is frequently assumed in public discussion. Whether and to what extent the

⁷ For many Member States, the number of cases in individual employee groups is too low for a separate descriptive designation. As a result, the corresponding shares of satisfied employees are shown only for the overall sample and for Germany.

⁸ In the complete model, the permanent employment variable is significant in the German sample with a percentage of 10, but is no longer significant in the European sample. A differentiated view of non-permanent contracts indicates that the significance level for temporary contracts in the German sample drops once again and only just remains significant at 10 percent.

contractual form determines job satisfaction is ultimately very much dependent on the form of the other workplace characteristics.⁹ When job security and employment alternatives are considered together, for example, this conceals the fact that each of these characteristics can affect job satisfaction in opposite ways. While the threat of losing one's job reduces job satisfaction, the prospect of being able to find an adequate alternative if necessary increases job satisfaction.¹⁰ The latter may also be attributable to a selection effect. Thus, dissatisfied employees with an exit option will leave the company earlier, while dissatisfied employees without an exit option will generally remain with the company. More in-depth analyses using the German sample show that each of these "risks" compensates for the other. This does not apply to workers in the European Union, where individuals are more concerned about the prospect of losing their jobs

The different perceptions of subjective job security and flexible employment amongst employees in Germany versus employees in the European Union may be attributable to two factors. Firstly, the fact that the German labour market is in very good shape in comparison to other countries could play a role. It must be noted here, however, that the share of employees who are convinced about finding jobs with comparable earning potential in other companies is also at a similar level in countries where the general employment situation is not as favourable (France, for example). Secondly, these different perceptions could be attributed to peculiarities of the temporary employment culture in Germany.¹¹

In Germany, temporary employment relationships often serve as a prolonged probationary period, or as an operational buffer which provides some flexibility when it is not yet clear whether developing the contract situation will make permanent employment economically viable (cf. Hohendanner et al., 2015, 50). They are thus a transitional phenomenon, mainly associated with younger age cohorts entering the labour market, and often develop into permanent employment relationships – at least in the private sector (cf. for example Beznoska et al., 2016, 32f., Hohendanner et al., 2015, 96).

⁹ Temporary employees are more likely to view their career prospects as agreeable, for example. This correlation also falls at the low end of significant, at 10 percent.

¹⁰ The negative correlation between concern for one's job and job satisfaction has also been found in analyses using data from the Socio-Economic Panel (e.g. Lesch et al., 2011, 64).

¹¹ The case numbers for temporary agency workers are too small to be able to formulate hypotheses for this flexible form of employment from the data.

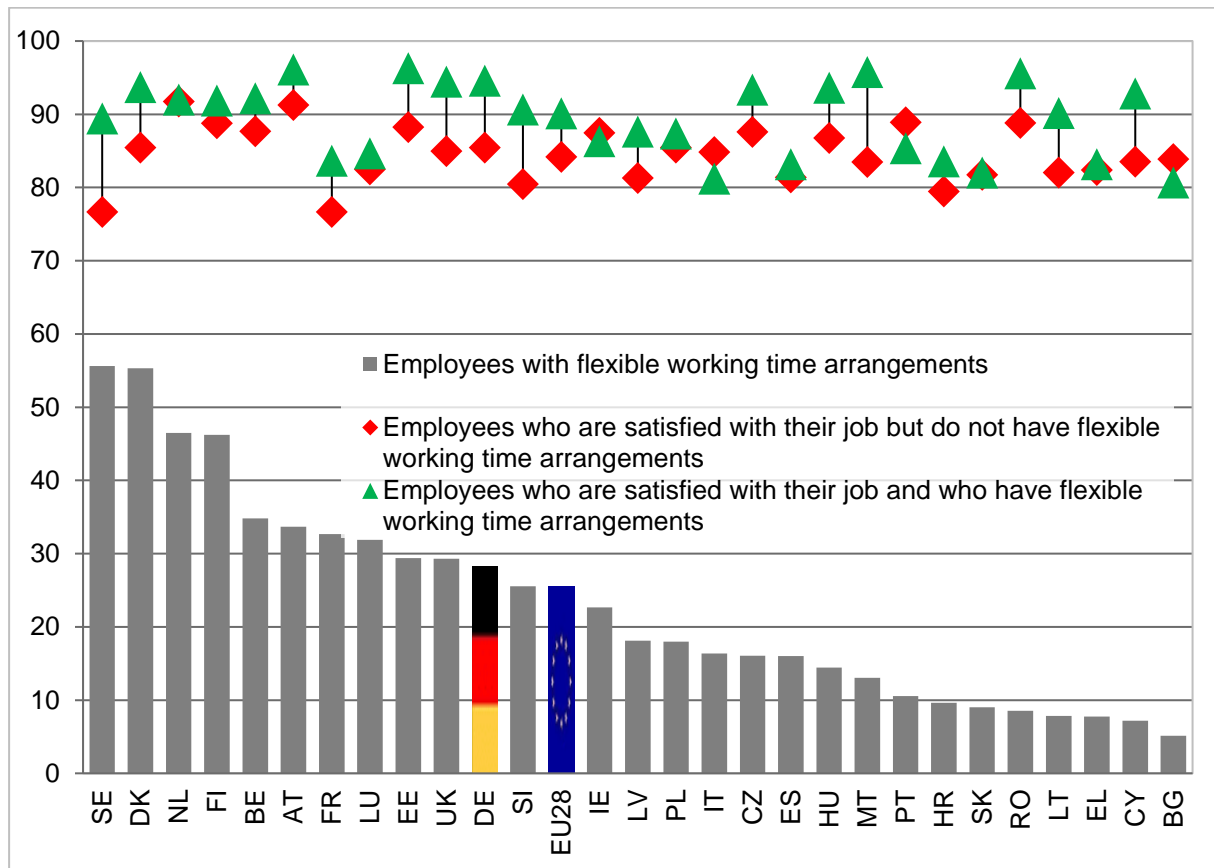
3.3 Working time schedule

For employees to be able to align their private needs and professional requirements, there must be conformity between desired working hours and actual working hours. Large discrepancies here indicate that professional and private working time requirements are difficult to reconcile with one another. It is not surprising that job satisfaction correlates negatively with a difference between desired and actual working hours. On the one hand, such a situation increases the risk of an employee leaving the company. If the employee remains with the company, on the other hand, they are less likely to show commitment or to put their skills entirely at the service of the company.

A deviation of 1 hour from ideal conditions reduces the probability of job satisfaction by 0.2 percentage points in the European average, while a deviation of ten hours reduces this by 2 percentage points (Table A2). In Germany, a ten-hour discrepancy correlates with a 0.4 percentage point reduction in the probability of job satisfaction (Table A3). The effect intensity is relatively moderate and, unlike for other workplace characteristics, it is unknown whether the alignment of desired and actual hours would have a considerable impact on the degree of job satisfaction. Evaluations of the microcensus indicate that under-employed part-time employees (full-time employees) would like to work an average of 14.6 hours (6.9 hours) more, while over-employed full-time employees (part-time employees) would like to reduce their working week by 11.4 hours (8.0 hours) (Destatis, 2017). With respect to Germany, this implies changes in the probability of job satisfaction of between 0.3 and 0.6 percentage points.

The negative effects of severely divergent working time demands on job satisfaction can also be mitigated from the employee's point of view if they have flexible working time arrangements and thus a high level of autonomy with regard to the arrangement of working hours and actual work duration each day. This is all the more likely if they can adjust their working hours within a framework (e.g. flexitime) or have complete autonomy in this regard (e.g. trust-based working hours).

Figure 6: Job satisfaction and flexible working time arrangements
Share of employees as a percentage, 2015



Sources: EWCS 2015, own calculations

Figure 6 shows that, in the European Union, a quarter of employees have autonomy over their own working hours. Working time autonomy increases the likelihood of job satisfaction by 2.2 percentage points (Table A2). In this context, flexible working hours are a more powerful lever than working time duration, although operational requirements (e.g. opening hours or response times) must be taken into account. In Germany, around 28 percent of workers have a relatively high level of autonomy over their working time. The indicator is positive, but not significant (Table A3).

It is noteworthy that in some countries (Ireland, Portugal, Italy and Bulgaria), the share of satisfied employees among workers with working time autonomy is smaller than among workers whose working hours are primarily oriented around operational requirements. In all other countries, the differences in share are relatively small when compared to the previously presented workplace characteristics. This may indicate that working time autonomy helps to compensate for other working conditions that tend to reduce job satisfaction. In addition, it is conceivable that a substantial share of employees also prefer rigid working hours, helping to separate their private and professional lives.

Multivariate analysis does not reveal shift and weekend work to be significant influencing factors – neither in the European Union nor in Germany. More in-depth analyses indicate that even night shifts are in no way correlated with the individually perceived quality of work. This once again illustrates the fact that even workplace characteristics that are regarded as relative stresses in the public discussion should be seen as neutral initially with regard to quality of work. This is all the more applicable the more a job requires the specific fulfilment of tasks at night (i.e. between 10.00pm and 6.00am) because these do not come up at any other time of day.¹²

3.4 Work type and content

The multivariate estimates in Table A2 show that workplace characteristics taken into account in the area of work type and content tend to be positively correlated with job satisfaction. The main exception here is the variable which demonstrates the high complexity of the professional task. In the European Union sample, the indicator is negative both when the area is considered separately and in the complete estimation model, albeit not strongly significant. The independent resolution of unforeseen problems, the fulfilment of complex tasks and the need to learn new things – contrary to the perspective used in the formation of our hypothesis, these workplace characteristics are not seen by every employee as resources that enrich their own professional activity. This finding therefore once again affirms the normative approach of monitoring individual perspectives on work as part of the discussion about quality of work.

The strongest influence among the supporting resources comes from the employees' own feeling that they are performing well (+3.7 percentage points) or performing a meaningful task (+3.0 percentage points) (Table A2).¹³ Both perceptions reflect the employee's inner attitude towards their job. If employees have a positive attitude to their work, it is to be assumed that their working conditions involve negative stress to a much smaller extent than might have been the case under other circumstances. This applies in particular to workplace characteristics which have been allocated as "stresses" in this analysis.

¹² This does not mean, however, that potential health hazards can be ignored during long-term night shift work. Rather, a differentiated analysis of the circumstances is necessary, in order to determine under what conditions and for which group can consequences for health be expected, as well as what these consequences might be. Reliable ergonomic findings can then be used to develop specific solutions that are best suited to the relevant specific circumstances.

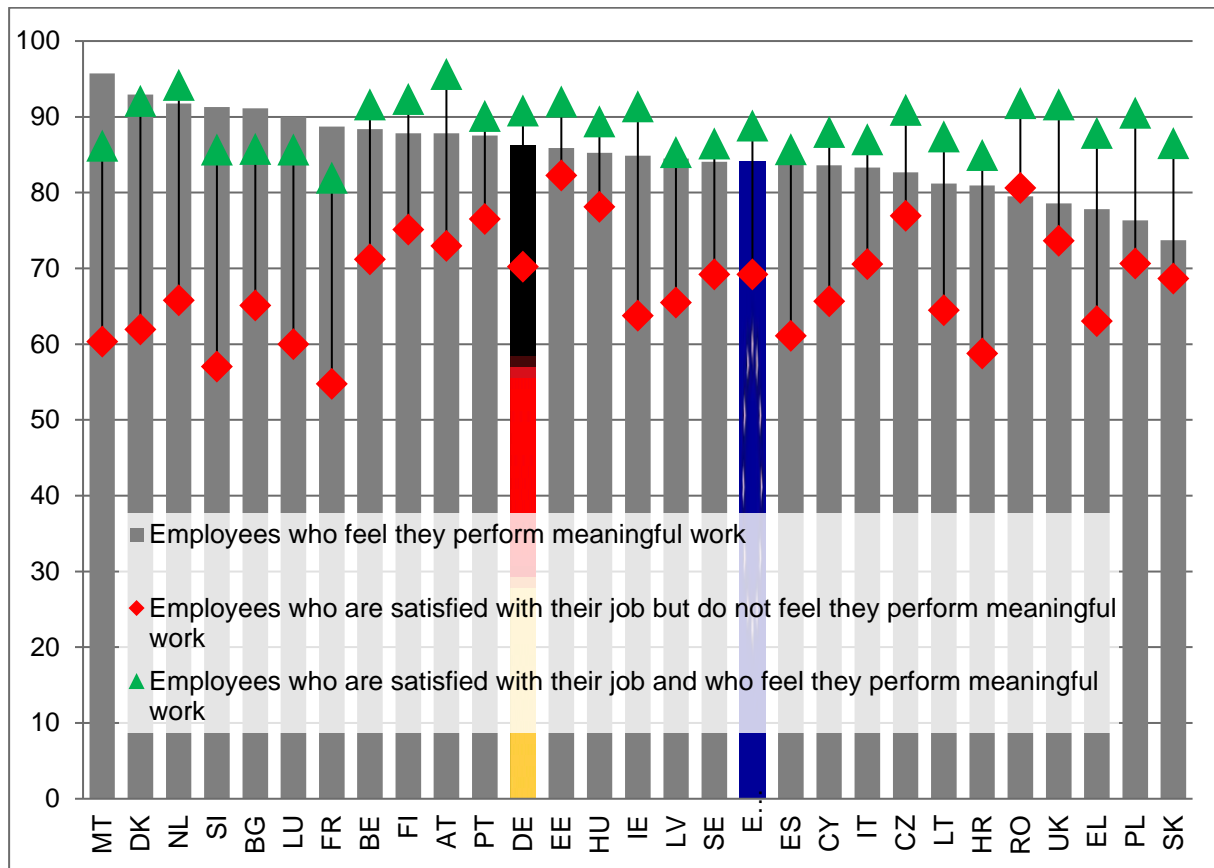
¹³ In the case of employees in Germany, this correlation is not strong (Table A3).

In total, around 85 percent (86 percent) of the workforce in the European Union (Germany) are satisfied that they are performing a meaningful task (Figure 7). This indicates that the majority of employees are happy with their professional activities. In-depth analyses also show that employees are more likely to assess their own work as meaningful when the complexity of the work is high and thus the tasks are challenging. The same also applies if there is a sense of team spirit with colleagues. By contrast, there is no significant connection with material recognition in the form of direct earnings, and non-material recognition (praise, etc.) from senior staff does not seem to play an essential role.¹⁴ Perceived usefulness is the expression of an intrinsic motivation which increases the subjective quality of work. Figure 7 also indicates that differences in the share of satisfied employees are particularly large where only a small minority of employees are not satisfied with the usefulness of their task (Pearson correlation coefficient = 0.39).

Perceived usefulness also correlates positively with the degree of influence in the workplace. The latter proves to be a highly significant influence factor in relation to individually perceived quality of work too. The average level of employee influence in the European Union is around 50 percent (Figure 8). This means that a European employee will – at least sometimes – be involved in setting the objectives for their work area, selecting team members, actioning their own ideas, influencing decisions and helping to organise work and/or workflows. An increase in degree of influence by 25 points (e.g. from “rarely” to “sometimes” or from “sometimes” to “usually”) is accompanied by a roughly 2.3 percentage point higher probability of job satisfaction (Table A2).

¹⁴ Employees in Germany differ from employees in other countries in that wage satisfaction has a highly significant (positive) correlation with perceived usefulness, but a sense of team spirit in the workplace seems to play no role.

Figure 7: Job satisfaction and the sense of performing meaningful work
Share of employees as a percentage, 2015



Sources: EWCS 2015, own calculations

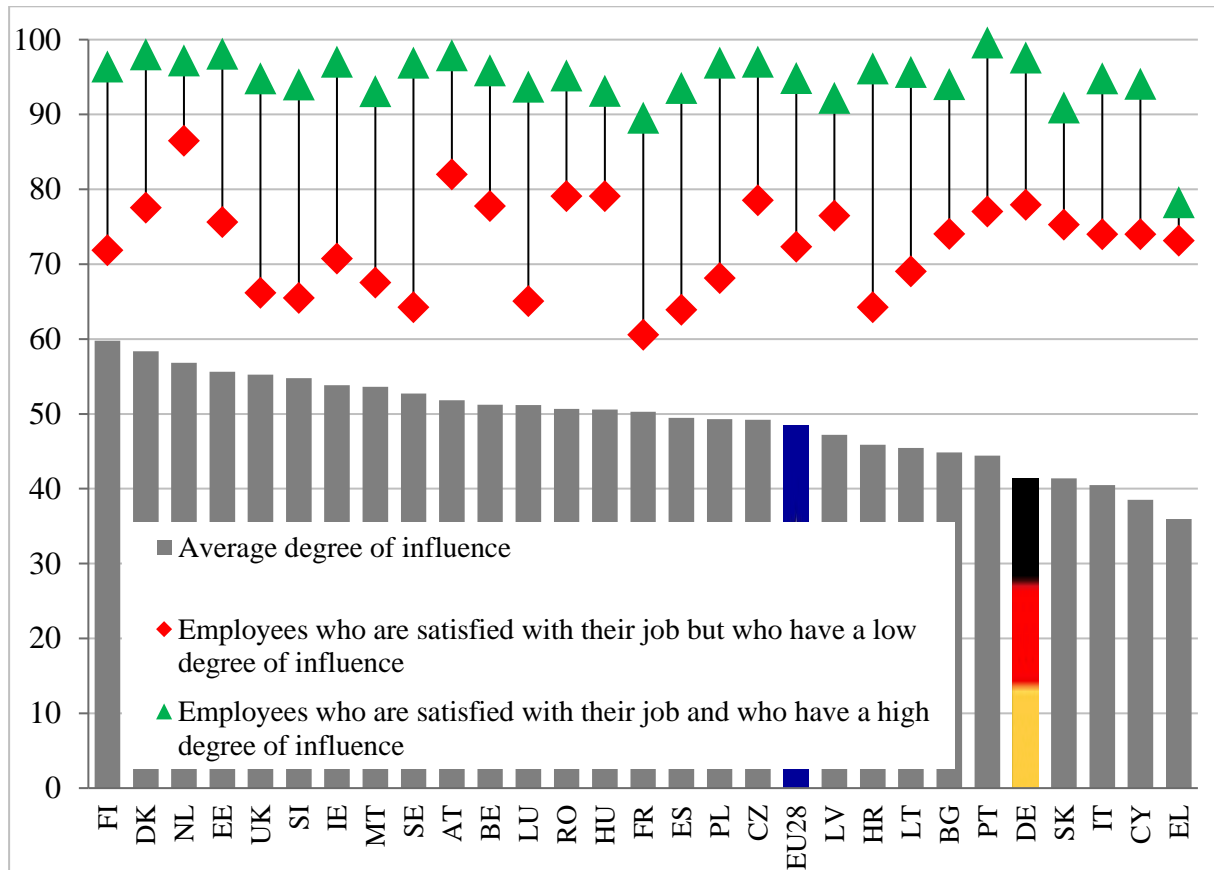
The average degree of influence is lower in Germany than in the European Union as a whole, but the marginal effect is greater. In Germany, for example, the jump from “rarely” to “sometimes” involves a 3.5 percentage point increase in the likelihood of job satisfaction (Table A3). The difference between the share of employees who are satisfied with a high and with a low level of influence is also significant, at 20 percentage points (Figure 8).

Nonetheless, there are a number of countries where other workplace characteristics are able – at least in part – to offset the effect of a low degree of influence. This is particularly true of the Netherlands, where the difference is just over 10 percentage points. Greece, with an even smaller difference of around 5 percentage points, is a special case. From the point of view of the employees there, a high degree of influence obviously cannot compensate for the other associated working conditions, which they perceive to be unfavourable. Even with a high degree of influence, the share of satisfied employees (around 78 percent) lags behind the overall level of job satisfaction in the Southern European Member State as a whole (around 82 percent). Taking into account the entire sample of dependent employees in the European

Union, there is no significant correlation between the differences in share and the average degree of influence.

Figure 8: Job satisfaction and degree of influence

Share of employees as a percentage and degree of influence as a percentage, 2015



Degree of influence: average of opportunities for influence; how often the respondents a) set objectives, b) select team members, c) action their own ideas, d) influence decisions and e) organise work / workflows – numerical scale: 0=never, 25=rarely, 50=sometimes, 75=usually, 100=always. Low degree of influence: 25 percent and below (i.e. at most “rarely”). High degree of influence: 75 percent and above (at least “usually”).
Sources: EWCS 2015, own calculations

Although the two autonomous variables reveal the expected positive sign in the sample for the European Union, they are not significant. In the German sample, it even changes from positive to negative in the complete model, but it remains insignificant in both cases. However, it must be kept in mind that both medium and high levels of autonomy have a significant positive correlation with degree of influence in both samples (see Table A4). The average level of influence of employees in Germany is thus around 25 points if their level of autonomy is low. This rises to 37 points when employees have the opportunity to set the workflow, the approach or the pace of work, and to 51 points when they are involved in all three areas of action.

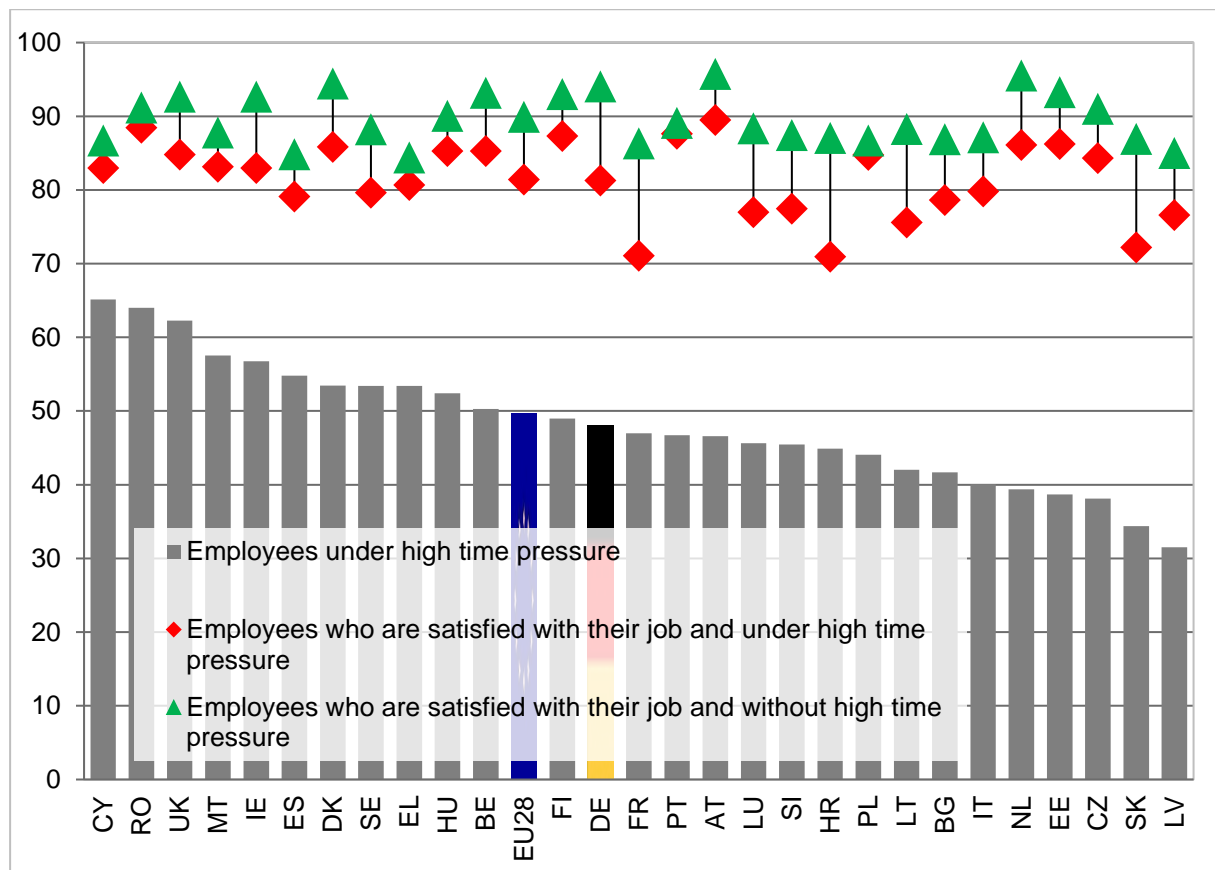
3.5 Stresses

In the public debate, a number of workplace characteristics are quickly equated with relatively poor working conditions because it is assumed that they will result in negative psychological or physical stress and thus that they will ultimately affect the health of employees in an adverse way (cf., for example, Eurofound, 2016, 40, 42 and 47). The multivariate estimates (Overview 1 and Table A2) indicate that the factors assigned to this area are more likely to be seen as negative indicators by employees in the European Union when the individual perception of quality of work is taken into consideration. Our analysis thus affirms the comparable findings of Eurofound (2016, 40). It is unclear, however, whether the negative correlation between the workplace characteristics and job satisfaction also points to health-limiting or even dangerous conditions. To determine this, it would be necessary to examine causalities, whereby external factors would have to be excluded as further influencing variables.¹⁵

Two characteristics stand out in this area. If employees experience high time pressure or if they frequently have to interrupt their work for new tasks, the probability of job satisfaction decreases on average by around 2 percentage points. The marginal effects are even greater in the separate sample for Germany, even if high time pressure is only just significantly correlated with job satisfaction at 10 percent. Every second employee in the European Union spends at least half of their daily working life working to tight deadlines (Figure 9). This figure ranges between one and two thirds of employees in the individual countries. Germany is at roughly the same level as the European Union as a whole and is one of the countries where the difference between the share of satisfied employees with and without time pressure is relatively large.

¹⁵ This is not possible with a cross-section sample. Against this background, even the health indicators (subjective health status, number of health impairments) examined by Eurofound (2016) do not allow any conclusions to be drawn with regard to health-limiting or dangerous working conditions.

Figure 9: Job satisfaction and time pressure
Share of employees as a percentage, 2015



Sources: EWCS 2015, own calculations

High time pressure is more likely in complex activities which involve solving unforeseen problems, performing complex tasks and constantly acquiring new skills.¹⁶ It is hardly surprising then that high time pressure also correlates with a higher number of long working days, a reduction in rest times, the need for a faster work pace and frequent interruptions.¹⁷ Time pressure can be mitigated, however, by factors such as autonomy in work processes, satisfaction with one's own performance, and a sense of doing meaningful work. On the one hand, this signals that companies can help to prevent their employees from feeling under pressure due to time constraints by ensuring good work organisation, including the appropriate delegation of responsibilities, and allowing for some room for manoeuvre. On the other hand, it also highlights once again the importance both of an employee's job to their sense of self and of being able to identify with one's own work. This may also

¹⁶ When only personal, employer-related and occupational biographical characteristics are examined in the control estimates, employment in a managerial position stands out as a key driver of a high individual perception of time pressure. This characteristic becomes insignificant when one also takes into account the different workplace characteristics in the six areas.

¹⁷ The same holds true for subjective stress perception.

indicate that high time pressure is only associated with a feeling of being overworked for a minority of those concerned.¹⁸

Figure 10: Job satisfaction and frequent interruptions
Share of employees as a percentage, 2015



Sources: EWCS 2015, own calculations

Frequent new job assignments that interfere with ongoing work may act as a source of inspiration in one or two cases, but generally result in a reduction in the probability of job satisfaction by around 2 percentage points in the European Union and around 5 percentage points in Germany. One-third of employees in the 28 Member States experience interruptions in their ongoing work as a result of sudden events or unforeseen tasks (Figure 10). In Germany, such interruptions are experienced by every fifth employee. Although the marginal effect is relatively strong, Figure 10 also shows that, in most countries, the share of satisfied employees among those affected by frequent interruptions differs only slightly from the share among those employees

¹⁸ 14 percent (20 percent) of employees in the European Union (in Germany) who work under high time pressure at least half of the time. A potential feeling of being overworked was assumed here when employees rarely felt they had enough time to complete their tasks and at the same time sometimes experienced stress.

not affected by frequent interruptions. Germany is one of the outliers here with a difference of around 14 percentage points. In the majority of countries, employees affected by frequent interruptions enjoy working conditions that can greatly reduce the negative effects on job satisfaction.

In-depth econometric analyses using the sample for the whole of the European Union indicate that frequent interruptions occur significantly more often in managerial positions. This is also true for employees who perform complex tasks, have a high level of autonomy in the workplace and who have a great deal of influence over work organisation and workflows. A high level of working time autonomy as a result of flexible working-hour models also correlates positively with the incidence of frequent interruptions. Frequent interruptions are therefore a side effect of the scope for action and design in the workplace. Good cooperation with colleagues reduces the risk of interruptions, while a good rapport amongst staff members increases the risk. This implies that relatively close social ties between the members of a workforce – while these encourage mutual exchange – can also be perceived as a source of interruption to work processes. In the case of employees in Germany, these correlations apply only to a limited extent.¹⁹

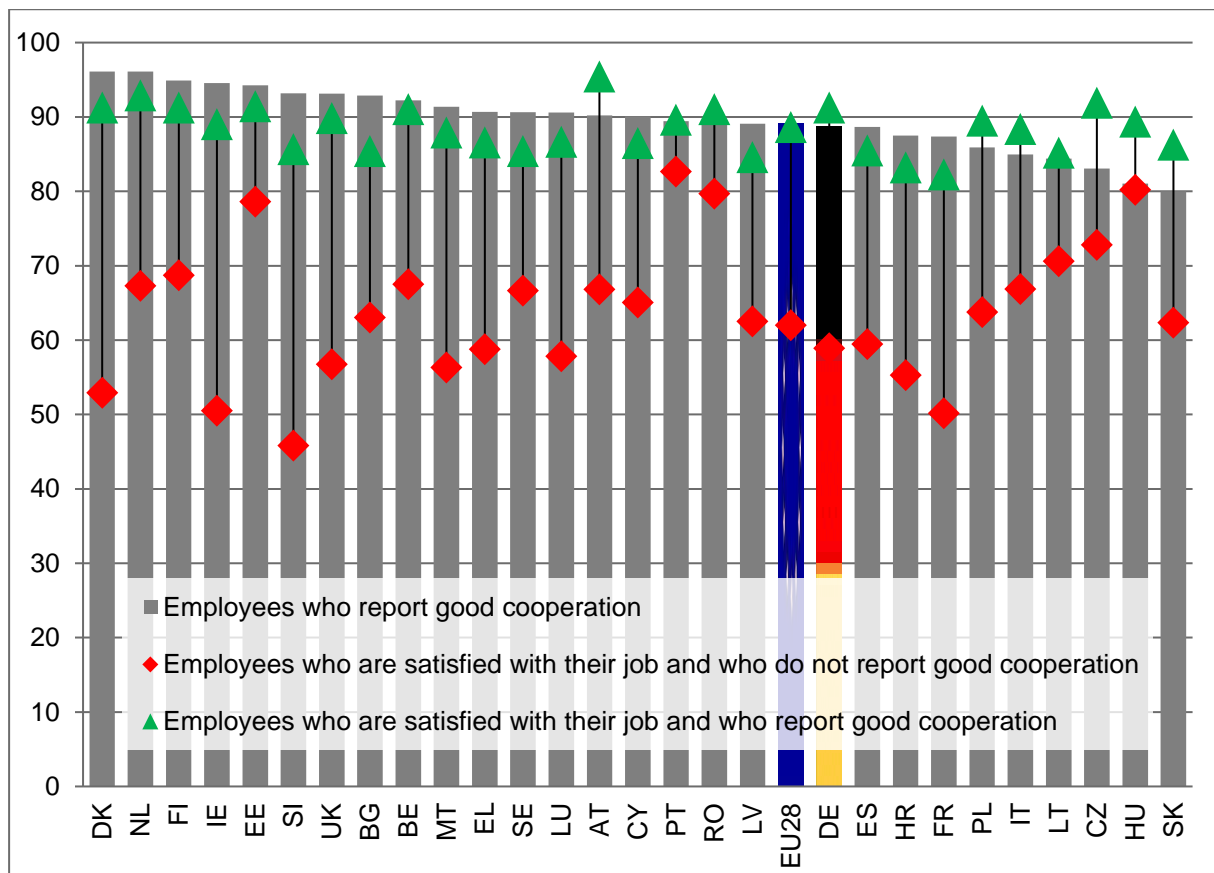
3.6 Social environment

The estimates in Tables A2 and A3 indicate that a favourable social environment increases the individually perceived quality of work. The marginal effects are relatively large compared to those in the other areas (except those in the area of gratification). This reads particularly true in the case of sexual harassment, bullying, harassment or physical violence in the workplace. Where employees experience such situations, the probability of job satisfaction decreases significantly. Fortunately, only 7 percent of workers in the European Union report having been faced with one of these awful situations in the workplace during the 12 months prior to completing the survey.²⁰

¹⁹ In Germany, a high level of autonomy and an increased degree of influence are associated with more frequent interruptions, while good cooperation reduces the likelihood of work interruptions (at least to a significance level of 10 percent). All other significant areas of autonomy in the European Union show no significant correlations.

²⁰ The figure for Germany is similar.

Figure 11: Job satisfaction and good cooperation with colleagues
Share of employees as a percentage, 2015



Sources: EWCS 2015, own calculations

In contrast to our analysis using the data from the EWCS 2010, rapport with colleagues is an important factor for job satisfaction in the European Union. Where cooperation is seen as effective by those involved, all other things being equal the probability of job satisfaction increases by around 5 percentage points. After all, nine out of ten employees in the European Union see cooperation in the workplace as a positive thing (Figure 11). The same is true of Germany. In many countries, the level of job satisfaction is significantly lower when employees do not feel that cooperation amongst colleagues is good. The Pearson correlation coefficient between the extent of the difference in share and the proportion of employees who report good cooperation is 0.406 (statistically significant at the 5 percent level).

In some cases, the differences in share are significantly greater than suggested by the average marginal effects. This indicates that an unfavourable (social) working environment will result in poor cooperation. What is more, an in-depth econometric estimate shows that the probability of good cooperation is significantly higher the better one gets along with one's peers. In the European Union itself, getting on well with others goes hand in hand with an increase of around 3 percentage points in the

probability of job satisfaction. The marginal effect in Germany is somewhat smaller and the correlation is not significant.

Support from managerial staff also positively influences cooperation amongst colleagues.²¹ This is hardly surprising, as employees are more likely to feel supported by their superiors when the latter improve cooperation within the team, for example.²² Taken in isolation, the probability of job satisfaction is 4 percentage points higher when employees are adequately supported by their managers. Contrary to the findings of our investigation using the EWCS 2010 (Hammermann/Stettes, 2013), this is not the case for employees in Germany. Other workplace characteristics are better able to compensate for rare or lacking support from management in Germany than in the other Member States. As a result, the relatively small share of employees in Germany who feel supported – at least occasionally – is less significant (Germany: 69.9 percent vs. EU-28: 81.4 percent).²³

²¹ The in-depth econometric analyses show that occasional support from management also positively correlates with occasional support from colleagues.

²² The same applies for mutual respect, individual support in the execution of work, useful feedback and the feeling of being encouraged by management as well. This applies only to a limited extent to employees in Germany. The feeling of being encouraged by management is not positively correlated with the perception of being supported, at least sometimes, by one's own superior. As a result of the modifications to the questions concerning management behaviour, the findings from the EWCS 2015 are not directly comparable with those from the EWCS 2010.

²³ This corresponds exactly to the findings from the EWCS 2010 (Hammermann/Stettes, 2013, 106).

4. Labour market policy implications

The quality of jobs in the European Union is high when individual job satisfaction among employees is taken as a yardstick. From the perspective of the present normative approach, the same can also be said for Germany. Against this background, there is no evidence of any labour market policy-related need for regulatory action at the national or EU level to improve quality of work – however this is defined by external parties. Employees perceive workplace characteristics differently and also evaluate these differently. On the one hand, it should be assumed that the employees in the individual countries will perceive their working environments differently due to their historical experiences and the varying economic conditions. On the other hand, different and changing life stages and thus heterogeneous preferences will also result in considerable valuation differences within a country.

In which specific form the working conditions in a workplace develop and are ultimately evaluated by employees is also the result of explicit or implicit negotiations between the employees and the company, or rather between the two parties to which this mandate is transferred. These might include social partners, employee representatives at company level, or managerial staff. Implicit and explicit negotiations between those directly affected increase the likelihood of being able to best meet the specific peculiarities of the local situation. The present empirical findings indicate that, in many places, working conditions which are perceived to be adverse are compensated by other workplace characteristics which are perceived to be positive. In some places, however, there is also an accumulation of factors which significantly reduces individually perceived quality of work. These places also hold the greatest potential for improvement, as companies and social partners can be involved in shaping work structures.

Whether this applies in equal measure to the state at national or supra-national level depends on one condition. Legislators should only consider to intervene if a risk exists that the potential outcome of negotiations between market participants will result in objective damage to the “weaker” side – usually the worker side – due to unbalanced negotiating power. At the same time, such damage will necessarily be associated with negative consequences (external effects) for the general public. One example of this is occupational health and safety, which uses reliable ergonomic knowledge to provide a framework for the design of workplaces in order to minimise negative consequences for the life and health of employees and to reduce the resulting costs for society. In such cases, it is also conceivable that transnational coordination at the European level will effectively support national regulations to reduce negative external effects to an appropriate extent.

However, the legal initiatives through which the statutory requirements of employees are implemented, and which strengthen the negotiating position in the distribution of economic pensions as a matter of priority, are problematic. One example of this is the considerations discussed in the context of a better work-life balance. The desire of employees to reduce their working hours due to personal circumstances or preferences and to increase these after a certain period (keyword: right of return from part-time to full-time) can be associated with higher coordination costs on the part of the company which are not compensated by any beneficial increase in economic cooperation. The same also applies to flexible working time models (keyword: family and optional working hours) or to mobile work (keyword: right to work in home office).

Policy must always bear in mind that the legal definition of claims affects not only the distribution rate ultimately, but also the likelihood that jobs will be offered at all under the resulting or expected conditions. It is thus all the more important that the principle of subsidiarity in the European Union is maintained, especially in the case of such motivated state interventions. Issues relevant to distribution policy must be answered where the mandate for this is provided – in the Member States themselves. The economic consequences of a distribution or social policy intervention will then also be borne by those who voted in majority for it.

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Appendix

Table A1: Descriptive statistics of individual and selected job-related characteristics

2015

	EU-28	Germany
Female (in %)	49.2	50.4
Age (average in years)	41.8	43.3
Health condition is good or very good (in %)	81.2	78.1
Child in household aged below 15 (in %)	33.7	27.9
Living in partnership (in %)	70.4	71.7
Supervisor (in %)	15.6	11.7
Part-time worker (in %)	21.7	29.0
Employed in SMEs (in %)	58.4	65.4
Tenure (average in years)	10.1	10.9
Employee representation (in %)	54.2	55.3
Education (ISCED-Code)		
ISCED-3 or below	13.8	5.6
ISCED-4	44.4	67.0
ISCED-5 or higher	41.7	27.4
Occupation (ISCO-08-1 classification) – proportion in %		
0-Armed force occupations	0.3	0
1-2- Managers and professionals	25.6	16.0
3-Technicians and associate professionals	16.0	19.4
4-Clerical support workers	12.4	16.8
5-Service and sales workers	18.1	16.8
6-Skilled agricultural, forestry and fishery workers	0.9	0.9
7-Craft and related trades workers	10.0	11.0
8-Plant and machine operators, and assemblers	8.1	8.8
9-Elementary occupations	8.6	10.3
Industry (NACE-rev2-1) – proportion in %		
A- Agriculture, forestry and fishing	1.3	0.3
B-Mining and quarrying	0.3	0
C-Manufacturing	16.7	22.2
D-Electricity, gas, steam and air conditioning supply	0.8	0
E-Water supply; sewerage, waste management and remediation activities	1.1	0.7
F-Construction	4.7	5.3
G-Wholesale and retail trade; repair of motor vehicles and motorcycles	14.5	16.0
H-Transportation and storage	5.4	5.9
I-Accommodation and food service activities	4.5	2.7
J-Information and communication	2.6	0
K-Financial and insurance activities	4.1	4.0
L-Real estate activities	0.8	0.9

M-Professional, scientific and technical activities	3.4	4.5
N-Administrative and support service activities	5.6	6.9
O-Public administration and defence; compulsory social security	7.2	5.3
P-Education	10.0	4.7
Q-Human health and social work activities	13.0	16.8
R-Arts, entertainment and recreation	1.6	1.3
S-Other service activities	2.0	2.5
T-Activities of households as employers	0.3	0
U-Activities of extraterritorial organisations	0.1	0
Total number used in estimations (Table A2 and A3)	19,074	1,109

Sources: EWCS 2015, Cologne Institute for Economic Research

Overview A1: Potential determinants of job satisfaction

Variables that characterise working conditions affecting the likelihood of being satisfied or very satisfied with the job and their empirical approach

Category	Variables
Gratification	<ul style="list-style-type: none"> • G1: Feeling get paid appropriately (1=yes, 0=no) • G2: Job offers good prospects for career advancement (1=yes, 0=no) • G3: Employees are appreciated when they have done a good job (1=yes, 0=no) • G4: Immediate boss gives praise and recognition when one does a good job (1=yes, 0=no)
Employment prospects	<ul style="list-style-type: none"> • BP1: Low likelihood of losing the job in the next 6 months and poor prospects of easily finding a job with a similar salary (1=yes, 0=no) • BP2: Low likelihood of losing the job in the next 6 months and good prospects of easily finding a job with a similar salary (1=yes, 0=no) • BP3: High likelihood of losing the job in the next 6 months and poor prospects of easily finding a job with a similar salary (1=yes, 0=no) (ref.: Low likelihood of losing the job in the next 6 months and good prospects of easily finding a job with a similar salary) • BP4: Permanent contract (1=yes, 0=no)
Working time arrangements	<ul style="list-style-type: none"> • AZ1: Difference between preferred and actual working hours • AZ2: Flexible working time arrangements (can adapt working hours within certain limits or working hours are entirely determined by oneself, 1=yes, 0=no) • AZ3: Work at weekend at least once per month (1=yes, 0=no) • AZ4: Shifts (1=yes, 0=no)

<p>Content</p>	<ul style="list-style-type: none"> • R1: Training paid for or provided by the employer over the last 12 months (1=yes, 0=no) • R2: on-the-job training over the last 12 months (1=yes, 0=no) • R3: job involves solving unforeseen problems, complex tasks or learning new things (medium complexity) • R4: job involves solving unforeseen problems, complex tasks and learning new things (high complexity) (ref.: job involves neither solving unforeseen problems, complex tasks nor learning new things) • R5: Ability to choose/change order of tasks, methods of work or speed/rate of work (medium level of autonomy) • R6: Ability to choose/change order of tasks, methods of work and speed/rate of work (high level of autonomy) (ref.: No ability to choose/change order of tasks, methods of work or speed/rate of work) • R7: Degree of influence in percent (average frequency, a) being consulted before objectives are set for the own work, b) having a say in the choice of work colleagues, c) being able to apply the own ideas, d) influencing decisions that are important for the own work and e) being involved in improving the work organisation or work processes – rates: 0=never, 25=rarely, 50=sometimes, 75=most of the time, 100=always) • R8: Having a feeling of work well done (1=yes, 0=no) • R9: Having a feeling of doing useful work (1=yes, 0=no) • R10: Present skills correspond well with the duties (1=yes, 0=no)
<p>Workload</p>	<ul style="list-style-type: none"> • B1: Total number of days working more than 10 hours a day • B2: Less than 11 hours between the end of one working day and the start of next working day in the last month (1=yes, 0=no) • B3: Scale of exposure to potentially harmful environmental influences (average frequency, a) vibrations, b) noise, c) high and d) low temperatures, e) smoke, fumes, powder, dust, f) vapours, g) handling with chemical products or substances, h) tobacco smoke, i) handling with materials which can be infectious – rates: 0= never, 16.67=almost never, 33.34= around ¼ of the time, 50= around half of the time, 66.67= around ¾ of the time, 83.34=almost all of the time, 100=all of the time) • B4: Scale of exposure to potentially physically-demanding activities (average frequency a) tiring or painful positions, b) lifting or moving people, c) carrying or moving heavy loads, d) sitting, e) repetitive hand or arm movements – rates: 0= never, 16.67=almost never, 33.34= around ¼ of the time, 50= around half of the time, 66.67= around ¾ of the time, 83.34=almost all of the time, 100=all of the time)

	<ul style="list-style-type: none"> • B5: Working at very high speed around half of the time (1=yes, 0=no) • B6: Working to tight deadlines around half of the time (1=yes, 0=no) • B7: frequent interruptions in order to take on an unforeseen task (1=yes, 0=no)
Context	<ul style="list-style-type: none"> • S1: Generally getting on well with the colleagues (1=yes, 0=no) • S2: Good cooperation with the colleagues (1=yes, 0=no) • S3: Managers helps and support at least sometimes (1=yes, 0=no) • S4: Subject to verbal abuse, unwanted sexual attention or threats over the last month (1=yes, 0=no)

Source: Cologne Institute for Economic Research

Table A2: Estimations – EU-28-Sample
Logistic regressions – dep. Variable: job satisfaction

	Reduced models ¹	complete model ²			
		coeff. ³	dy/dx ⁴		
coeff. ³			95%-conf.-interval		
G1: I feel I get paid appropriately	1.364 (0.088)	1.163 (0.102)	0.091	0.076	0.106
G2: Job offers good prospects for career advancement	1.015 (0.102)	0.823 (0.115)	0.063	0.047	0.079
G3: Employees are appreciated when they have done a good job	0.925 (0.078)	0.474 (0.095)	0.040	0.023	0.057
G4: Immediate boss gives praise and recognition when one does a good job	0.780 (0.077)	0.454 (0.095)	0.038	0.022	0.055
BP1: Safe job and good exit-options	0.640 (0.117)	0.683 (0.165)	0.057	0.029	0.084
BP2: safe job and bad exit-options	0.629 (0.126)	0.509 (0.173)	0.040	0.014	0.065
BP3: Job at risk and bad exit-options	-0.377 (0.130)	-0.113 (0.177)	-0.009	-0.039	0.020
BP4: Permanent contract	0.333 (0.094)	0.130 (0.125)	0.011	-0.010	0.031
AZ1: Difference between preferred and actual working hours	-0.041 (0.004)	-0.026 (0.005)	-0.0021	-0.0029	-0.0013
AZ2: Flexible working time arrangements	0.395 (0.088)	0.284 (0.117)	0.022	0.005	0.040
AZ3: Working at weekends	-0.275 (0.074)	-0.096 (0.100)	-0.008	-0.024	0.008
AZ4: Shifts	-0.269 (0.081)	-0.109 (0.107)	-0.009	-0.026	0.008
R1: Paid or provided training	0.195 (0.080)	0.251 (0.099)	0.020	0.005	0.036
R2: On-the-job training	0.182 (0.080)	0.051 (0.098)	0.004	-0.011	0.020
R3: Medium complexity	-0.193 (0.117)	0.065 (0.150)	0.005	-0.018	0.029
R4: High complexity	-0.634 (0.127)	-0.173 (0.166)	-0.014	-0.040	0.012
R5: Medium level of autonomy	0.050 (0.086)	0.121 (0.110)	0.010	-0.008	0.027
R6: High level of autonomy	0.141 (0.096)	0.046 (0.125)	0.004	-0.016	0.024
R7: Degree of influence	0.028 (0.002)	0.012 (0.002)	0.0009	0.0006	0.0013
R8: Doing a good job	0.766 (0.082)	0.430 (0.105)	0.037	0.018	0.056
R9: Doing a useful job	0.575 (0.089)	0.347 (0.116)	0.030	0.009	0.050
R10: Skills correspond with duties	0.401 (0.067)	0.185 (0.084)	0.015	0.002	0.029
B1: Days with very long working hours (10 h and more)	-0.022 (0.007)	-0.019 (0.009)	-0.0015	-0.0030	-0.0000
B2: Reduction of rest time	-0.193 (0.079)	-0.171 (0.104)	-0.014	-0.031	0.003
B3: Scale of exposure to potentially harmful environmental influence	-0.011 (0.002)	-0.007 (0.003)	-0.0006	-0.0011	-0.0001
B4: Scale of exposure to potentially physically-demanding activities	-0.011 (0.002)	-0.011 (0.003)	-0.0009	-0.0014	-0.0005
B5: Very high working speed	-0.350 (0.079)	-0.0.93 (0.104)	-0.008	-0.024	0.009
B6: Tight deadlines	-0.233 (0.079)	-0.254 (0.106)	-0.021	-0.037	-0.004
B7: Frequent interruptions	-0.404 (0.070)	-0.256 (0.094)	-0.021	-0.037	-0.006
S1: Getting on well with colleagues	0.632 (0.106)	0.364 (0.137)	0.032	0.007	0.057
S2: Good cooperation with colleagues	1.006 (0.098)	0.567 (0.119)	0.051	0.028	0.074
S3: Support by manager	1.078 (0.075)	0.456 (0.096)	0.040	0.022	0.057
S4: Harassment	-1.323 (0.100)	-0.842 (0.128)	-0.080	-0.108	-0.053
Controls (see Table A1)	yes	yes	yes		
Constant	yes	-1.411 (0.674)			
Wald-Chi ²		1,478,46			
Prob>Chi ²		0.0000			
Pseudo-R ²	G: 0.2415 BP: 0.0898 AZ: 0.875 R: 0.1648 B: 0.1034 S: 0.1766	0.3374			
N	G: 23,254 BP: 22,148 AZ: 23,966 R: 24,534 B: 24,141 S: 23,490	19,074			

1 Reduced models include – besides the individual and job related characteristics reported in Table A1 – the variables of each category separately (i.e. six specifications) 2 Complete model include – besides the individual and job related characteristics reported in Table A1 – the variables of each category simultaneously 3 (cluster-)robust standard error in parentheses 4 average marginal effects

Ref. G1-G4, BP4, AZ2-AZ4, R1, R2, R8-R10, B2, B5-B7, S1-S4: 0=no

Ref. BP1-3: Low likelihood of losing the job in the next 6 months and good prospects of easily finding a job with a similar salary

Sources: EWCS 2015, own calculations

Table A3: Estimations – German Sample
Logistic regressions – dep. Variable: job satisfaction

	Reduced models ¹	Complete model ²			
		coeff. ³	dy/dx ⁴		
			95%-conf.-Interval		
	coeff. ³				
G1: I feel I get paid appropriately	1.436 (0.283)	0.877 (0.371)	0.044	0.009	0.079
G2: Job offers good prospects for career advancement	1.998 (0.498)	2.466 (0.832)	0.093	0.054	0.132
G3: Employees are appreciated when they have done a good job	1.191 (0.247)	0.527 (0.366)	0.028	-0.012	0.068
G4: Immediate boss gives praise and recognition when one does a good job	1.164 (0.256)	0.801 (0.357)	0.042	0.004	0.080
BP1: Safe job and good exit-options	-0.377 (0.521)	-0.437 (0.766)	-0.022	-0.095	0.052
BP2: safe job and bad exit-options	-0.042 (0.560)	-0.103 (0.862)	-0.005	-0.091	0.080
BP3: Job at risk and bad exit-options	-1.756 (0.582)	-1.821 (0.811)	-0.116	-0.243	0.011
BP4: Permanent contract	0.275 (0.388)	1.000 (0.517)	0.057	-0.008	0.121
AZ1: Difference between preferred and actual working hours	-0.053 (0.015)	-0.008 (0.029)	-	-0.0032	0.002
AZ2: Flexible working time arrangements	0.656 (0.325)	0.402 (0.543)	0.019	-0.003	0.069
AZ3: Working at weekends	-0.032 (0.234)	-0.250 (0.348)	-0.012	-0.047	0.022
AZ4: Shifts	-0.659 (0.261)	-0.152 (0.466)	-0.008	-0.054	0.039
R1: Paid or provided training	0.274 (0.282)	0.384 (0.444)	0.019	-0.022	0.061
R2: On-the-job training	0.360 (0.252)	0.573 (0.425)	0.028	-0.012	0.068
R3: Medium complexity	0.186 (0.344)	0.965 (0.440)	0.048	0.006	0.090
R4: High complexity	-0.577 (0.401)	0.412 (0.512)	0.020	-0.029	0.070
R5: Medium level of autonomy	0.054 (0.287)	-0.357 (0.399)	-0.018	-0.059	0.022
R6: High level of autonomy	0.299 (0.309)	-0.355 (0.496)	-0.018	-0.068	0.032
R7: Degree of influence	0.042 (0.007)	0.029 (0.010)	0.0014	0.0005	0.0024
R8: Doing a good job	0.940 (0.282)	0.312 (0.444)	0.016	-0.031	0.064
R9: Doing a useful job	0.629 (0.284)	0.589 (0.366)	0.031	-0.010	0.072
R10: Skills correspond with duties	-0.049 (0.235)	-0.415 (0.340)	-0.021	-0.053	0.012
B1: Days with very long working hours (10 h and more)	-0.019 (0.029)	-0.075 (0.042)	-	-0.0079	0.0040
B2: Reduction of rest time	-0.270 (0.311)	-0.184 (0.589)	-0.009	-0.070	0.051
B3: Scale of exposure to potentially harmful environmental influences	-0.010 (0.008)	-0.008 (0.012)	-	-0.0015	0.0008
B4: Scale of exposure to potentially physically-demanding activities	-0.009 (0.008)	-0.031 (0.012)	-	-0.0027	-
B5: Very high working speed	-0.593 (0.255)	-0.530 (0.540)	-0.027	-0.079	0.026
B6: Tight deadlines	-0.705 (0.279)	-0.889 (0.515)	-0.045	-0.097	0.007
B7: Frequent interruptions	-0.946 (0.249)	-0.929 (0.430)	-0.051	-0.101	-0.002
S1: Getting on well with colleagues	1.161 (0.317)	0.521 (0.497)	0.028	-0.028	0.084
S2: Good cooperation with colleagues	1.371 (0.272)	0.937 (0.356)	0.053	0.009	0.098
S3: Support by manager	0.945 (0.230)	0.204 (0.331)	0.010	-0.023	0.044
S4: Harassment	-1.872 (0.301)	-2.028 (0.444)	-0.137	-0.216	-0.059
Controls (see Table A1)	yes	yes	yes		
Constant	yes	1.546 (2.512)			
Wald-Chi ²		247.91			
Prob>Chi ²		0.0000			
Pseudo-R ²	G: 0.3698	0.5493			
	BP: 0.1970				
	AZ: 0.1778				
	R: 0.2840				
	B: 0.2309				
	S: 0.3243				
N	G: 1,380	1,109			
	BP: 1,289				
	AZ: 1,441				
	R: 1,451				
	B: 1,430				
	S: 1,406				

1 Reduced models include – besides the individual and job related characteristics reported in Table A1 – the variables of each category separately (i.e. six specifications) 2 Complete model include – besides the individual and job related characteristics reported in Table A1 – the variables of each category simultaneously 3 (cluster-)robust standard error in parentheses 4 average marginal effects

Ref. G1-G4, BP4, AZ2-AZ4, R1, R2, R8-R10, B2, B5-B7, S1-S4: 0=no

Ref. BP1-3: Low likelihood of losing the job in the next 6 months and good prospects of easily finding a job with a similar salary

Sources: EWCS 2015, own calculations

The sample size with respect to Germany is much smaller than that of the European Union. Thus, standard errors might be larger which means that the likelihood of

estimating a significant correlation might be smaller. A direct comparison of the estimation and post-estimation results should be handled with caution.

Several robustness checks were performed by using randomly chosen subsamples of the EU-28-sample equivalent to the sample size for Germany. Likewise, the results presented in Table A3, the additional estimations reveal a smaller number of significant correlations. These, however, confirm the high relevance of variables in the categories „gratification“ and „context“ while the significance and relevance of the individual variables in the categories „content“, „workload“ and „working time arrangements“ depend on specific sample selection.

Table A4 – Correlation between autonomy and scale of influence
Tobit-estimation, dep. variable: scale of influence

	EU-28-sample		German-sample	
	Reduced model ¹	complete model ²	Reduced model ¹	complete model ²
R5: medium level of autonomy	7.090 (0.716)	6.504 (0.720)	4.464 (2.002)	3.429 (1.970)
R6: high level of autonomy	17.424 (0.727)	15.899 (0.754)	13.327 (2.042)	11.399 (2.057)
N	24,552	21,852	1,504	1,359
Left-censored	954	810	85	72
Right-censored	849	745	13	11
Pseudo-R ²	0.048	0.056	0.067	0.079

(Cluster-)Robust standard errors in parentheses

1 Controls: individual and job-related characteristics reported in Table A1 and variables in the category „content“

2 Complete model include the individual and job related characteristics reported in Table A1 and the variables of each category simultaneously

Sources: EWCS 2015, own calculations