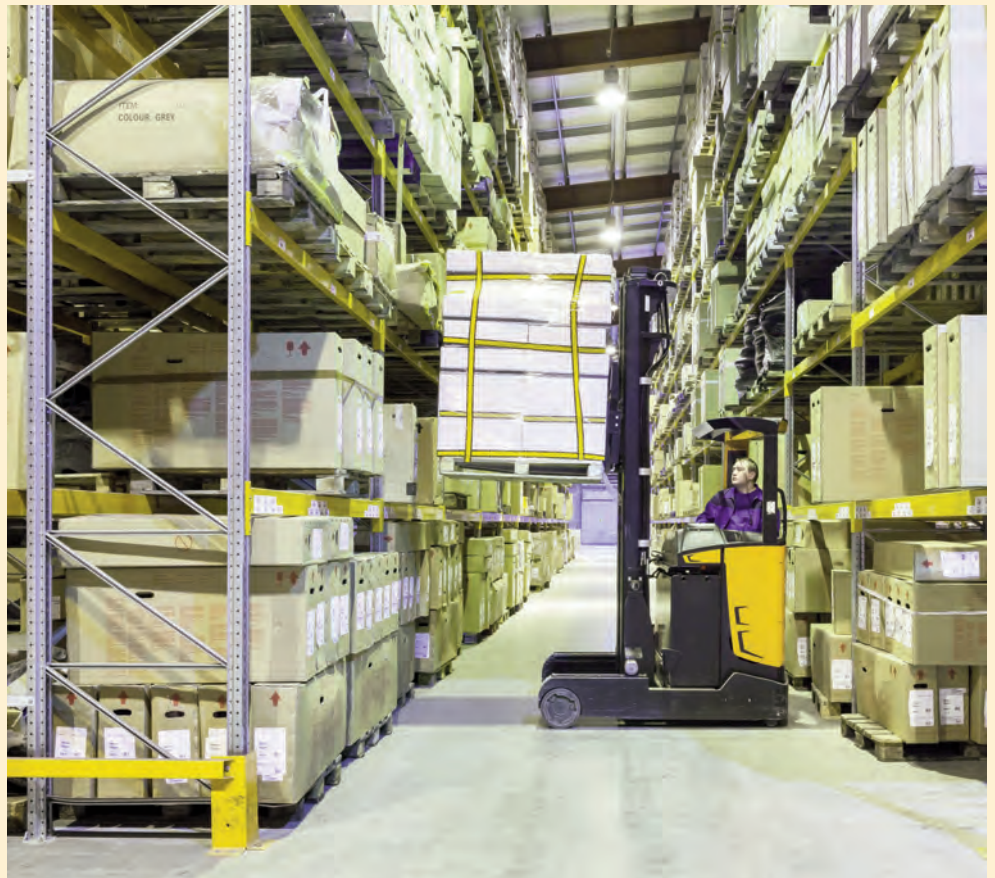




Eurofound

Occupational profiles in working conditions: Identification of groups with multiple disadvantages



When citing this report, please use the following wording:

Eurofound (2014), *Occupational profiles in working conditions: Identification of groups with multiple disadvantages*, Dublin.

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Research project: Occupational profiles in working conditions: Identification of groups with multiple disadvantages

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List of occupations used in the analysis (based on International Standard Classification of Occupations ISCO-08)

Major and sub-major groups

1 Managers

- 11 Chief executives, senior officials and legislators
- 12 Administrative and commercial managers
- 13 Production and specialized services managers
- 14 Hospitality, retail and other services managers

2 Professionals

- 21 Science and engineering professionals
- 22 Health professionals
- 23 Teaching professionals
- 24 Business and administration professionals
- 25 Information and communications technology professionals
- 26 Legal, social and cultural professionals

3 Technicians and associate professionals

- 31 Science and engineering associate professionals
- 32 Health associate professionals
- 33 Business and administration associate professionals
- 34 Legal, social, cultural and related associate professionals
- 35 Information and communications technicians

4 Clerical support workers

- 41 General and keyboard clerks
- 43 Numerical and material recording clerks
- 44 Other clerical support workers

5 Service and sales workers

- 51 Personal service workers
- 52 Sales workers
- 53 Personal care workers
- 54 Protective services workers

6 Skilled agricultural, forestry and fishery workers

- 61 Market-oriented skilled agricultural workers
- 62 Market-oriented skilled forestry, fishery and hunting workers
- 63 Subsistence farmers, fishers, hunters and gatherers

7 Craft and related trades workers

- 71 Building and related trades workers, excluding electricians
- 72 Metal, machinery and related trades workers
- 73 Handicraft and printing workers
- 74 Electrical and electronic trades workers
- 75 Food processing, wood working, garment and other craft and related trades workers

8 Plant and machine operators, and assemblers

- 81 Stationary plant and machine operators
- 82 Assemblers
- 83 Drivers and mobile plant operators

9 Elementary occupations

- 91 Cleaners and helpers
- 92 Agricultural, forestry and fishery labourers
- 93 Labourers in mining, construction, manufacturing and transport
- 94 Food preparation assistants
- 95 Street and related sales and service workers
- 96 Refuse workers and other elementary workers

0 Armed forces occupations

- 01 Commissioned armed forces officers
- 02 Non-commissioned armed forces officers
- 03 Armed forces occupations, other ranks

Executive summary

Introduction

This report, based on data from the fifth European Working Conditions Survey (EWCS), aims at identifying occupations in Europe that have multiple disadvantages, thereby making it difficult for people to stay in these jobs. The main tools used in this analysis are the Job Quality Indices (JQIs), such as earnings, prospects, working time and intrinsic job quality, constructed by Green and Mostafa on the basis of the fifth EWCS.

Occupations where job quality is consistently low are labelled ‘occupations with multiple disadvantages’. These occupations score relatively poorly on all four indicators of job quality: earnings, job and career prospects, working time and intrinsic job quality.

The relationship between the structural characteristics of the workforce (such as gender composition, age, education and sector of economy) and the quality of an occupation is also assessed; and the differences among specific types of employees are discussed.

Policy context

Creating more and better jobs throughout Europe, while improving the quality of the jobs and ensuring better working conditions, is a key priority of the European employment strategy and Europe 2020 strategy. Moreover, the improvement of working conditions is aimed at encouraging a longer working life and more sustainable work and employment.

This analysis is relevant in the context of the debate on social inequalities and, in particular, on social determinants of health. It is also useful in the debate about raising the age at which one can claim a state pension. This is especially so when one thinks of the argument against this – of the hardship experienced by workers in certain occupations. The analysis is also helpful for considering structural changes in the European labour market.

The analysis adds to the work by the EWCS in helping to understand what needs to be done to increase participation rates and improve the quality of work. Instead of using an approach where just one or more specific aspects of working conditions are analysed, this report focuses on different groups of workers that may need policies specifically geared toward tackling the disadvantages they face.

Key findings

The analysis confirmed that different occupations are exposed to different working conditions and job quality.

There is a notable difference between occupational groups in terms of their earnings, job and career prospects, working time and intrinsic job quality. Moreover, differences between occupations are often related to the level of skill required for the performance of the tasks and duties. Workers in occupations requiring greater levels of skill (such as Managers, Professionals and Technicians) are more frequently found at the top of the job quality scale, while workers in mid-skilled manual jobs (such as Skilled agricultural forestry and fishery workers, Craft and related trade workers, Plant and machine operators) and those in Elementary occupations are more likely to be in the bottom half of the scale.

Workers in mid-skilled manual and low-skilled occupations do quite poorly when it comes to earnings, prospects and intrinsic job quality, and they report relatively low levels of both physical and mental well-being. However, their working time quality is generally good. In contrast, workers in high-skilled occupations do relatively well on almost all job quality indicators, except working time.

The average levels of earnings between occupational groups decreases smoothly from high-skilled occupations having the highest, towards mid-and-low-skilled occupations having relatively low average values. Professionals and managers report the highest earnings, with Skilled agricultural workers the lowest. Professionals, managers and technicians also reported the best prospects, with worse ones reported by mid-skilled service and manual workers and workers in Elementary occupations. Highly skilled occupations are also the best for intrinsic job quality. Working time is the only dimension that does not have a clear correlation to level of skill. Workers in Elementary occupations and Skilled agricultural workers report relatively similar levels of working time quality as workers in high-skilled occupations.

Occupations that scored poorly on all four job quality indicators (earnings, prospects, working time and intrinsic job quality) include Customer services; the Building trades; Food processing; Stationary plant and machine operators; Labourers; and Food preparation assistants. Occupations that scored highly include Chief executives, senior officials and legislators; Hospitality, retail and other services managers; Science and engineering professionals; and Information and communications technology professionals.

The analysis also illustrated that occupational inequalities can sometimes be associated with the individual characteristics of a workforce, rather than just by their working conditions. Young workers were found to be most likely to have a job with multiple disadvantages, compared with workers aged 50 and over. Also, less well-educated employees are the most likely to have jobs with multiple disadvantages.

The variations on almost all job quality indicators indicate that country differences and national labour market settings deserve further investigation, as cross-country differences might suggest a need for different policy approaches in Member States towards improving job quality.

Policy pointers

Europe's policymakers' concerns about the need to get more young people into work have already been extensively addressed. The analysis, however, drew a disturbing picture of young workers being in danger of having jobs with multiple disadvantages. This implies that specific groups of workers in a vulnerable position (such as younger workers) might need tailored policy measures. Another pressing challenge for EU policymakers is righting the occupational inequality related to the level of skill, as exposure to multiple disadvantages at the workplace is expected to have negative outcomes on workers' health, which ultimately affects their ability to remain in employment.

Many interventions to improve working conditions are organised and implemented by sector, at both European and national level. This is highly relevant in any attempt to improve working conditions in occupations with multiple disadvantages, as occupational groups are not evenly distributed across sectors in Europe. Indeed, in some sectors the shares of specific occupations are notably larger (for instance, over 47% of Construction workers are Building and related trade workers; while over 47% of those employed in the Transport sector are Drivers and mobile operators).

Introduction

Different occupations are associated with different working conditions, including exposure to physical and psychosocial risks. Different occupational groups experience different levels of provision of resources such as skills, and room for manoeuvre, to manage current and future job demands. The exposure of workers to poor working conditions, to a combination of risks and to low levels of job resources has been shown to have a negative effect on their health and well-being as well as on their ability to remain in employment.

What are the occupations in Europe that combine multiple disadvantages and make it more difficult to make work sustainable over the life course? Analysis of the fifth European Working Conditions Survey (EWCS) should help to establish occupational profiles, mapping disadvantages in terms of income, job security and career prospects, skills and autonomy, social support, work intensity and physical hazards, working time, and others relevant to job quality for groups of occupations. Aimed at identifying occupations in Europe with multiple disadvantages, this study should serve as a basis for follow-up action to improve the quality of work in these occupations.¹ The research focuses on common patterns across the European Union of workers experiencing multiple disadvantages at occupational level and hence points to national variations.

This analysis is relevant in the context of the debate on achieving the Lisbon Strategy targets for increasing the quality of jobs in Europe. It is also crucial if Europe is to meet the challenges set by the Europe 2020 Strategy: high participation in employment, sustainable work and strategic actions to address the negative outcomes of poor job quality on workers' health and well-being.

This analysis is pertinent in the context of the debate on social inequalities and in particular on the social determinants of health. It is also relevant in terms of the debate on raising the statutory pensionable age and the 'hardship' experienced in certain occupations, evoked as an argument against increasing retirement age. The analysis can also be used to reflect on structural changes in the European labour market and the role of occupation.

This project adds another dimension to the contribution that the EWCS has made to understanding the prerequisites for increasing participation rates and quality of work. Instead of using an approach where just one or more specific aspects of working conditions are analysed, this project focuses on different groups of workers that may need policies specifically designed to tackle the range of disadvantages they encounter.

The main tools for developing this occupation-based analysis are the Job Quality Indices (JQIs), constructed by Green and Mostafa (Eurofound, 2012a) on the basis of the fifth EWCS.² The study uses a variation of these job quality indices across occupations at the 2-digit level of the International Standard Classification of Occupations 2008 (ISCO-08) to identify occupations which consistently fall in the lower half of the job quality scale. This study further considers these as 'occupations with multiple disadvantages'. In contrast, occupations consistently in the upper half of the job quality distributions are considered 'occupations with favourable features'.

¹ Eurofound's research project 'Improving working conditions in occupations with multiple disadvantages' in the Annual Work Programme 2014 (Eurofound, 2013a), will specifically focus on measures and policies aimed at improving working conditions in the occupations exposed to multiple disadvantages at the workplace.

² The Job Quality indices, constructed by Green and Mostafa (Eurofound, 2012a), have also been applied to other recent secondary analysis of the EWCS (Eurofound, 2014). The report *Working conditions and job quality: Comparing sectors in Europe* focuses on many facets of working conditions and refers to the four job quality indicators, while exploring economic sectors in Europe.

Structure of the report

This report is divided into three chapters.

Chapter 1 provides an overview of the methodological framework of the report. It describes the elements of the job quality indices, developed by Green and Mostafa (Eurofound, 2012a) and extensively applied to this occupational analysis. The chapter also clarifies other summative indices used in the report and outlines the selection criterion of occupations with multiple disadvantages in Europe.

Chapter 2 explores the major occupational groups (ISCO-08, 1-digit) in terms of key socioeconomic characteristics and presents a set of indicators of work and employment, also relevant to the concept of work sustainability. Furthermore, individual outcomes – a worker’s physical and psychological well-being – are described in terms of occupational categories.

Chapter 3 explores the variation in job quality across occupations (ISCO-08, 2-digit) and identifies those occupations having multiple disadvantages. It also looks at how job quality varies between certain groups and work situations, between certain countries. Finally, it analyses the relationship between the structural characteristics of the workforce and the quality of occupations.

Methodological framework

Definitions and underlying concepts

Occupation in the EWCS is captured by two open-ended questions (the title of the main paid job and a description of what is mainly done in it) that have subsequently been coded into the International Standard Classification of Occupations 2008 (ISCO-08). This report and the identification of ‘occupations with multiple disadvantages’ are based on ISCO-08; therefore its definitions and key concepts are important for the analysis.

Occupation is defined in ISCO-08 as ‘a set of jobs whose main tasks and duties are characterised by a high degree of similarity’ (ILO, 2012). Two concepts are considered as key for the design and construction of ISCO-08: the ‘job’ – defined as ‘a set of tasks and duties carried out or meant to be carried out’ by one person including an employee or a person in self-employment; and the ‘skill’ – defined as ‘the ability to carry out the tasks and duties of a given job’.

ISCO-08 has a hierarchical structure: the broadest categories are the 1-digit major groups; each major group is further organised into sub-major, minor and unit groups. This analysis is limited to the major and the sub-major occupational groups in the classification (ISCO-08, 1 and 2-digit levels).

Two dimensions of skill are used to arrange the occupations into groups: the ‘skill level’ and the ‘skill specialisation’. The ‘level of skill’ is defined as a function of ‘the complexity and range of tasks and duties to be performed in an occupation’, and is measured by considering the nature of the work performed in an occupation in relation to the characteristic tasks and duties for each ISCO-08 Skill level; and/or the worker’s level of formal education and their amount of informal on-the-job training and/or previous experience. The ‘skill specialisation’ is considered in terms of the field of knowledge required, the tools and machinery used, the materials worked on or with, and the kinds of goods and services produced. While the concept of the ‘level of skill’ is mainly applied at the major group level, sub-major groups are primarily arranged on the basis of ‘skill specialisation’.

The major groups in ISCO-08 are associated with four broad skill levels, defined in relation to the levels of education specified in the International Standard Classification of Education (ISCED-97). A relatively informal classification is derived from ISCO-08 on the basis of the application of the ‘skill level’ (higher or lower) requirement: high-, mid-, and low-skilled occupations. The occupational groups of managers, professionals and technicians are sometimes classified as high-skilled occupations; clerical support workers and service and sales workers as mid-skilled service occupations; skilled agricultural and fishery workers, craft and related trades workers and plant and machine operators as mid-skilled manual occupations; and elementary occupations are classified as low-skilled occupations.³

Job quality, health and well-being indices

This report uses the Job Quality Indices (JQIs) – earnings, prospects, intrinsic job quality and working time quality – and relates them to some self-reported well-being indicators such as number of health problems, negative effect of work on health, mental well-being, self-reported work–life balance, and meaningfulness of work.⁴ These indicators were

³ It is important to highlight the fact that formal education requirements are only one component of the measurement of a level of skill and should be considered as indicative only. The most important determinant of skill level is the nature of the tasks performed in a particular occupation in relation to the characteristic tasks defined for each skill level. It is not necessary for a person to hold qualifications at a particular level in order for their job to be classified at a particular ISCO skill level.

⁴ In *Trends in Job Quality in Europe* (Eurofound, 2012a), Green and Mostafa use slightly different labelling for the indices of well-being: number of health problems, health issues caused by work, subjective well-being, subjective work–life balance, and meaningfulness of work.

constructed by Green and Mostafa (Eurofound, 2012a), in order to identify occupations and groups of workers in these occupations who were experiencing poor working conditions and negative outcomes on their physical and psychological well-being.

Green and Mostafa (Eurofound, 2012a) define ‘job quality’ as a synonym for ‘quality of work and employment’. They define the concept of the ‘job’ as broader than that of the work itself, as it also encompasses the nature of the physical location of employment but this does not cover the nature of the labour market and beyond.

The four job quality indices include two sets of extrinsic job features – ‘earnings’ and ‘prospects’ – and two sets of intrinsic ones: ‘intrinsic job quality’ and ‘working time quality’. These features integrate elements from multiple disciplines such as economy, sociology and occupational psychology and have been associated in epidemiological studies with a proven impact on health and well-being.

The index of earnings captures the level of monetary reward through the construction of a harmonised monthly earnings variable. Prospects refer to a person’s need for employment. This need is related to the need for income, for employment continuity, and for enhancement. Key features include job security and prospects of advancement in their job. Whether the job allows for a good balance between a person’s working life and private life is captured by the Working time quality index. This focuses mainly on features of the timing of the job. Intrinsic Job Quality (IJQ) is about the work and its environment. The index is made up of four sub-indices associated with meeting people’s needs. The first sub-index of IJQ – skills and discretion – captures the concepts of the skills required to do the job and the level of autonomy that a worker has.⁵ The second sub-index of IJQ – social environment – captures this environment’s positive and negative aspects. The third sub-index of IJQ – physical environment – concerns physical or posture-related hazards. The fourth sub-index of IJQ – work intensity – refers to the intensity of labour effort during work time; with labour effort incorporating both physical and mental aspects (Eurofound, 2012a).

Table 1 in the Annex provides detailed information on the items included in the constructed Job Quality Indices. A methodological description of the indices design, method of construction, including considerations such as weights, items normalisation, scales reliability and validity, can also be found in the Green and Mostafa report (Eurofound, 2012a, p. 18).

The outcome of job quality is conceptualised in the report through the dimensions of individuals’ well-being.

- The ‘Number of health problems’ index accounts for 14 different health problems experienced by the respondents in the last 12 months.
- The ‘Negative effect of work on health’ indicator consists of the positive responses to the question whether work affects employee’s health.
- The ‘Mental well-being’ index consists of five items related to the extent to which the respondent has felt cheerful and in good spirits, has felt calm and relaxed, has felt active and vigorous, has woken up feeling fresh and rested, and has felt their daily life was filled with things that interest them.

⁵ The concept of ‘skill’ is also a key concept in the framework used for the design and construction of ISCO-08. Thus ‘skill’, as intrinsic to the occupation concept, needs to be interpreted with caution in the following analysis.

- The ‘Self-reported work–life balance’ variable consists of the positive responses to the question whether working hours fit in with the worker’s family or social commitments outside.
- The ‘Meaningfulness of work’ index combines two items related to the worker’s feeling that their job is well done and the feeling of doing useful work.

Identification of occupations with multiple disadvantages

The identification of occupations with multiple disadvantages and occupations with favourable features is done at ISCO-08 2-digit-level. It is based on the variation of the indices of job quality across occupations. The weighted mean for each occupational group is computed and ranked to select the occupations in either the top or bottom half of the ranking on all four of the dimensions. Occupations where job quality is low, in the lower half of the distribution on all dimensions of job quality, are labelled ‘occupations with multiple disadvantages’ or ‘unfavourable occupations’. The occupations where job quality is high, in the upper half of the distribution for all job quality dimensions, are labelled ‘occupations with favourable features’ or ‘favourable occupations’. The rest of the occupational groups – those with relatively low scores on some job quality indices and relatively high scores on others – are labelled ‘occupations with mixed features’.

Other summative indices

To facilitate the presentation and interpretation of data, as well as to draw attention to specific issues, some of the indices below are disaggregated from Green and Mustafa’s (Eurofound, 2012a) aggregate variables. These indices relate to working time, employee representation and physical risks.

Working time

The working time preference indicator has been constructed by comparing the number of hours which respondents reported as working per week, with the number of hours they say they would prefer to work, taking into account the need to earn a living. The composite indicator of atypical working time has been constructed by averaging the proportion of Saturdays, Sundays, evenings and nights that workers work per month.

A composite indicator of irregularity of working times has also been constructed, by counting the number of confirmative answers the respondents gave to questions on whether they work the same number of hours every day, the same number of days every week, the same number of hours every week and whether they have fixed starting and finishing times.

Employee representation

Whether an employee representative is available to workers at their workplace was measured by combining the answers to the questions whether there is an employee acting as an employee representative at their workplace and whether, in the last 12 months, they had raised a work-related problem with an employee representative. If a respondent answered affirmative to any of these two questions, an employee representative is assumed to be available to workers in the establishment.

Physical risks

A composite indicator of exposure to risks related to posture and movement was constructed by averaging the proportion of working time which respondents reported to be exposed to vibrations, tiring or painful positions; lifting or moving people; carrying or moving heavy loads; standing and repetitive hand or arm movements.

A composite indicator of exposure to biological and chemical risks was constructed by averaging the proportion of working time respondents reported breathing in smoke, fumes, powder or dust; breathing in vapours; handling or being in skin contact with chemical products or substances; and handling or being in direct contact with materials that can be infectious.

A composite indicator of exposure to ambient risks was constructed by averaging the proportion of working time respondents reported to be exposed to noise, high and low temperatures.

Limitations of the analysis

This analysis is based on data from the fifth EWCS, limited to the EU28.⁶ To illustrate more accurately the total workforce in Europe, Eurostat's Labour Force Survey (LFS) statistics are used for the structural characteristics of the EU28 workforce (such as gender composition, age, education and sector).

The limitations of the survey also have to be considered. The EWCS is a cross-sectional survey and the design of such a survey does not allow for the drawing of causal inferences. The EWCS data are self-reported by respondents.

The survey aims to comparably measure working conditions across Europe and is highly harmonised. Nevertheless, cross-national differences resulting from national labour market and institutional settings are considered in the analysis.

The identification of occupational groups exposed to multiple disadvantages at the workplace is performed at European level; and at the 2-digit level of ISCO-08. This is done without any collapsing of occupations, to avoid loss of information for sub-major occupational groups. To ensure a sufficient number of cases in each category, however, a few occupational groups have been excluded from the analysis. For example, the Armed forces occupational group, due to its limited proportion in the total workforce in every EU28 member country, and because of its heterogeneity, has not been included in the analysis. Furthermore, the sub-major occupational groups of Subsistence farmers, fishers, hunters and gatherers and Street and related sales and service workers are not included in the analysis either, because of their limited numbers.⁷

The observation of the variation of job quality between countries is kept at 1-digit level of ISCO-08 due to an insufficient number of cases in some 2-digit ISCO-08 categories at the level of individual country. Analysis of cross-country variation at 2-digit level of the classification requires sufficiently large categories in each country to present reliably the breakdowns, and to allow for a generalisation of the findings.

It must be emphasised that there should be a cautious interpretation of the cross-tabulations of occupations and level of education, skills, training, and job content-related variables (such as tasks and duties carried out), as well as of the variation of occupations across the intrinsic job quality index,⁸ due to the fact that both the 'job', and the concept of 'skill' are key to the framework and the design of ISCO-08.

⁶ During the fifth EWCS field work in 2010, Croatia was not yet a member of the European Union. The analysis, however, includes all current EU28 Member States and the relevant supra-national weight (for EU28) is calculated and applied.

⁷ Table 2 in the Annex provides information on the occupational categories included in the analysis and the number of cases in each group.

⁸ As the Skills and Discretion sub-index is used in building the Intrinsic Job Quality Index.

Key characteristics of work and employment in relation to occupations

This report aims to identify occupations and groups of individuals experiencing relatively lower levels of earnings, job and career prospects, poor working time and intrinsic job quality, in comparison with other occupational groups and individuals; as these workers might consequently be at risk of poor physical and psychological well-being.

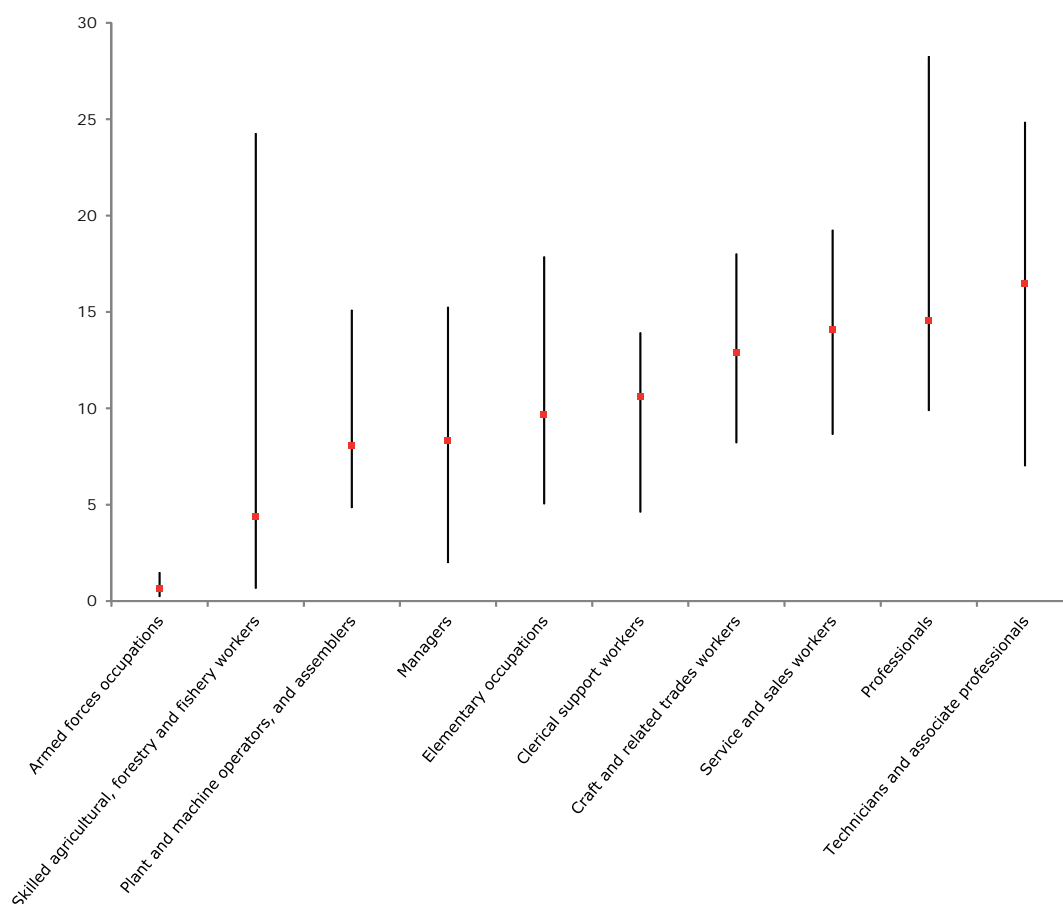
This challenge is first approached with a descriptive analysis of key characteristics of work and employment (some of the items used here are also captured by the broader job quality indices) relevant to the issue of sustainability, at the level of the major occupational groups (ISCO-08, 1-digit), as well as illustrating the outcomes for individual well-being.

Occupational groups by key socioeconomic characteristics

In light of the importance of the key demographic characteristics of the European workforce and the individuals within occupations, this section describes briefly the major occupational groups with regard to gender, age and education.

The research uses Eurostat Labour Force Survey (LFS) data, to present the proportion of the workforce within major occupational groups (see Figure 1), as well as to illustrate the level of variation across the EU28.

Figure 1: Major occupational groups as a proportion of total workforce (%)



Source: Author's own calculations, based on Eurostat LFS data, 2010

Note: The vertical line illustrates the minimum and the maximum proportions of the workforce in the major occupational groups across the EU28; and the boxes illustrate the EU28 average.

Figure 1 shows the proportion of the European workforce employed in each major occupational group, and the minimum and maximum proportions across the EU28.

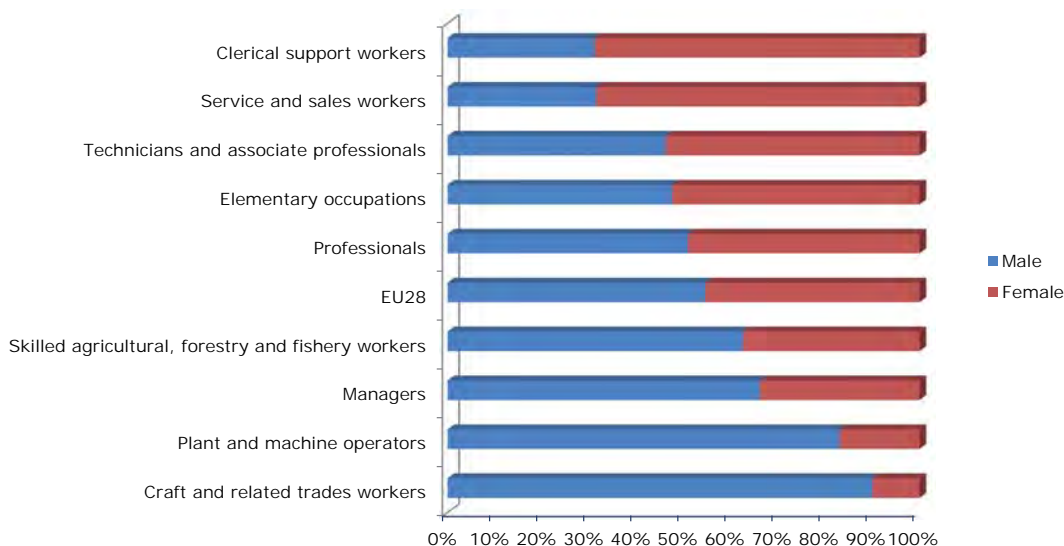
It can be seen from the figure that a large proportion of the European workforce is concentrated in the occupational groups of Technicians (16.5%) and Professionals (14.5%), as well as Service and sales (14.1%). The smallest occupational groups, respectively, include the Skilled agricultural, forestry and fishery workers (4.4%) and the Armed forces (0.6%).⁹

It can also be seen that the largest occupational groups in Europe (Technicians and Professionals) vary significantly across EU Member States in terms of the proportions of the workforce employed. For instance, the occupational group of Professionals employs 9.9% of the workforce in Portugal, while this proportion is 28.3% in Luxembourg. The occupational group of Technicians in Ireland covers 7.0% of the workforce, while in the Czech Republic this group comprises 24.9%. The most notable variation, however, is seen in the occupational group of Skilled agricultural forestry and fishery workers as, in Slovakia, this occupation employs only 0.7% of the workforce, while in Romania this is the largest occupational group, employing 24.3% of the workforce.

Another important comparison is the share of workers in high-skilled occupations with those in mid- and low-skilled occupations. Managers, Professionals and Technicians together account for more than a third of the total workforce in Europe (39%).

The division of labour on the basis of gender is one of the most pervasive characteristics of labour markets, reflected in differentials in occupational distributions between men and women. Figure 2 provides indications for the analysis of gender segregation in employment, illustrating the male-female dominance in specific occupational categories.

Figure 2: Gender differences by occupational groups



Source: Author's own calculations, based on Eurostat LFS data, 2010

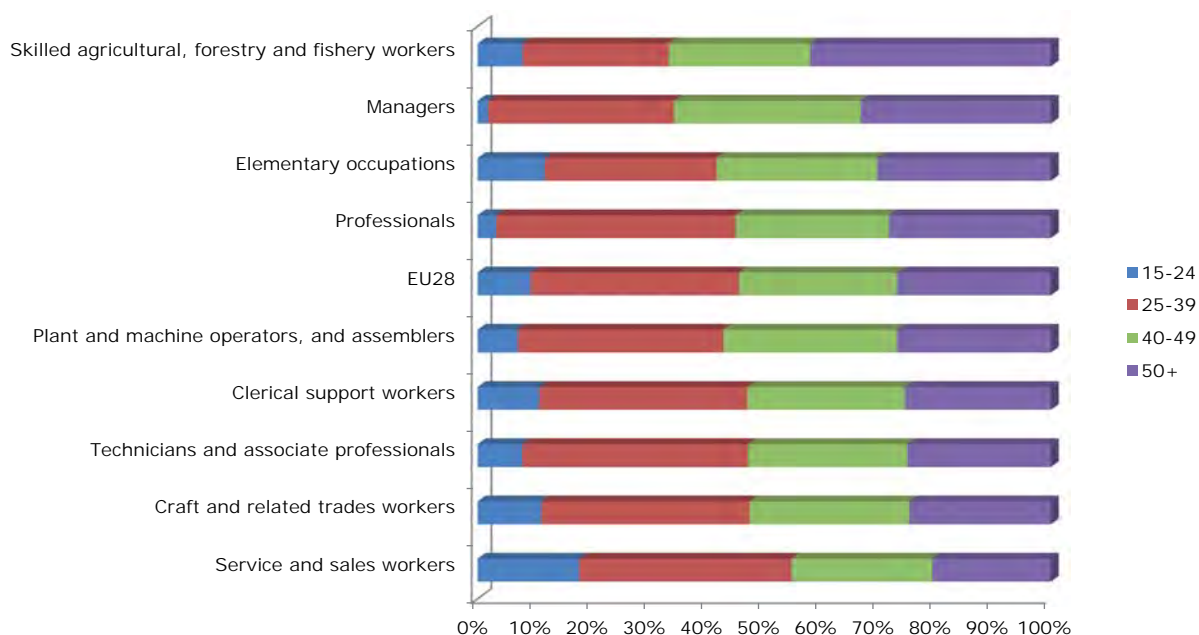
⁹ As explained above the Armed forces occupational group is excluded from further analysis because of its limited share in the total European workforce, but also because of the group's heterogeneity. The analysis aims to ensure the number of cases in each occupational group is sufficient to reliably present the breakdowns for the variables of interest.

The occupations of Craft workers and Plant operators are male-dominated, with men accounting for over 80% of the workers. Male workers also dominate in occupations such as Managers¹⁰ and Skilled agricultural, forestry and fishery workers. Women, however, predominate as Clerical and Service workers (almost 70%). The shares of female and male workers in the occupational groups of Technicians and Professionals, and in the Elementary occupations, seem to be balanced and not notably different from the EU28 average.

The proportions of male and female workers within the major occupational categories hide even more considerable differences at national level as, in some countries, gender segregation is more pronounced than on average (see Table 3 in the Annex).

Figure 3 does not show large differences across occupational groups with regard to age. Almost two thirds of European workers (64%) are aged between 25 and 49 years. Across occupations, the relative size of this age group varies between 50% of Skilled agricultural, forestry and fishery workers, up to 69% of workers in the Professionals occupational group. A relatively large share of young workers (aged 15–24 years) is employed in Service and sales (18 %), but this age group has a very small presence in the occupational groups of Managers (2%) and Professionals (3%). The occupational group with the highest share of workers aged 50+ is the Skilled agricultural, forestry and fishery group, with over 40% of the workers aged 50 years and older.

Figure 3: Age differences by occupational groups

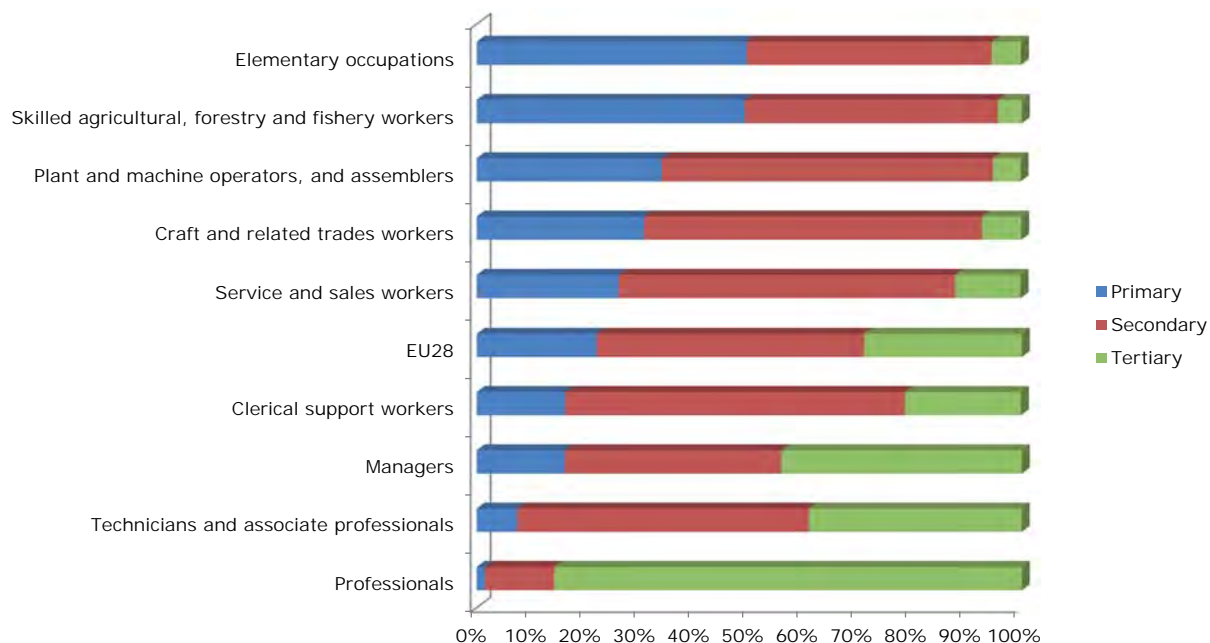


Source: Author's own calculations, based on Eurostat LFS data, 2010

¹⁰ Although they are underrepresented in managerial positions, women's performance as supervisors tends to be at least as good as that of men. A recent Eurofound report highlights that employees tend to judge male and female supervisors equally (Eurofound, 2013b).

Figure 4 illustrates the proportions of workers reporting a successful completion of their education across the major occupational categories. Not surprisingly, the distribution of workers with primary and secondary education is notably skewed towards the low- and mid skilled occupations in the ISCO classification. The share of workers with a relatively low level of having successfully completed their education is higher in the bottom level of the classification (ISCO major groups 5 to 9), compared with the top level of the classification (ISCO major groups 1 to 4).

Figure 4: Educational differences at occupational level



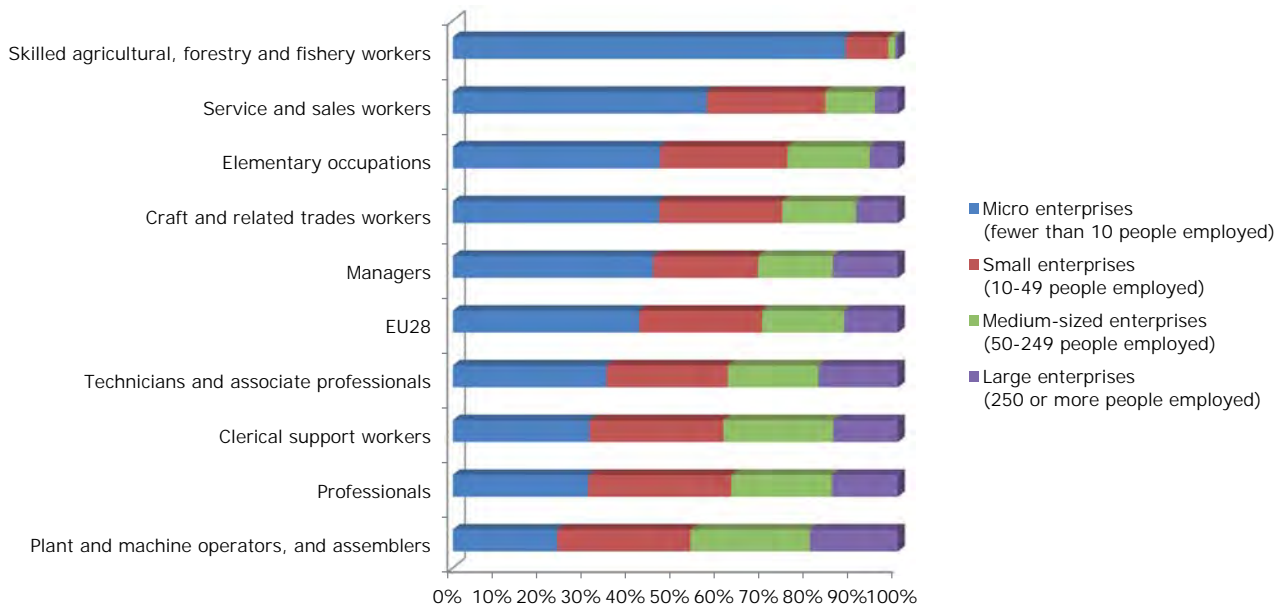
Source: Author's own calculations, based on Eurostat LFS data, 2010

A set of structural characteristics of the economy and of companies, such as the sector, the size of the establishment, the ownership type, and the type of employment and the contractual arrangements, can be expected to have an impact on the quality of an occupation and on an individual's well-being.

Occupational groups are not evenly distributed across sectors in Europe and, in some sectors, the shares of specific occupations are notably larger (see Table 4 in Annex). For instance, over 60% of the workers in Construction are Craft workers or in related trades. Noticeable proportions of these types of workers are found in Mining and quarrying (37%) and in Manufacturing (31%). The proportion of Plant and machine operators in the Transport sector (43%) is also noticeable. Over 58% of the workforce employed in Accommodation and food service activities are Service and sales workers. The education sector employs the greatest number of Professionals (57%).

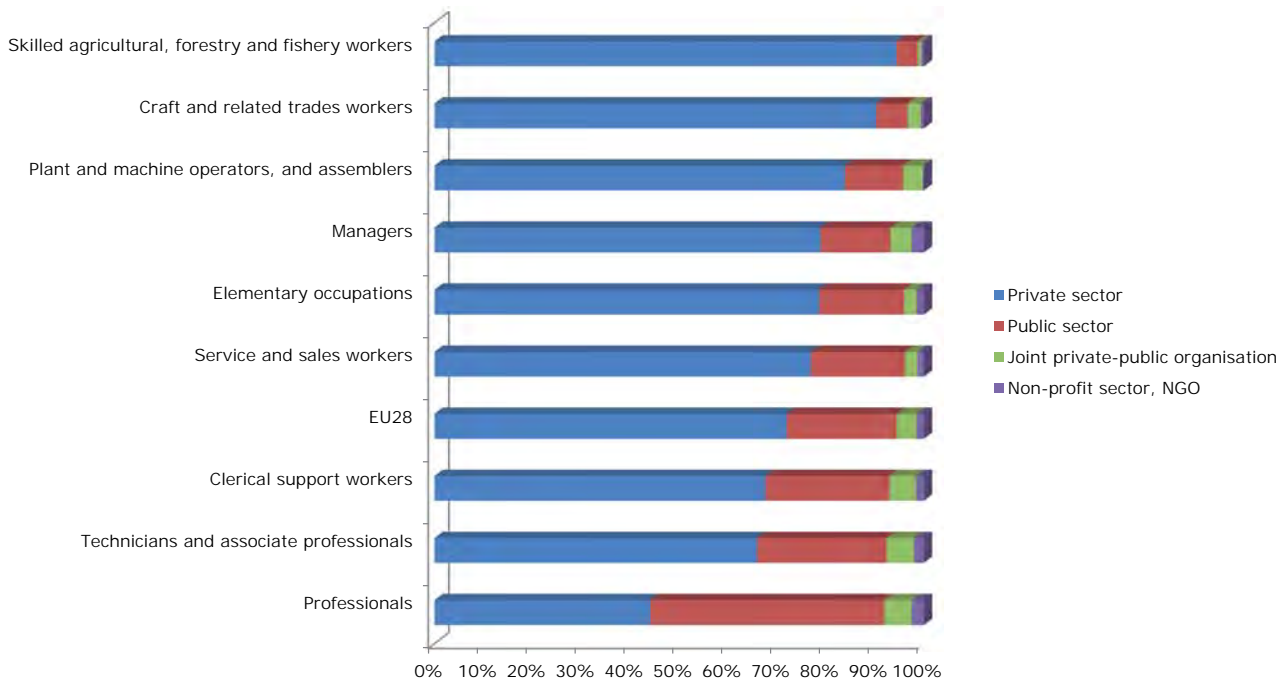
The prevalence of the EU workforce in micro, small and medium workplaces is notable for all occupations (Figure 5). Plant and machine operators differ from the rest of the occupational groups, with the largest share of these workers in workplaces with 250 workers or more (20%) and the smallest proportion in workplaces with fewer than 10 employees (24%). The largest share of workers in workplaces with fewer than 10 employees is found in the Skilled agricultural, forestry and fisheries group (88%). A relatively large share of Service and sales workers is found in micro enterprises (57%).

Figure 5: Percentage of individuals by establishment size



Over 70% of the EU workforce is employed in the private sector. Skilled agricultural, forestry and fishery workers and Craft and related trades workers differ from the other occupational groups in that they account for the largest proportion of workers in the private sector (over 90%). The occupation with the smallest proportion of private sector workers (44%) is the Professionals group, which has the biggest share of workers in the public sector (48%).

Figure 6: Percentage of individuals by ownership type



What is more, a recent Eurofound report highlights that female-dominated occupations are concentrated in the public sector (Eurofound, 2013b). When considering jobs within occupational categories, women are more likely to be in jobs in the public sector within any occupational group, independently of whether that occupational group is characterised by a predominance of public or private sector workers.

About 15% of the workers in the EU28 are self-employed (Figure 7).¹¹ The share of self-employed workers, however, varies between occupations. Skilled agricultural and fishery workers stand out with 73% being self-employed (64% of whom have no employees). There is also a relatively large share of self-employed workers in the occupational group of Managers (36%), with 21% of them having employees. Clerical support workers have the smallest proportion of self-employed workers.

Figure 7: Percentage of individuals by employment status



The indefinite employment contract is the most prevalent form of employment in Europe. Around 80% of European workers have one (Figure 8), with 12% of workers having a fixed-term contract, and 5% having no contract.

Notable differences from the EU average, in terms of employment contracts, are found in the occupational groups of Skilled agricultural and forestry workers and Elementary occupations. These stand out as having the lowest share of indefinite contracts and the largest proportion of people with no contracts. The proportion of workers with fixed-term contracts in these occupational groups is also higher than average. This does not seem surprising for the agricultural workers, considering their employment status (see Figure 7), but might be considered alarming regarding Elementary workers.

¹¹ The analysis further on does not separate employed and self-employed, and includes both groups.

Figure 8: Percentage of individuals by type of employment contract



Occupational groups by key characteristics of work and employment

This section points to the differences between major occupational groups with regard to a set of key characteristics of work and employment that could affect an employee's ability to stay in a job.¹² These characteristics cover aspects of:

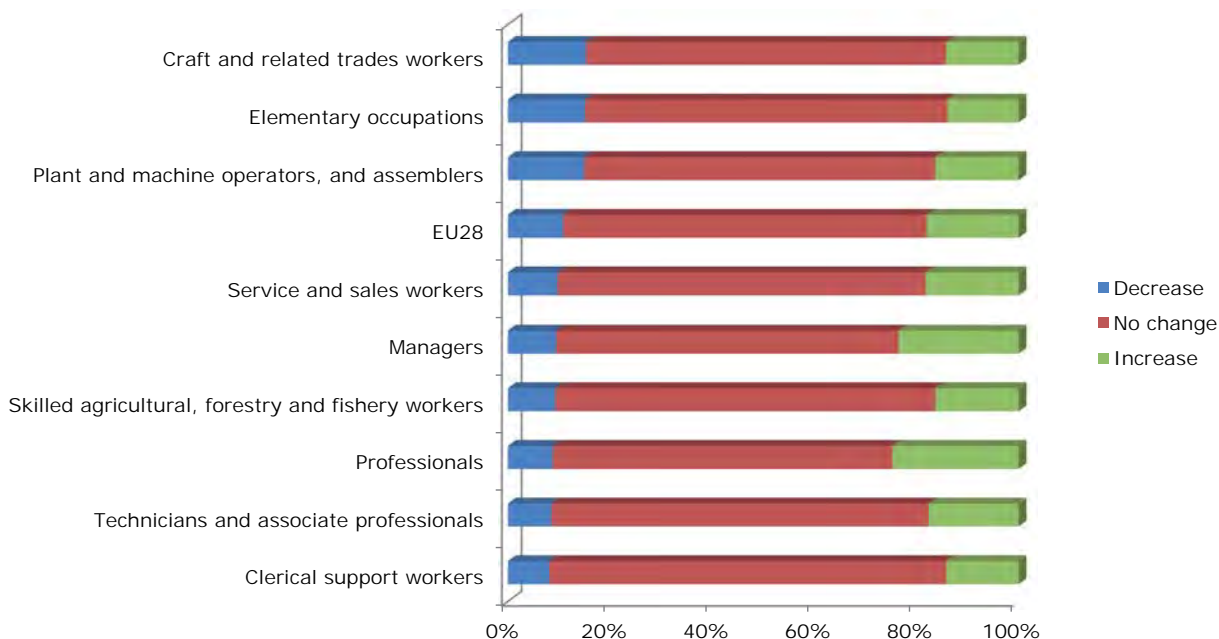
- work organisation (such as job discretion, job demands, and physical conditions);
- flexibility (working time arrangements);
- skills and development (training, skill requirements);
- participation and representation (employee representation and voice).

Recent organisational changes

Figure 9 illustrates the change experienced in the number of weekly working hours across major occupational groups in the past 12 months. The number of hours worked per week has remained unchanged for most of the occupational groups. Increases in the number of working hours have more frequently been reported by Managers and Professionals.

¹² Job quality indices, constructed by Green and Mustafa (Eurofound, 2012a), are desegregated here for the purposes of the analysis; and other variables, not included in the indices construction, are used to facilitate the observation.

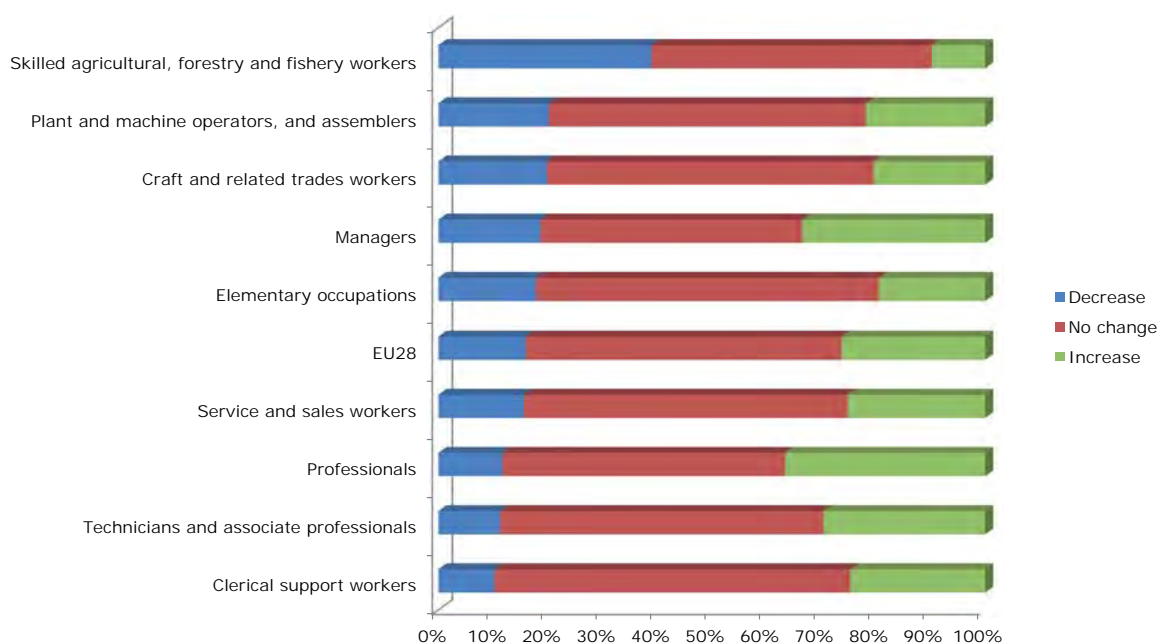
Figure 9: Change in the number of hours worked per week in the past 12 months



However, a decrease in the number of weekly working hours is observed in all the occupational groups, and this is reported by a larger proportion of workers in mid-skilled manual occupations, specifically Craft and related trade workers, Plant and machine operators, and workers in Elementary occupations. While the decrease in the number of working hours per week in these occupations can be related to the effect of the crisis (such as short-time working schemes), there is no evidence from the survey to support this. Moreover, the decrease in weekly working hours is likely to have a negative effect on the income of those workers (Figure 10) as the proportion of Craft workers and Plant and machine operators reporting a decrease in the salary in the past 12 months is relatively high.

Most workers in all occupational groups have reported that the levels of their earnings have remained the same. Considerable reductions in income, however, are reported by Skilled agricultural and forestry workers, while Professionals and Managers report higher levels of increase in their salaries.

Figure 10: Change in the income in the past 12 months



Around 40% of EU workers reported being shown new processes and technologies in the past three years and 31% reported that restructuring or reorganisation took place (Figure 11). The highest proportions of workers (over 50%) reporting the recent introduction of new processes and technologies are in the occupational groups of Managers, Professionals, and Technicians. This was less common for workers in the Elementary occupations, and also for Service and sales workers and Skilled agricultural workers.

Figure 11: New processes or technologies and substantial restructuring at the workplace in the past three years



Restructuring or reorganisation in the past three years is reported by relatively high proportions of Managers and Technicians, as well as Clerical support workers and Plant and machine operators. Substantial restructuring at the workplace is less reported by workers in Elementary occupations and Skilled agricultural and forestry workers.

Training and skills

Some 34% of EU workers reported that they had received training paid for by their employer; with 9% reporting that they paid for their own training. Differences between occupations, however, are notable.

Any training in the past 12 months, whoever paid for it, is much less reported by workers in the mid-skilled manual and low-skilled occupations. The lowest proportion of workers getting training paid for by the employer is in the Skilled agricultural, forestry and fishery occupational group. The lowest levels of workers paying for their own training are found in Elementary occupations.

Figure 12: Workers receiving training (paid for personally, or by the employer) in the past 12 months



The occupations where a considerable proportion of workers have undergone training paid for by the employer are the Professionals, Managers and Technicians. Those are also the occupational groups reporting higher levels of training paid for by the worker.

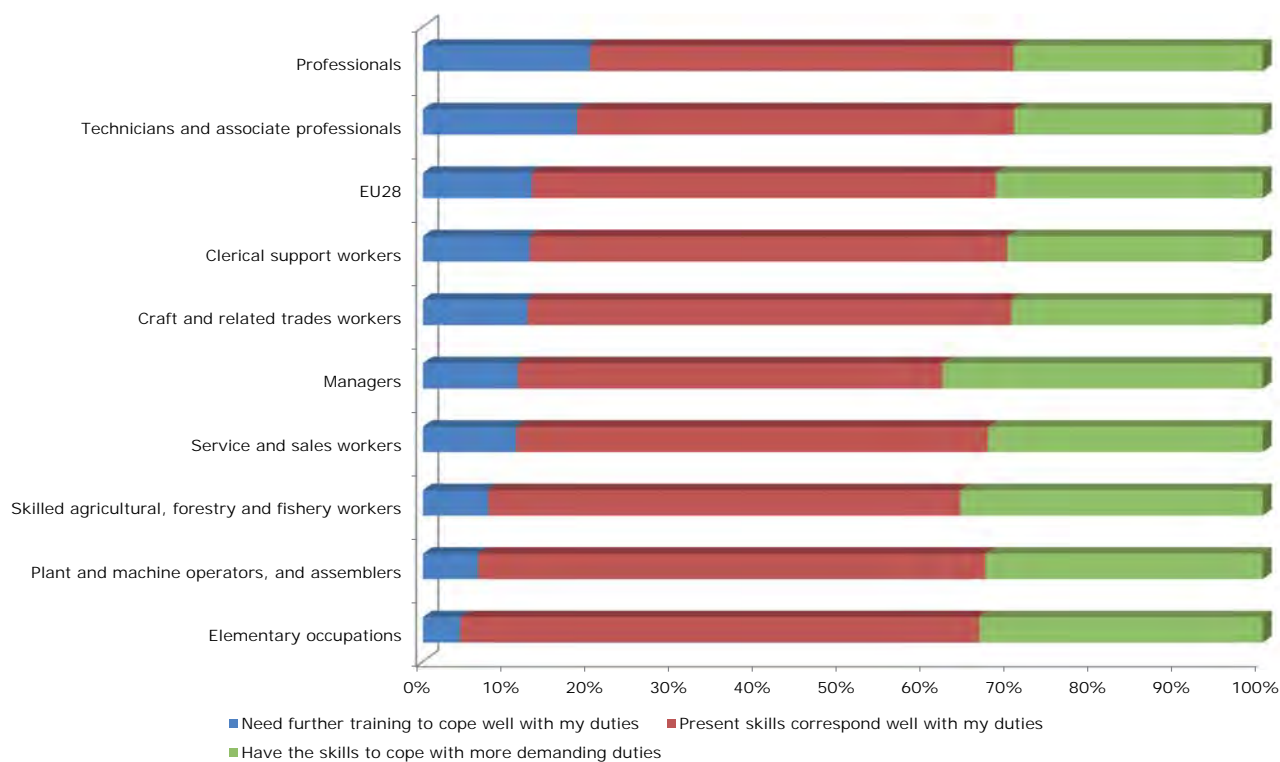
On-the-job training takes place predominantly in the Professionals and Technicians occupational groups. Again, Skilled agricultural and forestry workers and workers in Elementary occupations have limited access to training of this type.

Figure 13: *Workers undergoing on-the-job training*



One aspect worth studying, with regard to skills and development, is a worker's perception of whether their present skills match the demands of their job and whether they need to improve their skills.

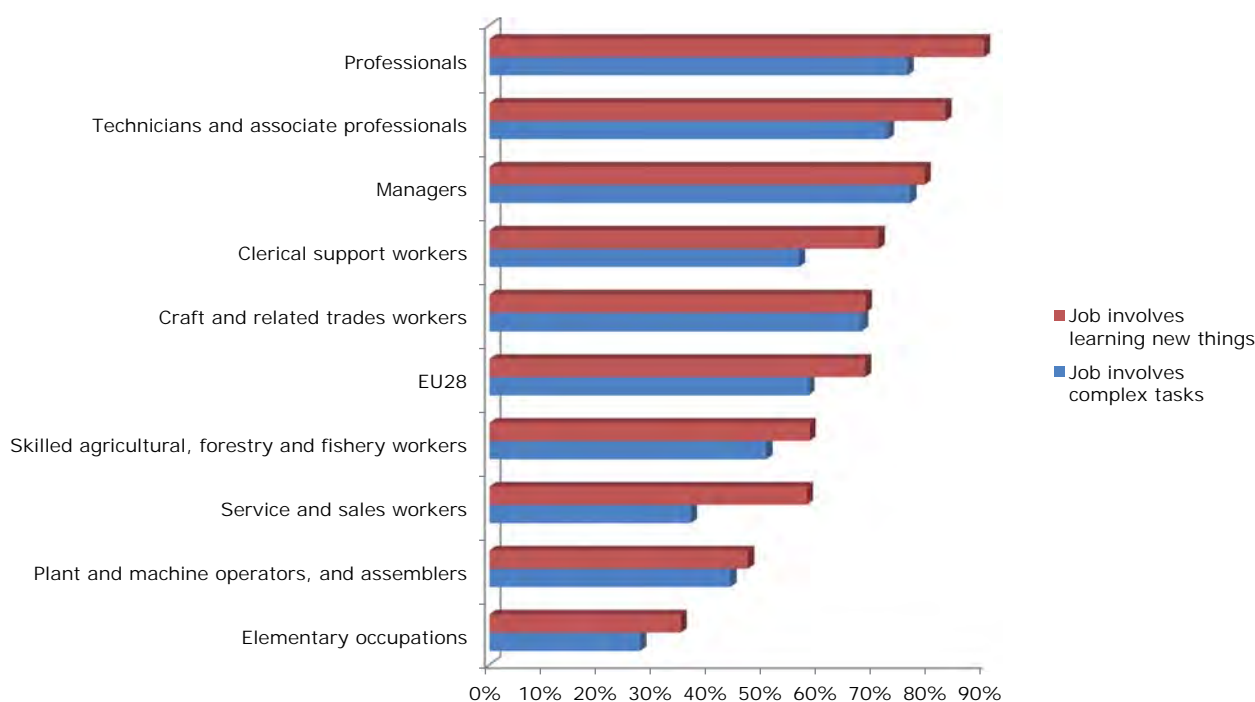
Figure 14: *Skills and job match*



Most workers in each occupational group report that their skills correspond well to their duties. The highest proportions of workers saying they need further training to perform better are in the high-skilled occupational categories (such as the Professionals and Technicians). These groups, as has already been seen, contain higher proportions of workers who have already undergone training to improve their skills and are also more likely to pay for training themselves. Workers in mid-skilled and low-skilled occupations seem to be as likely to report that they have the skills for (even) more demanding duties, as the majority of workers in the rest of the occupational groups.

The aspects of the match between skills and tasks and the opportunities for development can be related to the demands of the job. Looking at cognitive demands, Figure 15 depicts the extent to which specific occupations involve acquiring new skills and learning new things.

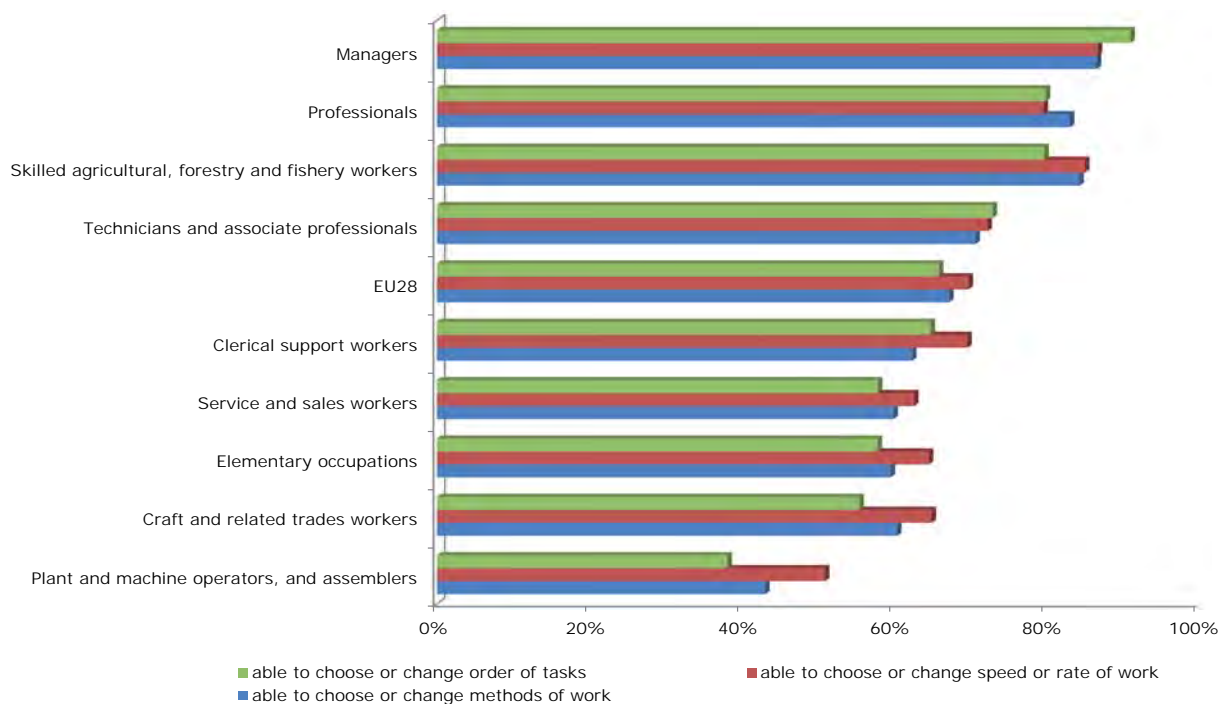
Figure 15: Job involves learning new things and complex tasks



Clearly, the high-skilled occupations (Professionals, Technicians, and Managers) show the most positive responses as to whether their job involves learning new things. The majority of these occupational groups also report that their jobs involve complex tasks. Craft and related trade workers, however, appear here to have more complex jobs than mid-skilled service workers.

Discretion over tasks and working time arrangements

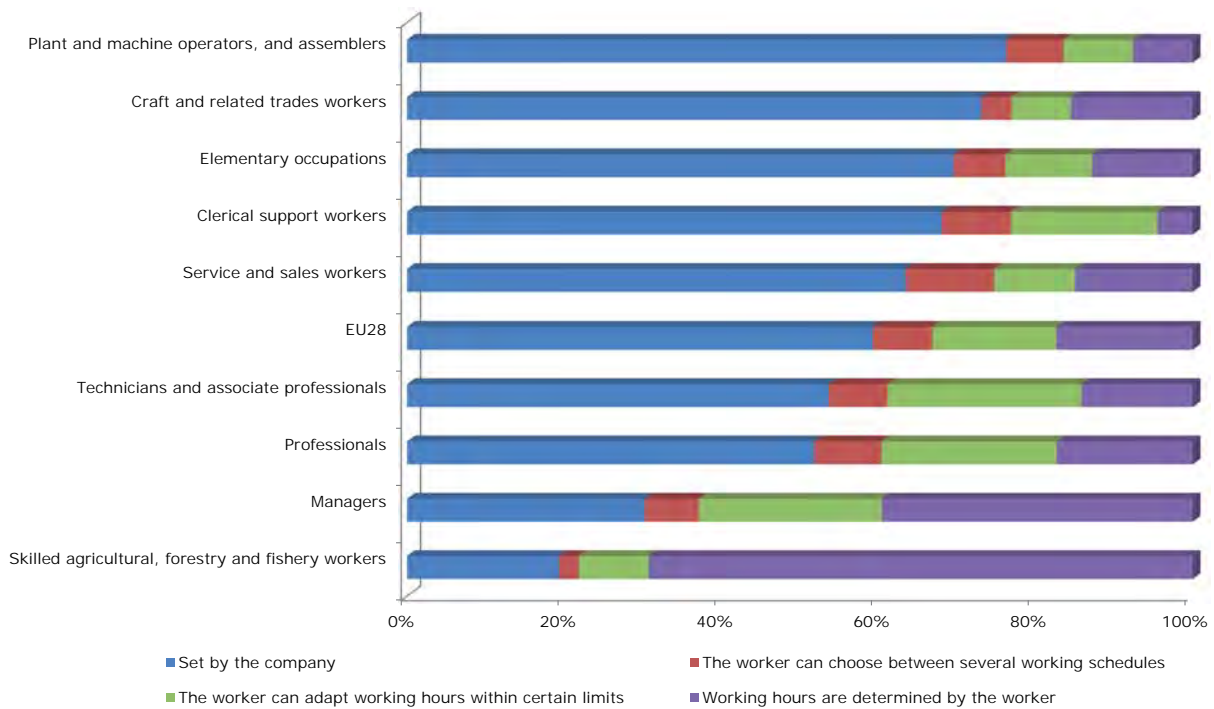
The opportunity for influence (job discretion) is a key aspect of work organisation. Levels of workers’ discretion over the order of their tasks, their methods and their speed of work, across occupational categories, are illustrated in Figure 16.

Figure 16: *Workers' discretion over order of tasks, methods of work, and speed of work*

As shown, levels of discretion with regard to these specific aspects differ noticeably across occupational groups. Discretion seems to be considerably lower among Plant and machine operators and workers in Elementary occupations. The highest levels of discretion over tasks, methods, speed or rate are found in the occupational group of Managers. Skilled agricultural and forestry workers also report relatively high opportunities for influence over tasks, methods, speed or rate, in comparison with the other mid-skilled manual occupational groups.

Considerable difference between occupations is also observed with regard to workers' influence over working time arrangements (Figure 17). The highest level of discretion of this type is reported by the Skilled agricultural and forestry workers. Managers also report relatively high levels of influence over working-time arrangements. In contrast, Craft workers and Plant and machine operators report much more limited discretion over scheduling their working time, with higher proportions of them reporting that working time is set by the company.

Figure 17: Opportunities for influencing working time arrangements



Working time

Figure 18 illustrates the variation of the working hours per week across major occupational groups. There is a noticeably high proportion of Skilled agricultural, forestry and fishery workers and Managers usually working more than 48 hours per week (56% and 38% respectively) in comparison with the other occupations. The share of workers working longer hours is also relatively high for Plant and machine operators. Elementary occupations are the occupational group with the shortest usual weekly working time, and the highest share of workers working part-time. Considerable shares of part-time workers are also observed among the Clerical support workers and the Service and sales workers.

Figure 18: Usual weekly working hours



Working time preference, however, is captured by comparing the number of hours respondents reported working per week, with the number of hours they say they would prefer to work. In Figure 19 it can be seen that the Elementary occupations and the Service and sales workers (already seen as having notable proportions of part-time workers) have a considerable share of respondents reporting that they would like to work more. However, the Skilled agricultural and forestry workers and Managers, who (as has been seen) have higher shares of workers usually working more than 48 hours per week, are the ones who would most prefer to work fewer hours. Clerical workers are most satisfied with their working hours.

Figure 19: Preferred weekly working hours



The extent to which occupational groups differ from the EU28 average with regard to atypical hours of work (evenings and nights, Saturdays and Sundays) and irregular hours (different number of hours, different number of days, changing starting and finishing times) is illustrated in Figure 20.

Figure 20: Indices of working atypical and irregular hours (EU28=100)



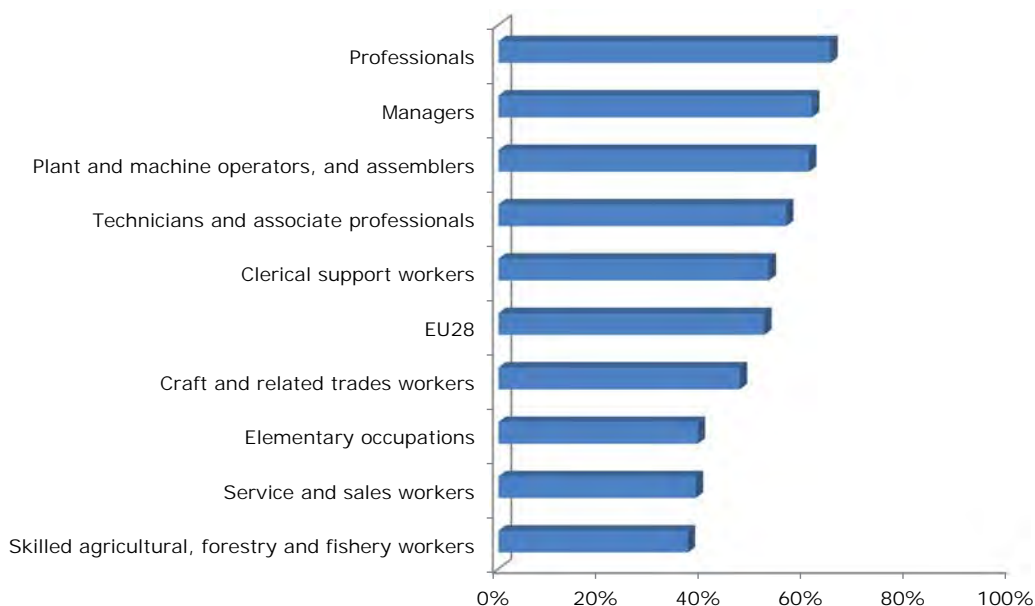
What the figure shows is that the differences across occupations are more pronounced with regard to atypical working times in comparison with irregular working times. The occupational group Skilled agricultural workers has the highest share of workers reporting atypical working hours. Atypical working hours are also prevalent for the Service and sales occupational group but less so for Clerical support workers. With regard to irregularity the major difference across occupational groups is again observed among Skilled agricultural workers and Clerical support workers. The highest level of irregular working time is reported by Agricultural workers, with Clerical workers reporting the lowest level of irregularity.

Employee representation and voice

Jobs are usually considered to be of a higher quality when the employee has the opportunity to participate in decisions about the organisation and on important features of the job (for example, by meeting with the management); and there is workplace representation (such as trade unions). As a recent Eurofound analysis showed, most European workers are in organisations that provide very limited opportunities for employees to participate in decision-making, either in their immediate job or in relation to wider organisational issues affecting their work. What is more, the study found a clear relationship between opportunities for involvement and occupational class, with those in more skilled jobs having a greater say over their work (Eurofound, 2013c).

Figure 21 depicts the proportions of workers within each occupation reporting that an employee representative is present at the workplace and/or that they have raised an issue with an employee representative in the past year.

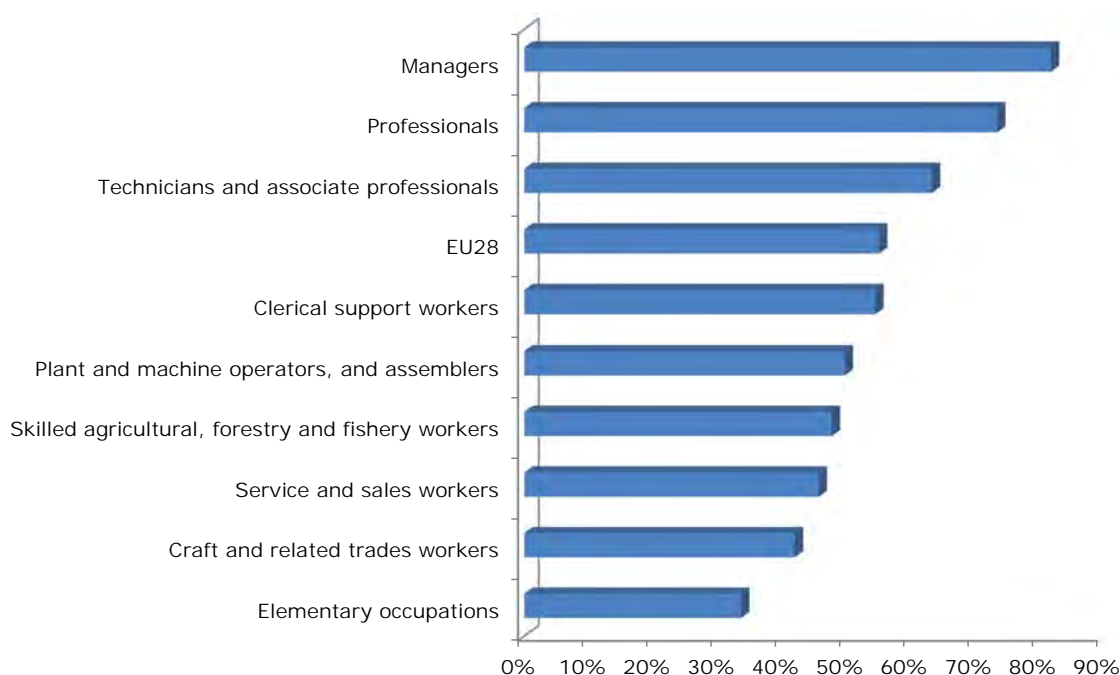
Figure 21: *Employee representatives at the workplace*



As Figure 21 shows, relatively low proportions of workers in Elementary occupations, Service and sales workers and Skilled agricultural workers say that employee representatives are available at their workplace and/or have raised work-related problems with an employee representative. Much better coverage is observed among Professionals and Managers, as well as among workers in the Plant and machine operators group.

Expressing views at management meetings takes place more frequently in the Managers and Professional occupations than among other occupational groups (Figure 22). Employees' voice is particularly low in Elementary occupations.

Figure 22: *Meetings with management to express views*

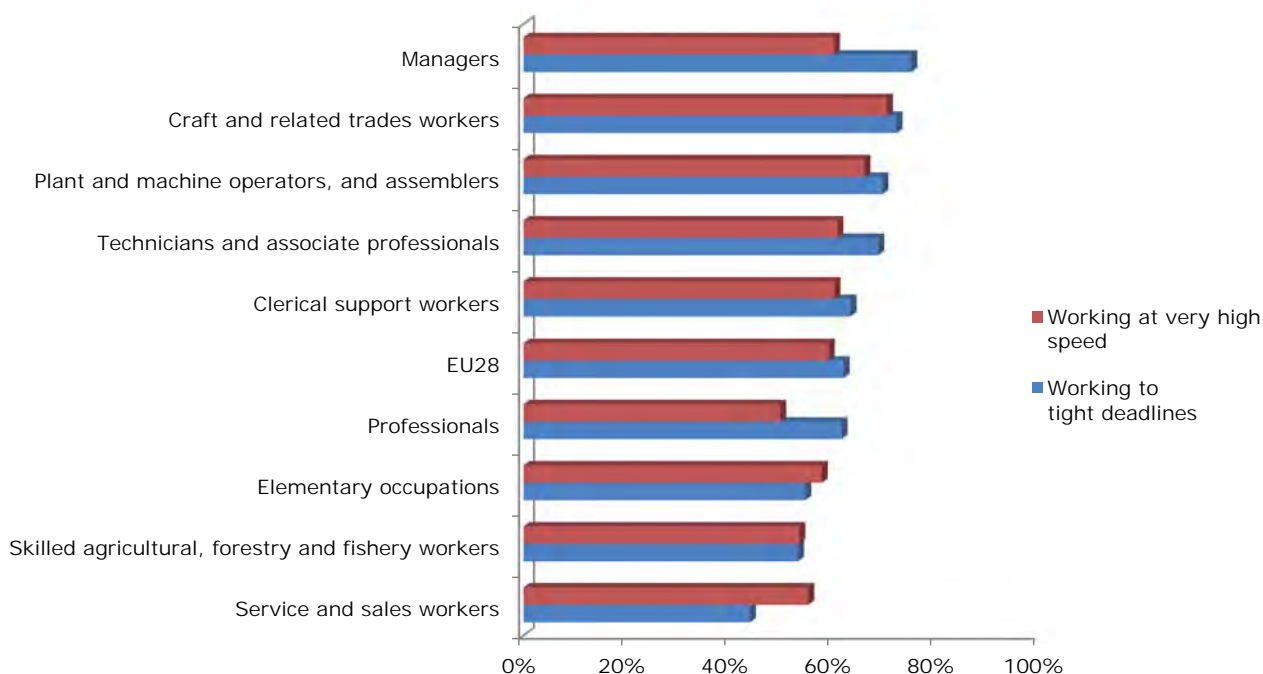


Work intensity

Work intensity is another important feature of work organisation that can have an impact on job quality and workers' health. Two aspects of work intensity are considered in Figure 23: working at very high speed and working to tight deadlines (at least a quarter of the time). Differences across occupations on both aspects are observed. The highest proportion of employees working to tight deadlines for at least a quarter of their time is observed among the occupational group of Managers, followed by workers in the Craft and related trades group. A lower share of workers is required to work to tight deadlines in the Service and sales and Agriculture groups.

The highest intensity of work is reported by the group Craft and related workers. Considerable intensification of work is reported by Plant and machine operators. The lowest work intensity is reported by Professionals.

Figure 23: Working at high speed and to tight deadlines



Workers' pace of work in high- and mid-skilled occupations is more likely to depend on customers, compared with the pace of work of low-skilled occupations, which is more likely to depend on the direct control of a boss.

Work intensity is a well-studied feature of work organisation, whose adverse effects on workers' health are well known. Intensification of work, however, is not the only risk that workers are exposed to. Specific occupational groups are, in their everyday work, exposed to risks related to posture and movement, biological and chemical risks, and ambient risks.

Physical risks

Some occupations are more noticeably perilous in terms of workers' health and safety. Among the risk factors are work postures and movement-related risks, exposure to chemical or biological risks, and environmental risks.

Figure 24 depicts the difference between occupations with regard to exposure to these three types of hazards, in relation to the EU28 average.

Figure 24: Indices of exposure to physical risks (EU28=100)



The relative exposure levels to risks related to posture and movement, biological and chemical factors, and ambience vary considerably between occupations. Mid-skilled manual and low-skilled occupations show notably high levels of exposure to all three types of risks, in comparison to mid-skilled service and high-skilled occupations.

The highest levels of exposure to noise, high and low temperatures, are found among Craft workers and Skilled agricultural workers, and Plant and machine operators. The same pattern, though less pronounced, is found for workers in Elementary occupations.

Exposure to posture and movement-related risks – exposure to vibrations, tiring or painful positions, lifting or moving people, carrying or moving heavy loads, standing and repetitive movements – is similarly high in those occupations. Craft and related trade workers show the highest level of exposure to these kinds of risks, followed by Elementary occupations, Skilled agricultural and forestry workers and Plant and machine operators.

Exposure to biological and chemical risks – breathing in smoke, fumes, powder or dust, breathing in vapours, handling or being in skin contact with chemical products or substances, and handling or being in direct contact with infectious materials – is a considerable health hazard for Craft and related trade workers. Although less pronounced, the levels of exposure to such risks are relatively high for workers in the Elementary occupations and for Skilled agricultural and forestry workers.

The lowest levels of exposure to those three types of risks is found for Clerical workers.

Place of work

Another important aspect that can be related to differences in the levels of exposure to physical risks between occupations is the place of work (Figure 25).

Figure 25: *Place of work*

The majority of workers in the occupational group of Managers and Professionals, Technicians, assistants and supervisors, as well as workers in mid-skilled service occupations such as Clerical support workers and Service and sales workers, work on the premises of their employer (or on their own business premises). This is not the case, however, for workers in mid-skilled manual and low-skilled occupations. Those in the Skilled agricultural workers' category mostly work outside, as do many workers in the Elementary occupations and the Craft and related trade workers group. Workers in these occupational categories also spend considerable time working on clients' premises. The highest share of workers whose work involves working in a car or other vehicle is found among the group of Plant and machine operators.

Occupational groups and well-being: individual outcomes

The concept of job quality relates to the impact that a job has on an employee. A high quality job is associated with more positive effects on an employee than a low quality job (Green, 2006). The outcome of job quality, on other hand, is conceptualised according to two dimensions: type of outcome – whether it relates to well-being or performance; and level of outcome – whether occurring at an employee, organisational, or societal level (Holman and McClelland, 2011).

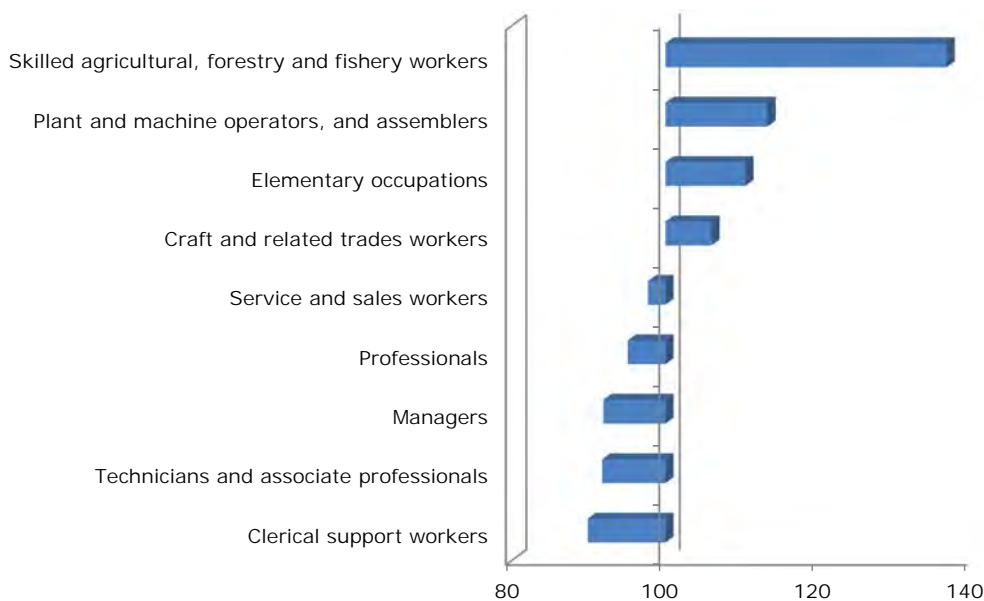
According to Holman and McClelland (2011), at the level of the individual, well-being-related outcomes concern both physical well-being and psychological well-being. Physical well-being refers to being free from illness and musculoskeletal disorders. Psychological well-being is interpreted through both 'hedonic' and 'eudemonic' perspectives. The former refers to the presence of long-term levels of pleasant effects such as enthusiasm and contentment, and the absence of unpleasant effects such as anxiety and sadness. The latter considers that well-being goes beyond achieving happiness and satisfaction and is better expressed in the achievement of positive psychological functioning (such as autonomy, a sense of self-determination, personal growth, a sense of continued growth and development, positive relations, and having secure, intimate and rewarding attachments with others).

The extent to which the physical and psychological well-being of workers varies between occupational groups is illustrated below. The association between occupations and well-being is explored using the five summative indices of well-being, built by Green and Mustafa (Eurofound, 2012a, p.30):

- number of health problems;
- negative effect of work on health;
- mental well-being;
- self-reported work–life balance;
- meaningfulness of work.

Figure 26 presents an index of number of health problems experienced by workers between occupational groups. A first observation is that mid-skilled manual and low-skilled workers report more health problems than workers in high-skilled occupations – which might or might not have been caused by the work setting.

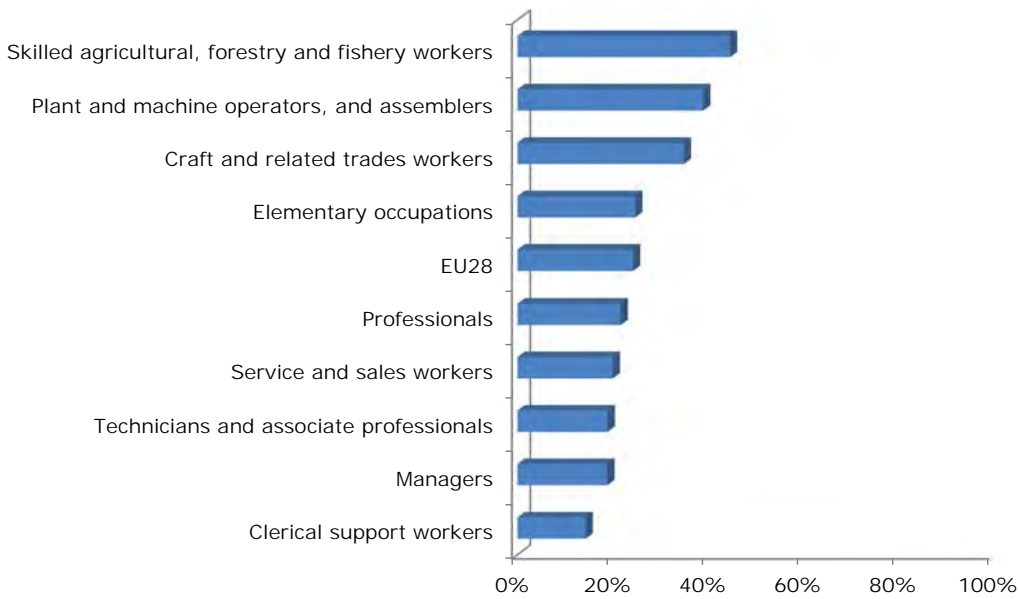
Figure 26: *Index of number of health problems (EU28=100)*



The highest number of health problems is reported by Skilled agricultural and forestry workers. The lowest number of health problems is found for Clerical workers.

Figure 27 illustrates the negative effects of work on employees' health. The highest proportions of workers reporting a negative effect of work on health are found for Skilled agricultural and forestry workers, Plant and machine operators and Craft and related trade workers. Workers in these occupations were already observed to have many health problems. The lowest proportion of workers reporting a negative effect of work on their health were in the group Clerical workers, which also had the lowest proportion of workers reporting health issues.

Figure 27: Negative effect of work on health



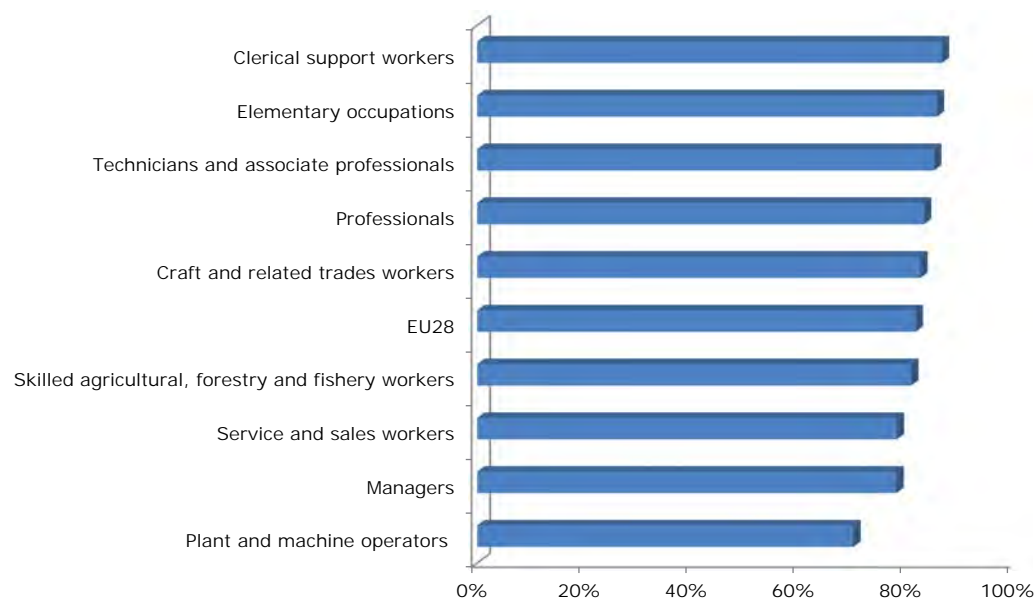
Pleasant feelings experienced by individuals, such as feeling cheerful and in good spirits, feeling calm and relaxed, feeling calm and vigorous, feeling fresh and rested, doing interesting things, are captured by the index of mental well-being and illustrated in Figure 28.

Figure 28: Mental well-being index (EU28=100)



While high-skilled occupations experience higher levels of well-being, mid-skilled manual groups (except for Craft and related trade workers) and low-skilled occupations experience lower levels of well-being. The highest level of mental well-being is reported by Managers; the lowest level by Skilled agricultural workers. Similarly low levels, although not as pronounced, are reported by workers in Elementary occupations.

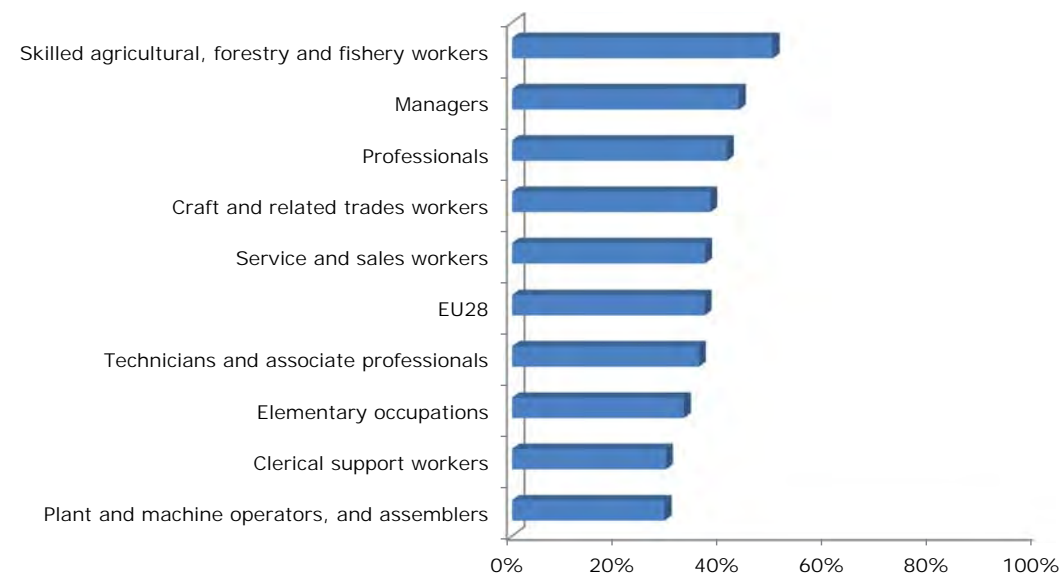
Figure 29: *Self-reported work–life balance*



In terms of self-reported work–life balance, the difference across occupational groups is less pronounced and cannot be related to a level of skill. Occupational differences here might be related to other working arrangements (such as flexible working arrangements or working time). The highest level of good work–life balance is experienced by Clerical support workers and the lowest by Plant and machine operators.

The index of meaningfulness of work captures the combined effect of the feeling that the work is well done and the feeling of doing useful work. As Figure 30 shows, the highest scores for meaningful work are reported by Skilled agricultural workers, with Managers and Professionals also feeling fulfilled. Plant and machine operators and Clerical support workers report relatively low scores regarding meaningfulness of work.

Figure 30: *Meaningfulness of work*



Identifying occupations with multiple disadvantages

The identification of occupations with multiple disadvantages is performed at the 2-digit level of ISCO-08. To identify on the one hand the occupations with multiple disadvantages (occupations that have relatively low scores on all the Job Quality Indices (JQIs)) and on the other the favourable occupations (occupations that score favourably on all the JQIs), the weighted average of each occupational group is used for the four indices of job quality. The average values are ranked in descending order to identify the groups of occupations in the lower half of the distribution for each index (earnings, prospects, intrinsic job quality and working time quality). Those occupations are labelled ‘occupations with multiple disadvantages’. The occupational groups in the upper half of distribution of the multiple job quality indices are labelled ‘favourable occupations’. All other occupations – those scoring favourably on some JQIs and unfavourably on others – are labelled occupations with mixed features.

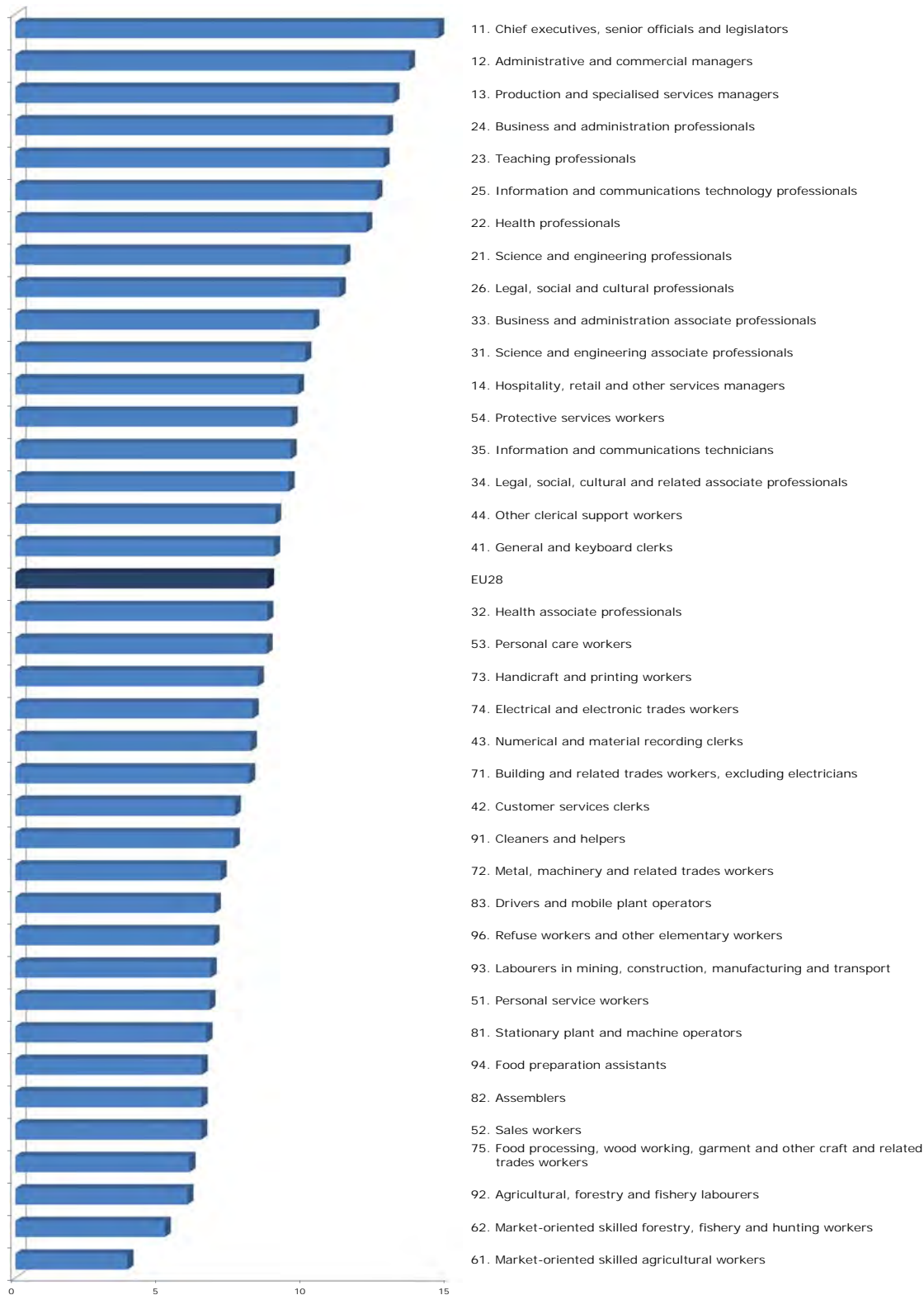
Figures 31 to 34 illustrate the average job quality in terms of earnings, prospects, intrinsic job quality and working time quality and the extent to which occupational groups vary across each index. The ranked average values captured in the figures highlight those occupations, at European level, standing out in the lower half of the distribution, and those in the upper half of the distribution. Furthermore, Figure 45 in the Annex provides information for the magnitude of variation between countries. Due to the limited number of cases in some ISCO 2-digit categories at the level of individual country, interpretation of cross-country differences is limited to ISCO 1-digit.

Occupations and job quality

Figure 31 depicts the average difference across occupational groups in Europe in terms of earnings. Managers, Professionals and Technicians – the occupations associated with higher skill levels – report noticeably higher levels of earnings in comparison with the EU28 average and the occupational groups associated with lower skill levels. Chief executives, senior officials and legislators have the highest levels of earnings, followed by Administrative and commercial managers, Production and specialised services managers, Business and administration professionals and Teaching professionals.

The lowest levels of earnings across occupational groups are observed among workers in Agriculture. Skilled agricultural workers and Skilled forestry, fishery and hunting workers, followed by Agricultural, forestry and fishery labourers, have the lowest levels of earnings in comparison with the EU28 average and the rest of the occupational groups.

Figure 31: Average difference in earnings



Note: Median (Occupational mean) = 8.52

Occupations with multiple disadvantages have been identified by sorting the weighted means in descending order and determining ranks. Each value is replaced by its relative position in the order; values above the median are given a rank of 1 and values below the median are given a rank of 0.

What is noticeable is that the occupational groups at the top of the ISCO classification (such as Managers, Professionals and Technicians) all fall in the upper half of the earnings distribution, while those at the bottom of the ISCO classification (for example, Skilled agricultural workers, Craft and related trade workers, Plant and machine operators, and Elementary occupations) all fall in the bottom half of the distribution. Furthermore, there is a notable dispersion within major occupational groups in the bottom half of the distribution. Clerical support workers and Service and sales workers fall in both upper and lower half of the earnings scale.

Fig 45.1 in the Annex shows there is a pronounced cross-country variation in the level of earnings of the occupational groups of Professionals and Managers. Considerable cross-country difference are also observed among Craft and related trade workers. For example, the income of Professionals in Bulgaria is considerably below the EU28 average, while Professionals in Luxembourg have notably higher levels of earnings than the EU28 average. What is more, Managers in Bulgaria appear to have the lowest earnings levels in comparison with the rest of the Member States, with Managers in Denmark appearing to have the highest earnings of this occupational group. Craft and related trade workers in Romania report the lowest levels of earnings, while the highest are reported in Ireland.

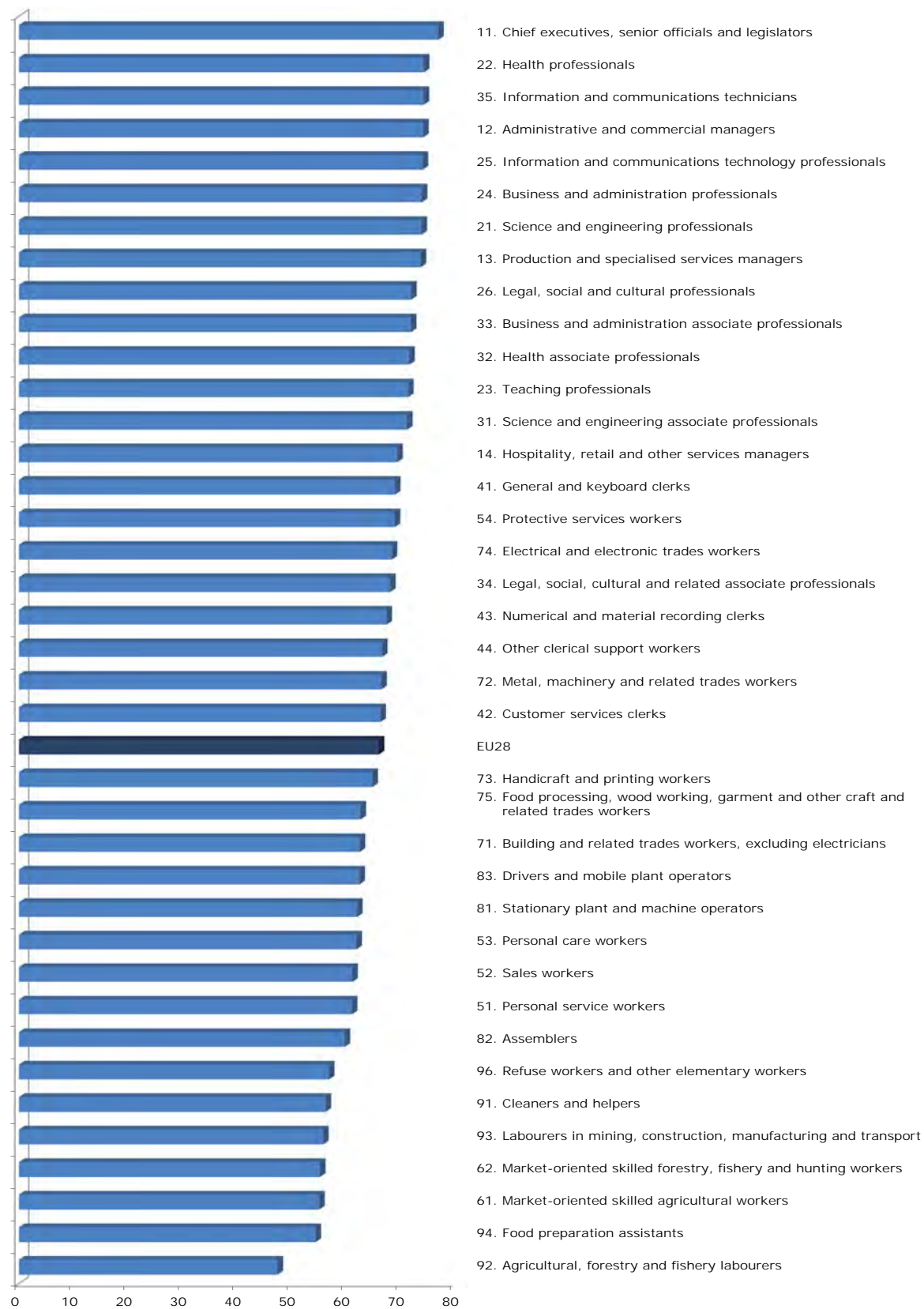
As for workers' job and career prospects at European level (Figure 32), the variation across occupational groups is also considerable; and with noticeable cross-country differences (Figure 45.2 in the Annex). Managers, Professionals and Technicians stand out as the occupations with higher job security and career progression prospects. Chief executives, senior officials and legislators have the highest level of job and career prospects. Health professionals, Information and communications professionals and technicians, Administrative and commercial managers, Information and communications technology professionals, Business and administration professionals, Science and engineering professionals, and Production and specialised service managers also have relatively high average values on prospects.

Agricultural, forestry and fishery labourers are the occupational group with the poorest prospects, followed by Food preparation assistants. Skilled agricultural, fishery and forestry workers also report relatively low prospects.

What again attracts the attention is the concentration of the occupations with higher levels of skill in the upper half of the distribution, while those with lower skill levels notably fall in the bottom half of the prospects distribution. What is more, mid-skill manual occupations again fall in the bottom half in this distribution with Electrical and electronic trade workers being the only exception. Mid-skilled service occupations tend to report relatively low job and career prospects and therefore predominate in the bottom half of the scale.

There is also noticeable variation within major occupational groups.

Figure 32: Average difference in prospects



Note: Median (Occupational mean) = 66.93

At individual country levels (Figure 45.2 in the Annex), there is a notable difference among Plant and machine operators, Skilled agricultural, fishery and forestry workers, and Elementary occupations. For instance, Luxembourg and Cyprus hold the two extremes for Plant and machine operators; with the lowest average value for job and career prospects of Plant and machine operators found in Cyprus and the highest found in Luxembourg. Workers in Elementary occupations in Greece report the lowest job and career prospects, while the highest, again, are reported in Luxembourg.

In terms of working time quality the average differences across occupations are not very large, with the exception of Plant and machine operators and assemblers and Service and sales workers, for whom relatively low values are found compared with other occupations. Protective service workers, followed by Drivers and mobile plant operators, have the lowest level of working time quality in comparison to the other occupational groups.

The occupations with the highest average values, for working time and work–life balance, are Information and communications technology professionals, General and keyboard clerks, Business and administration professionals, Information and communications technicians, Business and administration professionals, Science and engineering professionals, Cleaners and helpers, Administrative and commercial managers, Chief executives, and Legal, social and cultural professionals.

The relation with the level of skill on this dimension is the reverse of the relation found for the other dimensions: high-skilled occupations more frequently fall in the lower half of the distribution and low-skilled occupations are predominantly found in the upper half of the working time quality scale. For example, Health and Teaching professionals report relatively poor working time quality; while Elementary occupations, such as Cleaners and helpers, Agricultural forestry and fishery labourers and Refuse workers experience relatively high working time and work–life reconciliation.

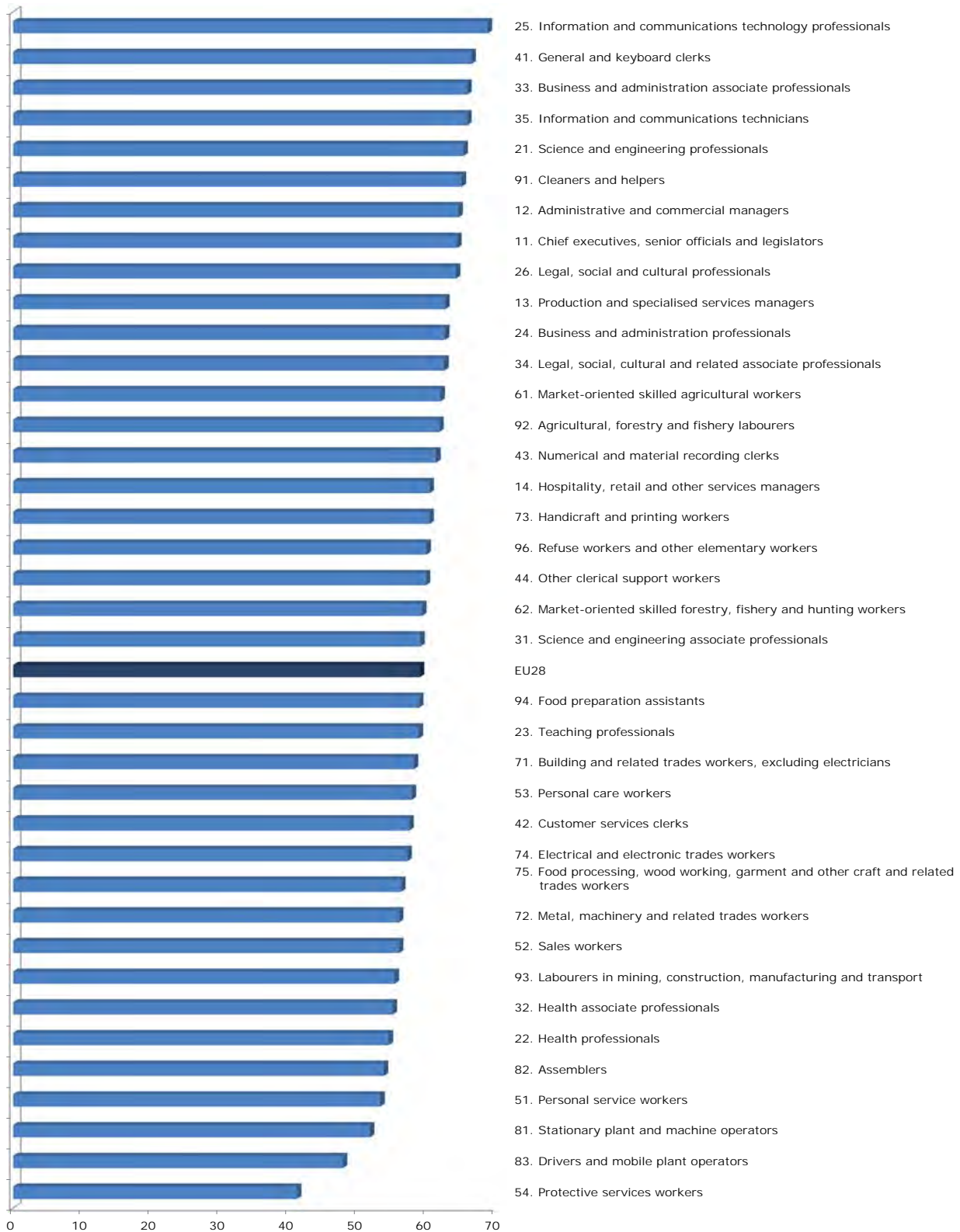
Cross-country differences (Figure 45.3 in the Annex) are more clearly observed within the groups of Clerical support workers, Service and sales workers, and Plant and machine operators and assemblers.

For example, Clerical support workers in the Czech Republic report the worst working time quality for their group, with those in Denmark reporting the best. Service and sales workers report the worst working time quality for their group in Croatia, with best working time quality for this group reported in the Netherlands. Plant and machine operators have the lowest working time quality for their group in Slovakia and the highest in Denmark.

The highest level of intrinsic job quality – the index capturing the skills and discretion concepts, and elements of the social and physical environment, and work intensity – is observed in the high-skilled occupations (Managers and Professionals, Technicians). Chief executives, senior officials and legislators, and Information and communications technology professionals report the highest levels of intrinsic job quality. Mid-skilled manual workers (with Skilled agricultural workers being the exception) and workers in low-skilled occupations fall in the lower half of the IJQ distribution. The lowest levels of intrinsic job quality are evident for Labourers in mining, construction, manufacturing and transport, as well for Assemblers and Stationary plant and machine operators. The mid-skilled service occupations fall in the middle of the distribution with slightly lower mean scores (in comparison to high-skilled occupations).

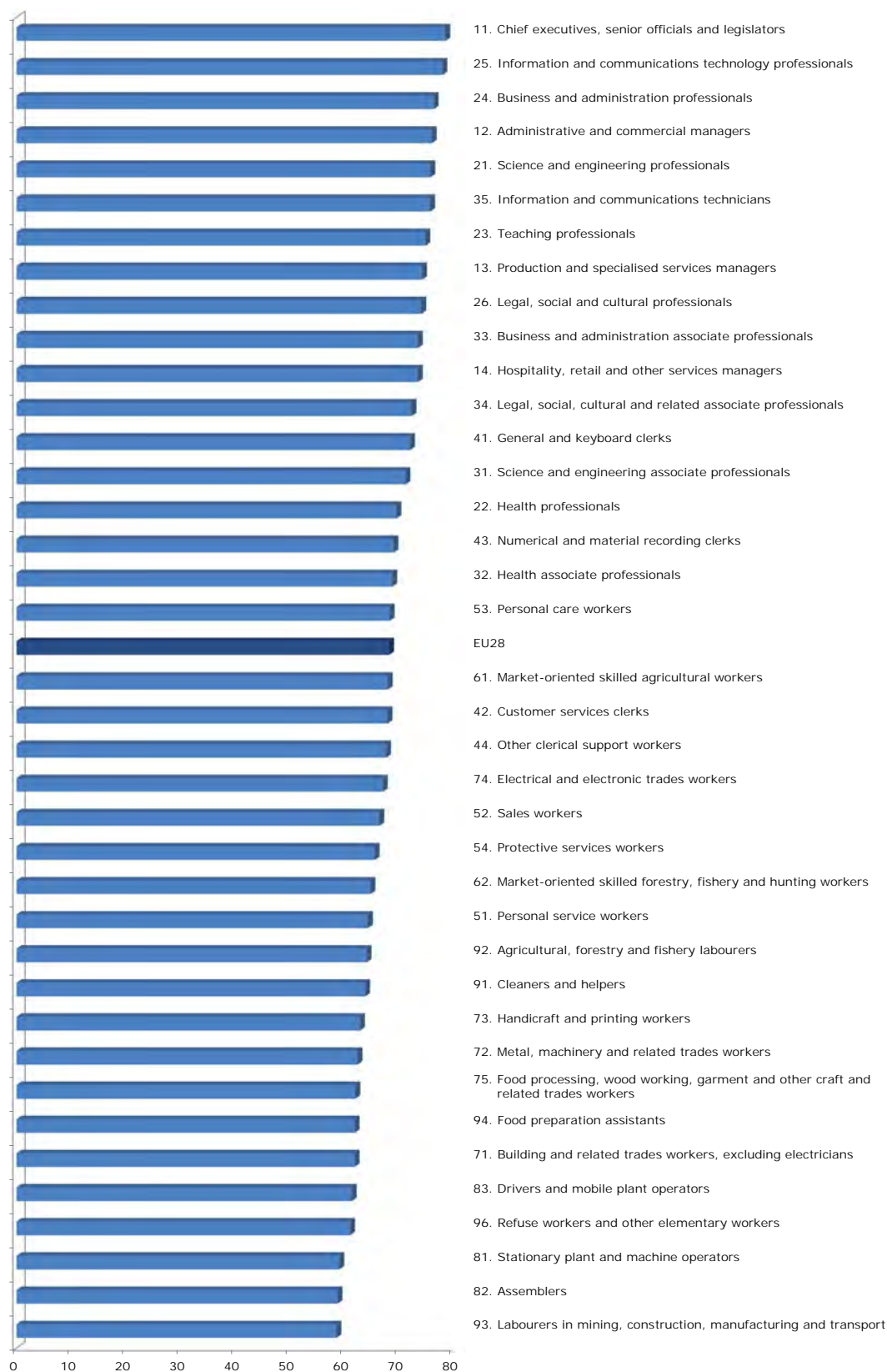
Cross-country differences (Figure 45.4 in the Annex) appear to be a lot smaller than those observed for the other dimensions of earnings, prospects and working time quality. More pronounced cross-country variation, for instance, is observed among Plant and machine operators, with the highest levels of IJQ observed in Denmark and the lowest levels in Slovakia. Noticeable cross-country variation is also observed among Service and sales workers, with workers in Croatia reporting the lowest average values of IJQ and workers in the Netherlands the highest average values.

Figure 33: Average working time quality



Note: Median (Occupational mean) = 59.59

Figure 34: Average intrinsic job quality



Note: Median (Occupational mean) = 67.75

Intrinsic job quality captures a number of concepts – skills and discretion, good social environment, good physical environment and work intensity – that are worth examining individually (see Figure 46 in the Annex).

A notable difference between occupational groups is observed with regard to the skills and discretion sub-index of intrinsic job quality. The sub-index captures skills-use but also aspects of a worker's discretion such as task complexity, problem-solving and provision of training. Managers, Professionals and Technicians report the highest levels of skills and discretion. Workers in Elementary occupations and Plant and machine operators report the lowest levels on that dimension. What is also noticeable is that all workers in Service and sales fall in the lower half of the distribution for this.

In contrast, the difference between occupational groups regarding the index capturing social relationships in the workplace (the good social environment index) is smaller. Refuse workers report the lowest level of social support and high rates of exposure to abusive behaviour (verbal abuse, threats and humiliating behaviour, physical violence, bullying and sexual harassment) in the workplace, Professionals and Technicians also report relatively low levels on both dimensions. However, all Craft and related trade workers, usually observed in the bottom half of the distributions, fall in the top half of the scale on that dimension; as do workers in Agriculture. Service and sales workers and Plant and machine operators fall in the lower half of the Social Environment scale.

Greater differences between occupations are observed with regard to the exposure to posture-related and environmental hazards, captured by the good physical environment index. Mid-skilled manual occupations and low-skilled occupations more frequently report exposure to environmental and posture risks, scoring lower on the dimension. Skilled agricultural workers, Craft and related trade workers, Plant and machine operators, and workers in Elementary occupations, all fall in the bottom half of the Physical Environment scale. Managers, Professionals (except Health professionals), and Clerical support workers enjoy better physical environments, being less frequently exposed to those hazards.

Smaller differences between occupational groups are observed with regard to the work intensity index. Higher levels of intensive work are reported by Plant and machine operators and more specifically Assemblers; while the Elementary workers in Agriculture report the lowest intensity in work with the highest score on the work intensity index. Lower levels of intensive work are also reported by the Skilled agricultural workers. What is noticeable is the considerable presence of Managers, Professionals and Technicians in the lower half of the distribution.

Occupations with multiple disadvantages

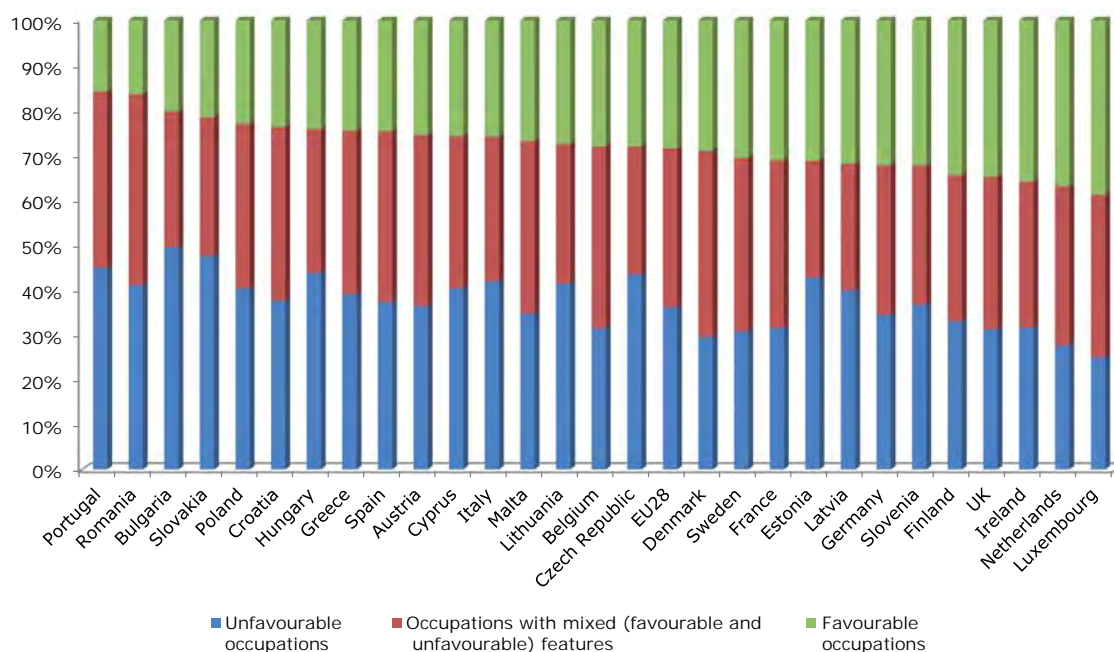
The observations drawn from Figures 31 to 34 aimed to show that occupations score differently on the different dimensions of job quality; and that low levels of earnings, for instance, can be compensated by better working times or intrinsic job quality. The aim of the analysis, however, is to point out those occupations where job quality is low on all job quality indices.

On the basis of these criteria, the occupations with multiple disadvantages, ranked in the bottom half of the ranking on all four dimensions, are Customer services clerks, Personal service workers, Sales workers, Market-oriented skilled forestry, fishery and hunting workers, Building and related trades workers, Metal, machinery and related trades workers, Food processing, wood working, garment and other craft and related trades workers, Stationary plant and machine

operators, Assemblers, Drivers and mobile plant operators, Labourers in mining, construction, manufacturing and transport, and Food preparation assistants.¹³

Some 36.1% of all occupations in the European Union have been classified as unfavourable occupations, while those with favourable characteristics account for 28.6%, and the mixed occupations – with both favourable and unfavourable working conditions – account for 35.3%. Besides looking at common patterns across the EU28, Figure 35 illustrates national variations in the quality of the occupations across individual countries.

Figure 35: Proportion of workers in favourable occupations, occupations with mixed features, and unfavourable occupations



Eastern and southern European countries have relatively high proportions of workers in occupations with unfavourable working conditions; and relatively low proportions of workers in occupations scoring favourably on all job quality dimensions. Occupations scoring favourably on all dimensions of job quality are quite common in Luxembourg, the Netherlands and Ireland.

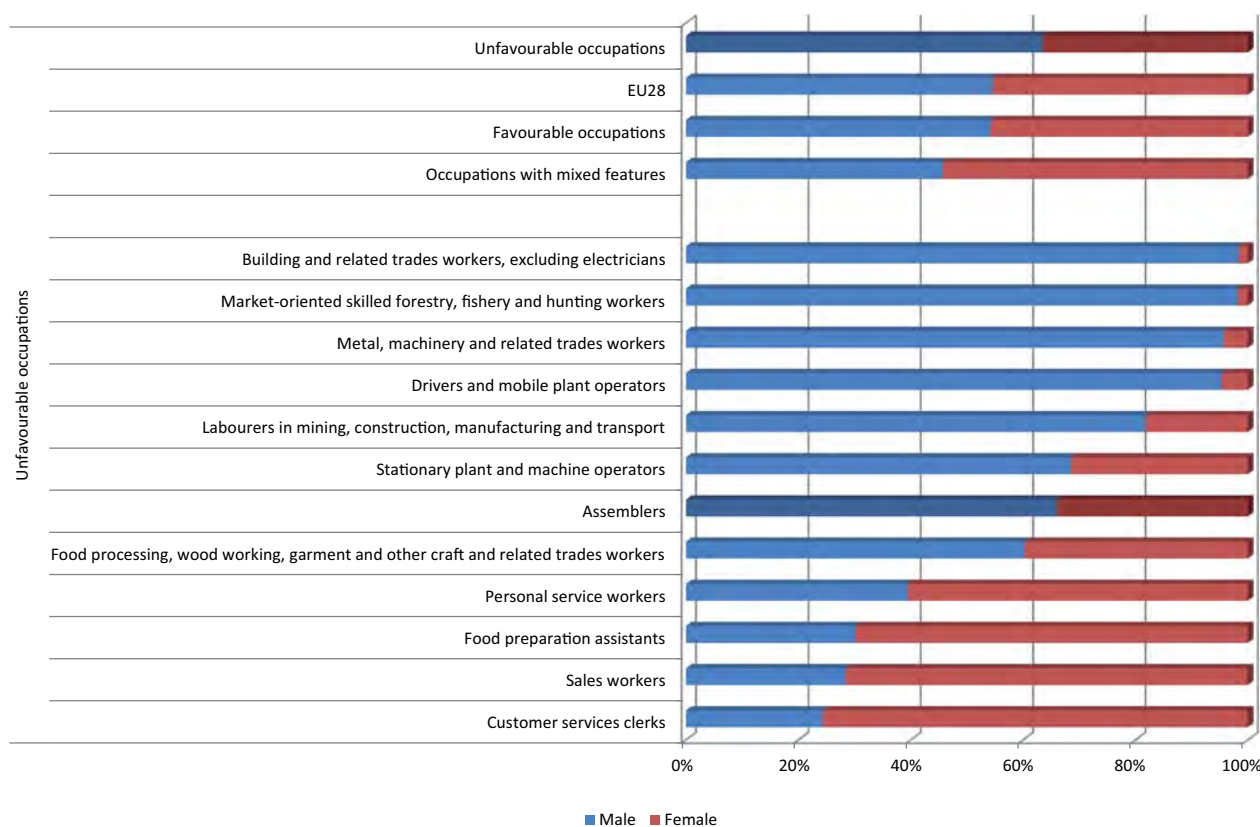
¹³ The occupations with favourable features, ranked in the top half of the ranking on all JQIs, are: 11, Chief executives, senior officials and legislators; 12, Administrative and commercial managers; 13, Production and specialised services managers; 14, Hospitality, retail and other services managers; 21, Science and engineering professionals; 24, Business and administration professionals; 25, Information and communications technology professionals; 26, Legal, social and cultural professionals. The occupations with mixed features, scoring favourably on some and unfavourably on other JQIs, are: 22, Health professionals; 23, Teaching professionals; 31, Science and engineering associate professionals; 43, Numerical and material recording clerks; 44, Other clerical support workers; 53, Personal care workers; 54, Protective services workers; 61, Market-oriented skilled agricultural workers; 73, Handicraft and printing workers; 74, Electrical and electronic trades workers; 91, Cleaners and helpers; 92, Agricultural, forestry and fishery labourers; 96, Refuse workers and other elementary workers.

This ranking of occupations, and the identification of occupations with multiple disadvantages, is performed at European level. If the ranking were to be performed at country level, different occupations with poor working conditions might arise. Cross-country differences across sub-major occupational groups, however, require further investigation and, due to an insufficient number of cases within some sub-major groups of occupations at national level, are therefore shown at the level of the major occupational groups.

Characteristics of the workforce in occupations with multiple disadvantages

There is a considerable difference in the proportion of male and female workers within favourable and unfavourable occupations. Men are more likely than women to work in occupations with unfavourable working conditions. Furthermore, occupations scoring unfavourably on all the dimensions of job quality, such as Building and related trades workers, Market-oriented skilled forestry, fishery and hunting workers, Metal, machinery and related trades workers, and Drivers and mobile plant operators, tend to be male-dominated, with men comprising more than 95% of the workforce.

Figure 36: Gender breakdown within unfavourable, mixed and favourable occupations



In terms of age profile, there is a considerably larger share of young workers in occupations with multiple disadvantages. More than 51% of workers in occupations with unfavourable working conditions are younger than 40, compared to 42% in occupations with mixed conditions and 46% in occupations with favourable conditions. The largest proportion of the workforce employed as Food preparation assistants is aged under 24 (28%) and there is a similarly high proportion of this age group employed as Personal service workers.

Figure 37: Breakdown by age within unfavourable, mixed and favourable occupations

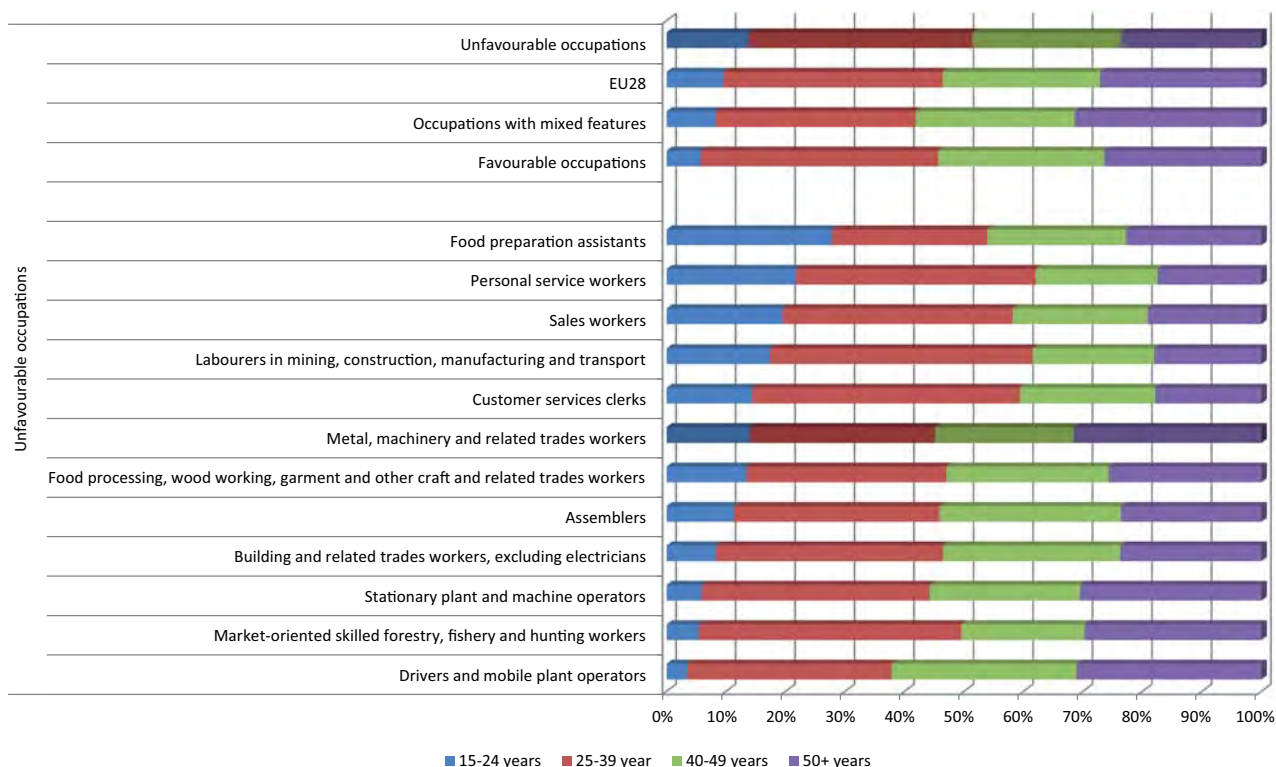
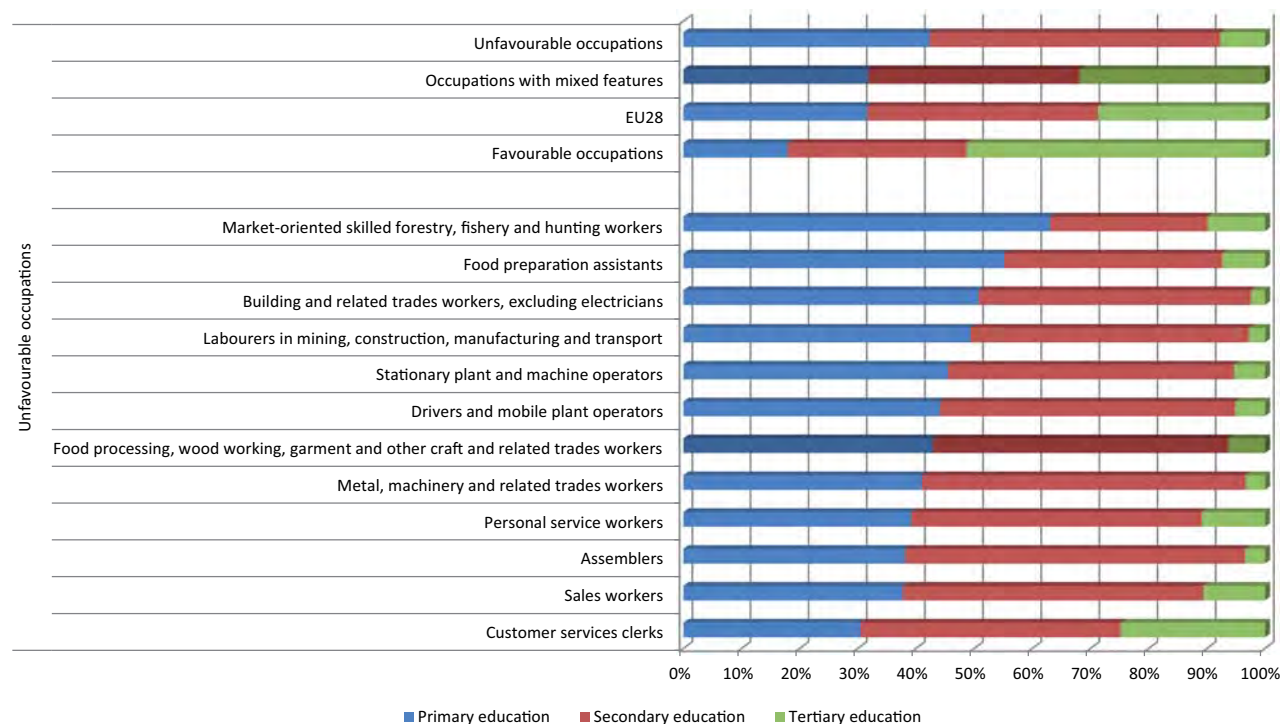


Figure 38 illustrates the prevalence of workers with primary and secondary education in occupations with multiple disadvantages. Workers who have completed tertiary education have a noticeable share in relatively high quality occupations.

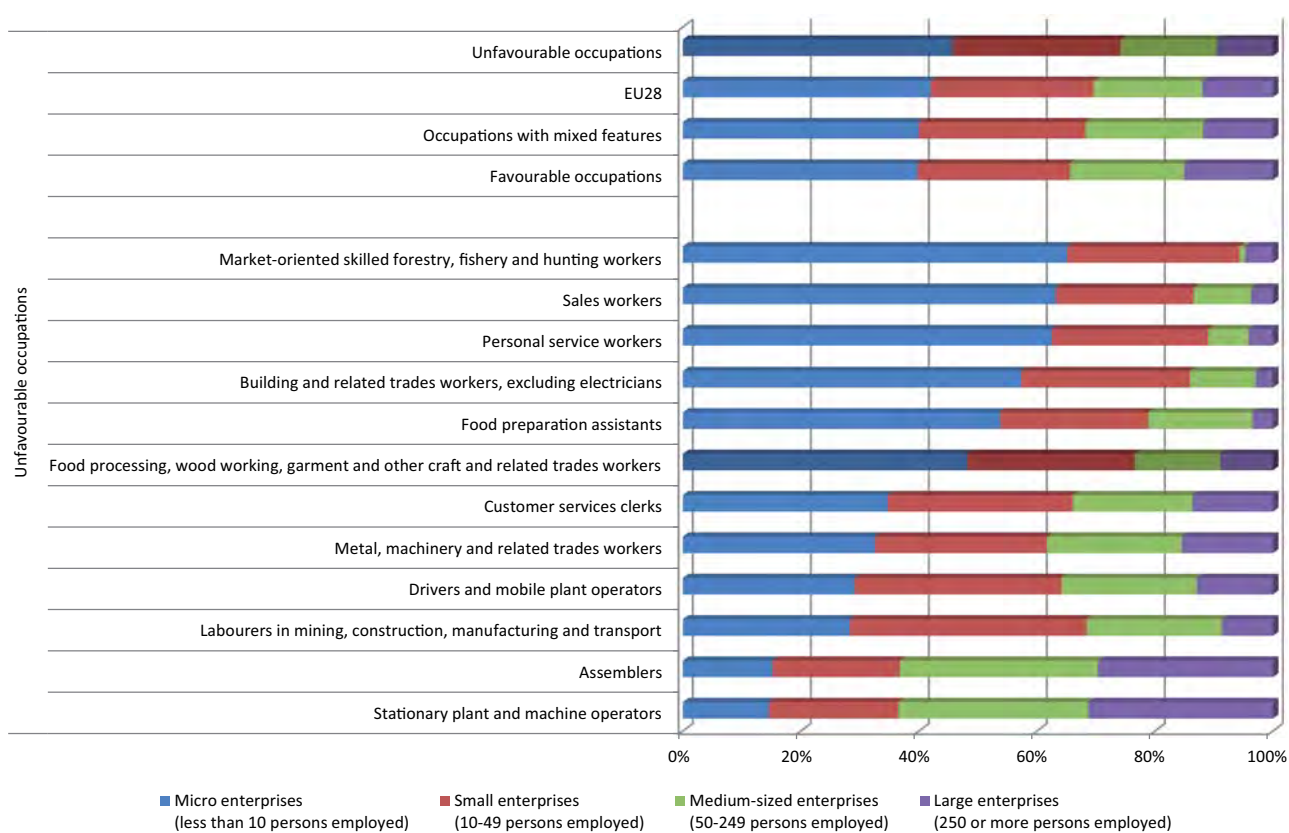
Figure 38: Breakdown by education within unfavourable, mixed and favourable occupations



Figures 39 and 40 show the percentage of individuals within favourable and unfavourable occupations in terms of the size of the establishment which employs them, and the type of its ownership.

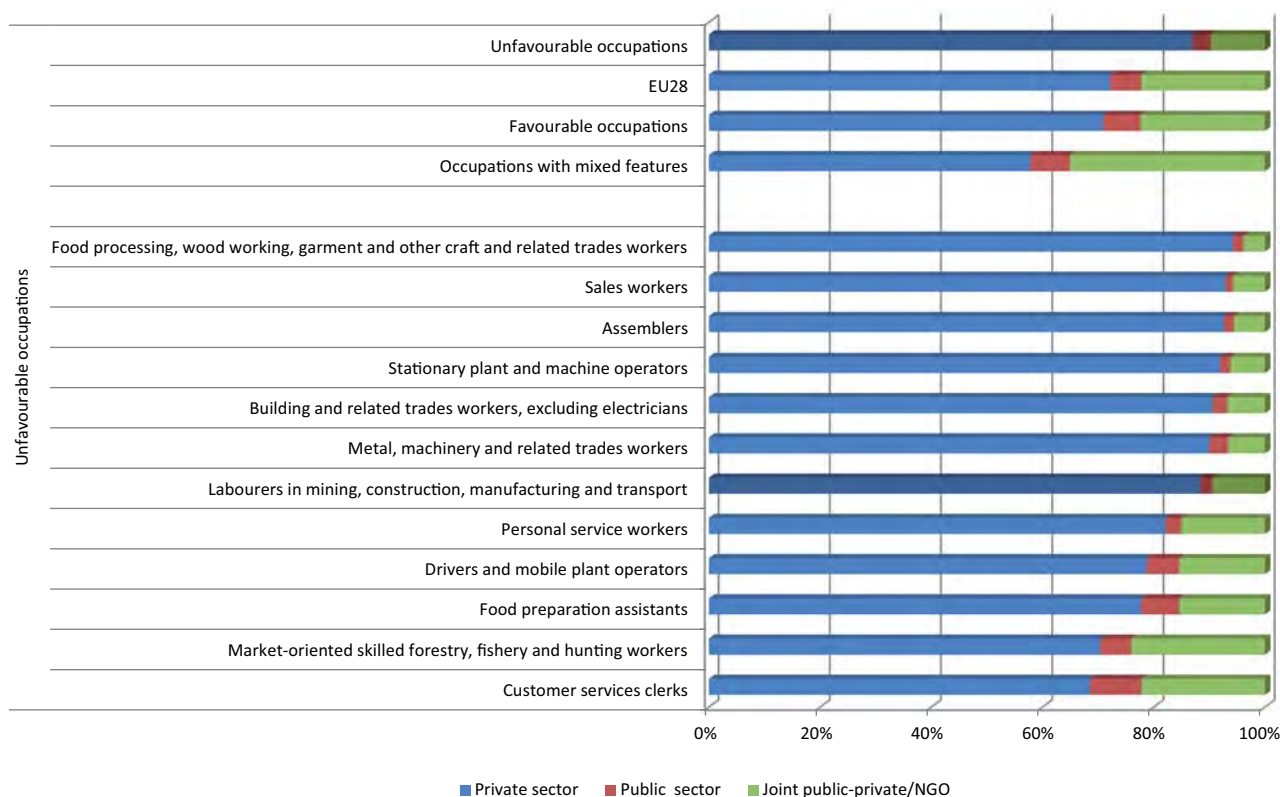
The difference in the proportions of workplaces of different sizes in each category of occupations is small. Nevertheless, over 85% of workers in occupations such as Market-oriented skilled forestry and fisheries, Sales, Personal services, Building and related trades work in micro and small enterprises (up to 50 employees), and over 60% of workers in the rest of the occupations with multiple disadvantages fall into this enterprise size; the exceptions are occupations such as Assemblers and Stationary plant and machine operators where a considerable proportion of workers are in medium-sized and large enterprises.

Figure 39: Breakdown by establishment size within unfavourable, mixed and favourable occupations



The difference in the proportions of workplaces of different types of ownership (public/private/joint) in each category of occupations is more pronounced; and workers in occupations with multiple disadvantages are prevalent in the private sector.

Figure 40: Breakdown by type of ownership within unfavourable, mixed and favourable occupations



Another striking aspect is the uneven distribution of occupations of different types, and especially the distribution of occupations with multiple disadvantages across sectors. For instance, Building and related trade workers comprise more than 47% of the workers in Construction; Drivers and mobile operators comprise 47% of the workforce in the Transport sector; and Sales workers account for 36% of the workforce in Wholesale, retail, food and accommodation.

Assemblers and occupational quality

The methodological approach identified occupations with multiple disadvantages as those which are ranked in the lower (bottom) half on all four job quality dimensions. This example, however, aims to show the occupations with the lowest levels of earnings, the lowest job and career prospects, and the worst working time and intrinsic job quality, at EU28 level. Therefore, the occupational groups at the lower (first) quartile on all the job quality indices have been investigated. Applying this criterion Assemblers was the only occupational group identified.

Figure 41 depicts the differences in the characteristics of the individuals in the occupational group of Assemblers in comparison with the characteristics of EU28 average worker; as well as the differences in the type of contractual arrangement, as a company-specific characteristic. As the graph shows, Assemblers tend to be mostly male with a primary and secondary educational level. Workers in this occupational group are more frequently employed on fixed-term contracts, compared with the EU28 average.

Figure 41: Differences in gender composition, age, education and type of contract

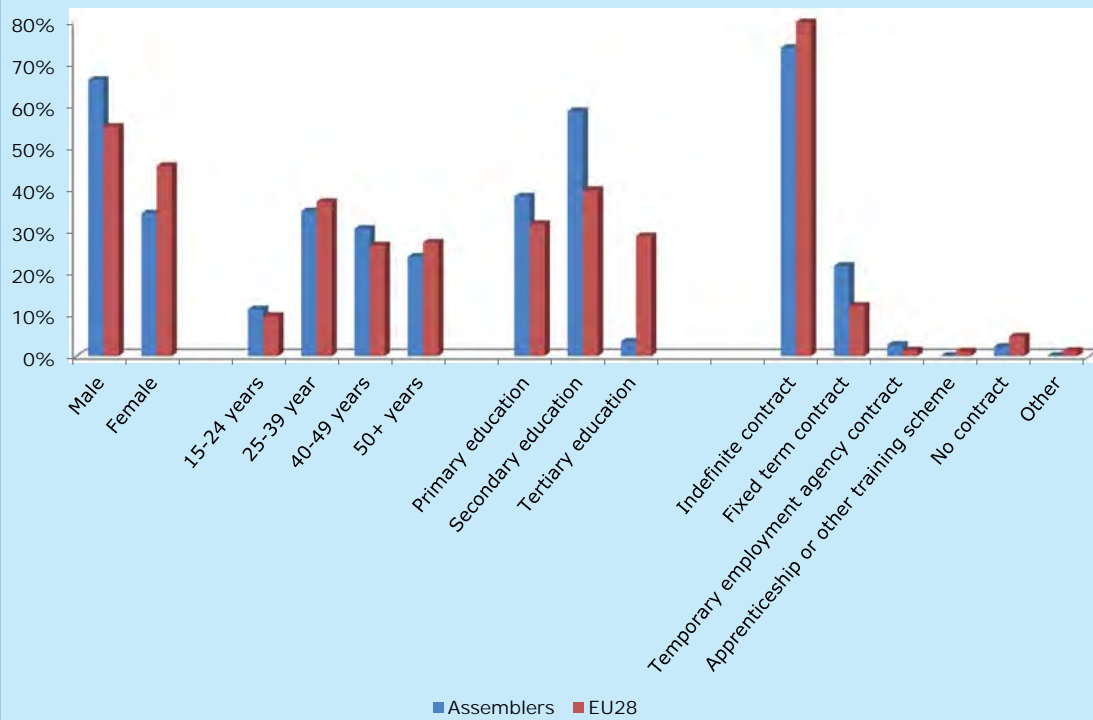
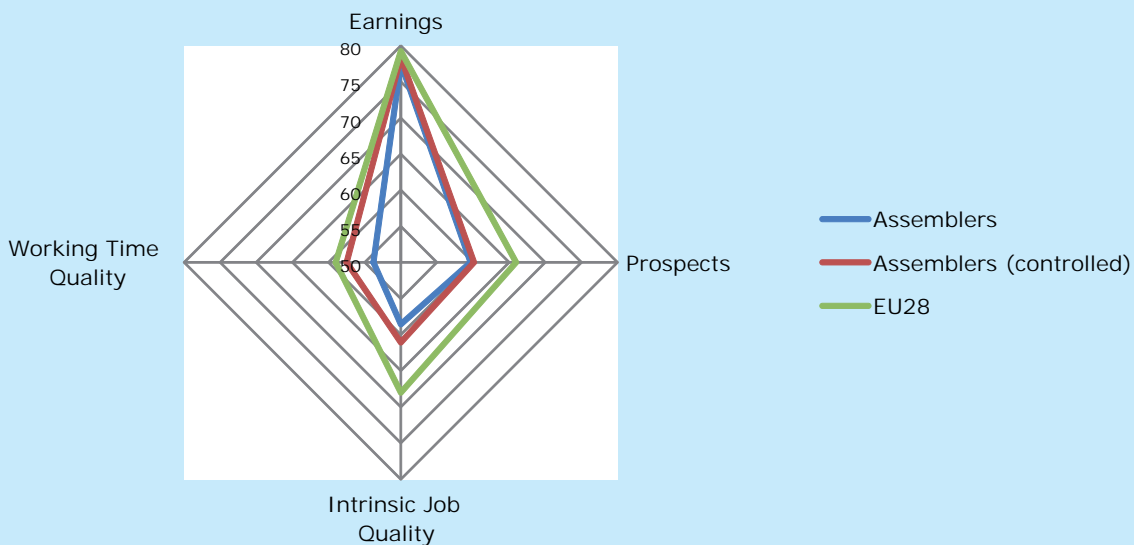


Figure 42 illustrates the average job quality scores of Assemblers, with and without controlling for the structural characteristics of the workers in the occupation (age, gender, educational level, workplace size, and country), and for the EU28. All four indicators range between 0 and 100.

Figure 42: Average job quality of the occupational group of Assemblers



*Note: The earnings index here is transformed to a scale that runs up to 100, as in the prospects, working time quality and intrinsic job quality indices.

For all dimensions of job quality, the average scores for workers in the Assemblers' occupational category, indicated by the blue line in the figure, are below the EU28 average. The differences are most pronounced in relation to intrinsic job quality, whilst they are least noticeable in relation to the earnings indicator.

When controlling for the structural characteristics of workers in this occupation, it is clear that the difference between this occupational category and the EU28 in relation to all four indicators is slightly reduced, as indicated by the red line in the figure. More concretely, the difference between Assemblers and the EU28 average is no longer statistically significant with regard to the earnings and working time quality indicators, whilst the scores for prospects and intrinsic job quality for workers in this occupational category are still significantly lower than the corresponding EU28 averages.

Structural characteristics of the workforce and quality of occupations

The example presented showed that the observed difference between an occupation with multiple disadvantages (for example, Assemblers) and the EU28, across the job quality indicators can sometimes be associated with the structural characteristics of the workers in those occupations, rather than solely determined by intrinsic characteristics of the occupation. The research further assesses this relationship between the individual characteristics of the workers, including some additional contextual variables, and the quality of occupations. The research is interested in determining the degree to which these characteristics are related to the likelihood of occupying poor or good quality positions. In other words, it wants to describe the differences between the workers that are occupying different positions, focusing especially on those occupying multiple disadvantaged positions.

To assess the relationship between the structural characteristics of the workforce and quality of the occupations, a multinomial logistic regression analysis has been carried out. For the aim of the analysis, and on the basis of the identified unfavourable, mixed and favourable occupations, we constructed a variable with three categories: 'Occupations with multiple disadvantages', 'Occupations with favourable characteristics' and 'Mixed occupations' (i.e. occupations with both unfavourable and favourable characteristics). 'Occupations with multiple disadvantages' is used as a reference category and the interpretation is based on the comparison of this category against mixed occupations and against favourable occupations. Individual characteristics such as gender, age and level of education, and economic characteristics such as establishment size and sector ownership, as well as country as an additional contextual variable, are used as predictors of the occupational quality.^{14, 15}

Figure 43 illustrates the odds ratios (OR); that is, the extent to which the odds of being in an occupation with multiple disadvantages, in comparison with the odds of being in mixed occupation, can be related to the structural characteristics of the workforce.

¹⁴ *Country*, however, is only used as controlling variable for the aims of this analysis.

¹⁵ No interaction effects among the explanatory variables are explored here.

What the figure shows is that the odds of working in an occupation with multiple disadvantages for men are 81% larger (OR=1.81) compared to the same odds for women (reference category).

With regard to age, the odds of occupying a multiple disadvantaged position for younger workers younger than 25 years of age are two times as large (OR=2.03) compared to the same odds of older workers aged 50 years or older (reference category). The odds of working in an occupation with multiple disadvantages of workers aged between 25 and 39 and workers aged between 40 and 49 are 1.58 and 1.29 times, respectively, larger compared to the same odds of workers 50 years and over.

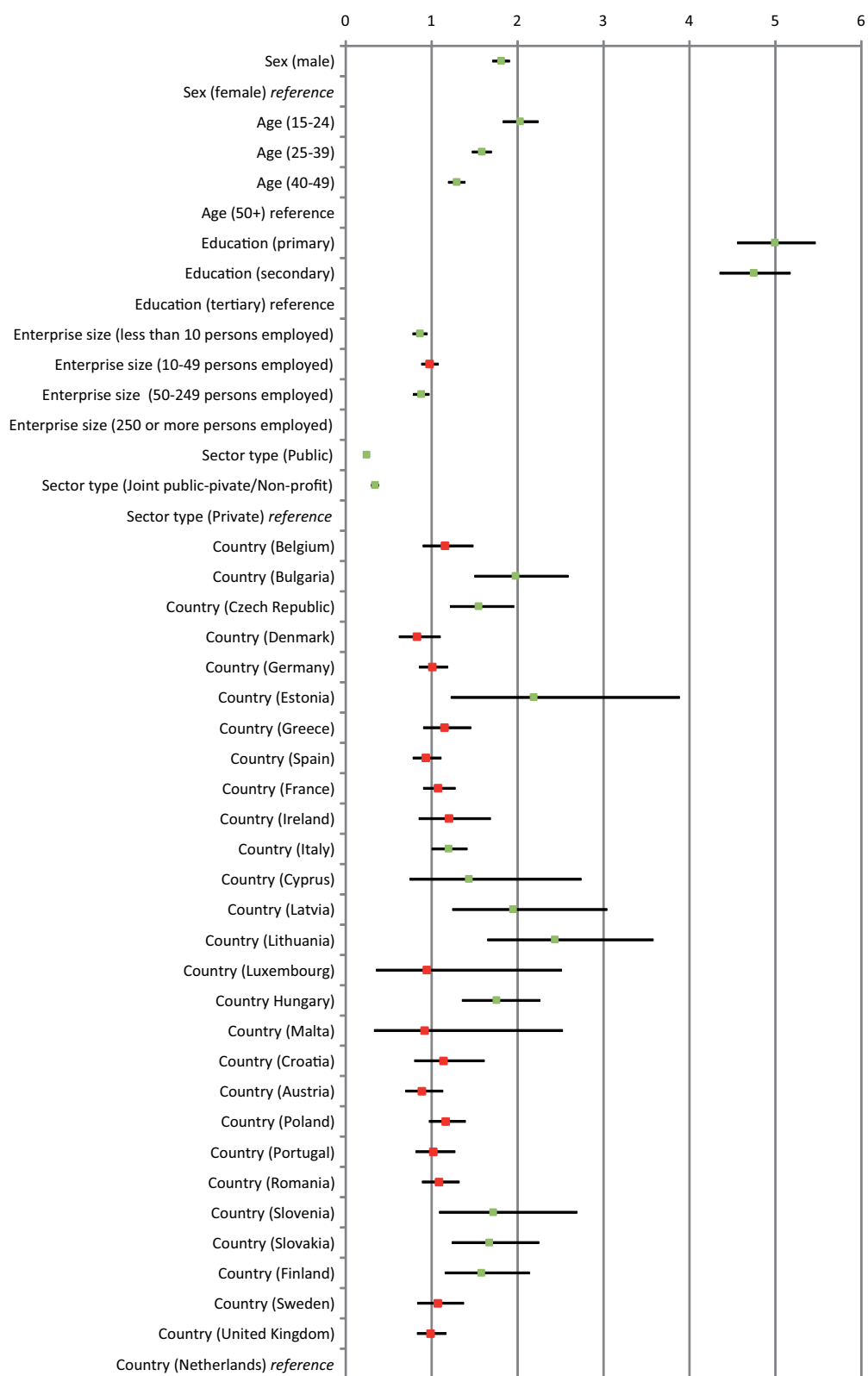
It is not surprising that a person's level of education has a considerable effect on the probability of being in a favourable or unfavourable occupation. The odds of working in an occupation with multiple disadvantages for workers with primary education are five times (OR=4.99) as large and for workers with secondary education 4.8 times (OR=4.75) as large compared to the same odds of workers with a university education (reference category).

The size of the establishment does not appear to be a factor determining the quality of an occupation. Although workers in smaller companies show a higher likelihood of being in an occupation with poor working conditions,¹⁶ workers in small and medium-sized enterprises are also more likely than those in large enterprises (employing 250 or more people) to work in an occupation with favourable characteristics.

The odds of public sector workers working in an occupation with multiple disadvantages are 76% smaller (OR=0.24) compared to the odds of workers in private companies (reference category); while the same odds of workers in the non-profit sector are 66% smaller (OR=0.34).

¹⁶ It should be noted that the coefficient for enterprise size with 10-49 people employed is not statistically significant, and therefore does not contribute significantly to the ability of the variable to explain the outcome.

Figure 43: Odds ratios of being in an occupation with multiple disadvantages compared to mixed occupations



*Note: Small squares illustrate the odds ratio; vertical lines illustrate the lower and the upper boundary of the 95% confidence interval. Squares in red represent non-significant statistical coefficients ($p > 0.05$).

**The Netherlands is used as a reference category regarding country because of the considerable proportion of favourable occupations (37%). However, country is only used as controlling variable in the model.

Figure 44 illustrates the odds of being in an occupation with multiple disadvantages, compared to the odds of occupying a position with favourable characteristics.

The figure shows the odds of working in an occupation with multiple disadvantages for men are 42% larger (OR=1.42) compared to the same odds for women. This implies that men are more likely to be in both the unfavourable and favourable categories, while female workers are more likely to occupy positions in mixed occupations.

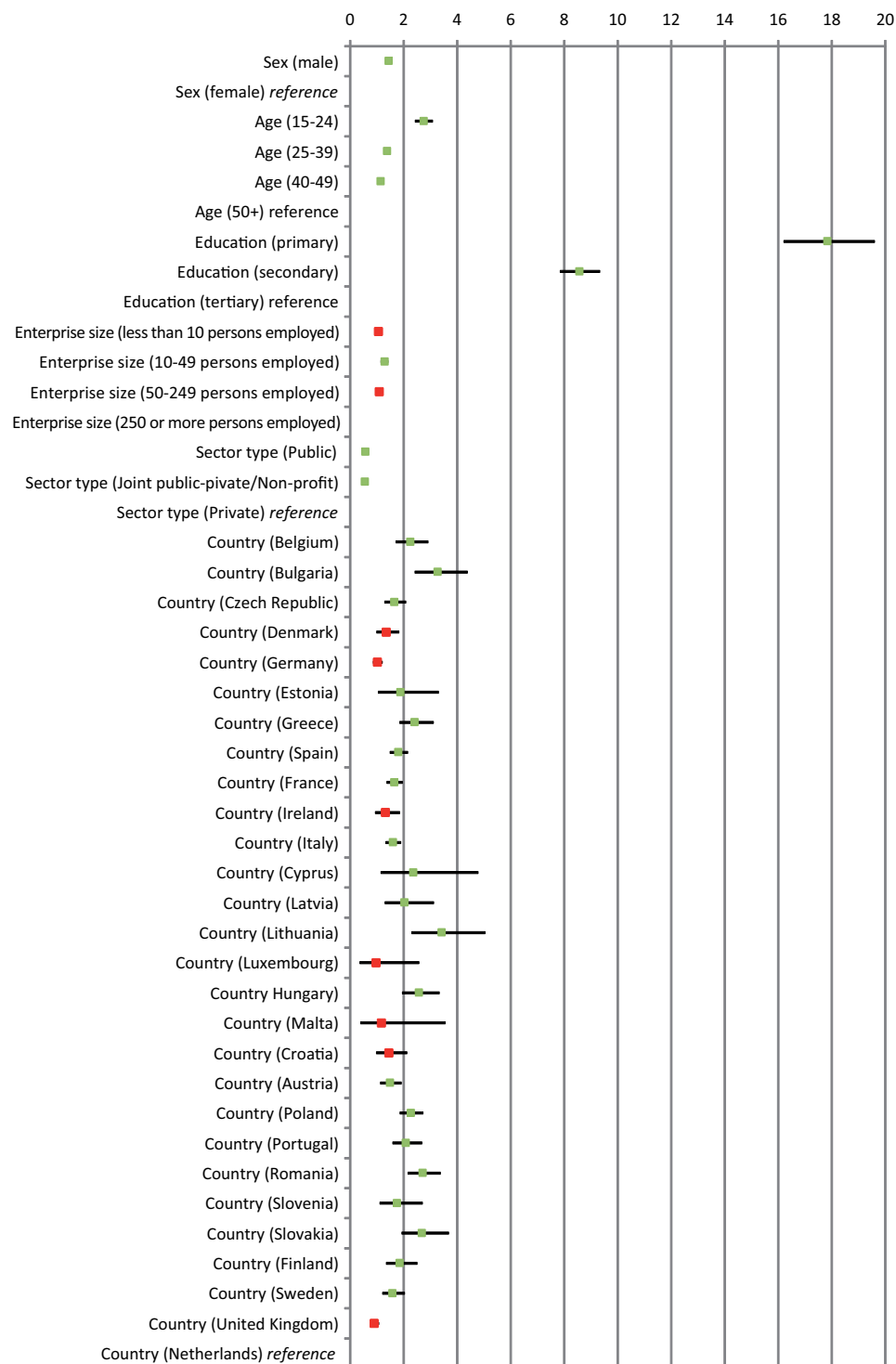
The odds of occupying multiple disadvantaged positions for workers aged 15–24 are 2.73 times as large compared to the same odds of workers aged 50 years or older. The odds of occupying multiple disadvantaged positions of workers aged 25–39 and workers aged 40–49 are respectively 1.36 and 1.13 times as large compared to the same odds of workers 50 years and over. These results indicate that young workers at the beginning of their career tend to occupy positions in multiple disadvantaged occupations. With increase in age workers are increasingly more likely to be in more favourable occupations.

The odds of workers with a low level of education occupying multiple disadvantaged positions are notably larger compared to highly educated workers. The odds of workers with primary education occupying multiple disadvantaged positions are 17.8 times as large compared to the same odds for workers with university education. The odds of workers with secondary education occupying multiple disadvantaged positions are 8.56 times as large compared to the same odds of workers with university education. These figures indicate that workers' education has strong consequences on the likeliness of being in poor or good quality occupation. In particular, workers with a lower level of education are the most likely to occupy positions in multiple disadvantaged occupations, and vice versa.

Similar to the previous comparison between occupations with multiple disadvantages and mixed occupations, here again the odds ratios of occupying multiple disadvantaged positions for workers in micro, small and medium-sized firms do not significantly differ from each other.

The odds ratios of occupying multiple disadvantaged positions for workers in the public sector are 45% smaller (OR=0.55) and workers in non-profit sector are 47% smaller (OR=0.53) compared to the same odds of workers in the private sector.

Figure 44: Odds ratios of being in an occupation with multiple disadvantages compared to occupation with favourable characteristics



Conclusions

Creating more and better jobs throughout Europe – improving the quality of the jobs and ensuring better working conditions – is a key priority of the European employment strategy and Europe 2020 strategy. Moreover, the improvement of working conditions is aimed at encouraging a longer working life and therefore contributing to sustainable work and employment.

This analysis on working conditions and job quality across occupations confirmed the hypothesis that different occupations are exposed to different work environments and that there are occupations that combine multiple disadvantages. Occupations with multiple disadvantages can be expected to have an impact on workers' physical and psychological well-being, and on their ability to remain in employment.

This analysis highlights the differences between occupations with regard to key characteristics of work, and increased awareness of the negative outcomes for the individuals exposed to poor working conditions at the workplace.

There are wide variations between occupations in terms of levels of earnings, job and career prospects, working time and intrinsic job quality. Furthermore, differences between occupations are often related to the level of skills required to carry out the tasks and duties. Hence, occupations requiring higher levels of skill (Managers, Professionals, and Technicians) are more frequently found at the top of the distribution, while mid-skilled manual (Skilled agricultural forestry and fishery workers, Craft and related trade workers, Plant and machine operators) and low-skilled occupations (Elementary occupations) are found in the bottom half.

Workers in mid-skilled manual and low-skilled occupations have relatively low values on almost all job quality dimensions (earnings, prospects and intrinsic job quality). Furthermore, workers in such occupations also report relatively low levels of both physical and mental well-being. In contrast, workers in high-skilled occupations have relatively high average values on almost all job quality indices.

For instance, the average levels of earnings between the occupational groups fall progressively from the high-skilled occupations with the highest average values, towards mid- and low-skilled occupations with relatively low average values. Professionals and Managers report the highest earnings, Skilled agricultural workers the lowest. The best prospects are also reported by Professionals, Managers, and Technicians, followed by mid-skilled Service and manual workers, with workers in Elementary occupations reporting the most limited job and career chances. The fact that high-skilled occupations are ranked at the top and mid-skilled manual and low-skilled occupations at the bottom of the distribution is also true for the dimension of intrinsic job quality. Working time is the only dimension of job quality where the relationship with the level of skill is not clear. Workers in Elementary occupations and Skilled agricultural workers report relatively similar levels of working time quality to workers in high-skilled occupations.

The main aim of this analysis, however, was to identify those occupations across the European Union that combine multiple disadvantages in comparison with other occupational groups. Consequently, the occupations with multiple disadvantages are: Customer services clerks, Personal service workers, Sales workers, Market-oriented skilled forestry, fishery and hunting workers, Building and related trades workers, Metal, machinery and related trades workers, Food processing, wood working, garment and other craft and related trades workers, Stationary plant and machine operators, Assemblers, Drivers and mobile plant operators, Labourers in mining, construction, manufacturing and transport, and Food preparation assistants. These occupations experience relatively poor levels of earnings, prospects, intrinsic job quality and working time quality, and are therefore ranked at the bottom half of the distributions on all the dimensions of job quality.

Noticeable cross-country differences were also observed within occupations. This is worth further investigation, as these differences might suggest that specific occupations may need different country-level policy approaches to improve their

quality. Furthermore, policies aimed at improving working conditions in occupations which have been identified as having multiple disadvantages will be specifically explored in a follow-up Eurofound project, ‘Improving working conditions in occupations with multiple disadvantages’.

This study also illustrated the differences between the workers occupying different positions and pointed to the people more likely to end up in unfavourable occupations. Exploring the association between the characteristics of the workers and the quality of the occupations, it was found that male workers are more likely to occupy jobs with multiple disadvantages than female workers. But men are also more likely than women to occupy both unfavourable and favourable positions, while female workers are more likely to occupy positions with mixed characteristics. Young workers (15–24 years) are more likely than older workers (aged 50+) to occupy multiple disadvantaged positions; and with progress in age workers are increasingly more likely to be in more favourable occupations. Workers with lower levels of education are most likely to occupy positions in multiple disadvantaged occupations.

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Table 1: Structure of the indices of job quality and subjective well-being

Index	Content	Items used to construct the indices	Methodological notes
Indices of job quality			
Earnings	Hourly earnings	EF10 (<i>net monthly earnings from the main paid job in the main currency</i>) EF10_eu (<i>net monthly earnings from the main paid job converted in Euro</i>) EF11 (<i>income code in bands</i>) Q18 (<i>usual weekly working hours in main paid job</i>)	Data from EF10_eu and EF11 is combined. Monthly income is adjusted for purchasing power parity at country level. Outliers are excluded while 0.25% of the top and bottom of the income are considered as missing.
Prospects	Job security, career progression, contract quality	Q77A (<i>perceived probability of job loss</i>) Q77C (<i>career prospects</i>) Q6 (<i>employment status</i>) Q7 (<i>type of contract</i>)	The index of contract quality for employees is defined as 1 for an indefinite contract, 0.5 for temporary contract forms and 0 for employees without contract. The index averages the multiple ranked responses to job security, career prospects and contract quality. If workers are self-employed, the average is formed from the other two variables.
Intrinsic job quality	Skills and discretion (0.25) • skills and autonomy	AvEd (<i>average education level found in the 2-digit occupation</i>) isco_08_1 (<i>occupational group</i>) Q61A (<i>undergone training paid for or provided by the employer</i>) Q61C (<i>undergone training paid for by the worker</i>) Q49C (<i>job involves solving unforeseen problems</i>) Q49E (<i>job involves complex tasks</i>) Q49F (<i>job involves learning new things</i>) Q50A (<i>able to choose or change the order of tasks</i>) Q50B (<i>able to choose or change the methods of work</i>) Q50C (<i>able to choose or change the speed or rate of work</i>) Q51C (<i>the worker is consulted before targets for work are set</i>) Q51E (<i>the worker has a say in the choice of working partners</i>) Q51I (<i>the worker is able to apply own ideas in the work</i>) Q510 (<i>the work can influence decisions that are important for his work</i>) Q24H (<i>job involves working with computers</i>)	The Average education level in the 2-digit occupation is normalised to the 0-1 range. Major groups of occupations (isco_08_1) are recoded as a dummy variables, categories 1 to 3 equal 1, all others equal 0. The variables used for the Skills and Discretion index are normalised to the 0-1 range. The resulting index is normalised to the 0-100 range.
	Good social environment (0.25) • social support, absence of abuse	Q51A (<i>help and support by colleagues</i>) Q77E (<i>having very good friends at work</i>) Q51B (<i>help and support by manager</i>) Q58A to Q58E (<i>immediate manager/supervisor - provides feedback on work; respects you as a person; good at resolving conflicts; good at planning and organising the work; encourages participation in important decisions</i>) Q70A to Q70C (<i>workers subjected to verbal abuse, unwanted sexual attention, threats and humiliating behaviour</i>); and Q71A to C (<i>workers subjected to physical violence; bullying or sexual harassment</i>)	A dummy 'No abuse' variable is computed, indicating negative items with 0 and 1 if abusive experience has taken place. The Good Social Environment index is then normalised to the 0-100 range.

Occupational profiles in working conditions: Identification of groups with multiple disadvantages

Index	Content	Items used to construct the indices	Methodological notes
Indices of job quality			
Intrinsic job quality	Good physical environment (0.25) <ul style="list-style-type: none"> low level of physical and posture related hazards 	Q23A to Q23I (<i>exposure to vibrations, noise, high and low temperatures, fumes, vapours, chemical products, tobacco smoke, infectious materials</i>) Q24A to Q24G (<i>job involves tiring positions, lifting people, carrying heavy loads, standing, repetitive movements, dealing with clients</i>)	The index is constructed by allocating numbers to the frequency distribution score from 0 (all of the time) to 6 (never) and summing the scores. The resulting index is normalised to the 0–100 range.
	Work intensity (0.25) <ul style="list-style-type: none"> pace of work, work pressure, and emotional/value conflict demands 	Q45A (<i>working at a very high speed</i>) Q45B (<i>working to tight deadlines</i>) Q51G (<i>worker has enough time to get things done</i>) Q46 (<i>sources of work pressure</i>) Q51L, Q51P, Q24G (<i>items reflecting the pressure from hiding emotional/value conflict</i>)	The index is normalised to the 0–100 range.
Working time quality	Duration, scheduling, discretion, short-term flexibility over working time	Q18 (<i>number of usual weekly working hours</i>) Q32 (<i>number of times a month the worker works more than 2 hours between 10 and 5pm</i>) Q33 (<i>number of times a month the worker works more than 2 hours between 6 and 10pm</i>) Q34 (<i>number of working Saturdays and (Q35) Sundays;</i> Q39, Q40 (<i>discretion over working time arrangements Q43 (short term flexibility)</i>)	Sub-indices are normalised to the 0–100 range; and summed with equal weight to build the Working Time Quality index.
Indices of health and well-being			
Number of health problems	Health problems experienced by the respondents in the last 12 months	Q69A to Q69N (<i>suffer from any of the following health problems over the last 12 months: hearing problems; skin problems; backache; muscular pains in shoulders, neck and/or upper limbs; muscular pains in lower limbs; headaches, eyestrain; stomach ache; respiratory difficulties; cardiovascular diseases; injury(ies); depression or anxiety; overall fatigue; insomnia or general sleep difficulties; other</i>)	The index is an additive variable constructed using question Q69. The question accounts for 14 different health problems.
Negative effect of work on health	Work affects health negatively	Q67 (<i>work affects health or not</i>)	The variable is constructed by recoding Q67. into a binary variable: response categories 'Yes negatively' as 1 and 'Yes positively' and 'No' as 0.
Mental well-being	Experience of pleasant feelings	EF4A to EF4E (<i>feeling over the last two weeks: (Cheerful and in good spirits; Calm and relaxed; Active and vigorous; Woke up feeling fresh and rested; Daily life has been filled with things that interest me)</i>)	The index is built using question, the EF4, the WHO-5 index. The response scale starting with 'At no time' to 'All of the time' is recoded and the index is constructed averaging all the variables and normalised to the 0–100 range.
Self-reported work-life balance	Fit between working time and family and social commitments	Q41 (<i>fit between working hours and family or social commitments</i>)	This index uses Q41, recoding the variable into a binary variable with response categories 'Very well' and 'Well' equal 1 and 'Not very well' and 'Not at all well' equal 0.
Meaningfulness of work	Feelings of well done and useful work	Q51H (<i>feeling that job is well done</i>) Q51J (<i>feeling of doing useful work</i>)	The index combines Q51H and Q51. Each question has a 4-point scale, starting from 'Never' to 'Always'. The additive variable is on an eight point scale.

Table 2: Occupational categories (N)

ISCO		Label	N
Managers	11	Chief executives, senior officials and legislators	253
	12	Administrative and commercial managers	692
	13	Production and specialised services managers	797
	14	Hospitality, retail and other services managers	831
Professionals	21	Science and engineering professionals	697
	22	Health professionals	887
	23	Teaching professionals	2354
	24	Business and administration professionals	711
	25	Information and communications technology professionals	305
	26	Legal, social and cultural professionals	903
Technicians and associate professionals	31	Science and engineering associate professionals	836
	32	Health associate professionals	959
	33	Business and administration associate professionals	2590
	34	Legal, social, cultural and related associate professionals	460
	35	Information and communications technicians	322
Clerical support workers	41	General and keyboard clerks	1144
	42	Customer services clerks	772
	43	Numerical and material recording clerks	1010
	44	Other clerical support workers	457
Service and sales workers	51	Personal service workers	2001
	52	Sales workers	3158
	53	Personal care workers	1477
	54	Protective services workers	634
Skilled agricultural, forestry and fishery workers	61	Market-oriented skilled agricultural workers	903
	62	Market-oriented skilled forestry, fishery and hunting workers	95
Craft and related trades workers	71	Building and related trades workers, excluding electricians	1524
	72	Metal, machinery and related trades workers	1188
	73	Handicraft and printing workers	257
	74	Electrical and electronic trades workers	550
	75	Food processing, wood working, garment and other craft and related trades workers	974
Plant and machine operators	81	Stationary plant and machine operators	824
	82	Assemblers	311
	83	Drivers and mobile plant operators	1505
Elementary occupations	91	Cleaners and helpers	1818
	92	Agricultural, forestry and fishery labourers	348
	93	Labourers in mining, construction, manufacturing and transport	822
	94	Food preparation assistants	209
	95	Refuse workers and other elementary workers	511

Occupational profiles in working conditions: Identification of groups with multiple disadvantages

Table 3: Gender breakdown by major occupational groups, by countries (%)

Country/ ISCO	Total		Managers		Professionals		Technicians and associate professionals		Clerical support workers		Service and sales workers		Skilled agricultural, forestry and fishery workers		Craft and related trades workers		Plant and machine operators, and assemblers		Elementary occupations	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
EU28	54.7	45.3	66.1	33.9	51.0	49.0	46.2	53.8	31.1	68.9	31.5	68.5	62.5	37.5	90.0	10.0	83.1	16.9	47.6	52.4
Belgium	54.8	45.2	65.9	34.1	43.7	56.3	62.2	37.8	34.9	65.1	32.6	67.4	76.1	23.9	94.0	6.0	83.8	16.2	45.7	54.3
Bulgaria	52.7	47.3	66.0	34.1	31.9	68.1	44.2	55.8	25.3	74.8	39.3	60.7	58.4	41.6	74.5	25.5	73.6	26.4	55.6	44.4
Czech Republic	57.3	42.7	72.3	27.7	53.0	47.0	47.3	52.7	24.7	75.3	34.1	66.0	68.1	31.9	90.6	9.4	73.3	26.8	39.9	60.1
Denmark	52.3	47.7	77.3	22.6	55.4	44.6	43.1	56.9	28.4	71.7	28.1	71.9	83.1	16.9	95.2	4.8	83.7	16.3	58.2	41.8
Germany	53.9	46.1	70.1	29.9	59.2	40.8	40.5	59.5	32.7	67.3	25.1	74.9	69.9	30.1	90.7	9.3	85.6	14.4	47.2	52.8
Estonia	48.2	51.8	63.1	36.9	29.7	70.3	34.7	65.4	23.4	76.6	23.8	76.3	58.5	42.6	90.7	9.3	70.4	29.6	38.3	61.7
Ireland	53.6	46.4	60.9	39.1	44.4	55.6	52.4	47.6	27.5	72.5	33.4	66.6	94.1	5.9	95.0	5.1	85.4	14.6	61.5	38.6
Greece	59.9	40.1	70.3	29.7	49.5	50.5	49.8	50.2	40.8	59.2	45.6	54.4	58.4	41.6	92.0	8.0	91.8	8.2	45.7	54.3
Spain	55.8	44.2	65.7	34.3	46.0	54.0	52.6	47.4	34.7	65.3	36.3	63.7	80.4	19.6	93.4	6.6	87.1	12.9	41.7	58.3
France	52.5	47.5	61.3	38.7	55.5	44.5	47.4	52.6	26.0	74.0	27.0	73.0	76.0	24.0	91.5	8.5	81.8	18.2	34.0	66.0
Croatia	53.8	46.2	73.2	26.8	43.9	56.2	50.3	49.8	31.1	69.0	387.6	62.4	47.5	52.6	95.0	5.0	74.0	25.9	47.7	52.3
Italy	59.6	40.4	67.2	32.8	54.2	45.8	51.8	48.2	39.8	60.2	41.4	58.6	77.5	22.5	88.5	11.5	82.9	17.1	47.5	52.5
Cyprus	52.8	47.2	86.2	13.8	47.0	53.0	53.0	47.0	21.8	78.0	40.5	59.5	75.5	24.5	94.1	6.1	92.3	8.2	38.7	61.3
Latvia	48.3	51.7	58.8	41.2	31.7	68.4	38.3	61.7	19.8	80.2	23.7	76.3	59.1	40.9	80.8	19.2	87.5	12.7	49.1	50.9
Lithuania	47.4	52.6	58.9	41.1	29.1	70.9	32.4	67.6	23.3	76.5	25.9	74.1	57.2	42.8	74.7	25.4	82.7	17.3	45.2	54.7
Luxembourg	56.6	43.4	74.8	24.3	57.4	42.6	50.7	49.5	44.9	55.1	36.1	63.9	75.7	24.3	95.6	4.4	91.6	7.5	32.4	67.6
Hungary	53.5	46.5	63.6	36.4	44.0	56.0	36.0	64.0	24.8	75.2	39.8	60.2	74.1	25.9	87.4	12.6	71.8	28.2	44.4	55.6
Malta	65.9	34.1	76.9	23.1	51.9	48.5	58.6	41.0	42.4	58.1	56.3	43.7	90.0		97.9	2.1	75.8	24.2	77.0	23.0
Netherlands	54.1	45.9	71.4	28.6	53.1	46.9	46.1	53.9	30.3	69.7	30.1	69.9	74.0	26.0	95.3	4.7	89.4	10.6	54.3	45.8
Austria	53.6	46.4	71.2	28.8	53.8	46.2	52.4	47.6	30.0	70.0	27.1	72.9	53.4	46.6	93.0	7.0	87.0	13.0	44.6	55.4
Poland	55.4	44.6	64.4	35.6	35.6	64.4	46.7	53.3	34.1	65.9	34.5	65.5	55.4	44.6	87.5	12.5	86.6	13.4	45.7	54.3
Portugal	53.1	46.9	68.2	31.8	42.6	57.4	53.8	46.2	36.9	63.1	32.7	67.3	54.5	45.5	80.5	19.5	78.1	21.9	33.3	66.7
Romania	55.3	44.7	67.6	32.4	48.7	51.3	36.9	63.1	30.1	69.9	36.1	63.9	51.2	48.8	79.2	20.8	76.0	24.0	58.6	41.4
Slovenia	54.2	45.8	65.2	34.8	40.3	59.7	48.5	51.5	37.2	62.6	37.3	62.6	60.0	40.0	92.3	7.6	71.1	28.9	41.5	58.6
Slovakia	55.4	44.6	65.5	34.6	41.7	58.3	39.6	60.4	32.2	67.8	31.3	68.8	70.6	29.4	89.1	10.9	74.6	25.4	58.0	42.0
Finland	51.4	48.6	69.6	30.4	50.6	49.4	39.4	60.5	23.8	76.2	19.6	80.4	63.2	36.8	91.0	9.0	84.1	15.9	45.4	54.6
Sweden	52.9	47.1	68.7	31.3	49.5	50.5	48.0	52.0	32.4	67.6	26.7	73.3	75.5	24.5	94.4	5.6	84.8	15.2	51.4	48.7
United Kingdom	53.5	46.5	64.3	35.7	54.9	45.1	46.8	53.2	24.0	76.0	28.8	71.2	87.2	12.9	96.3	3.7	87.7	12.3	61.6	38.4

Source: Author's own calculations, based on Eurostat LFS data, 2010

Table 4: Breakdown of occupations by sectors in the economy (%)

ISCO/NACE	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam and air conditioning supply	Water supply; sewerage, waste management and remediation activities	Construction
Managers	3.3	6.2	7.1	7.8	7.6	7.3
Professionals	0.9	10.8	7.6	17.6	6.4	4.6
Technicians and associate professionals	1.8	10.7	13.3	22.4	11.9	6.8
Clerical support workers	1.1	5.5	7.9	13.4	10.0	5.1
Service and sales workers	0.6	0.0	2.4	1.2	0.9	0.4
Skilled agricultural, forestry and fishery workers	73.5	0.0	0.2	0.0	0.0	0.2
Craft and related trades workers	1.1	37.3	31.1	24.2	12.9	60.8
Plant and machine operators, and assemblers	3.2	23.6	23.0	9.8	24.8	6.7
Elementary occupations	14.4	5.9	7.0	3.3	25.5	8.0

ISCO/NACE	Wholesale and retail trade; repair of motor vehicles and motorcycles	Transportation and storage	Accommodation and food service activities	Information and communication	Financial and insurance activities	Real estate activities
Managers	15.8	6.1	17.7	12.8	15.8	14.6
Professionals	3.6	3.2	0.7	38.1	13.3	5.9
Technicians and associate professionals	14.4	9.0	2.5	27.6	33.1	39.5
Clerical support workers	12.6	20.8	5.0	11.0	34.6	17.2
Service and sales workers	32.2	3.6	58.2	1.6	0.8	1.9
Skilled agricultural, forestry and fishery workers	0.4	0.0	0.2	0.0	0.0	0.7
Craft and related trades workers	9.7	4.3	1.8	4.0	0.4	3.9
Plant and machine operators, and assemblers	3.9	43.2	1.3	0.9	0.3	0.7
Elementary occupations	7.2	9.6	12.4	3.5	1.5	15.7

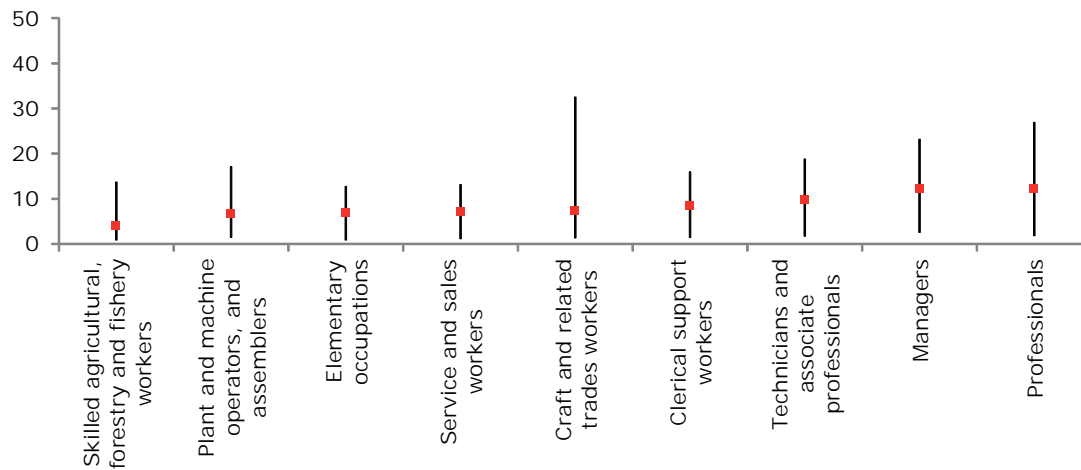
ISCO/NACE	Professional, scientific and technical activities	Administrative and support service activities	Public administration and defence; compulsory social security	Education	Human health and social work activities	Arts, entertainment and recreation
Managers	10.0	8.2	4.9	2.9	3.0	8.8
Professionals	41.4	4.7	18.2	57.2	19.5	24.8
Technicians and associate professionals	27.2	10.2	23.5	16.7	32.7	24.6
Clerical support workers	14.6	13.3	18.0	5.2	7.1	16.0
Service and sales workers	1.3	10.8	13.4	8.5	28.0	9.3
Skilled agricultural, forestry and fishery workers	0.2	5.6	0.9	0.2	0.2	2.4
Craft and related trades workers	2.0	6.8	2.5	0.7	1.2	3.4
Plant and machine operators, and assemblers	0.9	4.0	1.7	0.3	1.1	0.8
Elementary occupations	1.8	35.8	8.0	7.8	6.9	9.6

ISCO/NACE	Other service activities	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	Activities of extraterritorial organisations and bodies	EU28
Managers	7.1	0.0	20.0	8.3
Professionals	10.9	0.5	28.8	14.5
Technicians and associate professionals	13.1	1.1	18.2	16.5
Clerical support workers	8.9	1.0	18.8	10.6
Service and sales workers	38.5	16.6	4.0	14.1
Skilled agricultural, forestry and fishery workers	1.3	2.2	0.0	4.4
Craft and related trades workers	8.1	1.5	0.0	12.9
Plant and machine operators, and assemblers	3.3	0.4	0.0	8.1
Elementary occupations	8.2	76.7	4.8	9.7

Source: Author's own calculations, based on Eurostat LFS data, 2010

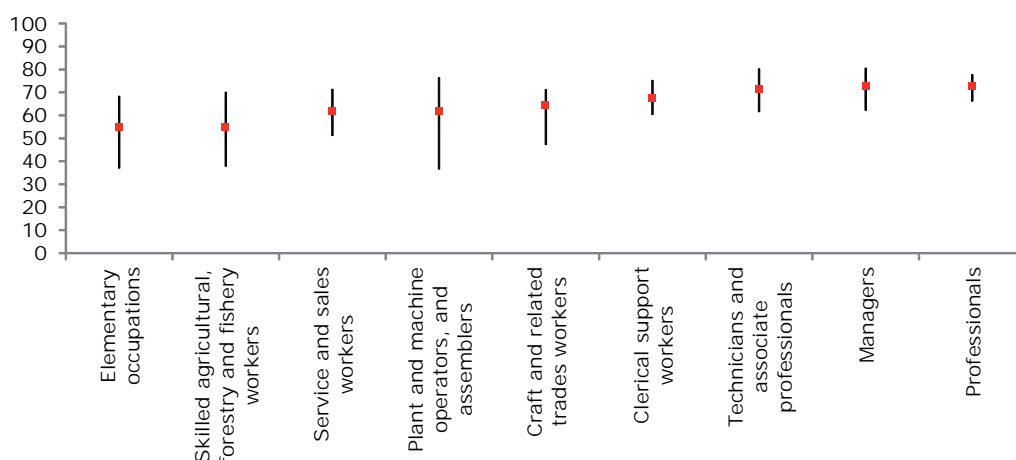
Figure 45: Average Job Quality (ISCO-08, digit-1 level)

45.1 Average earnings



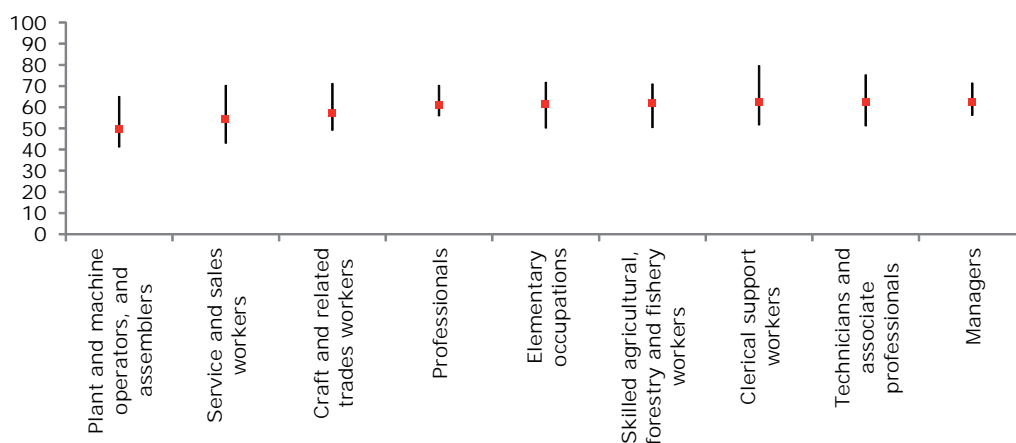
Note: The figures illustrate the EU28 average, indicated by the small square, and the cross-country variation (minimum and maximum country average values), indicated by the vertical line.

45.2 Average prospects



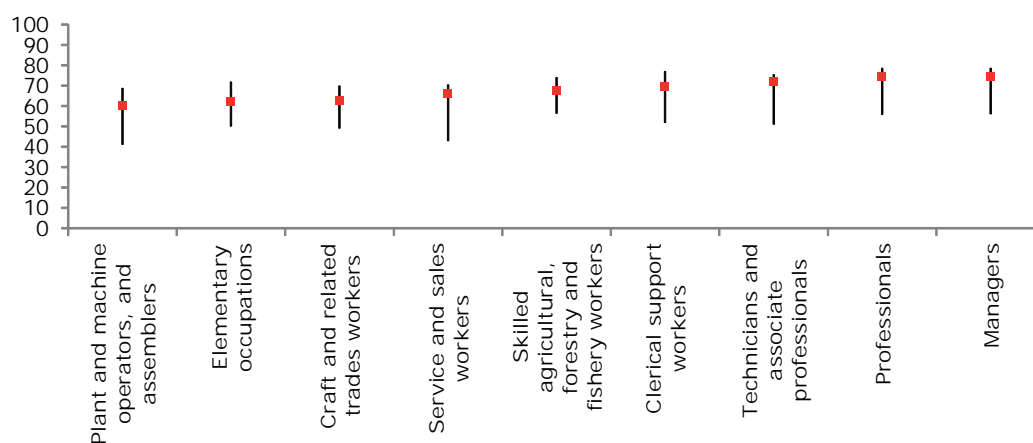
Note: The figures illustrate the EU28 average, indicated by the small square, and the cross-country variation (minimum and maximum country average values), indicated by the vertical line.

45.3 Average working time quality



Note: The figures illustrate the EU28 average, indicated by the small square, and the cross-country variation (minimum and maximum country average values), indicated by the vertical line.

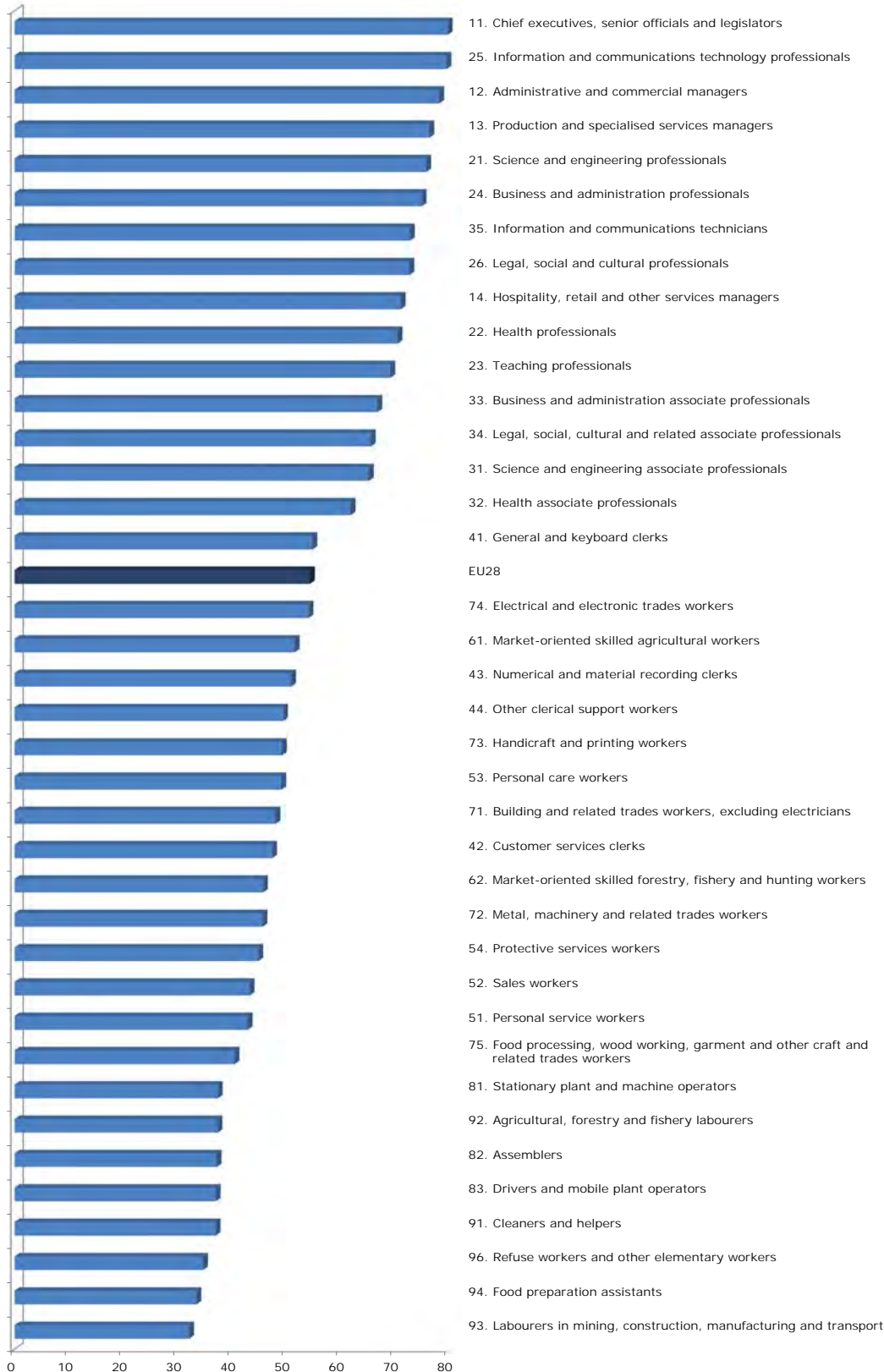
45.4 Average intrinsic job quality



Note: The figures illustrate the EU28 average, indicated by the small square, and the cross-country variation (minimum and maximum country average values), indicated by the vertical line.

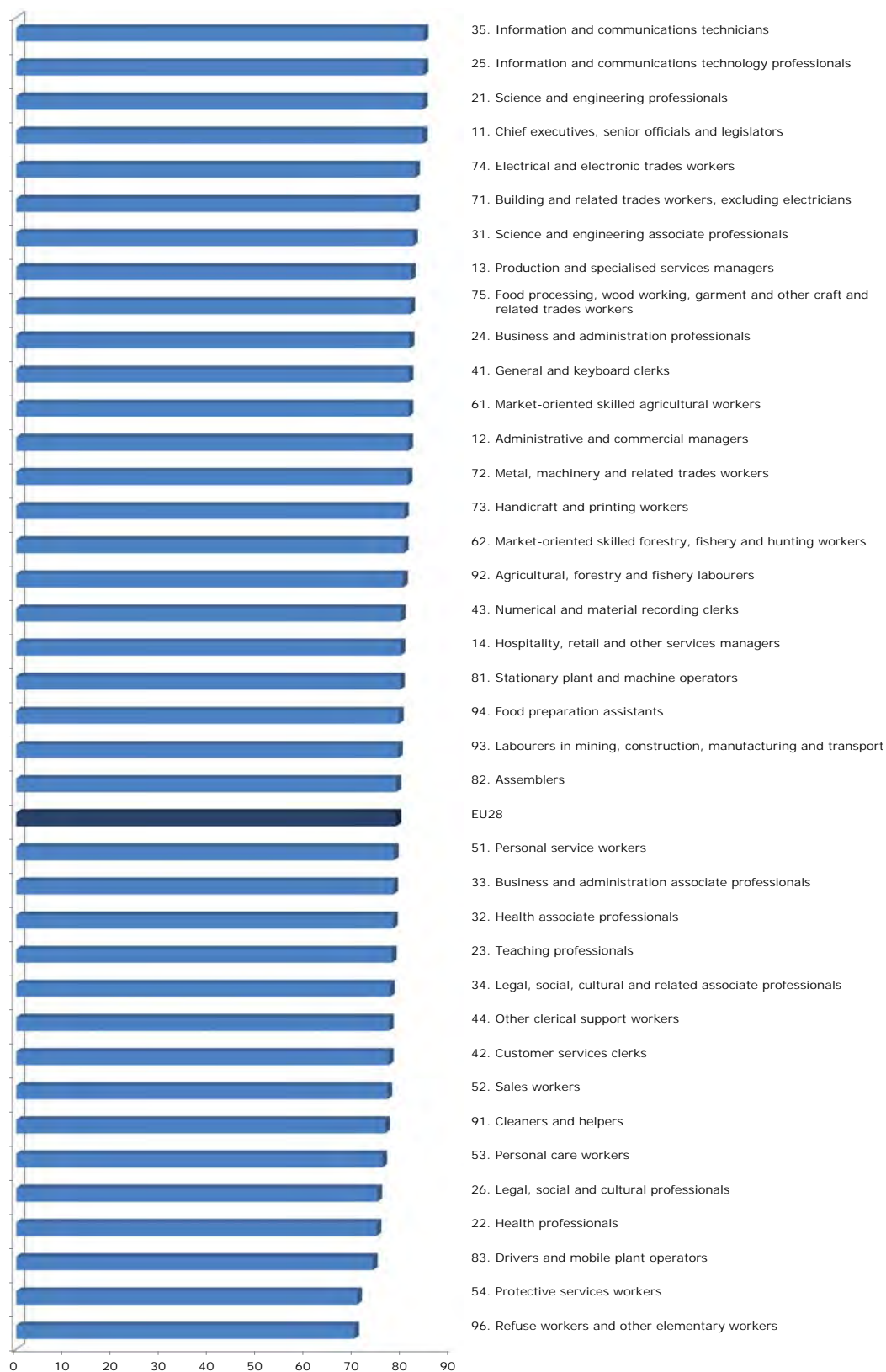
Figure 46: *Intrinsic Job Quality sub-indices (ISCO-08, digit-2 level)*

46.1 Skills and discretion



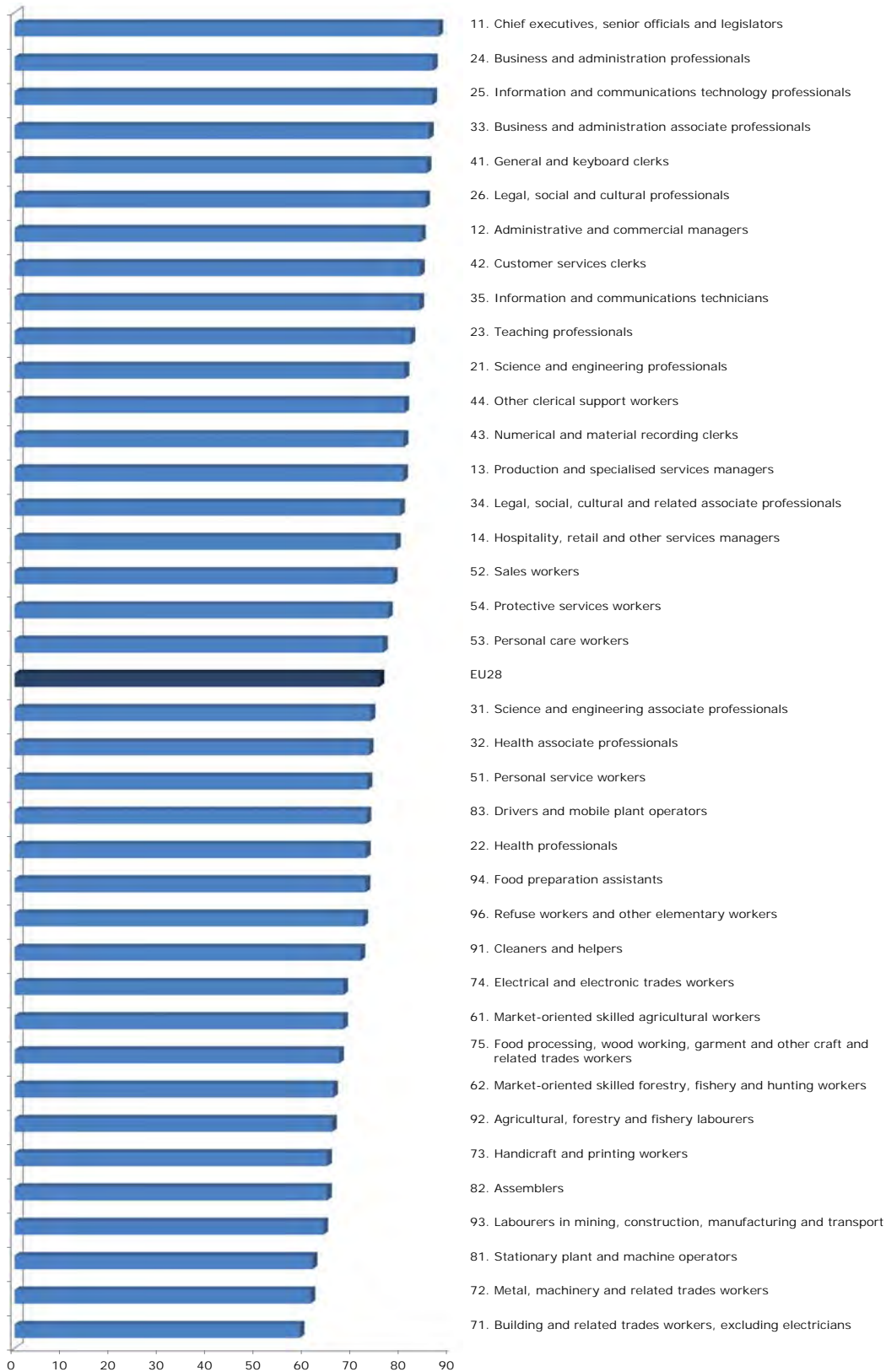
Note: Median (Occupational mean) = 50.07

Figure 46.2: Good Social Environment



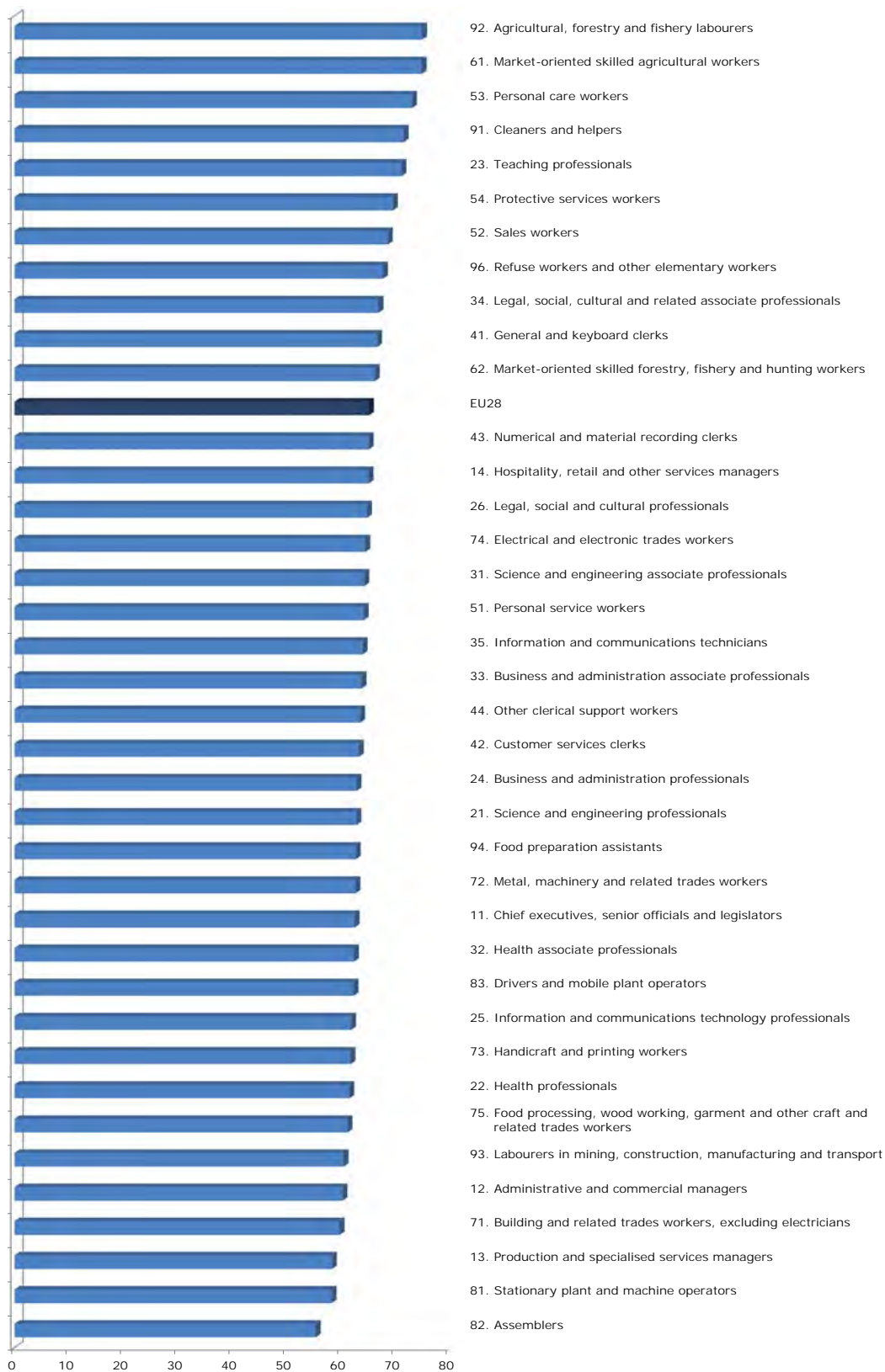
Note: Median (Occupational mean) = 79.37

Figure 46.3: Good physical environment



Note: Median (Occupational mean) = 74.62

Figure 46.4: Work intensity



Note: Median (Occupational mean) = 63.46

Job quality indexes are constructed on the basis of such aspects of working conditions as earnings, prospects, working time, and intrinsic job quality (which includes skills, autonomy, the social environment, physical risks and work intensity). Occupations where job quality is consistently low are labelled 'occupations with multiple disadvantages', where conditions are such that it is difficult for people to stay in such jobs. This report uses data from the fifth European Working Conditions Survey to identify such occupations. It finds that workers in mid-skilled manual and low-skilled occupations do quite poorly when it comes to earnings, prospects and intrinsic job quality, and they report relatively low levels of both physical and mental well-being. However, their working time quality is generally good. In contrast, workers in high-skilled occupations do relatively well on almost all job quality indicators, except working time.

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is a tripartite European Union Agency, whose role is to provide knowledge in the area of social and work-related policies. Eurofound was established in 1975 by Council Regulation (EEC) No. 1365/75, to contribute to the planning and design of better living and working conditions in Europe.