



A sector perspective on working conditions

[Click for contents](#)

Authors: Karin Jettinghoff and Irene Houtman

Institute: TNO Quality of Life – Work and Employment, Hoofddorp, Netherlands

Research managers: Agnès Parent-Thirion, Enrique Fernández Macías, John Hurley and Greet Vermeylen

Project: European Working Conditions Survey

Contents

Introduction	1
1. Survey methodology	4
European Working Conditions Survey	4
2. Results	10
Socio-demographics by sector	10
Sectoral profiles on working conditions and outcomes	11
Ranking sectors by working condition and outcome variable	14
Trends in working conditions and outcomes by sector	16
Differences in sectoral profiles between country clusters	20
3. Conclusions	25
Bibliography	26

Country codes and abbreviations used

Country codes

- EU15** 15 EU Member States prior to enlargement in 2004 (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK)
- NMS** 12 New Member States, 10 of which joined the EU in 2004 (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia) and the remaining two in 2007 (Bulgaria and Romania)
- EU27** 27 EU Member States

EU27

AT	Austria	LV	Latvia
BE	Belgium	LT	Lithuania
BG	Bulgaria	LU	Luxembourg
CY	Cyprus	MT	Malta
CZ	Czech Republic	NL	Netherlands
DK	Denmark	PL	Poland
EE	Estonia	PT	Portugal
FI	Finland	RO	Romania
FR	France	SK	Slovakia
DE	Germany	SI	Slovenia
EL	Greece	ES	Spain
HU	Hungary	SE	Sweden
IE	Ireland	UK	United Kingdom
IT	Italy		

Abbreviations used

- Eurofound** European Foundation for the Improvement of Living and Working Conditions
- EWCS** European Working Conditions Survey
- NACE** Nomenclature générale des activités économiques dans les Communautés européennes (General industrial classification of economic activities within the European Communities)

Introduction

Aim of the study

A central objective for the European Foundation for the Improvement of Living and Working Conditions (Eurofound) is the promotion of quality of work and employment in Europe. Every five years, Eurofound conducts the European Working Conditions Survey (EWCS). The survey provides an overview of the state of working conditions throughout Europe and indicates the nature and content of changes affecting the workforce and the quality of work. Topics covered in the survey include working time, psychological and physical risk factors, issues on work organisation, work-related health risks and health outcomes, access to training, income, as well as indicators of the reconciliation of working and private life.

Versions of the EWCS were carried out in 1990–1991, 1995–1996, 2000 and 2001–2002. In the 2001–2002 version, the survey conducted in 2000 was extended to cover the then 10 acceding countries which became EU Member States in May 2004, as well as Bulgaria, Romania and Turkey. The fieldwork for Eurofound's most recent edition of the EWCS – the **fourth European Working Conditions Survey** – was carried out in 2005 in all EU25 countries as well as Bulgaria and Romania (two accession countries at the time, which joined the EU in January 2007) and Turkey, Croatia, Norway and Switzerland. Almost 30,000 employees have been interviewed as part of the research.

Eurofound commissioned the independent research organisation TNO Work and Employment in the Netherlands to perform secondary statistical analyses on the fourth EWCS with the aim of providing a sector perspective of working conditions. More specifically, this report aims to:

- identify sectoral profiles on working conditions for the EWCS data collected in 2005 at NACE 1 and 2-digit level – NACE (*Nomenclature générale des activités économiques dans les Communautés européennes*) is the general classification of economic activities within the European Communities;
- present trends based on a comparison with previous versions of the EWCS (1995, 2000 and 2001–2002) at sectoral level. In 1990–1991, a different sectoral classification was used, which makes trend analysis including this first year of the survey impossible;
- identify differences between country clusters in sectoral profiles. Since the number of cases by country is too small to allow a detailed analysis of working conditions by sector in each country, countries are aggregated.

The analysis is also used to create sector profiles. The findings are presented in fact sheets, covering the 26 sectors in the NACE classification. Each fact sheet presents a profile of the socio-demographic characteristics on data at NACE 1 and 2 digit level as well as a profile of working conditions in the sector.¹

This report will first discuss the survey methodology. After presenting the survey results, the findings will be analysed in relation to information already published.

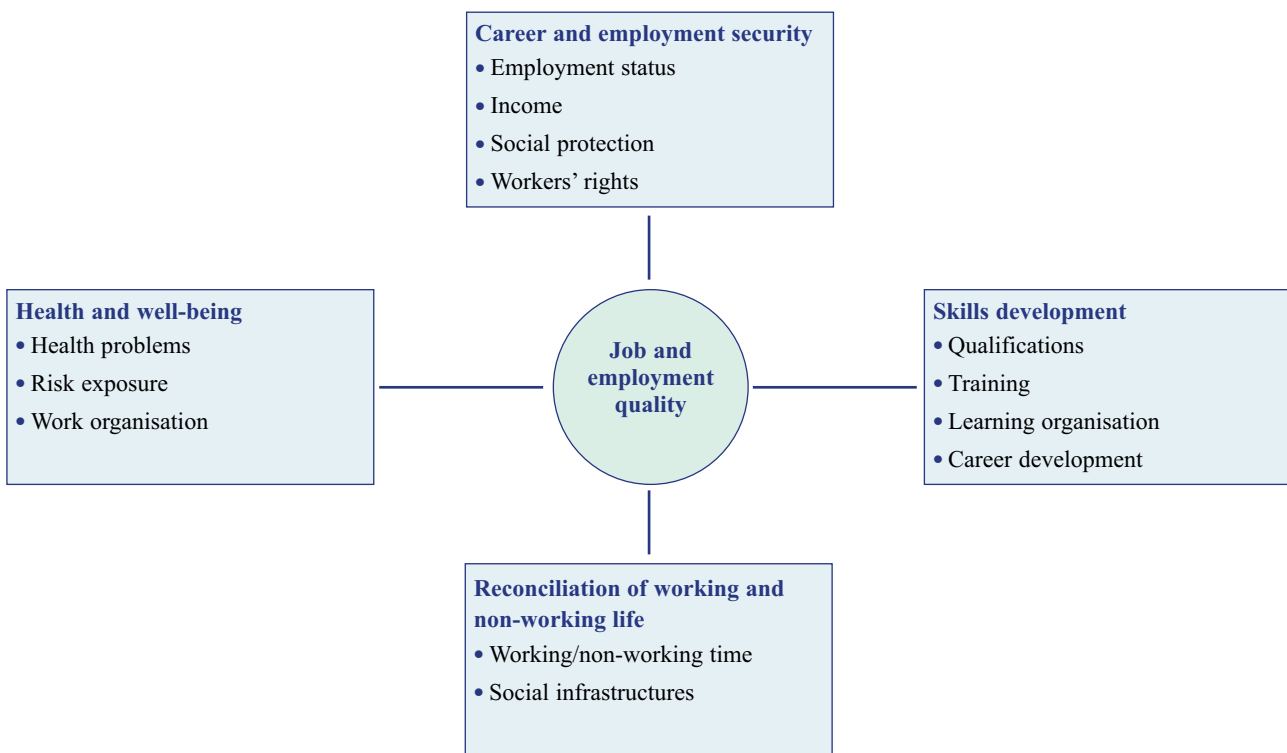
¹ The factsheets are available at <http://www.eurofound.europa.eu/ewco/surveys/ewcs2005/sectorprofiles.htm>

Conceptual framework

A central objective for Eurofound is the promotion of quality of work and employment, which means:

- ensuring career and employment security;
- maintaining and promoting the health and well-being of workers;
- developing workers' skills and competencies;
- reconciling working and non-working life

Figure 1: *Quality of work and employment*



Source: Eurofound, *Quality of work and employment in Europe: Issues and challenges*, 2002

In Figure 1, working conditions mainly relate to risk exposure and work organisation as elements of 'health and well-being'. In dealing with health and well-being, the study looks at reasons for health-related problems at work; these include changes in the nature of work, causing an increase in job demands and time pressure largely due to the introduction of new technologies and increased commercial constraints, the persistence of traditional exposures such as the physical environment and ergonomic risks, and organisational choices that have a direct impact on working conditions and workers' health.

Focus of the study

In this study, the main focus will be on these risks to health and well-being and outcome variables at sectoral level. The sector perspective is highly relevant to the improvement of working conditions, particularly when improvements are aimed at primary prevention by reducing risk exposure. These kinds of interventions to improve working conditions are organised and implemented at organisational level. In particular, small and medium-sized enterprises (SMEs) often have difficulty in organising these kinds of interventions. The sector level has the potential to accommodate and stimulate these measures, and provide examples of good practice and situations where organisations can learn from each other. In the Netherlands, this sector approach to risk management – established in so-called ‘covenants for work and health’ – was already found to be rather effective, also in a sector with many small organisations.

Furthermore, sectors might not only have a specific working conditions profile. They may also differ regarding socio-demographic characteristics such as gender, age, educational level and employment status. Some of these differences may (partly) explain the variation in risk factors and outcome variables between sectors. Therefore, the study will also describe sectoral differences on some of these background variables and discuss these differences in relation to the sectoral profiles on working conditions and health. By looking at these socio-demographic variables, the other aspects shown in Figure 1 above on quality of work and employment are also included. The reconciliation of working and non-working life is highly dependant on the gender segregation by sector. Career and employment security, as well as skills development will be closely related to the educational segregation by sector – lower educated workers want and use less training, both in terms of frequency and amount.

European Working Conditions Survey

Sample

Eurofound conducted the fourth major wave of the EWCS in 2005. Almost 30,000 workers in 31 countries were interviewed. In each country, the survey sample followed a multi-stage, stratified and clustered design with a ‘random walk’ procedure for the selection of the respondents at the last stage – except for Belgium, the Netherlands, Sweden and Switzerland, where the selection of the respondents was taken from a phone register. All interviews were conducted face-to-face in the respondent’s own household. In total, the interviewers visited 72,300 households, carrying out 29,766 interviews, which represents a response rate of 41%. In each country, about 1,000 interviews were carried out, with the exception of Cyprus, Estonia, Luxembourg, Malta and Slovenia, where about 600 interviews were conducted in each country. The survey sample is representative of the workers – employed and self-employed – during the fieldwork period in each of the countries covered. In order to enhance the representativeness of results, three types of weighting have been applied to the data: selection probability weighting, non-response (or post-stratification) weighting, and cross-national weighting. For the analyses in this report, the data from the EU27 were used.

Selected working conditions and outcome variables for sectoral profiles

The 2005 questionnaire was translated into 27 different languages, with nine of these used in more than one country. The working conditions and outcome variables that were used for the sectoral profiles are presented in Table 1.

Table 1: *Working conditions and outcome variables used for sectoral profiles*

Physical environment	Time	Organisational environment	Social environment	Outcomes
Ambient conditions	Duration of work	Job demands	Social support	Mental health problems
Ergonomic conditions	Non-standard working hours	Job control	Discrimination	Musculoskeletal health problems
	Work–life balance	Skilled work		Absence due to health problems (yes or no)
				Job satisfaction

Source: Eurofound, EWCS, 2005

Scales were defined for working conditions and outcome variables, which are indicated by several items. Scales, when homogenous enough, generally provide a good summary of the concept as measured by the items included, and are much more reliable than single items, measuring the related concept. Factor analyses and reliability analyses were performed to define scales in order to increase validity, and to reduce the information on working conditions to a minimum.

Additional contextual working conditions

Along with the working conditions and outcomes, some additional contextual working conditions are also described. Since most of these conditions cannot be marked as favourable or unfavourable, they are not included in the sectoral profiles, but are discussed separately. The additional contextual working conditions described in this report include:

- computer use;
- teleworking;
- working at home;
- contact with clients;

- training;
- other job(s).

Socio-demographic characteristics

Furthermore, this report also presents and describes differences between sectors in relation to the following socio-demographic characteristics:

- gender;
- age;
- years in organisation;
- employment status;
- employment contract;
- company size;
- educational level;
- income level.

Sectors

In 2005, the ‘sector’ variable contained 62 different sectors (NACE 2-digit level), which were reduced to a set of 26 sectors (NACE 1 and 2-digit level). These 26 sectors are presented in Table 2.

Table 2: *Overview of sectors used for sectoral profiles, 2005*

Sector	n	%
Agriculture, hunting and forestry, and fishing (NACE A and B)	1,201	4.7
Mining and quarrying (NACE C)	141	0.6
Manufacturing: food products, beverages and tobacco (NACE D, 15–16)	655	2.6
Manufacturing: clothing, textiles and leather (NACE D, 17–19)	687	2.7
Manufacturing: wood industry, paper (NACE D, 20–21)	307	1.2
Manufacturing: publishing, printing (NACE D, 22)	229	0.9
Manufacturing: chemical, rubber, mineral (NACE D, 23–26)	536	2.1
Manufacturing: metal products and machinery (NACE D, 27–30)	852	3.3
Manufacturing: electrical and electronics, precision instruments (NACE D, 31–33)	318	1.2
Manufacturing: automobile and other transport equipment (NACE D, 34–35)	240	0.9
Manufacturing: furniture and recycling (NACE D, 36–37)	332	1.3
Public utilities (electricity, gas and water supply; NACE E)	402	1.6
Construction (NACE F)	1,719	6.7
Wholesale and retail trade, repairs (NACE G)	3,661	14.3
Hotels and restaurants (NACE H)	1,045	4.1
Land transport (NACE I, 60)	726	2.8
Water, air sampling activities (NACE I, 61–63)	374	1.5
Post and telecommunications (NACE I, 64)	413	1.6

Table 2: Overview of sectors used for sectoral profiles, 2005(cont'd)

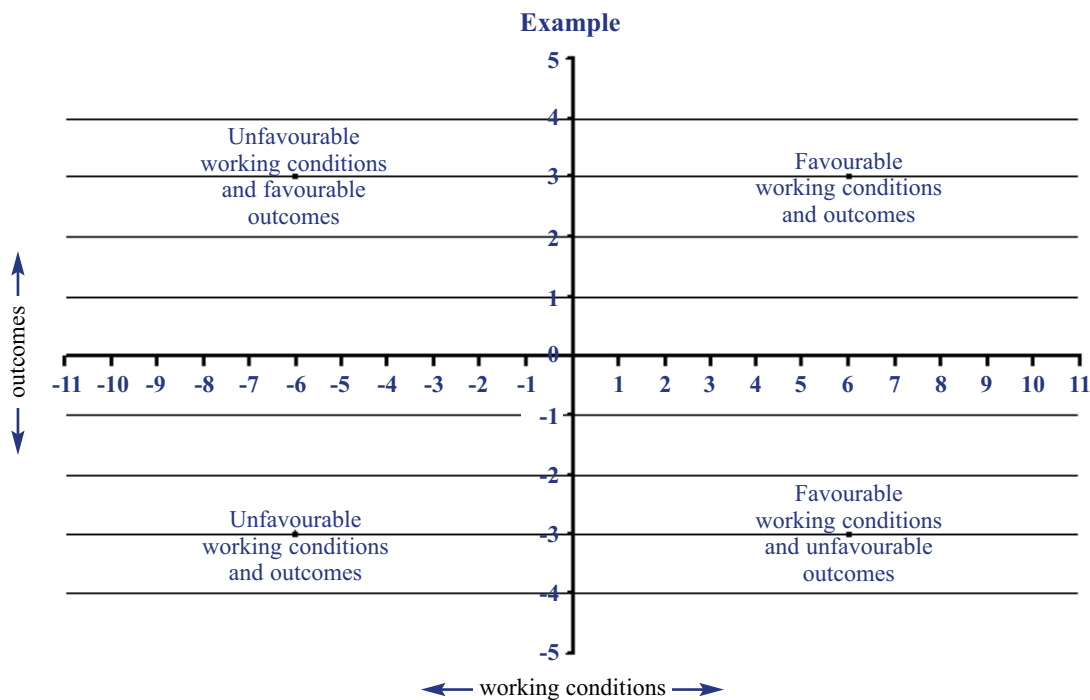
Sector	n	%
Financial intermediation and auxiliary activities (NACE J, 65 and 67)	567	2.2
Insurance (NACE J, 66)	253	1.0
Real estate, renting and business activities (NACE K)	1,612	6.3
Public administration (NACE L)	1,766	6.9
Education (NACE M)	2,487	9.7
Health and social work (NACE N)	2,486	9.7
Other service activities (NACE O)	2,039	8.0
Private households and extra-territorial bodies (NACE P and Q)	267	1.0
Total	25,315	98.8

Note: n = Sample size: number of workers interviewed in each sector.
Source: EWCS, 2005

In order to present sectoral profiles, the scales and the non-scalable working condition items were transformed into Z-scores; this generates a new variable with a mean of 0 (zero) and a standard deviation (SD) of 1 (so SD will range from -1.0 to +1.0). Sectors were profiled against the 'overall result' or the total of all sectors. In the sectoral profiles, the zero-axis represents the overall result or the total of all sectors. Risk factors at the sectoral level are identified when a sector has a significantly and relevantly higher score on a particular working condition compared with the overall result – or total of all sectors – with the exclusion of that specific sector itself. In the sectoral profiles, the favourable ratings on a risk factor are presented to the right of the zero-axis. When a sector has a significantly and relevantly unfavourable score on a working condition compared with the overall result, this working condition is presented as a bar outstanding to the left of the zero-axis in the sector profile.

For the presentation of the working conditions and outcomes by sector, a composite index for working conditions and a composite index for outcomes have been defined by counting the individual standardised scores (Z-scores) of all working conditions and all outcomes respectively. It should be noted that this method does not fully take into account the fact that working conditions or outcomes may be mutually dependent to some extent: it treats all working conditions and all outcomes as unrelated and evenly weighted independent variables. However, it helps to summarise this large amount of information and to present the data in an effective way. The index scores are used to plot sectors in a diagram (Figure 2), presenting a clear picture of sectors with relatively favourable or unfavourable working conditions and outcomes. The most favourable sectors are plotted to the top right of the figure (favourable working conditions and outcomes), while the most unfavourable sectors are plotted to the bottom left of the figure (unfavourable working conditions and outcomes). It can be expected that most sectors would be plotted in these two areas of the figure.

Figure 2: Example of plotting sectors with favourable and unfavourable working conditions and outcomes



Source: EWCS, 2005

Trends

For the description of trends in working conditions and outcome variables, EWCS data were used for 1995, 2000, 2001–2002 and 2005. In 1990–1991, a different sector classification was used, which makes trend analysis by sector including this first year impossible. Data for all years are available, but not for all countries.

In 1995 and 2000, the EWCS was carried out in the EU15. In 2001–2002, the survey was extended to include the 12 acceding and candidate countries at the time (now the new Member States (NMS) of the EU27). In 2005, the survey was carried out in the EU27 (including the acceding countries at the time, Bulgaria and Romania), as well as in Croatia, Norway, Switzerland and Turkey. Data from 2000 and 2001–2002 are taken together as one wave with data from the EU27.

In 1995, the sample size of every EU Member State was set at $n = 1,000$ randomly selected employees – except for Luxembourg where the sample was $n = 500$ employees; in former east and west Germany, separate samples were drawn of $n = 1,000$ employees. In 2000, the sample size was higher at $n = 1,500$ employees for each Member State; $n = 750$ employees for Luxembourg, and only one total sample of $n = 1,500$ employees was drawn in Germany. In 2001–2002, the sample size of every Member State was set at $n = 1,000$ randomly selected employees – except for Cyprus and Malta where $n = 500$ employees.

Profiles were identified for the EU15 using 1995 as the reference year. Furthermore, profiles were defined for the EU27 using 2000–2002 as the reference year (zero-axis) and presenting changes in working conditions and outcome variables in 2005 compared with 2000–2002. For the trend analyses, scale-scores – and not Z-scores – were used. Significant and relevant changes are marked in the profiles.

A sector perspective on working conditions

The survey questions on working conditions and outcomes remained the same between 1995 and 2005, and therefore are used to describe trends. Most survey questions about outcomes changed in the EWCS 2005. Therefore, no comparison can be made between the different editions of the survey regarding outcomes, except in relation to satisfaction with working conditions. The description of trends in sectoral profiles between 1995 and 2005 is possible for 11 sectors, which are presented in Table 3.

Table 3: *Overview of sectors used for trend profiles, 1995–2005*

Sector	1995 (EU15)	2000–2002 (EU27)	2005 (EU27)
Agriculture, hunting and forestry, and fishing	760	1,926	1,201
Mining and quarrying, and manufacturing	2,873	6,170	4,297
Public utilities (electricity, gas and water supply)	212	402	402
Construction	1,198	2,124	1,719
Wholesale and retail trade, repairs	2,538	5,249	3,661
Hotels and restaurants	647	1,406	1,045
Transportation and communication	955	2,208	1,513
Financial intermediation	564	995	820
Real estate and business activities	723	1,928	1,612
Public administration	1,940	2,176	1,766
Other services	3,576	8,044	7,279
Total	15,986	32,628	25,315

Source: *EWCS, 1995; EWCS, 2000 and 2001–2002; EWCS, 2005*

Country clusters

Since the number of interviews in each country is too small to allow a detailed analysis of working conditions by sector in each country, countries are clustered. The country clusters from the fourth EWCS (Parent-Thirion et al, 2007) are used, with the exception that the acceding countries at the time (Bulgaria and Romania) are added to the eastern European countries in order to increase the number of cases in each cell.

Furthermore, for a comparison of country clusters, the ‘sector’ variable is reduced to a set of 13 sectors (Table 4).

Table 4: Overview of sectors used for sectoral profiles, by country cluster in 2005

	Continental countries*	Ireland and UK	Eastern European countries**	Southern European countries***	Scandinavian countries and NL****
Agriculture, hunting and forestry, and fishing	82	79	707	254	79
Mining and quarrying, and manufacturing	713	233	2,019	767	565
Public utilities (electricity, gas and water supply)	79	28	198	43	54
Construction	284	167	631	451	186
Wholesale and retail trade, repairs	654	331	1,278	946	452
Hotels and restaurants	206	96	272	390	81
Transportation and communication	289	139	574	281	230
Financial intermediation	245	74	202	163	136
Real estate and business activities	288	177	439	353	355
Public administration	301	138	584	379	364
Education	389	187	1,039	438	434
Health and social work	473	229	705	329	750
Other services	644	160	661	397	444
Total	4,647	2,038	9,309	5,191	4,130

Notes: * Austria, Belgium, Germany, France and Luxembourg; ** Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia; *** Cyprus, Greece, Italy, Malta, Portugal and Spain; **** Denmark, Finland, the Netherlands and Sweden.

Source: EWCS, 2005

The results from these analyses will be presented in tabular form, and will indicate significant and relevant deviations from the total of other country clusters – for example, middle of Europe, or the European average. Within country clusters, sectors with fewer than 50 workers are not included. For these sectors, no results will be presented.

For each sector, differences in risk factors and outcomes between country clusters are presented in tabular form. When risk factors and outcomes are significantly and relevantly higher or lower in one country cluster compared with the (total of) other country clusters², these differences are marked in the tables.

For the presentation of working conditions and outcomes by sector and country group, the same method is used as described in the previous section on sectors. A composite index for working conditions and a composite index for outcomes have been defined by counting the individual standardised scores (Z-scores) of all working conditions and all outcomes respectively. The index scores are used to plot on a figure the different country clusters for each sector. This provides a clear overview of which country clusters have relatively favourable or unfavourable working conditions and outcomes within each sector, as well as differences between sectors regarding the working conditions and outcomes in the country clusters.

² $p < 0.05$ and $d \geq 0.20$

This chapter first gives a brief description of the socio-demographic characteristics of the sectors. It then presents the sectoral profiles on working conditions and outcome variables, as well as the trends in sectoral profiles since 1995 and differences in sectoral profiles between country clusters.

Socio-demographics by sector

Sectors differ regarding socio-demographic characteristics such as gender, age, educational level and employment status. Some of these differences may (partly) explain the differences in risk factors and outcome variables between sectors. Therefore, this chapter begins with a short description of the socio-demographic characteristics of the sectors.

In the EU27, 55.5% of workers are men and 45.5% are women. However, some sectors have a higher percentage of male or female workers. These sectors can be characterised as typical ‘male-dominated’ or ‘female-dominated’ sectors. Typical sectors with a majority of male workers include mining and quarrying (90.4% men), construction (89.4%), land transport (82.8%), public utilities (79.6%), water and air transport (71.0%), and most manufacturing sectors – except the manufacturing of textiles and food, as well as publishing and printing. Typical sectors with a higher proportion of female workers include private households (81.9% women), health and social work (78.6%), education (72.2%), manufacturing of textiles (64.9%), other service activities (58.4%), and wholesale and retail (54.5%).

The average age of workers in the EU27 is 40 years. The hotels and restaurants sector has a large proportion of relatively young workers, whose average age is 34.5 years. On the other hand, sectors where the average age of workers is relatively high include mining and quarrying (where the average age is 45.2 years), agriculture (44.5 years) and private households (44.3 years).

When looking at the number of years that workers have been employed by their present company or organisation, it seems that workers in the following sectors stayed with their company or organisation for a relatively short period of time: hotels and restaurants, private households, real estate, manufacturing of food and the wholesale and retail trade. The rate of staff turnover in these sectors is relatively high. Sectors where turnover is relatively low include mining and quarrying, agriculture, manufacturing of transport equipment, public administration, insurance, publishing and printing, manufacturing of chemicals, and education. In these sectors, workers stay with their company or organisation for a relatively long period of time.

Most workers in the EU27 are employees (83.3%), whereas 16.7% of the workers are self-employed. In agriculture and construction, the percentage of self-employed workers is relatively high, at 59% and 24.7% respectively. Sectors with relatively high percentages of employees include education (97.7% employees), public administration (97.2%), manufacturing of transport equipment (96.5%), manufacturing of metal products (96.1%), post and telecommunications (95.4%), manufacturing of chemicals (94.4%), water and air transport (92.7%), mining and quarrying (91.8%) and public utilities (91.8%).

Regarding employment contracts, 77.5% of workers in the EU27 have a permanent employment contract, while 22.5% have another type of contract. The percentage of workers with a permanent contract is relatively low in some sectors: private households (42.9%), hotels and restaurants (53.3%) and agriculture (56.1%). In insurance, mining and quarrying, land transport, financial intermediation and manufacturing of metal products, the percentage of workers with a permanent contract is relatively high.

Sectors where employees work in small companies more often include private households, agriculture, hotels and restaurants, other service activities, wholesale and retail trade, as well as construction.

Educational levels are relatively low in private households, agriculture, manufacturing of textiles, manufacturing of wood, hotels and restaurants, land transport, construction, manufacturing of food, mining and quarrying, and wholesale and retail.

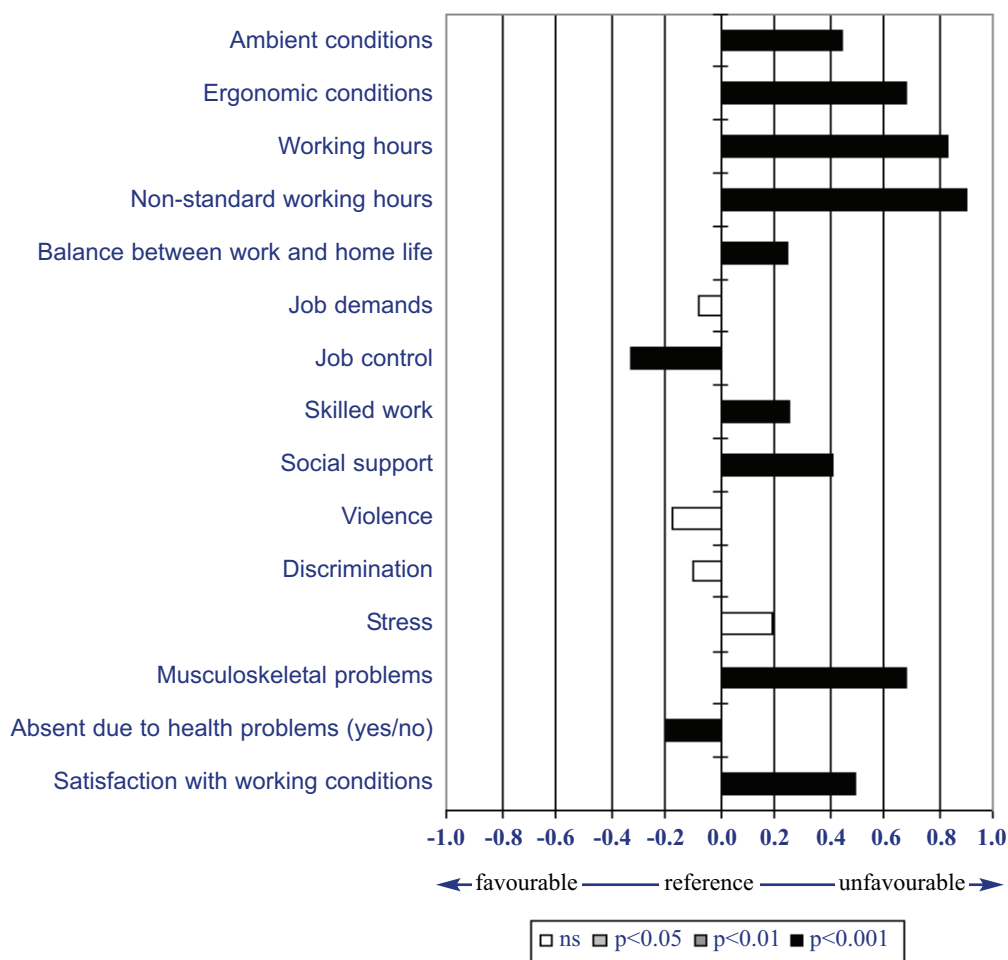
Incomes are relatively low in private households, agriculture, manufacturing of textiles, hotels and restaurants, as well as wholesale and retail. Income is relatively high in insurance, financial intermediation, public utilities, manufacturing electricity, water and air transport, land transport, mining and quarrying, construction, manufacturing of chemicals and public administration.

Sectoral profiles on working conditions and outcomes

Sectors differ in terms of the nature of the work carried out and the way work is organised. Therefore, it can be expected that sectors will have different profiles on working conditions and outcomes. This section analyses the sectors with the most unfavourable and most favourable profiles. In order to profile the sectors, 11 working conditions and four outcomes were selected. Furthermore, 26 different sectors have been identified.

Workers in agriculture (Figure 3), land transport and hotels and restaurants have the most unfavourable sectoral profiles (see also Figure 2). In agriculture, workers are particularly exposed to physical risks (ambient and ergonomic risks) and unfavourable working times (in terms of long working hours, non-standard working hours, a poor balance between working hours and family or social commitments). Furthermore, this sector is characterised by relatively high levels of unskilled work, low social support from colleagues and/or direct superior, high levels of musculoskeletal problems aggravated by work and low satisfaction with working conditions. On the other hand, job control is relatively high and absence from work due to health problems is relatively low.

Figure 3: Unfavourable sector profile in agriculture, hunting, forestry, and fishing



Note: For each sector, differences in risk factors and outcomes between country clusters are presented in tabular form. When risk factors and outcomes are significantly and relevantly higher or lower in one country cluster compared with the (total of) other country clusters ($p < 0.05$ and $d \geq 0.20$), these differences are marked in the tables.

Source: EWCS, 2005

In the land transport sector, workers mainly report unfavourable working times – associated with long working hours, non-standard working hours, a poor balance between working hours and family or social commitments – and organisational risks like low job control and unskilled work. They also report a high exposure to violence and often report work-related stress and musculoskeletal health problems.

In the hotels and restaurants sector, workers mainly report organisational risks – such as low job control, unskilled work and high job demands – and unfavourable working times like non-standard working hours or resulting in a poor balance between working hours and family or social commitments. In addition, workers in this sector are particularly exposed to ergonomic risks and discrimination and they are less satisfied with their working conditions. Despite the unfavourable working conditions, workers in this sector do not show an unfavourable profile on outcomes. An explanation for the latter result may be that this sector is a relatively young sector, where turnover is relatively high with workers staying with the same company for a relatively short time, and relatively few workers have a permanent employment contract. Most likely, the majority of employees will have left the sector before they experience unfavourable health outcomes, or workers have a flexible employment contract, which makes it easier to change a shift in the case of health complaints and/or sickness (Klein Hesselink et al, 2004).

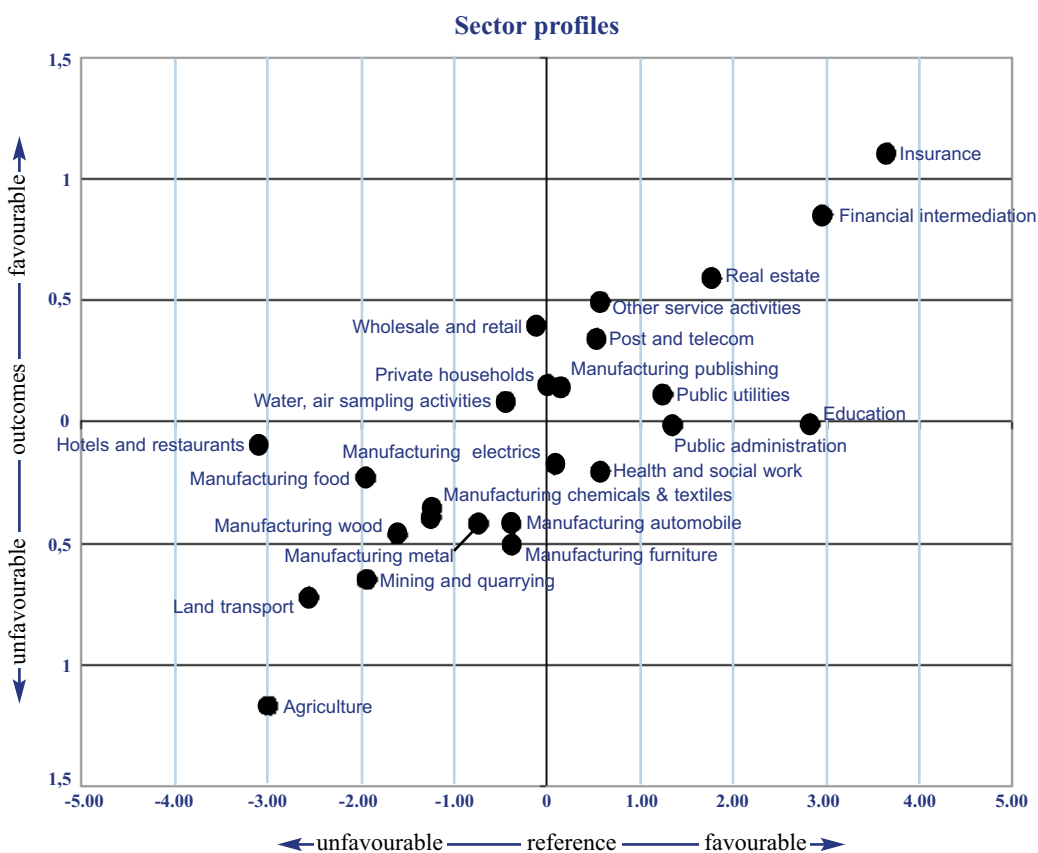
Workers employed in insurance, financial intermediation and education, on the other hand, have the most favourable sectoral profiles. In the insurance sector, work is characterised by favourable physical working conditions in terms of low ambient and physical risks, few non-standard working hours, a good balance between working hours and family or social commitments, high job control, high skilled work, high social support and low exposure to violence. Furthermore, employees in this sector experience less work-related stress and fewer musculoskeletal problems and are highly satisfied with their working conditions.

Workers in financial intermediation report relatively favourable physical working conditions, few non-standard working hours, high skilled work and a high level of social support. They also experience few work-related musculoskeletal problems and are highly satisfied with their working conditions.

In education, workers report favourable physical working conditions and working times, and job demands are relatively low, while job control is relatively high. They also report few work-related musculoskeletal problems. On the other hand, exposure to violence and stress is high in this sector.

These results are more or less comparable with the results from the secondary analyses on the EWCS 2000 (Houtman et al, 2002), where most unfavourable profiles were also found for transport and hotels and restaurants. Favourable sectors were also relatively comparable: finance and the public sector, followed by education, the social sector (health and social work, other community services and private households) and the manufacture of electricity.

Figure 4: Working conditions and outcomes in 26 economic sectors



Source: EWCS, 2005

Ranking sectors by working conditions and outcome variable

Some working conditions and outcome variables vary more between some sectors than others. This can be shown by ranking the 26 sectors according to working condition and outcome variable from most unfavourable sector to most favourable sector. A sector is marked as unfavourable regarding a working condition or outcome variable when this sector has a significant and relevant more unfavourable score on this variable compared with all of the other sectors taken together. Table 5 shows the unfavourable and favourable sectors according to working condition and outcome.

The working conditions that vary most between sectors are ambient conditions, non-standard working hours, job control, skilled work and ergonomic conditions. On the other hand, ‘discrimination’ hardly varies between sectors; discrimination is only more unfavourable in the hotels and restaurants sector, while the level of exposure to discrimination is comparable in all other economic sectors. It is possible that discrimination is more related to individual characteristics, such as age and gender, than to economic sectors.

The outcome variables that vary most between sectors include musculoskeletal problems and job satisfaction. Absence and stress only vary between a few sectors.

Table 5: *Favourable and unfavourable sectors, by working condition and outcome variable*

Working condition or (health) outcome	Unfavourable sectors	Favourable sectors
Ambient conditions	Agriculture Mining and quarrying Manufacturing (except publishing) Public utilities Construction	Wholesale and retail trade Post and telecommunications Financial intermediation Insurance Real estate Public administration Education Health and social work Private households
Ergonomic conditions	Agriculture Mining and quarrying Manufacturing (food, clothing, wood and furniture) Public utilities Construction Hotels and restaurants Private households	Financial intermediation Insurance Real estate Public administration Education
Working hours	Agriculture Mining and quarrying Manufacturing (metal and electricity) Construction Land transport	Education Health and social work Other service activities
Non-standard working hours	Agriculture Manufacturing (food) Hotels and restaurants Land transport	Manufacturing (clothing, wood, metal, electricity, automobile and furniture) Public utilities Construction Post and telecommunications Financial intermediation Insurance Public administration Education

Table 5: Favourable and unfavourable sectors, by working condition and outcome variable (cont'd)

Working condition or (health) outcome	Unfavourable sectors	Favourable sectors
Balance between working hours and family/social commitments	Agriculture Hotels and restaurants Land transport	Manufacturing (automobile) Public utilities Insurance Education Private households
Job demands	Manufacturing (clothing, publishing, metal and automobile) Construction Hotels and restaurants Post and telecommunications	Public administration Education Private households
Job control	Mining and quarrying Manufacturing (all except publishing, electricity and furniture) Hotels and restaurants Land transport Water and air sampling	Agriculture Public utilities Insurance Real estate Education Private households
Skilled work	Agriculture Mining and quarrying Manufacturing (food and clothing) Wholesale and retail trade Hotels and restaurants Land transport Private households	Manufacturing (metal and furniture) Public utilities Construction Financial intermediation Insurance Health and social work
Social support (assistance from colleagues or boss)	Agriculture Other service activities Private households	Financial intermediation Insurance Public administration
Violence	Land transport Public administration Education Health and social work	Manufacturing (clothing, publishing, automobile and furniture) Insurance
Discrimination	Hotels and restaurants	
Stress	Mining and quarrying Land transport	Insurance
Musculoskeletal problems	Agriculture Mining and quarrying Manufacturing (wood and furniture) Construction Land transport	Manufacturing (publishing) Financial intermediation Real estate Insurance Education
Absent due to health problems (yes or no)	Manufacturing (metal and automobile) Public administration	Agriculture Private households
Satisfaction with working conditions	Agriculture Manufacturing (clothing and wood) Hotels and restaurants Private households	Public utilities Financial intermediation Insurance Other service activities

Source: EWCS, 2005

A sector perspective on working conditions

Table 6 shows the sectors in which each contextual working condition is more frequently present, or if the opposite is the case. These additional working conditions are used to determine whether exposure or prevalence of additional contextual working conditions are high or low. As Table 6 shows, additional contextual working conditions that vary most between sectors include working with computers, dealing with clients or customers and participating in training. The variable 'other job(s)' does not vary between sectors, indicating that this variable is not systematically related to working in a specific sector.

Table 6: *Sectors with high or low prevalence of additional contextual working conditions*

Additional contextual working condition	High exposure/prevalence	Low exposure/prevalence
Working with computers (PCs, network and mainframe)	Manufacturing (publishing) Public utilities Water and air sampling Post and telecommunications Financial intermediation Insurance Real estate Public administration	Agriculture Mining and quarrying Manufacturing (food, clothing, wood and furniture) Construction Hotels and restaurants Land transport Private households
Teleworking	Insurance Real estate Education	Agriculture Mining and quarrying Private households
Working at home	Agriculture Insurance Real estate Education	Mining and quarrying Manufacturing (food, wood, metal and automobile) Land transport
Dealing with clients or customers	Hotels and restaurants Land transport Financial intermediation Education Health and social work	Agriculture Mining and quarrying Manufacturing (all) Private households
Training	Public utilities Water and air sampling Financial intermediation Insurance Public administration Education Health and social work	Agriculture Manufacturing (food, clothing and furniture) Construction Hotels and restaurants Private households
Other paid job(s)	-	-

Source: *EWCS, 2005*

Trends in working conditions and outcomes by sector

Trends in EU15 between 1995 and 2005

Over the years, sectoral profiles may change due to for example the economic climate (in terms of whether it is in a stable or fluctuating condition, in recession or prosperity), legislation and policy on working conditions and health and safety, technological changes (such as developments in production, computer, communication and information technology) and demographic developments (for instance, more women and older workers). This section looks at changes in sectoral profiles in the EU since 1995. The research analyses trends in eight working conditions and one

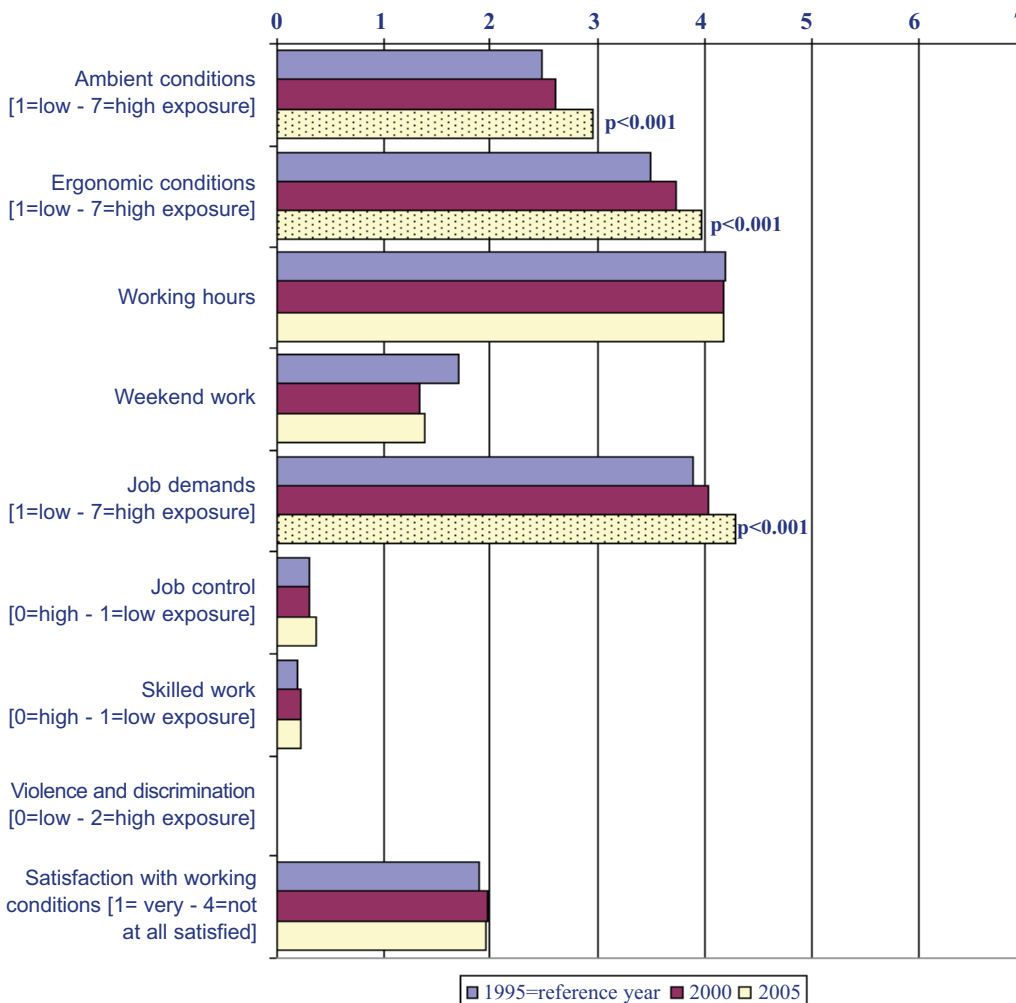
outcome. All other working conditions and outcome variables were not comparable between different editions of the EWCS, due to changes in the way the questions were asked in the EWCS 2005.

Within sectors, some changes in working conditions and outcomes have occurred over the years (Tables 7 and 8). Changes become more apparent when looking at the data over a longer period of time. Between 1995 and 2000–2002, changes in working conditions and outcomes within sectors are limited (Table 7). However, most changes in working conditions and outcomes within sectors appear between 1995 and 2005 (in the EU15; see Table 8). In general, working hours improved in many sectors, reflecting a decrease in the length of the working week. Job demands and job control show an unfavourable change in many sectors.

The most favourable changes in working conditions and outcomes can be seen in the financial intermediation sector. In this sector, exposure to ambient conditions decreased, as well as the amount of weekend work and exposure to violence and discrimination. Furthermore, satisfaction with working conditions increased.

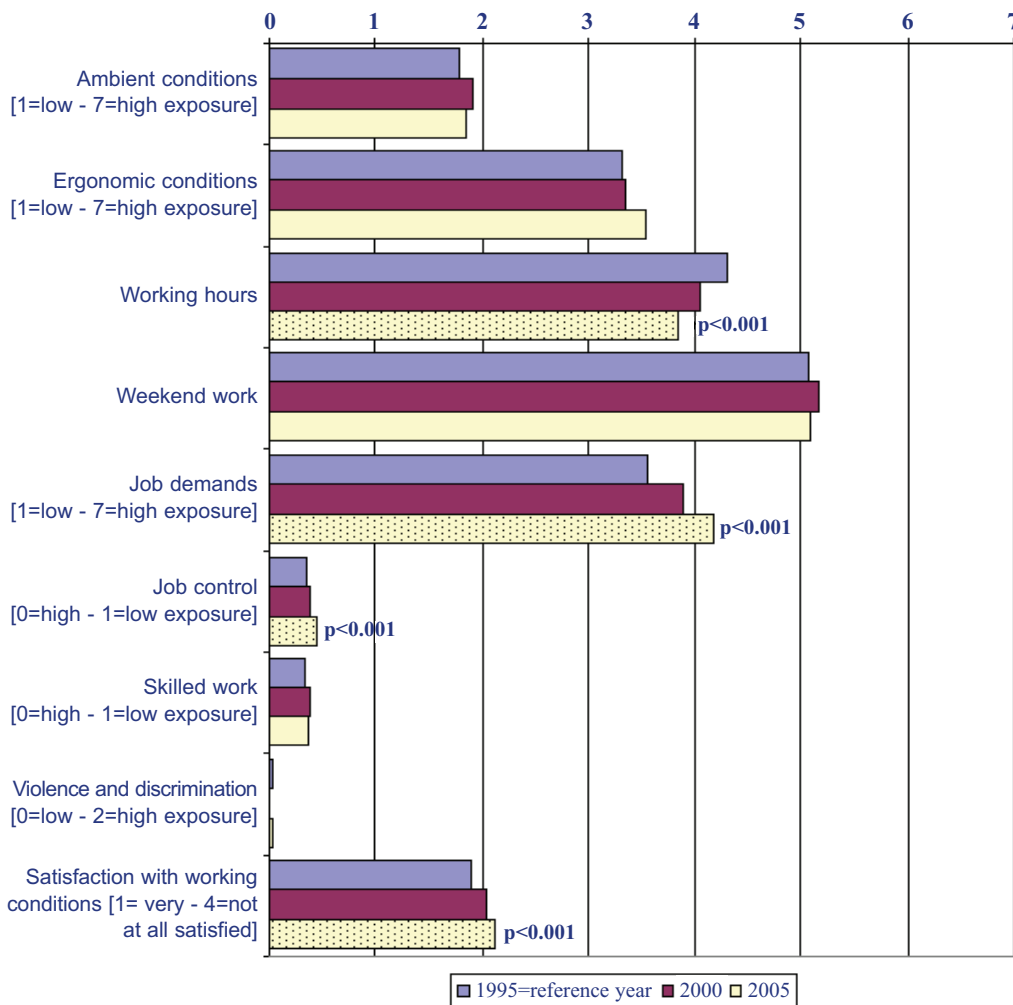
The most unfavourable changes in working conditions and outcomes occurred in construction (Figure 5) and hotels and restaurants (Figure 6). In construction, exposure to ambient and ergonomic conditions and job demands increased. In the hotels and restaurants sector, job demands also increased, while job control decreased. Additionally, satisfaction with working conditions declined between 1995 and 2005 in the latter sector.

Figure 5: Unfavourable changes in working conditions and outcomes in construction sector, 1995, 2000 and 2005



Source: EWCS, 1995, 2000–2001 and 2005

Figure 6: Unfavourable changes in working conditions and outcomes in hotels and restaurants sector, 1995, 2000 and 2005



Source: EWCS, 1995, 2000–2001 and 2005

Changes within sectors in terms of additional contextual working conditions indicate that working at home and dealing directly with customers or clients decreased in many sectors. Working at home declined between both periods under consideration (from 1995 to 2000–2002 and from 1995 to 2005) in agriculture, construction, wholesale and retail trade, transport and communication, public administration and other services. Dealing with clients decreased in both periods in the hotels and restaurants, real estate and public administration sectors.

Working with computers increased in all sectors, except in agriculture, manufacturing, construction and hotels and restaurants, only when analysing the findings over a longer period (1995–2005).

Table 7: Trends in working conditions and outcome variables, by sector in EU15, from 1995 to 2000–2002

Sector of activity in EU15	Favourable changes in working conditions and outcomes	Unfavourable changes in working conditions and outcomes
Agriculture, hunting and forestry, and fishing	-	-
Mining and quarrying, and manufacturing	-	-
Public utilities (electricity, gas and water supply)	-	Skilled work (decreased) Violence and discrimination (increased)
Construction	-	-
Wholesale and retail trade, repairs	-	-
Hotels and restaurants	-	-
Transportation and communication	Working hours (decreased)	Job control (decreased) Skilled work (decreased)
Financial intermediation	-	-
Real estate and business activities	Weekend work (decreased)	-
Public administration	-	-
Other services	-	-

Source: EWCS, 1995, 2000 and 2001–2002

Table 8: Trends in working conditions and outcome variables, by sector in EU15, 1995–2005

Sector of activity in EU15	Significant and relevant favourable changes in working conditions and outcomes	Significant and relevant unfavourable changes in working conditions and outcomes
Agriculture, hunting and forestry, and fishing	-	Job demands (increased)
Mining and quarrying, and manufacturing	-	-
Public utilities (electricity, gas and water supply)	Working hours (decreased) Job control (increased)	-
Construction	-	Ambient conditions (increased) Ergonomic conditions (increased) Job demands (increased)
Wholesale and retail trade, repairs	Working hours (decreased)	Job control (decreased)
Hotels and restaurants	Working hours (decreased)	Job demands (increased) Job control (decreased) Satisfaction with working conditions (decreased)
Transportation and communication	Working hours (decreased)	Skilled work (decreased)
Financial intermediation	Ambient conditions (decreased) Weekend work (decreased) Violence and discrimination (decreased) Satisfaction with working conditions (increased)	-
Real estate and business activities	Working hours (decreased) Weekend work (decreased)	Job control (decreased)
Public administration	-	Job control (decreased) Satisfaction with working conditions (decreased)
Other services	Working hours (decreased)	-

Source: EWCS 1995; EWCS, 2000 and 2001–2002; EWCS 2005

Trends in EU27 between 2000 and 2005

Changes in working conditions and outcomes in the EU27 from 2000–2002 to 2005 are also limited (Table 9). The most favourable changes in working conditions and outcomes occurred in public utilities. In this sector, the balance between working hours and family or social commitments as well as job control and skilled work increased, while violence and discrimination decreased. The only unfavourable change in working conditions in this sector was the increase in ergonomic risks. Furthermore, satisfaction with working conditions also improved between 2000–2002 and 2005 in public utilities.

Changes in contextual factors indicate that, in general, working with computers has increased in the EU27 between 2000–2002 and 2005. Within public utilities, wholesale and retail, transport and communications, financial intermediation, public administration and other services, computer work also increased.

Table 9: *Trends in working conditions and outcome variables, by sector in EU27, from 2000–2002 to 2005*

Sector of activity in EU15	Favourable changes in working conditions and outcomes	Unfavourable changes in working conditions and outcomes
Agriculture, hunting and forestry, and fishing	Job control (increased)	-
Mining and quarrying, and manufacturing	-	-
Public utilities (electricity, gas and water supply)	Balance between working and non-working life (increased) Job control (increased) Skilled work (increased) Violence, discrimination (decreased) Satisfaction with working conditions (increased)	Ergonomic conditions (increased)
Construction	-	Ambient conditions (increased)
Wholesale and retail trade, repairs	-	-
Hotels and restaurants	-	-
Transportation and communication	-	-
Financial intermediation	Non-standard working hours (decreased)	-
Real estate and business activities	-	-
Public administration	-	-
Other services	-	-

Source: EWCS, 2000 and 2001–2002; EWCS, 2005

Differences in sectoral profiles between country clusters

Country clusters may differ in sectoral profiles. For example, EU Member States that joined the EU at a later stage may still lag behind the older Member States regarding the implementation of EU policies on working conditions and health and safety. Furthermore, some EU regions may have a more leading position regarding technological developments, while other countries or regions lag behind. In addition, some sectors may be relatively large in some EU regions and therefore have a stronger position, while these sectors may be relatively small and have a weaker position in other regions. Cultural differences between countries may also play a role. Managers and workers in different countries may have different norms and values regarding their work due to cultural differences between nations. Hofstede (1980), for example, explained differences in the organisational climate between countries using four dimensions – power distance, uncertainty avoidance, individualism versus collectivism, and masculinity versus femininity. Results from Hofstede’s

study, for example, show that Scandinavian countries and the Netherlands appear to have comparable norms and values: they are low on distance to authority or power, low on masculinity, low to average on uncertainty avoidance and average to high on individualism. Southern European countries Italy, Portugal and Spain are characterised by a high power distance, low to average masculinity (except for Italy), high on uncertainty avoidance and high to average on individualism (except for Portugal). Therefore, this section looks at the differences between country clusters regarding working conditions and outcomes. For the profiling of the sectors, it was possible to identify 11 working conditions and four outcomes, and to distinguish between five country clusters and 11 sectors. For each sector, the analysis compares the working conditions and outcomes between the different country clusters.

Overall, in the EU27, the eastern and southern European countries show a relatively unfavourable profile on working conditions and outcomes, while Ireland and the UK, the Scandinavian countries (and the Netherlands) and continental countries show a relatively favourable profile.

The eastern European countries show a relatively unfavourable profile regarding their working conditions and health outcomes (Figure 7). Workers in this country cluster are more often exposed to ambient risks and unfavourable working time – such as longer working hours, more non-standard working hours, and a poorer balance between working hours and family or social commitments – compared with workers in all other country clusters taken together. However, they report more social support from colleagues and/or boss. Furthermore, workers in this country cluster experience more stress and musculoskeletal problems and are less satisfied with their working conditions.

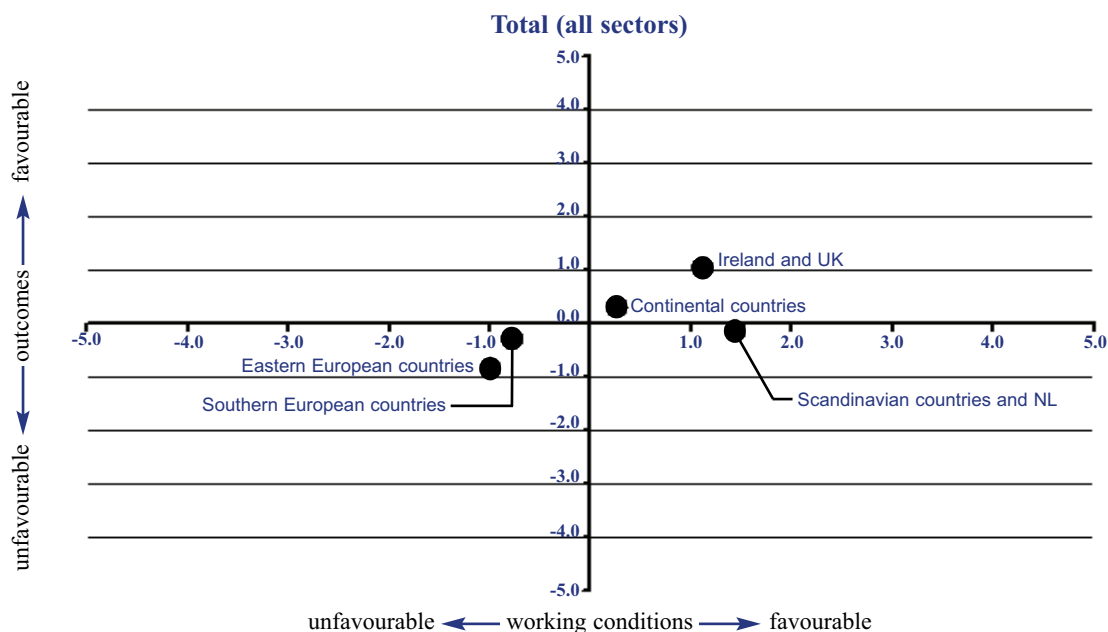
Southern European countries show a relatively unfavourable profile regarding working conditions, and a slightly unfavourable profile regarding outcomes. In this country cluster, workers experience a poorer balance between working hours and family or social commitments and receive less support from colleagues and/or boss. They are also less satisfied with their working conditions.

The country cluster comprising Ireland and the UK shows a relatively favourable profile on working conditions and health outcomes. In this country cluster, workers are less often exposed to physical risks such as ambient and ergonomic risks, report shorter working weeks and a better balance between working hours and family or social commitments, and receive more social support compared with workers in all other country clusters taken together. However, they more often report being exposed to violence. Regarding the outcomes, workers in this country cluster less often report stress and musculoskeletal problems aggravated by work and are more satisfied with their working conditions.

Continental countries show a slightly favourable profile regarding working conditions and outcomes. Workers in this country cluster less often report non-standard working hours.

Scandinavian countries and the Netherlands show a relatively favourable profile regarding working conditions, but a slightly unfavourable profile in relation to outcomes. Workers in this country cluster have shorter working weeks, experience more job control and social support from colleagues and/or their boss and are less often exposed to physical violence compared with workers in all other country clusters taken together. However, they more often report that they have been absent from work over the past 12 months for health reasons.

Figure 7: Working conditions and outcomes in different country clusters

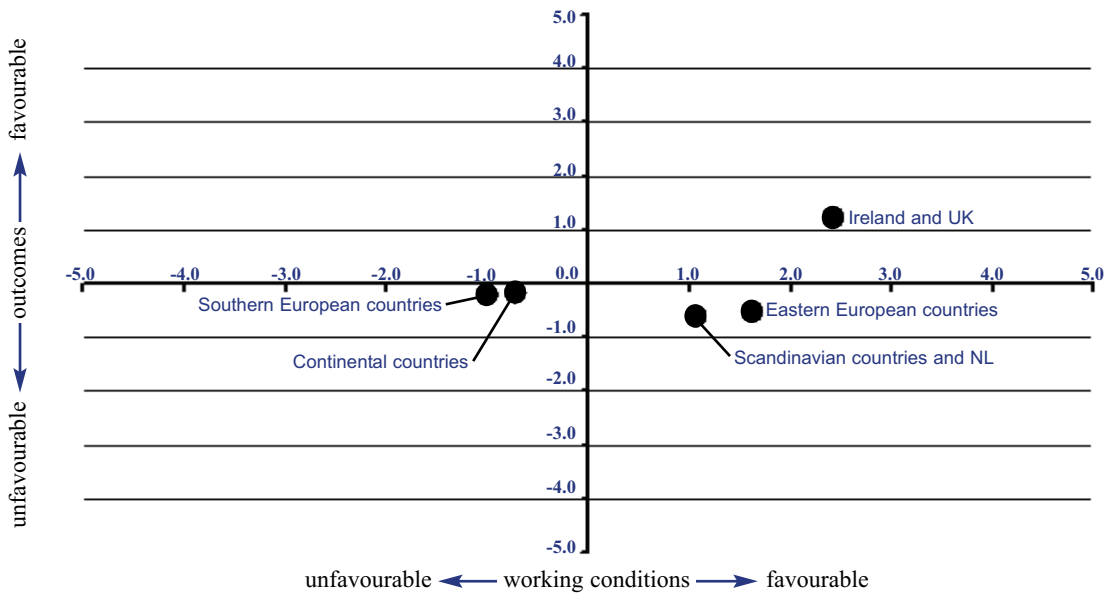


Source: EWCS, 2005

Country clusters also show differences in additional contextual working conditions. In general, teleworking and having another paid job – apart from the main paid job – are more prevalent in Scandinavian countries and the Netherlands compared with the total of the other country clusters. Computer use is also significantly higher in Scandinavian countries and the Netherlands, but lower in eastern European countries. Training is higher in Ireland and the UK and in Scandinavian countries and the Netherlands, but lower in southern European countries. Dealing with clients is also higher in Ireland and the UK, but lower in eastern European countries.

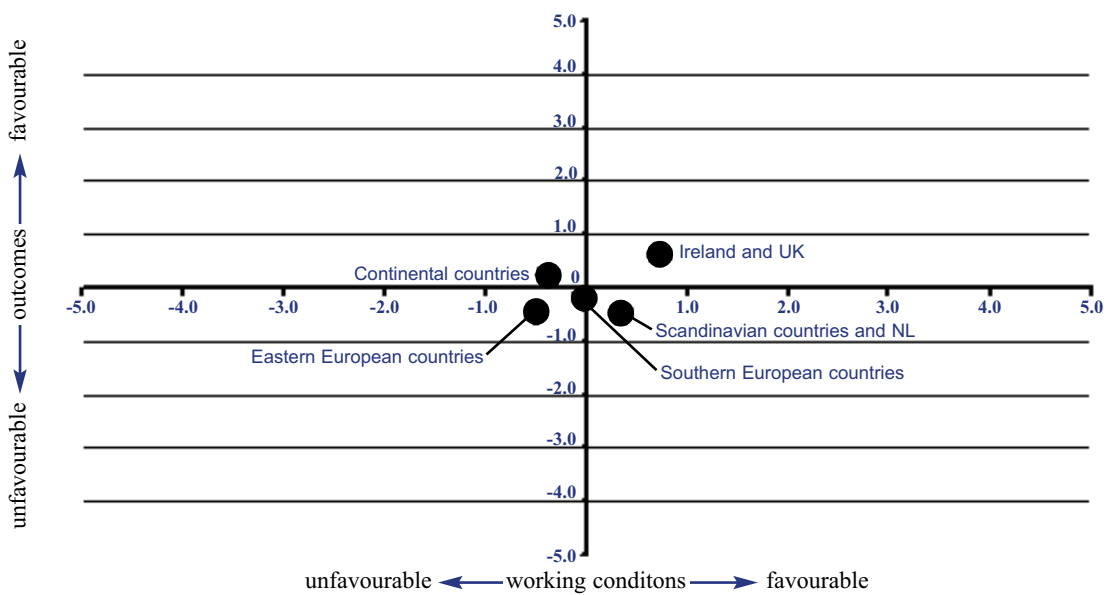
In some economic sectors, country clusters show a different pattern from the one described above. This is particularly the case for hotels and restaurants, transport and communications, education, as well as health and social work. Within hotels and restaurants, eastern European countries show a favourable profile and continental countries an unfavourable profile on working conditions (Figure 8). Continental countries also show an unfavourable working conditions profile within the health and social work sector (Figure 9). Within transport and telecommunications, Ireland and the UK show an unfavourable working conditions profile (Figure 10). In terms of the education sector, Ireland and the UK, but also Scandinavian countries (and the Netherlands) and continental countries show an unfavourable working conditions profile, while southern European countries show a favourable working conditions profile (Figure 11).

Figure 8: Working conditions and outcomes in hotels and restaurants sector, by country cluster



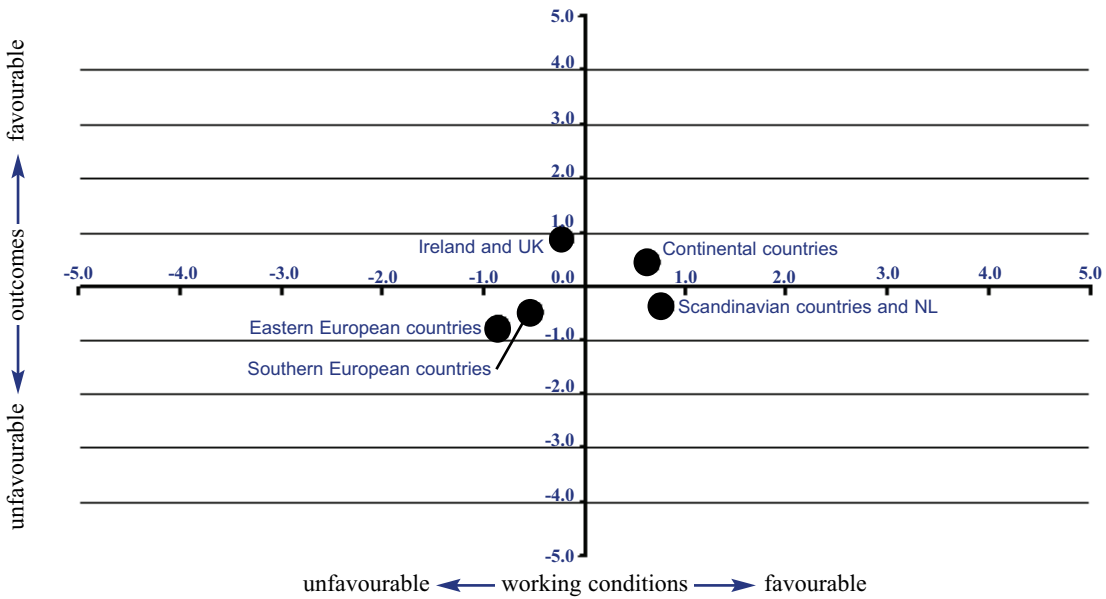
Source: EWCS, 2005

Figure 9: Working conditions and outcomes in health and social work sector, by country



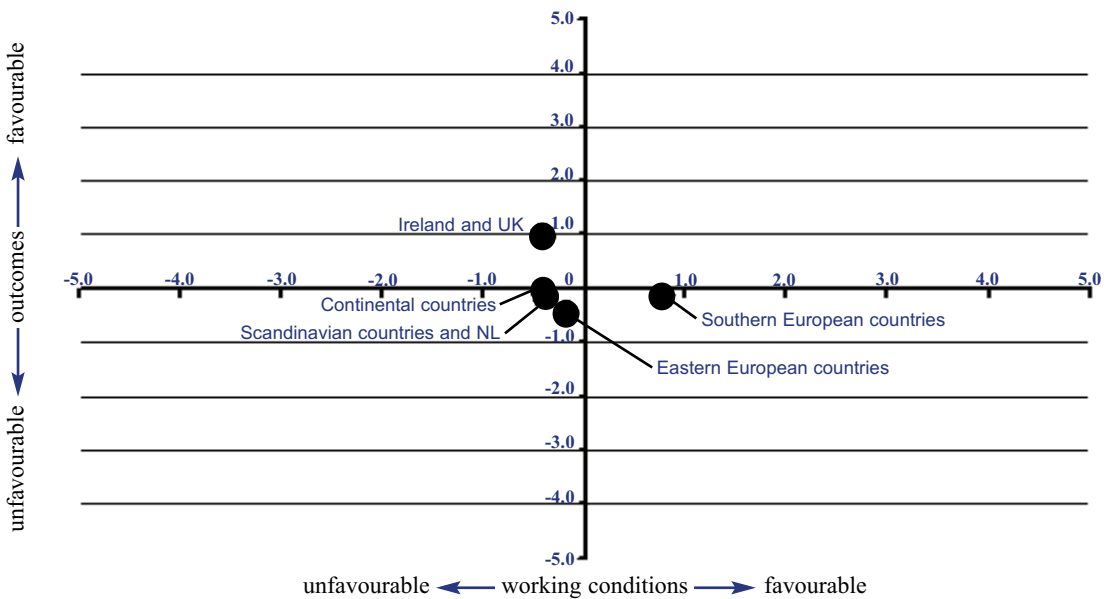
Source: EWCS, 2005

Figure 10: Working conditions and outcomes in transport and communications sector, by country cluster



Source: EWCS, 2005

Figure 11: Working conditions and outcomes in education sector, by country cluster



Source: EWCS, 2005

This report aimed to conduct secondary analyses on the fourth EWCS in order to identify sectoral profiles on working conditions, trends in sectoral profiles (since 1995), and differences between country clusters in sectoral profiles.

When considering the sectoral profiles, it can be concluded that workers in sectors such as agriculture, land transport and hotels and restaurants are confronted with the most unfavourable working conditions and outcomes. On the other hand, it appears that workers in insurance, financial intermediation and education have access to relatively favourable working conditions and outcomes.

Sectoral changes in terms of working conditions and outcomes are limited when looking at a period of five years (between 1995 and 2000 in the EU15 and between 2000 and 2005 in the EU27), but changes become more apparent when data are considered over a period of 10 years (between 1995 and 2005 for the EU15). Over this longer period, working hours improved in many sectors, while job demands and job control have deteriorated. Favourable changes can be seen in the financial intermediation sector, while unfavourable changes emerge in construction and hotels and restaurants. Considering additional contextual working conditions, it can be concluded that working with computers has increased overall since 1995 in the EU15, while working at home has decreased. When looking at changes within sectors, it can be concluded that working with computers has increased in many sectors, while working at home and dealing with clients or customers has decreased.

Considerable differences emerge between country clusters in sectoral profiles. Overall, workers in the southern and eastern European countries report relatively unfavourable working conditions, while workers in Ireland and the UK, Scandinavian countries and the Netherlands, and to a lesser extent continental countries, experience relatively favourable working conditions. Negative outcome variables are also reported in the southern and eastern European countries, but in Scandinavian countries and the Netherlands as well. On the other hand, the most positive outcome variables are reported in Ireland and the UK and continental countries. However, in sectors such as hotels and restaurants, transport and communication, education and health and social work, country clusters show a different pattern.

When analysing additional contextual working conditions, teleworking and having another paid job are more prevalent in Scandinavian countries and the Netherlands compared with other country clusters. Computer use is also higher in Scandinavian countries and the Netherlands, but lower in eastern European countries. Training is higher in Ireland and the UK and also in Scandinavian countries but lower in southern European countries. Dealing with clients is also higher in Ireland and the UK, but lower in eastern European countries.

Bibliography

European Foundation for the Improvement of Living and Working Conditions (Eurofound), *Quality of work and employment in Europe: Issues and challenges*, Foundation paper No. 1, Luxembourg, Office for Official Publications of the European Communities, 2002, available online at:

<http://www.eurofound.europa.eu/publications/htmlfiles/ef0212.htm>

Hofstede, G., *Culture's consequences: International differences in work-related values*, Beverly Hills/London, Sage, 1980.

Houtman, I., Andries, F., van den Berg, R. and Dhondt, S., Eurofound, *Sectoral profiles of working conditions*, Luxembourg, Office for Official Publications of the European Communities, 2002, available online at:

<http://www.eurofound.europa.eu/publications/htmlfiles/ef0275.htm>

Klein Hesselink, J., Houtman, I., van den Berg, R., van den Bossche, S. and van den Heuvel, F., Eurofound, *EU hotel and restaurant sector: Work and employment conditions*, Luxembourg, Office for Official Publications of the European Communities, 2004, available online at: <http://www.eurofound.europa.eu/publications/htmlfiles/ef0398.htm>

Parent-Thirion, A., Fernández Macías, E., Hurley, J. and Vermeulen, G., Eurofound, *Fourth European Working Conditions Survey*, Luxembourg, Office for Official Publications of the European Communities, 2007, available online at: <http://www.eurofound.europa.eu/publications/htmlfiles/ef0698.htm>