



# The transformation of work?

*D9.2.4 - Occupational change in Europe*

Malcolm Brynin  
Simonetta Longhi  
ISER, The University of Essex, United Kingdom

**works**  
CHANGES IN WORK

---

CIT3-CT-2005-006193



Copyright (2007) © Work organisation and restructuring in the knowledge society - WORKS project  
Project number: CIT3-CT-2005-006193

All rights reserved. No part of the report may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording; and may not be quoted or cited, without prior permission in writing from the Project Co-ordinator.

The authors are solely responsible for the content of this report. It does not represent the opinion of the Community. The Community is not responsible for any use that might be made of data/information appearing therein.

# The transformation of work? A quantitative evaluation of the shape of employment in Europe

*An introduction to the research reports from the quantitative research of WORKS*

## 1. Introduction

The core focus of WORKS is on changes in work caused by global restructuring. These changes concern first of all shifts in employment, job growth and job decline related to the global restructuring of value chains. This restructuring implies that economic activities can be relocated from one location to another or that they can be hived off by one company to be performed by another. A major research question of the WORKS project is therefore to what extent such sectoral and geographical shifts in employment are indeed taking place in the EU.

Second, there are changes in the nature of the work, which globalisation might cause. These are not easily predictable. On the one hand, it is expected that increased competitive pressures will lead to greater technical and commercial innovation, which will in turn require a more flexible, skilled and motivated workforce. On the other, flexibility might become a tool used by employers to extract more value from their workforces. Thus, flexibility is a double-edged concept. Occupations and industries that form part of the 'knowledge society' are expected to be especially subject to these sorts of contradictory pressures, because of the huge new investments they require, because they are particularly competitive sectors, but also because knowledge can itself be used as a tool either to improve or more closely control the nature of the work people do.

The research produced in the frame of the quantitative work of WORKS, which addresses these issues through the analysis of a number of European micro-level datasets, appears in four separate reports, each produced by one research institute and each based on one dataset. In this introduction to these reports we establish the context for these through a discussion of some of the literature and then review the main findings of the reports to see what light they throw on the central issues.

There is a very substantial literature on changing work conditions and changing employment patterns. Overall it would appear that there is little evidence for a general and consistent trend on shifts in employment and on change in the nature of work, in particular of a negative nature. Further, there is no clear-cut national convergence in respect of change on a number of dimensions, nor a consistent means of grouping *types* of countries in a way which is consistent over time and across different dimensions. Rather, we mostly observe a high level of national specificity.

We test these conclusions from the quantitative literature through the linked empirical chapters, which provide new research based directly or indirectly on the key concepts. The datasets used for the research are:

1. the *EU Labour Force Survey*: this is used first to provide basic facts on sectoral and geographical shifts in employment throughout Europe and second to investigate various aspects of work flexibility, in particular to examine trends in these;
2. the *European Working Conditions Survey*: analysis of national variation in work complexity, independence in time allocation, work intensity and quality of working conditions. The analysis is cross-sectional but looks at more than one point in time;
3. the *European Household Community Panel*: as this contains panel data, it is used to look at aspects of individual-level change. The analysis focuses primarily on job skills and on occupational switching over the career.

The main results of each report can be summarised as follows.

## **2. Tracing employment in business functions (HIVA-K.U.Leuven)**

1. The aim of this part of the analysis on the EU Labour Force Survey is to measure the effects of global value chain restructuring on employment in the European Union. In line with the qualitative research of the WORKS project, the business function is used as the main unit of analysis. A business function is defined as a unit of activity that can be categorised within a value chain: a cluster of technologically and economically distinct activities which are usually performed together. Business functions refer to both core and support activities in value chains.
2. The main conclusion that can be drawn from the analysis is that several business functions are increasingly performed within specialised service sectors. Evidence has been found of a shift of specific business functions from sectors in which they are ‘peripheral’ to the production process, towards sectors in which they constitute the core activity. The most obvious example of this trend has been found in IT services and logistics, but this shift can be observed also in marketing and sales, and legal and financial services.
3. In the sectors and occupations under study no evidence is found of a major shift of business activities from the old to the new member states. However, this is partly due to the limitations of the data which do not permit the tracing of a sector or country to which a business service is supplied.
4. In several sectors the core occupations were traced and the employment evolutions in these activities estimated. A growing share of employment in core activities within a sector indicates the increasing importance of these activities in the sectors, a decreasing share a growing relative importance of secondary activities. A growth in the importance of core activities is found in several sectors, for example, in the IT sector in both the old and the new member states. Evidence of a decreasing share of core activities has been found in Textile and clothing. Figures show that the huge employment decline in this sector goes together with a considerable reduction of the share of core production workers within the sector. This means that for Textile and clothing companies located in Europe, the importance of previously supporting activities has increased in terms of employment. Most prominent in this respect is the growth of R&D related employment.

### **3. New forms of work organisation and time use (IRES)**

1. There has been a substantial increase in temporary employment in the EU-15 over the period analysed (1997-2005). As a proportion of overall employment growth, this is especially large in Germany, Portugal and some other countries, while it has declined in Denmark and the UK.
2. In the EU-15 countries, part-time work as a percentage of total employment increased slightly from 1995 to 2005, from 16% to 20%, but cross-country variation is far greater than variation over time, with part-time work forming 5% in Greece and 46% in the Netherlands at the end of this decade.
3. The percentage of female part-time work in total employment was also fairly stable over this period on average. Though it increased considerably in some countries, for instance Austria and Belgium, in others it was stable, or in the case of Sweden, fell. In the new member states, part-time work as a percentage of total employment on average fell slightly between 1997 and 2005.
4. From 1995 to 2005 there was a roughly 50% increase in the proportion of employees on shift-work in the EU-15. This fell in Belgium, and slightly in some other countries, but rose markedly in several others, notably Greece, Ireland and Portugal. However, countries do not vary much by the probability that workers have a fixed working schedule.
5. Self-employment is a potential indicator of insecure employment, as it might force people to find their own work. On the other hand, it can be an indicator of increasing entrepreneurship (which is one of the Lisbon goals). Although it is also possible that poor markets force people out of self-employment, here the focus is insecurity derived from changing work conditions rather than from economic downturns. However, from 1996 to 2004 self-employment as a percentage of all work was stable in the EU-15. The biggest changes occurred in countries with generally high levels, such as Greece and Spain, where it fell, but it remained stable in other countries where self-employment is high, such as Italy and Portugal. Self-employment declined as a proportion of total work over the same period, from 28% to 24%.

### **4. Trends in working conditions in the EU (CEE)**

1. Mapping of the national distribution of a number of indicators (work complexity, independence in time allocation, work intensity and quality of working conditions) shows little consistency suggesting that national groupings are difficult to discern. However, two Scandinavian countries (Denmark and Sweden) and the Netherlands provide a specific pattern in terms of working environment. In these countries jobs are complex, provide learning opportunities and the quality of working conditions is high. In contrast, some Mediterranean countries (Greece, Portugal and Spain) are characterised by low quality of working conditions and weak job complexity (routine jobs).

2. The distribution of some work features shows that there are considerable differences in work organisation between the EU-15 and the twelve candidate and acceding countries. In general, jobs in the latter countries are less complex, less intense and the quality of working conditions is lower.
3. On average in EU-15, there was a significant decrease in complexity of work between 1995 and 2000. This means that in 2000, European workers have less possibility of choosing or changing their order of tasks and methods of work; their jobs involve a lower degree of solving unforeseen problems, complex tasks or learning opportunities. Simply speaking, jobs have become more routine on average in the EU-15 during the five year period between 1995 and 2000.
4. At the same time, work in the EU-15 has become more intense. This intensification is mainly market-driven: the pace of work is more and more dependent on the direct demands of customers and clients. In contract, technical constraints, those linked to automatic speed of a machine or numerical production targets, haven't changed significantly. The percentage of European workers whose job involves working at very high speed and to tight deadlines has slightly increased (from 56% to 58% and from 54% to 57% respectively).
5. There is no evidence of any improvement or deterioration of quality of working conditions in the EU-15 during the analysed period.
6. The determinants of work experience depend relatively little on national institutional differences but seem rather to derive from individual-level characteristics, many of which can be taken to be typical or certain types of job.

## **5. A study of skills and occupational switches (ISER)**

1. The analysis in the report utilises household panel data in order to measure change in people's working circumstances over their career. It makes use of the European Community Household Panel, the British Household Panel Study, and the German Socio-Economic Panel.
2. The focus of the research is the widespread argument that the nature of work is changing, in particular becoming less stable, and more intense. The research adds to the more common analysis of trends in aspects of work such as unsocial working hours, job intensification, and reduced job tenure, analysis using a measure of relative skills (overqualification) and career flexibility, but also includes measures of job satisfaction. The aim is to see whether overqualification and rapid career moves are a significant part of the occupational scene in Europe, and to see whether career changes are associated with change in job satisfaction.
3. The results show no decrease in job satisfaction at the aggregate level over time in any country, with the possible exception of Italy. Factors which explain dissatisfaction with work, in virtually all countries, especially include the nature of employment contracts. People with fixed-term contracts or in casual work are especially likely to be

dissatisfied with their work, but this improves if they move to other jobs. A high proportion of workers in Europe feel overqualified for the work they do. This is especially high amongst people with fixed-term contracts or in casual work.

4. There is a very high degree of occupational change in Europe in the aggregate and, on average, over people's careers. This varies enormously by country, being especially high in Belgium, especially low in France. Most of this movement is sideways or upwards, but some is also downwards. The factors associated with such occupational moves, whether sideways or up or down, again in particular include being in fixed-term contract or in casual work.
5. IT workers were isolated in the final analysis because IT work is deemed by some to be the epitome of highly flexible work. This was not found to be the case in either Germany or Britain - the two countries for which this could be tested - relative to some other professions. Further, while it is possible (in Britain) to enter IT with lower than average skills for the job, suggesting some downgrading of the work these people do, this did not apply to IT workers more than to workers in some other professions.

## 6. Conclusions

On the basis of these analyses we can conclude that there have been some consistent changes in work caused by global restructuring. On various measures we can detect a significant change in the nature of employment in Europe over the periods of time studied. These are not very substantial but probably larger than we would expect from some of the literature. Some of these effects can be interpreted as having negative consequences for the welfare of workers.

The report on employment changes in the European Union finds that restructuring of value chains causes important sectoral and occupational shifts. Several business functions are increasingly performed within specialised service sectors. Evidence has been found of a shift of specific business functions from sectors in which they are 'peripheral' to the production process, towards sectors in which they constitute the core activity. On the other hand, in the sectors and occupations under study, no evidence has been found of a major shift of business activities from the old to the new member states. Hence, the hypothesis that the latter are becoming a 'back-office' for companies in the old member states, could not be confirmed in the frame of this research. Finally, evidence has been found of a strengthening of core businesses in several sectors, while in others there has been a shift from core to secondary activities.

While there is little evidence from the published evidence so far available of a trend within Europe towards increased job flexibility, especially of the sort that might be predicted on the assumption of a negative effect of globalisation, we do find *some* evidence, if not very powerful, of such effects. The report on trends in European employment finds an increase in temporary work, shift work and part-time work in most countries. The report on European working conditions, which in common with the above also looks at aggregate trends, finds some deterioration on some indicators. The report on individual-level change using panel data finds that both dissatisfaction with work and skill mismatches

are widespread, and while tending to be overcome through career switches, thereby contribute to the overall prevalence of work flexibility. People need to move in order to improve their working lives, which are under pressure.

However, even if economic and technological change is influencing the welfare of individuals, it is difficult to discern an overall trend which can be described as overwhelmingly negative. There are negative effects to change, but also signs that as long as economies continue to grow, these are to some extent and partially been compensated. Some of the indicators we have described do not necessarily entail a loss of welfare.

If the reports find evidence of increasingly flexible and uncertain work across a range of countries and dimensions, they cannot point to a single model of change or of adaptation. There seems to be no convincingly useful means of grouping countries, so that we cannot argue for national *types* of response. Rather, there are some national similarities but these are not consistent across all dimensions of change. There is no single European experience but also, even though overlaps certainly exist, no clear-cut set of experiences.

Only greater investment in adequate European-wide data with comprehensive coverage of all aspects of employment and employment conditions can fully answer some of the critical questions with which this set of reports has been concerned.

*Malcolm Brynin (ISER, University of Essex, UK)*

*Monique Ramioul (HIVA, Katholieke Universiteit Leuven, Belgium)*

## Executive summary

1. The analysis in the report makes use of household panel data in order to measure change in people's working circumstances over their career. It makes use of the European Community Household Panel, the British Household Panel Study, and the Germans Socio-Economic Panel.
2. The focus of the research is the widespread argument that the nature of work is changing, in particular becoming less stable, and more intense. The research adds to the more common analysis of trends in aspects of work such as unsocial working hours, job intensification, and reduced job tenure, analysis using a measure of relative skills (overqualification) and career flexibility. It also includes measures of job satisfaction. The aim is to see whether overqualification and rapid career moves are a significant part of the occupational scene in Europe, and whether career changes are associated with change in job satisfaction.
3. The results show no decrease in job satisfaction at the aggregate level over time in any country, with the possible exception of Italy. Factors which explain dissatisfaction with work, in virtually all countries, especially include the nature of employment contracts. People with fixed-term contracts or in casual work are especially likely to be dissatisfied with their work, and this declines if they move to other jobs.
4. A high proportion of workers in Europe feels overqualified for the work they do. This is especially high amongst people with fixed-term contracts or in casual work.
5. There is a very high degree of occupational change in Europe in the aggregate and, on average, over people's careers. This varies enormously by country, being especially high in Belgium, especially low in France. Most of this movement is sideways or upwards, but some is also downwards.
6. The factors associated with such occupational moves, whether sideways or up or down, again in particular include being in fixed-term contract or in casual work.
7. IT workers were isolated in the final analysis because IT work is deemed by some to be the epitome of highly flexible work. This was not found to be the case in either Britain or Germany - the two countries for which this could be tested. Further, while it is possible (in Britain) to enter IT with lower than average skills for the job, suggesting some downgrading of the work these people do, this did not apply to IT workers more than to workers in some other professions.



# Table of contents

1	Introduction	13
2	Skill utilisation and job satisfaction	15
	2.1 The value of education and work	15
	2.1.1 The returns to education	15
	2.1.2 Job satisfaction	17
	2.1.3 Overqualification	24
3	Occupational and industrial mobility	33
	3.1 Factors associated with national occupational flexibility	39
	3.2 Mobility of IT workers	46
4	Conclusions	53
	Annex: ECHP occupations and industries	55
	Bibliography	57



# 1 Introduction

Our intention in this report is to extend the discussion of change in the nature of employment through consideration of factors not usually considered in the literature on changes in the nature of work, or at best treated as marginal. Our reason is simple. Many of the indicators traditionally used to measure the extent of occupational change, in particular whether these can be assessed as primarily negative or positive, are in fact extremely difficult to interpret. For instance, in the case of the amount of time people work descriptive statistics alone can tell us little. If working hours are going up, or part-time work is rising, it is not clear without measures of individual preferences (and these themselves can be difficult to interpret) whether these changes are good, bad, or merely neutral. The same applies to indicators of contractual arrangements. For instance, although it is reasonable to describe a rise in fixed-term contracts as essentially negative for workers, in any single country this might be associated with other changes which have the reverse effect. In the UK fixed-term contracts are uncommon compared to some other countries (describing 6% of employees in 2004 compared to an average 13.6% for the EU 15: European Commission 2005), but nevertheless in overall terms employment protection is weaker. This also means that single indicators of employment protection (Auer and Cazes 2003) are difficult to use as measures of employment change because their component parts might work against each other over time.

It is often assumed that policies designed to increase productivity are at least potentially exploitative, and therefore reduce individual welfare, but of course this need not be the case. Our concern in this empirical report is with three factors which say something about both the use of labour and its welfare effects. One is skill utilisation. The growth of the knowledge society implies increasing demand for skills and increasing efficiency in their use, so that skill utilisation will always be high. If, in contrast, we believe that the economy does not work like this, and that knowledge-based work processes can have negative effects on workers (for instance, through rapid obsolescence of skills or the replacement of high-level skills by routine, computerised functions), then we might expect some and perhaps growing under-utilisation of skills. Institutional factors are also important. The introduction to the Work Package 9 set of reports placed considerable emphasis on the possibility of national convergence, but skill production is an area where national institutions make a big difference, as education systems have very strong historical, and therefore nationally specific roots. The *use* of skills might, in the cause of productivity improvements, be subject to convergence, but which skills are available in the first place varies enormously across countries. This paper seeks to address whether it is possible to develop a means of understanding national differences in the employment effects of the knowledge society through changes in the use of skills.

The second area we examine is satisfaction with work and different aspects of work. While this has been assessed in the literature in respect of what it says about the nature of

occupational change (are the effects on average positive or negative in respect of work satisfaction?), it is not a commonly used indicator, and least of all, longitudinally. Our view is that if we are to interpret changes in the nature of work as either good or bad for people then we should take account of what they tell us through the best measures we have available of how people view their work.

Our third indicator is occupational mobility. Usually this is interpreted as inter-generational changes in occupational status or wages or, *within* generations, in terms of the effect of social background on career. Here, while we look at career, we do so not in relation to social background but rather as a potential reflection of changes in work flexibility. We are not therefore primarily interested in social upgrading, or the reverse, but rather in the extent people move across occupations or industries. This is of interest because it describes a type of flexibility. This is often thought of in terms of distinct elements - *numerical* flexibility (greater employer control over the numbers employed, or their hours) and *functional* flexibility (greater manipulation of work processes). However, many aspects of such changes are ambiguous. We do not know if they stem from changes in demand or supply. Here instead we consider *career* flexibility, but we define this not as job mobility (changes in occupational status relative to parents), or as job turnover, but as switches between occupations or industries over an individual's career. While this can also contain positive and negative elements, it seems likely, because skills are less easily transferable across occupations than across jobs, that such movement can be the result of occupations becoming relatively unattractive. Indeed, in an analysis of American data Parrado, Caner and Wolff (2007) compare two periods with differing levels of aggregate 'turbulence' in the economy and find that this is reflected in individual change, with greater movement across occupations and industries in the more turbulent period. Moreover, it is the lower paid, who, controlling for age, education and other characteristics, tend to move most (though this applies to men more than to women). We argue that if the rate of movement across occupations or industries is high then this is a further indicator of a relatively flexible sector or country, *regardless* of what other indicators, for instance measures of job tenure of atypical hours, tell us.

The purpose of our analysis is to look at individual-level change over time, to measure the extent of flux but also to assess both its antecedents and its effects. The data we use are mostly from the European Community Household Panel (ECHIP), which contains information on individuals and households in fifteen European countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and UK. Collection of the ECHIP started in 1994 with twelve countries; Austria, Finland and Sweden joined in waves 2, 3 and 4 respectively. The dataset contains only eight waves of data since its collection stopped in 2001. Germany, Luxembourg and the UK collect national household panel data independently of the ECHIP; the ECHIP data for these countries is a sub-sample of the much longer running national surveys. Some of our analysis utilises the extra information in two of these datasets: the British Household Panel Study (BHPS) and the German Social-Economic Panel (GSOEP).

## 2 Skill utilisation and job satisfaction

In this section we look at two issues: the distribution and value of skills, which tell us something about the value of work in an objective sense, and the factors that are associated with variation in job satisfaction, which give us a measure of the subjective value of work. We link these with an analysis of overqualification – whether people feel that their skills themselves are valued. First we look at education. This is rather crudely defined in the ECHP with only three levels generally available, which we simply call ‘high’, ‘medium’, and ‘low’ (though its contributing datasets, such as the British and German panels, provide information on all qualifications achieved, while years of education can also be calculated). Occupational and industry classifications are also detailed in the British and German panels but not in the ECHP. After some very minor combination of categories we end up with nine occupational groups and eighteen industries. These are listed in the Annex.

### 2.1 The value of education and work

We begin this section with an assessment of the value of skills across countries, before moving to our main analysis of the distribution and causes of overqualification and of job satisfaction. We do not provide figures for the distribution of education in these ECHP countries, as tables based on much bigger numbers are available in a variety of official sources. However, we have no reason to believe that any sample bias in the ECHP samples is a problem for analysis of the inter-relationship between variables, especially where weights are used, as here. Our concern is also with the returns to education rather than in its distribution. Does a degree generate the same proportional return in all countries? If so, we can assume some sort of international convergence in the relationship between skills and employment. In fact, we have already indicated in the introductory report quite substantial variation in the returns to education across Europe with, for instance, the return in Ireland twice that in Norway in 1995 (Harmon, Walker and Westergaard-Nielsen 2001: 11). Do we get the same sort of results with our data and our educational indicators?

#### 2.1.1 The returns to education

We replicate the standard form of research using the Mincer equation:

$$\ln w_{it} = \alpha + \beta X_{it} + \varepsilon_{it} \quad (4.1)$$

in which  $\ln w_{it}$  is the natural logarithm of yearly wages. Among the explanatory variables, the matrix  $X_{it}$  contains the characteristics of individual  $i$  at time  $t$ . These are: age, years of

potential work experience (computed as age of the individual minus the age at which he/she started his/her first job), a dummy for women, dummies for education, a dummy for whether the job is in the public sector, dummies for industries, dummies for the type of contract (e.g. permanent, temporary, *etc.*), and dummies for the wave (year) of interview. Finally,  $\varepsilon_{it}$  is the error term.

The ‘true’ return to education for individual  $i$  can only be estimated when data on cohorts are available (Heckman et al., 2003). Estimates of the return to education computed using cross-section data, which are commonly used in the literature, should be interpreted as the average return to education in  $t$  of different cohorts of individuals. But in practice the returns vary across an individual’s age – an effect which can be exploited using panel data, that is, data which contain several measures from each individual over time of education, wages and other factors. In general, we expect thereby to control for variation which is specific to the individual over time. We therefore compute returns to education by exploiting the panel nature of the data using a random effect panel estimator (Baltagi, 2001). In this case the error term  $\varepsilon_{it}$  can be decomposed into two parts:  $\varepsilon_{it} = u_{it} + \alpha_i$ . Where  $\alpha_i$  is a time-invariant individual-specific component, and  $u_{it}$  is assumed to be uncorrelated over time. The advantage of this estimator is that it might reduce the problem of individual heterogeneity and indirectly of endogeneity in education. The model is estimated separately by country; the most interesting coefficients are shown in Table 2.1.

**Table 2.1** Returns to education by country, panel estimator (dependent variable is log of wages)

	Germany	Denmark	Netherlands	Belgium	Luxembourg	France	UK
Some education	<b>0.104#</b> (0.011)	<b>0.110#</b> (0.013)	<b>0.040#</b> (0.010)	<b>0.098#</b> (0.015)	<b>0.248#</b> (0.020)	<b>0.074#</b> (0.009)	<b>0.123#</b> (0.013)
High education	<b>0.276#</b> (0.014)	<b>0.169#</b> (0.015)	<b>0.127#</b> (0.011)	<b>0.318#</b> (0.020)	<b>0.546#</b> (0.027)	<b>0.337#</b> (0.016)	<b>0.145#</b> (0.013)
Work experience	<b>-0.009#</b> (0.002)	<b>-0.021#</b> (0.002)	<b>0.010#</b> (0.001)	-0.001 (0.002)	<b>-0.003</b> (0.002)	-0.001 (0.001)	0.000 (0.001)
Overall R <sup>2</sup>	0.277	0.295	0.366	0.351	0.517	0.356	0.237
Observations	31 885	14 051	24 949	10 774	5 305	22 876	26 948
	Ireland	Italy	Greece	Spain	Portugal	Austria	Finland
Some education	<b>0.141#</b> (0.015)	<b>0.117#</b> (0.008)	<b>0.129#</b> (0.012)	<b>0.116#</b> (0.011)	<b>0.191#</b> (0.012)	<b>0.234#</b> (0.017)	<b>0.178#</b> (0.022)
High education	<b>0.288#</b> (0.021)	<b>0.334#</b> (0.016)	<b>0.235#</b> (0.016)	<b>0.289#</b> (0.013)	<b>0.607#</b> (0.019)	<b>0.485#</b> (0.034)	<b>0.451#</b> (0.026)
Work experience	<b>-0.011#</b> (0.003)	<b>0.007#</b> (0.001)	<b>0.003</b> (0.001)	-0.001 (0.001)	<b>-0.003#</b> (0.001)	<b>-0.006*</b> (0.003)	<b>-0.017#</b> (0.003)
Overall R <sup>2</sup>	0.393	0.354	0.393	0.407	0.403	0.289	0.349
Observations	14 711	30 659	15 539	27 055	27 130	17 568	13 972

Robust standard errors in parenthesis; Significant at 10%.

\* Significant at 5%, # significant at 1%; other explanatory variables: age, years of potential work experience, a dummy for women, a dummy for whether the job is in the public sector, dummies for industries, dummies for the type of contract (e.g. permanent, temporary, *etc.*), and dummies for the wave (year) of interview.

As expected, the results in Table 2.1 show that having some or high education has a positive effect on wages. All these coefficients are statistically significant at one *per cent*. Having high education pays the most in Portugal, Austria and Finland, while it seems to pay the least in the Netherlands, Denmark and the UK. Having a medium level of education seems to pay the most in Austria, Portugal and Finland, while it seems to pay the least in the Netherlands and France. The highest differences between the coefficients of 'some' and 'high' education are in Portugal, Finland, and France where the difference is 0.416; 0.273; and 0.263 respectively. The smallest differences are in the UK (0.022); Denmark (0.059); and the Netherlands (0.087), suggesting that reaching a high level of education in these countries entails a relatively small benefit compared to obtaining only 'some' education. While the difference in effect between the middle and higher levels of education is rather slight, and lower than that found in other studies, this might be because most studies do not use longitudinal data. The coefficient for higher education in the UK is especially low, but this might in part reflect the fact that people are somewhat more likely in Britain to under-use their degrees than is the case in some other countries. It is also possible that cross-sectional results underestimate the true value of school-level qualifications.

Perhaps the most important point to note is that the returns to higher education, which is the variable which most clearly denotes the value of *knowledge*, varies considerably across countries. Knowledge, at least as codified and disseminated through universities, does not have the same value in all countries. We said earlier that we wish to examine variation in the returns to education across Europe rather than in its distribution. However, these are connected, as institutional differences produce differing proportions of, say, people with degrees. Some of the variation, which is quite different to the variation shown by Walker *et al* in their analysis referred to above, is probably the result of the degree of rationing of higher education. In systems with small sectors of higher education the returns are likely to be higher. Thus, we cannot assume convergence within Europe of the relationship between education and employment. Institutions shape this relationship.

Another element of this relationship is the extent to which people are educationally matched to the job they do. Education systems vary in the extent to which they enable effective matches to take place. We consider this in terms of subjective indicators: do people feel their skills are matched to the job (which, given the differing distributions of and returns to education in Europe, shown above, is likely to vary across country), and are they satisfied with their jobs? We look at the latter first.

### 2.1.2 Job satisfaction

Most people gain a great deal of satisfaction from their work and from the challenges this poses for the use of their skills. We might expect variation in job satisfaction by country on the basis of what we know from processes of national change (for instance, perhaps those most subject to the effects of globalisation would be expected to show the lowest job satisfaction) and over time. This might also be linked to variation or decline in the ability of people to use the skills they have for their work.

The ECHP asks workers whether they are satisfied with different aspects of their job. The answer is given on a six-point scale ranging from 'not at all satisfied' to 'fully satisfied'. Table 2.2 shows the proportion of workers that are dissatisfied with their jobs in

terms of earnings, job security, type of work, number of hours worked, working times (e.g. night shifts) and work environment, as well as overall.

Because of different social norms across countries, a cross-country comparison of satisfaction itself is not appropriate, but it seems reasonable to compare national differences in change. An increase in the proportion of dissatisfied workers might point to worsening working conditions, while a decrease in that proportion might point to improving working conditions or to workers' adaptation to a new environment. The proportion of workers dissatisfied with their earnings in fact seems generally to decrease, with the exception of Denmark and Italy, where it remains stable. The proportion of workers dissatisfied with the level of job security also tends to decrease, with the exception of Italy, where it seems to increase. The proportion of workers dissatisfied with their type of work decreases or remains stable in almost all countries. Again, the only exception is Italy, where more people are becoming dissatisfied with their type of job. In a similar way, the proportion of workers dissatisfied with the hours worked, as well as the proportion of workers dissatisfied with their working times increases only in Italy. Finally, the proportion of workers dissatisfied with their work environment seems to increase only in Italy and Spain.

Overall, it appears on the basis of these data that these conditions have not deteriorated in any country, with the interesting exception of Italy. However, even in this case the percentage saying that overall they are dissatisfied with their job remains exactly the same over time.

**Table 2.2** Percentage of workers dissatisfied with different aspects of their job

Country	Earnings		Job security		Type of work		Hours worked		Working times		Work environment		Overall	
	1996	2001	1996	2001	1996	2001	1996	2001	1996	2001	1996	2001	1996	2001
Denmark	23	23	19	14	10	9	13	12	13	11	14	11	8	7
Netherlands	19	14	21	11	9	10	14	14	11	10	20	20	7	8
Belgium	30	28	23	18	15	14	17	18	16	16	21	20	17	16
France	47	39	29	21	12	11	25a	22	20	20	22	22	17	14
UK	28	26*	27	20	18	18	27	25					20	18
Ireland	35	23	22	15	12	11	17	11	13	9	13	11	16	13
Italy	53	54	30	33	27	31	31	35	29	33	31	34	33	33
Greece	61	52	40	35	37	32	37	33	35	34	40	33	45	36
Spain	59	51	34	29	26	22	35	35	28	27	27	29	28	25
Portugal	65	54	30	21	20	17	27	21	22	16	18	14	29	21
Austria	23	19	14	10	6	4	12	10	10	7	9	6	7	6
Finland	31	26	26	20	17	14	19	17	16	16	20	17	13	12
Mean	40	34	26	21	17	16	23	21	18	17	20	18	20	17

\* 1997.

We do not observe an aggregate decline in satisfaction with the work people do, including with job security. Given that the majority of people do not change jobs over this period, this implies that those in the same job do not detect any worsening of their situation on average. But it is possible that at the individual level we can observe a relationship between the work people do, including its degree of security, and their satisfaction with work. Who, then, is more likely to be dissatisfied with their job? We compute a probit model in which the dependent variable is a dummy that has value one for all those workers who declare that they are dissatisfied with their job in general, and zero otherwise. Among the explanatory variables we include age, gender, education, whether the job is in the public sector, occupation groups, industries, whether the worker has supervisory tasks, the type of contract, and the year of the interview. Our main interest is in the effect of being in some sort of insecure contract. The results are shown in Table 2.3.

First, we note some results for some of our control variables. For instance, it is clear that workers employed in the public sector are less dissatisfied (more satisfied) with their job than other workers, with the possible exception of those in the UK. Workers employed in intermediate and non-supervisory jobs seem to be more likely to be dissatisfied than workers who have supervisory tasks. Amongst occupations, only professionals seem to be less likely to be dissatisfied than managers; all other occupations seem to be more likely to be dissatisfied. In Denmark, the Netherlands and Ireland most differences across occupations are not statistically significant, suggesting that in these countries the probability of being dissatisfied with one's job is equally distributed across occupations.

Far more important, however, and now turning to our main point of interest, is that workers in fixed-term, casual, and other atypical jobs are more likely to be dissatisfied than workers in permanent jobs. This strongly suggests that these conditions are the result of constraints, not of choice. Most of these people presumably find it difficult to obtain better, more secure work.

**Table 2.3** Probability of being dissatisfied with the job, by country

	Denmark	Netherlands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal	Austria	Finland
Age	-0.003	0.004	0.002	0.005	0.003	-0.009	<b>0.027#</b>	<b>-0.012#</b>	0.004	<b>-0.009#</b>	<b>0.033#</b>	-0.011
Female	0.073	0.050	-0.074	-0.017	<b>-0.227#</b>	0.055	0.044	0.059	0.035	<b>0.264#</b>	-0.063	0.064
High education	-0.089	0.037	-0.053	<b>0.149*</b>	<b>0.178#</b>	<b>0.196*</b>	<b>-0.336#</b>	<b>-0.344#</b>	<b>0.107#</b>	<b>-0.173</b>	0.174	<b>0.331#</b>
Some education	-0.037	<b>-0.112*</b>	-0.002	<b>0.114#</b>	<b>0.118#</b>	<b>0.085</b>	<b>-0.148#</b>	<b>-0.210#</b>	<b>0.102#</b>	-0.056	-0.037	<b>0.171*</b>
Public sector	0.038	0.003	-0.084	<b>-0.263#</b>	<b>0.103</b>	<b>-0.202#</b>	<b>-0.235#</b>	<b>-0.530#</b>	<b>-0.172#</b>	<b>-0.245#</b>	<b>-0.212#</b>	-0.090
Work experience	-0.008	-0.004	-0.004	-0.001	<b>-0.005</b>	0.006	<b>-0.023#</b>	<b>0.006</b>	-0.004	<b>0.010#</b>	<b>-0.032#</b>	0.006
Intermediate	<b>0.225*</b>	0.092	<b>0.260#</b>	<b>0.281#</b>	<b>0.139#</b>	<b>0.262#</b>	<b>0.374#</b>	<b>0.192*</b>	<b>0.272#</b>	0.157	<b>0.169</b>	<b>0.328#</b>
Non-supervisory	<b>0.270#</b>	<b>0.206#</b>	<b>0.528#</b>	<b>0.538#</b>	<b>0.171#</b>	<b>0.296#</b>	<b>0.694#</b>	<b>0.500#</b>	<b>0.401#</b>	<b>0.388#</b>	<b>0.333#</b>	<b>0.519#</b>
Fixed term	0.080	<b>0.250#</b>	<b>0.130</b>	<b>0.242#</b>	<b>0.142*</b>	<b>0.169*</b>	<b>0.318#</b>	<b>0.508#</b>	<b>0.254#</b>	<b>0.366#</b>	<b>0.425#</b>	0.023
Casual work	<b>0.380#</b>	<b>0.397*</b>	-0.061		<b>0.176*</b>	<b>0.415#</b>	<b>0.819#</b>	<b>0.696#</b>	<b>0.480#</b>	<b>0.951#</b>	<b>0.649#</b>	0.169
Other	-0.214	0.023	0.193			<b>0.458#</b>	<b>0.351#</b>	<b>-0.308</b>	<b>0.212#</b>	<b>0.573#</b>	0.074	-0.062
<i>Occupation</i>												
Professionals	0.000	-0.090	0.181	-0.053	-0.014	<b>-0.236*</b>	-0.087	-0.133	-0.048	0.113	<b>-0.348*</b>	-0.011
Tech. & ass. prof.	0.061	-0.119	<b>0.406#</b>	0.080	-0.008	-0.058	0.025	0.006	0.123	0.054	0.078	<b>0.430#</b>
Clerks	0.102	-0.015	<b>0.427#</b>	<b>0.242*</b>	<b>0.142*</b>	0.003	<b>0.232*</b>	0.112	<b>0.307#</b>	0.133	<b>0.259*</b>	<b>0.404#</b>
Service & shop	-0.183	0.054	<b>0.591#</b>	<b>0.474#</b>	-0.042	-0.029	<b>0.337#</b>	<b>0.233</b>	<b>0.327#</b>	<b>0.354*</b>	<b>0.271*</b>	<b>0.348#</b>
Skilled ag./fish	0.007	0.020	0.565	0.288	<b>0.406*</b>	<b>0.405</b>	<b>0.633#</b>	<b>0.647#</b>	<b>0.326*</b>	<b>0.705#</b>	-0.044	<b>0.612*</b>
Craft & related	0.101	0.072	<b>0.418#</b>	<b>0.326#</b>	0.071	-0.066	<b>0.518#</b>	<b>0.326#</b>	<b>0.405#</b>	<b>0.417#</b>	<b>0.312*</b>	<b>0.536#</b>
Ops. & ass.	0.179	0.014	<b>0.523#</b>	<b>0.358#</b>	<b>0.229#</b>	<b>0.192</b>	<b>0.431#</b>	<b>0.398#</b>	<b>0.480#</b>	<b>0.340*</b>	<b>0.640#</b>	<b>0.701#</b>
Elementary occ.	<b>0.325*</b>	<b>0.171</b>	<b>0.697#</b>	<b>0.693#</b>	<b>0.284#</b>	<b>0.196</b>	<b>0.744#</b>	<b>0.682#</b>	<b>0.658#</b>	<b>0.637#</b>	<b>0.616#</b>	<b>0.668#</b>
<i>Economic sector</i>												
Electricity <i>etc.</i>	0.452	0.203	-0.196	-0.237	<b>0.609#</b>	<b>0.351</b>	<b>-0.215</b>	-0.251	<b>-0.445#</b>	-0.103	-0.287	-0.392
Manuf. food <i>etc.</i>	<b>0.806#</b>	0.101	0.229	-0.047	<b>0.501*</b>	<b>0.397*</b>	-0.143	-0.200	<b>-0.227#</b>	0.012	0.176	0.316
Manuf. textiles	0.278	<b>0.753#</b>	0.286	0.316	<b>0.668#</b>	<b>0.629#</b>	-0.140	-0.028	<b>-0.156</b>	0.059	0.071	0.221
Manuf. paper	<b>0.558</b>	0.210	0.231	0.131	<b>0.700#</b>	<b>0.464*</b>	<b>-0.418#</b>	<b>-0.443*</b>	<b>-0.238*</b>	-0.098	-0.152	-0.113
Manuf. petr. <i>etc.</i>	0.386	0.225	0.118	-0.145	<b>0.610#</b>	0.179	<b>-0.178</b>	<b>-0.385*</b>	<b>-0.354#</b>	-0.039	0.058	-0.198
Manuf. metal	<b>0.800#</b>	0.150	0.270	0.069	<b>0.607#</b>	<b>0.371*</b>	<b>-0.311#</b>	<b>-0.403*</b>	<b>-0.415#</b>	0.041	-0.064	-0.046

**Table 2.3** Probability of being dissatisfied with the job, by country. Continued

	Denmark	Nether-lands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal	Austria	Finland
Other manuf.	<b>0.594*</b>	0.298	0.200	-0.168	<b>0.648#</b>	0.252	-0.153	-0.244	<b>-0.395#</b>	-0.092	-0.266	-0.165
Construction	0.345	0.057	0.177	-0.128	0.275	-0.000	-0.086	0.132	<b>-0.319#</b>	0.092	-0.181	-0.300
Wholesale <i>etc.</i>	<b>0.923#</b>	0.064	0.355	-0.003	<b>0.606#</b>	<b>0.283</b>	<b>-0.251#</b>	-0.263	<b>-0.294#</b>	-0.081	0.006	-0.036
Hotels, restaurants	<b>1.182#</b>	<b>0.363</b>	0.383	-0.107	<b>0.660#</b>	<b>0.364*</b>	<b>-0.494#</b>	-0.138	<b>-0.161*</b>	<b>-0.328#</b>	0.085	0.183
Transport <i>etc.</i>	<b>0.934#</b>	0.075	0.212	-0.110	<b>0.619#</b>	0.263	<b>-0.302#</b>	<b>-0.364*</b>	<b>-0.243#</b>	-0.146	-0.119	-0.235
Financial inter.	0.479	0.228	0.231	-0.193	<b>0.691#</b>	<b>0.313</b>	<b>-0.625#</b>	<b>-0.508#</b>	<b>-0.458#</b>	<b>-0.417#</b>	<b>-0.660*</b>	-0.210
Real estate <i>etc.</i>	<b>0.500*</b>	0.122	0.281	0.044	<b>0.602#</b>	<b>0.337*</b>	<b>-0.390#</b>	-0.283	<b>-0.152*</b>	-0.139	0.047	0.059
Public adm.	<b>0.620*</b>	0.219	0.255	-0.062	<b>0.459*</b>	<b>0.445#</b>	<b>-0.332#</b>	-0.287	<b>-0.421#</b>	<b>-0.249*</b>	-0.106	-0.085
Education	0.426	0.042	0.270	-0.325	<b>0.337</b>	0.167	<b>-0.534#</b>	<b>-0.394*</b>	<b>-0.710#</b>	<b>-0.454#</b>	-0.390	-0.319
Health, social	<b>0.783#</b>	0.026	0.192	-0.138	0.265	<b>0.295</b>	<b>-0.482#</b>	<b>-0.312</b>	<b>-0.529#</b>	<b>-0.544#</b>	-0.081	-0.235
Other social	<b>0.542</b>	0.261	0.365	-0.083	<b>0.528#</b>	0.243	<b>-0.272#</b>	-0.121	<b>-0.353#</b>	0.038	-0.159	<b>-0.409</b>
Observations	12 708	25 215	10 759	23 286	27 765	15 111	30 948	16 289	28 837	28 153	18 103	13 812

Significant at 10%, \* Significant at 5%, # Significant at 1%; Other explanatory variables: dummies for year of the interview.

It is nevertheless possible that where people can change their contract type, their work situation improves. We therefore compute a probit model to analyse the impact of changes in the characteristics of the job on the probability of an increase in job satisfaction (represented by a move upward on the six points satisfaction scale). However, we do not examine changes in the job as such, as our ultimate interest is in the occupational structure, and even a high level of job turnover need not alter this. The results are shown in Table 2.4.

Both a change of occupation and a change of economic sector seem to increase the probability of an improvement in satisfaction, though change of sector seems to have a bigger impact than a change of occupation. The interaction between these two terms (shown in the third row) is often not statistically significant, with the exception of the UK, Ireland, Spain and Portugal, where the coefficients are positive and rather large. The coefficient of the interaction term is instead negative and statistically significant at ten *per cent* in Greece. Thus, in some countries changing occupation is more beneficial in some economic sectors than in others. It is also of note that an increase in wages (in percentage terms) has a statistically significant impact only in Greece and Portugal.

However, our main interest is in seeing if moving to a permanent position has a positive impact. It does so in all countries. This in fact seems more important even than improved wages. Thus it is changes in the type of work people do, reflected in migration to a new occupation or industry, but also including moves to permanent contracts, which lead to improvements in job satisfaction.

Overall, therefore, we observe no trend towards decreased job satisfaction over this short period, but insecure contracts are certainly associated with low job satisfaction, which is likely to improve considerably if people move to better (more permanent) contracts. There can be little doubt that jobs which are not permanent cause unhappiness at work.

**Table 2.4** Probability of becoming more satisfied with the job, by country

	Denmark	Netherlands	Belgium	France	UK	Ireland
Different occupation	<b>0.382#</b> (0.136)	<b>0.052</b> (0.031)	0.005 (0.051)	<b>0.194*</b> (0.084)	<b>0.117#</b> (0.030)	0.037 (0.046)
Different sector	<b>0.439#</b> (0.107)	<b>0.150#</b> (0.050)	0.054 (0.062)	<b>0.673#</b> (0.110)	<b>0.260#</b> (0.034)	0.025 (0.050)
Different occ. & sector	-0.266 (0.200)	0.121 (0.076)	0.126 (0.098)	-0.174 (0.171)	<b>0.153#</b> (0.058)	<b>0.178*</b> (0.083)
Change hours worked	-0.001 (0.004)	<b>-0.004*</b> (0.002)	0.000 (0.003)	-0.002 (0.002)	-0.002 (0.001)	-0.000 (0.002)
Change in wages	0.001 (0.015)	-0.005 (0.005)	0.009 (0.007)	0.000 (0.005)	-0.002 (0.003)	0.003 (0.011)
Change supervisory	0.092 (0.067)	0.035 (0.044)	0.056 (0.067)	0.032 (0.044)	<b>0.107#</b> (0.038)	-0.017 (0.053)
Change to permanent	0.149 (0.094)	0.033 (0.058)	<b>0.323#</b> (0.093)	0.089 (0.086)	<b>0.276#</b> (0.067)	<b>0.204#</b> (0.062)
_cons	<b>-0.557#</b> (0.020)	<b>-0.499#</b> (0.014)	<b>-0.362#</b> (0.026)	<b>-0.459#</b> (0.014)	<b>-0.494#</b> (0.014)	<b>-0.345#</b> (0.019)
Max. likelihood	-3 142	-8 059	-2 918	-6 731	-9 048	-4 762
Observations	5 146	12 861	4 424	10 641	14 169	7 194

  

	Italy	Greece	Spain	Portugal	Austria	Finland
Different occupation	0.065 (0.040)	<b>0.220#</b> (0.070)	0.003 (0.031)	<b>0.099#</b> (0.036)	<b>0.120#</b> (0.043)	0.082 (0.078)
Different economic sector	<b>0.080</b> (0.044)	<b>0.296#</b> (0.087)	<b>0.065</b> (0.037)	<b>0.159#</b> (0.045)	<b>0.239#</b> (0.050)	<b>0.297#</b> (0.091)
Different occ. & sector	0.113 (0.074)	<b>-0.300*</b> (0.147)	<b>0.143*</b> (0.063)	<b>0.137</b> (0.079)	-0.077 (0.085)	0.219 (0.155)
Change hours worked	0.002 (0.002)	0.003 (0.002)	-0.001 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.003 (0.003)
Change in wages	0.010 (0.010)	<b>0.043#</b> (0.014)	0.003 (0.002)	<b>0.013</b> (0.007)	-0.001 (0.010)	0.000 (0.002)
Change supervisory	0.051 (0.038)	0.103 (0.064)	<b>-0.092*</b> (0.039)	0.057 (0.068)	<b>0.076</b> (0.043)	0.072 (0.060)
Change to permanent	<b>0.263#</b> (0.053)	<b>0.334#</b> (0.061)	<b>0.130#</b> (0.040)	<b>0.248#</b> (0.047)	<b>0.320#</b> (0.066)	<b>0.184*</b> (0.076)
_cons	<b>-0.336#</b> (0.012)	<b>-0.391#</b> (0.016)	<b>-0.061#</b> (0.015)	<b>-0.764#</b> (0.013)	<b>-0.563#</b> (0.017)	<b>-0.486#</b> (0.019)
Max. likelihood	-10 108	-5 079	-8 130	-8 443	-5 851	-3 654
Observations	15 238	7 762	11 767	15 424	9 499	5 800

Robust standard errors in parenthesis; Significant at 10%, \* Significant at 5%, # Significant at 1%; other explanatory variables: Dummies for year of the interview.

### 2.1.3 Overqualification

Another measure of effectiveness in employment is whether people do work for which their education is suited. Where they have more education than is necessary for a job, this is often called 'overqualification'. It is usually measured by asking people what qualifica-

tions they need to do their job (though exactly how this is asked varies considerably across surveys). If this is higher than their actual qualifications then they count as overqualified. Overqualified workers earn a premium relative to matched workers in the same job, but suffer a penalty relative to matched workers with the same qualification (e.g. Card, 1999; Hartog, 2000). Overqualification is especially interesting in the context of the WORKS projects not only because it indicates potential mismatching between workers and jobs, which suggests problems with job search (a long-standing concern amongst economists), but because it might indicate structural changes which might *push* people into jobs for which they have excess qualifications. The reasons might include the transfer of jobs to cheaper labour in other countries; feelings of insecurity as a result of economic changes which drive people to take any available job, at least when they are young; a need to acquire excess education as an insurance against possible job failure; job losses followed by subsequent returns to work at a lower level than previously, for instance by women or older people; and the knock-on effects of those who are overqualified taking jobs away from those less qualified than themselves ('bumping down'); finally, there might also be a process of deskilling so that, for example, graduates are hired to do work which through managerial or technological change is less demanding than in the past.

There is very little comparative data on overqualification, which is an important concept in the skills debate. In Table 2.5 we show the distribution of this in four European countries and by educational level, based on data from the Framework 6 *eLiving* survey. This is measured simply by comparing the qualification held to that considered by the individual as necessary for their job, so that having a higher qualification than needed counts as overqualification.

**Table 2.5** Proportion of matched, over- and under-qualified workers and their hourly wages

	Britain		Italy		Germany		Norway	
	%	Pay	%	Pay	%	Pay	%	Pay
Underqualified								
Needs degree	3.4	19.5	3.7	12.6	2.5	21.9	4.5	19.2
Needs HSL certificate	1.8	14.5	2.1	10.5	4.5	14.5	2.8	18.1
Needs LSL certificate	1.6	10.9	1.8	5.8	5.2	14.2	1.8	15.5
Overqualified								
Has degree	6.2	17.3	6.5	11.9	3.4	19.3	10.4	19.8
Has HSL certificate	11.4	13.2	7.6	8.5	13.6	12.3	5.1	17.7
Has LSL certificate	15.4	11.5	5.1	6.4	10.6	11.0	6.2	16.6
Matched								
Has degree	18.2	21.3	13.0	17.4	7.0	17.7	46.7	21.6
Has HSL certificate	7.5	16.1	3.5	12.2	11.8	17.0	4.1	18.5
Has LSL certificate	5.9	11.7	54.8	8.1	16.4	13.3	15.9	16.5
Has low/no qualification	28.2	10.8	1.9	8.2	25.0	10.9	2.6	15.6
<hr/>								
Total	100.0		100.0		100.0		100.0	
<hr/>								
% overqualified	33.0		19.2		27.6		21.7	
% graduates overqualified	25		33		33		18	
% HSL overqualified	53		60		49		48	
% LSL overqualified	69		8		36		23	
<hr/>								
Observations	1 225	909	1 369	611	1 408	847	1 700	1 396

Quite apparent in this table are two profiles of overqualification. Britain and Germany have a relative excess at the middle and lowest levels, the other two countries higher up. Only in Norway, where 10.4 *per cent* of workers are overqualified with a degree out of the total of 21.7 *per cent* of the workforce who are overqualified, does higher education contribute to around half of all overqualification. In no country are more than one third of graduates overqualified. The proportion of people with higher school-leaving certificates who are overqualified is always much higher than one third, while it is at least one third in three countries even at the lower school level. Especially taking into account absolute numbers, overqualification seems to be more predominant at the school than the degree level. This suggests that if there is a problem of mismatching it is not caused by the expansion of higher education but by people in lower-level occupations finding appropriate work. The greatest competitive pressures are therefore relatively low down in the occupational structure.

Although there are different (and debated) ways of measuring overqualification (see e.g. Hartog, 2000), in the ECHP overqualified workers can only be identified as those who answer 'yes' to the question 'Do you feel that you have skills or qualifications to do a more demanding job than the one you now have?'. A disadvantage of this way of measuring overqualification is that of its subjectivity: workers are classified as overqualified as long as they feel that they are. However, this is in line with our interest in job satisfaction, and our argument that we must take seriously what workers think about their jobs. This question is not asked in Germany, Luxembourg or the UK. These countries therefore drop out of our analysis.

The proportions of overqualified workers by country are shown in Table 2.6. Since these proportions do not vary much over time, we only show them in 1996 and 2001. The proportion of workers who feel overqualified is rather high in all countries, and varies from 40 *per cent* in the Netherlands, to more than 65 *per cent* in Belgium and Finland. However, the absolute values are probably not that significant, though we note that the proportion of workers who feel overqualified decreases in France, Ireland, Italy, Greece, Portugal, Austria and Finland, and seems to increase substantially only in Spain (while in all other countries there is almost no change). This is perhaps contrary to what we would expect if the re-organisation of work makes workers worse off. At least we do not see this in terms of a feeling of being overqualified, though it might also be that people are getting used to it and therefore adapt their expectations.

**Table 2.6** Percentage of workers who feel overqualified, by country and wave

	1996	2001
Denmark	62	60
Netherlands	41	40
Belgium	65	66
France	54	50
Ireland	57	49
Italy	53	46
Greece	62	51
Spain	57	63
Portugal	55	37
Austria	63	54
Finland	66	63

We would expect overqualification to vary by economic sector if industrial pressures are such that the skills of people working in different sectors are valued differently. Because of the small number of observations in each group we combine all countries, though in reality it is unlikely that economic sectors behave in the same way in all countries. The proportions of overqualified workers by industry and waves are shown in Table 2.7. Looking also at Table 2.6 we can see that the decline in overqualification is more consistent across sectors than across countries. In no sector does it increase, but there are major country differences, with an increase in Spain and a big decrease in Portugal. It seems, therefore, that sectorally we have a picture of greater convergence. However, it is also possible, as the analysis is based on two cross-sections rather than the panel version of the data, that people in sectors where they are overqualified can in time switch to one where they can find a better job match.

**Table 2.7** Percentage of workers who feel overqualified, by economic sector and wave

	1996	2001
Agriculture, hunting and forestry, fishing	44	41
Mining and quarrying and electricity, gas and water supply	57	55
Manufacture of food products, beverages and tobacco	56	47
Manufacture of textiles, clothing and leather products	44	35
Manufacture of wood and paper, publishing and printing	58	52
Manufacture of chemicals <i>etc.</i>	56	48
Manufacture of metal products, machinery and equipment	56	49
Other manufacturing	58	55
Construction	49	44
Wholesale/retail, repair of vehicles and goods	61	56
Hotels and restaurants	61	53
Transport, storage and communication	61	54
Financial intermediation	65	57
Real estate, renting and business activities	59	55
Public administration and defence, compulsory social security	61	55
Education	57	50
Health and social work	53	47
Other community, social and personal service activities	58	52

We can test this directly by looking, first, at whether the feeling of being overqualified is consistent across sectors in all countries, and second, at changes in the feeling of being overqualified controlling for other factors. We compute a probit model in which the dependent variable is the overqualification dummy, which has value one if the worker feels overqualified, and zero otherwise. Among the explanatory variables we include age, women, education, whether the job is in the public sector, occupation groups, industries, whether the worker has supervision tasks, the type of contract, and year of the interview. The results are shown in Table 2.8.

**Table 2.8** Probability of feeling overqualified, by country

Dep. variable Overqualification dummy	Denmark	Belgium	France	Ireland	Italy	Greece	Spain	Portugal	Austria	Finland
Age	-0.041#	-0.028#	-0.015#	-0.005*	-0.024#	-0.016#	-0.017#	-0.018#	-0.016#	-0.045#
Female	-0.744#	-0.570#	-0.438#	-0.124*	-0.220#	-0.102*	-0.033	0.059	-0.061	-0.361#
High education	0.658#	0.540#	0.622#	0.841#	1.140#	0.953#	0.778#	0.590#	0.509#	0.491#
Some education	0.367#	0.212#	0.198#	0.552#	0.593#	0.674#	0.565#	0.489#	0.342#	0.236#
Public sector	0.205	-0.037	-0.098	-0.120	-0.141#	-0.312#	0.097*	0.130#	-0.039	0.047
Intermediate	0.314	-0.033	0.094	-0.089	0.020	-0.076	0.028	0.030	0.130	-0.041
Non-supervisory	0.668#	-0.064	0.323#	0.083	0.236*	-0.046	0.306#	0.088	0.195*	0.221*
Fixed term	1.285#	0.245*	0.530#	0.261#	0.440#	-0.034	0.449#	0.129	0.435#	0.385#
Casual work	1.269#	0.279*	0.531#	0.192*	0.264*	-0.009	0.423#	0.083	0.397#	0.206
Other arrangement	1.598#	-1.261	0.472*	0.060	0.353*	-0.122	0.392#	-0.314*	0.259	0.167
<i>Occupation</i>										
Professionals	0.901#	-0.035	0.309#	-0.032	0.132	-0.401#	0.225#	-0.195	0.220*	0.297*
Tech. & assoc. prof.	1.492#	0.173	0.136	0.134	0.161	-0.308*	0.323#	-0.148	0.483#	0.375#
Clerks	1.858#	-0.003	0.524#	0.123	0.187	-0.186	0.490#	0.074	0.593#	0.714#
Service & shop	0.223*	-0.002	-0.023	-0.017	0.063	0.072	-0.123#	-0.178*	0.042	0.034
Skilled ag./fish	0.168	0.005	-0.141#	-0.294#	-0.229#	-0.090	-0.214#	-0.373#	-0.155#	-0.018
Craft & related	-0.233*	0.107	0.039	0.061	0.116*	0.081	0.081#	0.062	-0.018	-0.103
Ops. & assemblers	-0.048	0.685*		0.298#	-0.102	0.112*	0.150#	-0.026	0.297	0.046
Elementary occ.	-0.013	-0.079		-0.014	-0.062	0.084	0.044	-0.063	0.019	0.189
<i>Economic sector</i>										
Electricity supply <i>etc.</i>	0.355	-0.349	0.198	0.105	0.254	0.321	0.080	0.271	-0.184	-0.023
Manuf. food <i>etc.</i>	0.703	-0.132	0.079	0.034	0.299*	0.313	0.163	0.405#	0.023	0.473
Manuf. textiles <i>etc.</i>	1.058	-0.220	0.055	0.353	0.118	0.147	0.349#	-0.319#	-0.185	0.657*
Manuf. paper <i>etc.</i>	0.219	-0.120	0.388	0.024	0.068	0.124	0.225*	0.062	0.064	0.377
Manuf. petroleum <i>etc.</i>	0.855*	0.102	0.211	0.087	0.337*	0.092	0.223*	-0.005	-0.008	0.481
Manuf. metal n.e.c.	0.581	-0.135	-0.009	0.164	0.093	0.005	0.067	0.102	-0.041	0.252

**Table 2.8** Probability of feeling overqualified, by country. Continued

Dep. variable Overqualification dummy	Denmark	Belgium	France	Ireland	Italy	Greece	Spain	Portugal	Austria	Finland
Other manufacturing	0.307	0.046	0.175	<b>0.355*</b>	<b>0.300*</b>	0.063	<b>0.264#</b>	0.191	-0.213	0.229
Construction	0.424	-0.223	-0.070	-0.044	-0.019	0.124	-0.006	0.020	-0.168	0.058
Wholesale <i>etc.</i>	<b>1.016#</b>	-0.119	0.252	<b>0.317*</b>	<b>0.265*</b>	<b>0.331</b>	<b>0.236#</b>	<b>0.286#</b>	0.097	<b>0.501*</b>
Hotels, restaurants	<b>0.730</b>	0.119	-0.062	<b>0.384*</b>	<b>0.507#</b>	<b>0.506#</b>	<b>0.194*</b>	0.134	-0.064	<b>0.574*</b>
Transport <i>etc.</i>	0.556	-0.036	0.086	<b>0.329*</b>	<b>0.220</b>	<b>0.351</b>	<b>0.242#</b>	<b>0.485#</b>	0.153	0.363
Financial inter.	0.236	-0.235	0.367	0.097	0.115	0.279	<b>0.208*</b>	<b>0.383#</b>	-0.084	0.392
Real estate <i>etc.</i>	<b>0.705*</b>	-0.127	0.193	0.178	<b>0.252*</b>	0.270	<b>0.177*</b>	<b>0.202</b>	<b>-0.416*</b>	0.286
Public adm. defence	<b>0.848*</b>	-0.213	0.146	0.160	<b>0.213</b>	0.250	<b>0.244#</b>	0.146	-0.027	0.283
Education	<b>0.689</b>	-0.268	-0.085	0.214	<b>0.211</b>	0.123	0.083	-0.031	-0.156	0.138
Health, social work	0.350	-0.356	-0.317	0.132	0.090	-0.076	<b>-0.147</b>	-0.027	-0.214	0.190
Other social services	<b>0.615</b>	-0.162	-0.022	<b>0.528#</b>	<b>0.369#</b>	<b>0.306</b>	<b>0.286#</b>	0.148	-0.228	0.189
Observations	12 639	10 553	23 175	14 774	30 733	16 287	28 763	28 118	17 499	12 648

Significant at 10%, \* Significant at 5%, # Significant at 1%; Other explanatory variables: dummies for year of the interview.

The results suggest that young workers feel overqualified more often than older ones; in all countries workers with high education - and in almost all countries also workers with some education - are more likely to feel overqualified than workers with lower levels of education. Also, having spent more years in education seems to increase the probability of feeling overqualified, *ceteris paribus*. This does not support the earlier finding that overqualification is greater at lower levels of education (though here we are dealing with more subjective perceptions, and those with low levels of qualifications might not feel it is possible to be overqualified for the work they do). Men are more likely than women to feel they are overqualified, although such difference is not statistically significant in all countries. There seem to be some differences across occupations: clerks; service and shop workers; and to a lesser extent technical workers and associate professionals; assemblers; and workers doing elementary occupations, seem to feel overqualified more often than legislators, senior officers and managers. The differences across economic sectors seem to vary a lot across countries, and do not allow the identification of clear patterns.

Our main interest, though, is in the association between overqualification and job security. Having a fixed-term contract, casual work or other non-permanent job agreement generally has a big impact on the probability of feeling overqualified.

We have seen that overqualification declines consistently across economic sectors. This implies the possibility that people switch the industry in which they work in order to find a better job match. We test this directly in Table 2.9 where we use a probit model to analyse which changes in job characteristics are more likely to end the feeling of being overqualified. Both a change of occupation and a change of economic sector can end the feeling of being overqualified (though the interaction term is negative, suggesting that there is no cumulative effect of changing both occupation and sector). Changes in the number of hours worked has a positive impact in most countries; only in Spain is the coefficient negative and statistically significant. Surprisingly, changes in wages seem to have a negative - and statistically significant - impact in Belgium and France. Finally, moving from temporary to permanent contract seems to have a positive impact. This is statistically significant only in some countries but suggests that overqualification is not a desired outcome.

To sum up this section, we find that the feeling of being overqualified is quite widespread in Europe, though it varies quite a lot by country. Perhaps the most important factor associated with this feeling is work governed by some sort of insecure employment contract. Movement out of such a contract is often into work where qualifications are better matched to the job to be done.

**Table 2.9** Factors associated with movement from feeling overqualified to not being overqualified

	Denmark	Nether-lands	Belgium	France	Ireland
Different occupation	<b>1.399#</b> (0.141)	<b>0.257#</b> (0.033)	<b>0.416#</b> (0.056)	<b>0.432#</b> (0.082)	<b>0.250#</b> (0.048)
Different industry	<b>1.518#</b> (0.114)	<b>0.294#</b> (0.053)	<b>0.377#</b> (0.070)	<b>0.514#</b> (0.106)	<b>0.270#</b> (0.052)
Different occupation & industry	<b>-1.429#</b> (0.204)	-0.043 (0.079)	<b>-0.296#</b> (0.105)	<b>-0.559#</b> (0.169)	<b>-0.207*</b> (0.086)
Change hours worked	<b>0.015*</b> (0.007)	<b>0.010#</b> (0.002)	<b>0.009*</b> (0.004)	0.001 (0.002)	0.001 (0.002)
Change in wages	<b>0.040*</b> (0.018)	0.003 (0.005)	<b>-0.039*</b> (0.019)	<b>-0.022</b> (0.011)	<b>0.016</b> (0.008)
Change supervisory position	-0.019 (0.138)	<b>0.080</b> (0.048)	0.012 (0.079)	0.039 (0.047)	<b>0.191#</b> (0.055)
Change to permanent contract	<b>0.521#</b> (0.126)	0.014 (0.063)	<b>0.233*</b> (0.099)	0.128 (0.090)	0.049 (0.068)
_cons	<b>-2.393#</b> (0.051)	<b>-1.346#</b> (0.016)	<b>-1.478#</b> (0.033)	<b>-1.241#</b> (0.015)	<b>-1.295#</b> (0.022)
Max. likelihood	-589	-5 683	-1 873	-4 989	-3 510
Observations	6 958	16 887	5 884	14 279	9 632

  

	Italy	Greece	Spain	Portugal	Austria	Finland
Different occupation	<b>0.899#</b> (0.040)	<b>0.232#</b> (0.067)	<b>0.122#</b> (0.031)	<b>0.401#</b> (0.036)	<b>0.302#</b> (0.045)	<b>0.152</b> (0.085)
Different industry	<b>0.946#</b> (0.044)	<b>0.302#</b> (0.086)	<b>0.195#</b> (0.036)	<b>0.309#</b> (0.046)	<b>0.285#</b> (0.053)	<b>0.285#</b> (0.099)
Different occ. & ind.	<b>-0.946#</b> (0.073)	<b>-0.252</b> (0.142)	-0.090 (0.060)	<b>-0.230#</b> (0.078)	<b>-0.266#</b> (0.089)	-0.037 (0.170)
Change hours worked	-0.001 (0.003)	0.004 (0.002)	<b>-0.003*</b> (0.002)	-0.001 (0.002)	0.000 (0.002)	<b>0.007*</b> (0.003)
Change in wages	-0.021 (0.016)	0.011 (0.013)	0.002 (0.002)	-0.002 (0.004)	-0.000 (0.009)	-0.001 (0.002)
Change superv. pos.	0.060 (0.048)	0.088 (0.062)	0.021 (0.039)	-0.005 (0.072)	<b>0.144#</b> (0.045)	0.015 (0.068)
Change to permanent	-0.008 (0.070)	<b>0.241#</b> (0.059)	<b>0.085*</b> (0.040)	0.040 (0.054)	-0.013 (0.075)	0.017 (0.088)
_cons	<b>-1.749#</b> (0.018)	<b>-1.130#</b> (0.017)	<b>-1.112#</b> (0.016)	<b>-1.323#</b> (0.015)	<b>-1.244#</b> (0.019)	<b>-1.231#</b> (0.022)
Max. likelihood	-4 789	-4 276	-7 409	-6 464	-4 437	-2 547
Observations	20 896	10 595	17 619	18 941	11 864	7 153

Significant at 10%, \* Significant at 5%, # Significant at 1%; Other explanatory variables: dummies for year of the interview.

### 3 Occupational and industrial mobility

People change jobs in order to improve their employment position, but also of course for personal reasons. In the latter case, more often for women than for men, the job move might not be an improvement. In addition, some job moves will be involuntary, for instance as a result of redundancy. Thus, while one might expect most job switches to have a positive effect on individual welfare, certainly a proportion will not. In the case of switches across occupations, even though these might be broadly similar (for instance a professional person becoming a manager), or in the case of moves across industries, the risks are probably higher – the move entails a change of job *plus* a change in the type of job. Yet despite this, a high proportion of people switch occupations. In the US, this is between 15% and 25% of men within a roughly ten-year period, though the percentage for women is lower (Parrado, Caner & Wolff 2007: 443-4). Moreover, as already mentioned, such moves seem to be associated with a loss of earnings, suggesting some sort of involuntary component, and we have argued above that some occupational fluidity is associated with the search by individuals for a better job match, whether in terms of skills or of a desire for job security and higher job satisfaction. This fluidity therefore represents a sort of ‘turbulence’ in the system which presumably in turn reflects the extent to which the system of employment provides people with the sort of work they want. For this reason we believe that occupational fluidity is an important measure of the degree of ‘flexibility’ within the system – but where this fluidity has a mostly negative connotation. In general we assume that movement across occupations is inefficient, whether from a personal or a productivity point of view.

In Table 3.1 we examine the degree of stability in a number of occupations (fairly broadly grouped) and industries for those people working at both time points (therefore excluding all moves in and out of the labour force). Three countries – Austria, Finland and Luxembourg – are excluded as they do not enter the ECHP in wave 1. Table 3.1a shows changes over two years (waves 1-3). This shows considerable stability and little difference across occupations (with the exception of elementary occupations which therefore reveal greater upward mobility). There is also rather little difference between countries, with the exception of the UK, which reveals the greatest occupational change. Thus, we can see that in the UK there is very considerable flexibility. It is also of note that France, with its high level of job protection, shows very little occupational change over this period.

This picture of stability alters when we examine change over seven years (waves 1-8). Not only has there by now been a great deal of change but this varies far more by both occupation and country than previously. In the case of the former, only professional people show a high level of stability (average percentage 75.4). The least stable are those in elementary jobs (45.9%), who have presumably therefore migrated to more demanding jobs. Other average percentages range from 56.2 (technical) to 67.0 (skilled). In terms of countries we now see an unexpected shift in the rankings. While France retains its high

level of stability (average 79.5% across occupations), and Germany remains quite high on 65.6%, Belgium (44.1%) shows less stability than the UK (57.5). Italy is also less stable than the UK at 54.9%.

Table 3.1c shows the degree of switching across industries. Again there is a high level of stability by country over this short timescale, with France the most stable at 98.9% and the UK the least stable at 90.5%. The position over the longer period, shown in Table 3.1d, is again much more varied, with big differences between sectors. Industries dominated by the private sector show much more change than the public sector service industries such as education and health. However, finance is also relatively stable. All these of course require a high level of job-specific skills for many of the occupations they typically contain.

**Table 3.1a** Percentages of workers remaining in same occupations wave1-wave 3

	Germany	Denmark	Nether-lands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal
Senior manager	89.3	90.0	92.6	93.2	95.2	84.2	92.8	96.2	91.2	93.6	99.2
Professional	93.8	95.5	94.5	95.5	96.3	86.6	97.6	96.2	98.3	97.8	96.3
Technical	92.4	91.8	92.5	94.7	96.6	77.1	91.6	97.2	94.4	92.3	97.7
Clerical	93.2	92.8	94.1	96.7	96.6	82.2	88.8	96.8	97.3	93.9	93.7
Service	93.2	86.6	91.8	94.0	97.1	85.1	84.3	94.4	92.2	89.3	92.1
Skilled	95.5	88.8	93.7	89.6	96.0	82.8	90.1	94.2	93.9	93.3	93.0
Less skilled	95.3	83.1	92.0	89.1	94.6	84.0	90.7	94.7	90.9	92.5	94.7
Elementary	89.2	76.5	88.8	92.0	94.9	76.3	84.8	86.8	91.7	86.6	89.9

**Table 3.1b** Percentages of workers remaining in same occupations wave1-wave 8

	Germany	Denmark	Nether-lands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal
Senior manager	44.6	77.0	52.9	50.3	82.1	63.8	71.2	43.0	49.2	52.4	38.3
Professional	79.2	80.4	68.0	53.9	80.7	63.0	81.1	78.8	81.8	81.4	81.6
Technical	73.7	76.1	56.5	39.5	78.4	52.2	52.9	43.4	44.2	59.2	41.7
Clerical	67.5	77.6	54.8	62.9	82.4	61.9	64.1	75.4	69.6	43.9	66.3
Service	63.2	70.8	45.0	48.6	78.7	60.6	54.8	54.9	62.8	62.2	52.8
Skilled	74.8	74.8	67.1	37.5	82.7	63.8	59.7	61.7	74.8	65.5	74.2
Less skilled	67.3	70.2	67.5	40.3	77.5	57.4	60.7	47.1	68.3	58.8	57.2
Elementary	54.7	58.2	38.2	20.0	73.6	37.0	43.5	35.2	51.4	48.5	44.4

**Table 3.1c** Percentages of workers remaining in same industries wave1-wave 3

	Germany	Denmark	Nether-lands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal
Farming/mines	84.6	82.2	94.4	85.6	96.2	87.4	87.1	96.9	97.3	85.9	88.2
Food industry	82.4	93.9	96.6	90.0	92.4	79.9	90.0	92.6	84.8	92.2	87.6
Textiles	80.8	100.0	100.0	92.2	92.0	82.4	91.8	96.3	94.6	93.8	90.0
Wood/paper	92.0	86.1	93.8	87.4	96.9	82.3	91.4	91.7	81.7	95.0	92.7
Chemicals	92.2	79.0	82.0	98.1	96.5	87.6	94.0	93.5	87.7	90.1	91.9
Machinery	94.9	89.9	92.1	92.6	95.3	79.1	75.7	90.6	93.5	90.2	92.4
Construction	91.8	91.8	94.7	83.8	93.4	73.0	88.1	94.1	94.2	87.7	93.4
Retail	89.3	83.4	92.8	87.0	95.9	82.8	82.4	92.3	89.4	83.2	92.4
Hotels	79.4	80.7	77.9	88.4	95.4	73.8	87.2	91.5	86.2	89.3	82.9
Transport	94.5	85.0	95.0	96.3	97.6	86.6	93.5	95.8	96.1	94.5	96.0
Finance	97.5	95.5	94.4	98.6	99.0	88.8	95.1	99.0	98.1	95.0	99.8
Property	84.9	83.1	88.3	85.6	94.1	73.5	77.6	86.0	84.7	85.8	79.4
Public admin.	95.2	86.2	96.0	98.0	98.1	88.2	98.7	97.8	99.1	97.6	98.3
Education	94.2	93.2	96.5	96.6	96.5	94.4	96.2	99.4	97.9	97.7	98.3
Health	97.1	94.2	97.6	97.4	98.9	90.5	97.7	97.3	97.7	97.1	95.4

**Table 3.1d** Percentages of workers remaining in same industries wave1-wave 8

	Germany	Denmark	Nether-lands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal
Farming/mines	67.0	68.3	80.3	60.7	88.8	44.8	46.1	69.0	82.3	59.2	74.5
Food industry	60.7	66.0	78.7	38.7	76.7	52.9	57.7	54.2	64.2	71.4	77.0
Textiles	48.3	72.5	45.7	48.6	79.4	35.4	46.8	71.8	67.7	76.1	75.5
Wood/paper	71.5	62.9	87.0	41.4	75.8	50.7	63.9	40.6	67.4	62.9	64.8
Chemicals	62.6	63.4	69.0	59.7	89.3	55.3	51.8	53.9	64.5	54.6	61.6
Machinery	72.0	55.7	55.0	50.0	85.3	50.3	21.6	55.6	72.0	67.6	63.3
Construction	66.4	83.8	96.3	55.4	84.0	49.0	51.0	62.6	73.6	75.2	75.5
Retail	65.3	67.7	62.6	51.8	84.2	54.9	45.8	54.2	68.9	63.5	66.2
Hotels	34.2	45.6	52.0	56.0	79.8	39.8	48.7	74.7	74.6	69.4	64.3
Transport	68.0	70.9	74.2	73.5	93.2	73.6	77.4	73.6	80.1	73.6	67.5
Finance	86.1	77.0	81.8	92.8	89.6	70.3	95.1	82.9	90.7	96.6	78.3
Property	49.7	70.8	66.5	25.3	79.2	47.5	44.5	33.9	57.5	57.0	43.1
Public admin.	81.6	73.9	77.3	65.4	90.9	71.7	85.1	75.6	84.3	71.6	85.6
Education	83.1	82.0	91.3	87.0	86.9	80.4	85.9	91.1	91.4	86.1	85.5
Health	92.9	74.8	88.7	82.4	92.8	78.2	89.5	71.4	91.5	84.7	81.2

Some of this change is positive – the result of normal career progression – and this needs to be taken into account. Our main interest, however, is in measuring the extent of moves that appear to be less positive. Those switching occupations (and perhaps industries), are transferring skills and experience into a new domain, where, even if this benefits the new working environment, some loss for the individual results - through obsolescence or at least through some sort of re-learning. This happens too with any job change, but where this occurs within occupations (for instance, a teacher changing schools) this is less than where the change is into a different occupation (for instance, from teaching into clerical work). Many women might be forced into this situation through family responsibilities, but if the pressure is partly external, then it should apply to men too.

To test this, while this is not a study of occupational mobility, we show in Table 3.2 the distribution of change for each country, using a simple measure of upward and downward mobility (e.g. clerical to associate professional, elementary to semi-skilled, both count as upward). The form of analysis is different from before, where we wished to show the extent of change over a long period of time (across several waves). Here the measure is of change across pairs of waves (where, therefore, most individuals appear in the analysis more than once), which produces different figures for stability. Upward mobility is always greater than downward mobility, and indeed the latter is rather small. It is not therefore the case that occupational change is indicative of high levels of downward mobility. On the other hand, we are dealing here with very short timescales. Cumulatively, the numbers of people affected by downward mobility are far from insignificant at least in some countries such as the UK.

**Table 3.2a** Percentages of workers moving up, down, or staying the same occupationally across pairs of waves

	Germany	Denmark	Netherlands	Belgium	France	UK	Ireland
Down	1.7	1.9	2.3	1.4	0.6	3.6	1.9
Same	71.4	61.8	68.6	59.1	72.9	69.9	66.7
Up	26.9	36.3	29.1	39.4	26.5	26.6	31.4
Observations	48 046	21 483	39 312	18 354	33 932	40 290	25 157

**Table 3.2b** Percentages of workers moving up, down, or staying the same occupationally across pairs of waves

	Italy	Greece	Spain	Portugal	Austria	Finland
Down	1.1	0.6	1.8	1.7	1.0	0.9
Same	74.2	73.2	64.9	73.7	72.4	67.2
Up	24.8	26.2	33.2	24.5	26.6	31.8
Observations	52 572	36 490	45 511	47 953	23 293	23 512

The above figures probably show the *minimum* degree of stability. It is possible that some occupational changes are more apparent than real, for instance as a result of miscoding by survey staff or respondents describing their job slightly differently on different occasions. We can check this, however, because the data contain the start date of the current job. As every change of occupation must entail a job change we can eliminate those changes of occupation not accompanied by a change of job (though where people fail to recognise a promotion as a job change, the data occupation change might in fact be correct). Also, we fail to take into account moves in and out of employment, which clearly adds to the overall picture of change. When we do this, and again analyse change across pairs of waves, we get a picture of considerable general movement in some countries. To save space we do not tabulate these but rather give the most extreme examples. The UK has the least stability, with 69.4% not making any change across pairs of waves once possibly spurious occupational changes are eliminated. Thus, as many as 30% of the working-age population make some sort of change year on year. Of these, 13.5% change occupation. This is by the highest figure in Europe, compared to the next highest, of 8.5% in Denmark and just over 6% in the Netherlands and Spain.

### 3.1 Factors associated with national occupational flexibility

We have placed a great deal of emphasis on the measurement of what can perhaps be called ‘occupational flexibility’, arguing that this provides a good indicator of the overall state of occupational change, especially in a comparative context. The amount of occupational change varies enormously across countries. Now we discuss these changes in more detail through the use of multivariate analysis. We do this in two ways. First, we undertake analysis of the factors associated with change in occupations. Second, we look at upward and downward mobility. Our concern is to see how far this process of change is driven by negative factors such as job insecurity, low job satisfaction, or overqualification – factors which we indicated above tend to go together and which might therefore change together. What factors are associated with occupational changes? We compute a probit model of the probability of an occupational change, to understand who is more likely to change occupation. The dependent variable is one for those who change occupation group from one year to the other, and zero for those who stay in the same occupational group (including those who have no job change or sideways changes). We use a random effects model in order to control as far as possible for individual-level sources of variation which cannot be measured. Finally, we run these models for each country separately. While there is some advantage in pooling countries, at least if the hierarchical structure of the data is taken into account statistically, for instance through multi-level models, we prefer to show the structure of the data in each country. Our earlier results showed that the 14 European countries that we analyse are in some cases rather different. Even multilevel models, which explicitly account for groupings of individuals living in the same country, assume equality of the slopes of most of the explanatory variables. (As before, it is not possible to compute the overqualification variable for Germany and the UK, so these two countries drop out of the analysis.)

The results of these country by country analyses are shown in Table 3.3. In terms of demographics, the table suggests that women, married people, older people, and those with a lower education seem to be *less* likely to change occupation, as are people with no

supervisory tasks. Thus, occupational change is primarily associated with people in relatively advantaged positions who are still upwardly mobile. This partly confirms the previous analysis, though the table also indicates that people with higher wages have a lower probability of changing occupation. In the case of particular occupations, although there are large differences across countries, it seems that in general clerks, service and shop, craft and related workers have a lower probability of changing. On the other hand, technical workers and associate professionals, but also people working in elementary occupations have a higher probability. As for industrial sectors, the table shows a relatively low probability of an occupational change for those working in construction, transport, storage and communication, public administration and defence, health and social work. These sectors therefore seem relatively stable in terms of employee turnover.

In terms of our main focus of interest, those who are relatively satisfied with their job seem to be less likely to change occupation, while those who feel overqualified and those with a fixed-term or other non-permanent contract are *more* likely to change. Thus we again find instability caused by uncertain or negative aspects of work. Furthermore, even though occupational change varies enormously by country, a number of central factors have a fairly consistent association with occupational change whatever the country. Occupational change occurs for much the same reasons.

**Table 3.3** Who is more likely to change occupation? Random effects probit regression

Explanatory variables	Germany	Denmark	Netherlands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal	Austria	Finland
Age	-0.008	<b>-0.026*</b>	-0.004	-0.003	<b>-0.024#</b>	<b>-0.014#</b>	-0.015	-0.005	-0.004	-0.003	<b>-0.010#</b>	<b>0.020*</b>	<b>-0.018*</b>
Experience	0.003	-0.004	-0.004	-0.003	-0.002	-0.000	0.009	-0.003	-0.005	-0.003	0.004	<b>-0.022#</b>	0.008
Married	-0.054	<b>-0.115</b>	-0.016	-0.093	-0.031	-0.031	<b>-0.120*</b>	<b>-0.105#</b>	-0.063	<b>-0.139#</b>	<b>-0.094#</b>	-0.030	-0.020
Sex	-0.065	<b>-0.269#</b>	<b>-0.151#</b>	<b>-0.199#</b>	<b>-0.195#</b>	<b>-0.082*</b>	<b>-0.097</b>	<b>-0.206#</b>	-0.068	<b>-0.173#</b>	<b>-0.085*</b>	<b>-0.297#</b>	-0.062
Wages	<b>-0.000#</b>	<b>-0.000*</b>	<b>-0.000#</b>	-0.000	-0.000	<b>-0.000#</b>	<b>-0.000#</b>	<b>-0.000#</b>	<b>-0.000#</b>	<b>-0.000#</b>	<b>-0.000*</b>	<b>-0.000*</b>	<b>-0.000#</b>
Job satisf.		<b>-0.214#</b>	<b>-0.066#</b>	<b>-0.066#</b>	<b>-0.089#</b>	<b>-0.082#</b>	<b>-0.048#</b>	<b>-0.026*</b>	-0.007	<b>-0.040#</b>	<b>-0.040*</b>	<b>-0.050#</b>	<b>-0.055*</b>
Overqualif.		0.084	<b>0.124#</b>	0.045	<b>0.181#</b>		<b>0.106*</b>	0.006	-0.037	<b>0.087#</b>	<b>0.062*</b>	-0.001	<b>0.199#</b>
Some education	<b>-0.139#</b>	<b>-0.175*</b>	-0.042	0.040	-0.074	-0.049	-0.044	<b>-0.156#</b>	-0.107	-0.021	-0.087	<b>0.175</b>	<b>-0.117</b>
No education	0.008	<b>-0.195</b>	-0.025	0.012	-0.075	0.042	<b>-0.186*</b>	<b>-0.196#</b>	-0.097	<b>-0.091</b>	-0.124	<b>0.279*</b>	<b>-0.143</b>
Intermediate		-0.114	0.071	-0.090	-0.122	<b>0.119*</b>	-0.018	-0.097	0.107	<b>-0.219#</b>	-0.141	-0.063	<b>-0.262#</b>
Non-superv.		-0.112	<b>-0.228#</b>	<b>-0.426#</b>	<b>-0.135</b>	<b>-0.158#</b>	<b>-0.165*</b>	<b>-0.233#</b>	-0.014	<b>-0.325#</b>	<b>-0.251#</b>	-0.098	<b>-0.364#</b>
Fixed term	<b>0.340#</b>	<b>0.579#</b>	<b>0.406#</b>	-0.039	<b>0.529#</b>	<b>0.269#</b>	0.134	<b>0.355#</b>	0.109	<b>0.063</b>	<b>0.221#</b>	0.128	<b>0.340#</b>
Casual work	<b>0.399#</b>	<b>0.398#</b>	0.229	-0.024		<b>0.427#</b>	<b>0.148</b>	<b>0.220*</b>	-0.027	<b>0.234#</b>	<b>0.212#</b>	0.183	-0.009
Other arr.		<b>0.743#</b>	0.042	<b>0.514#</b>			0.142	0.092	0.210	<b>0.150</b>	<b>0.152*</b>	-0.073	0.124
<i>Occupations</i>													
Professionals	<b>-0.596#</b>	-0.244	<b>0.153#</b>	0.030	-0.133	<b>0.092</b>	<b>-0.609#</b>	<b>-0.657#</b>	<b>-0.446#</b>	<b>-0.339#</b>	<b>-0.749#</b>	<b>0.493#</b>	-0.130
Tech., assoc.	<b>-0.373#</b>	-0.064	<b>0.147#</b>	<b>0.439#</b>	0.076	<b>0.291#</b>	<b>0.241*</b>	-0.031	-0.016	<b>0.344#</b>	-0.203	<b>0.171</b>	0.067
Clerks	<b>-0.360#</b>	-0.096	<b>0.202#</b>	-0.191	0.086	-0.004	<b>-0.201*</b>	<b>-0.589#</b>	<b>-0.455#</b>	<b>0.172</b>	<b>-0.541#</b>	<b>-0.158</b>	0.154
Service, shop	<b>-0.437#</b>	0.118	0.084	0.227	0.121	-0.020	<b>-0.238*</b>	<b>-0.209</b>	<b>-0.438#</b>	<b>-0.283#</b>	<b>-0.374#</b>	0.087	0.049
Skilled ag.	<b>-0.604#</b>	-0.163	-0.167	0.356	0.429	0.254	<b>0.630#</b>	0.122	-0.045	<b>0.380*</b>	<b>-0.789#</b>	0.106	0.074
Craft etc.	<b>-0.743#</b>	-0.161	<b>-0.288#</b>	-0.001	-0.164	-0.059	<b>-0.275*</b>	<b>-0.278*</b>	<b>-0.506#</b>	<b>-0.400#</b>	<b>-0.911#</b>	<b>-0.353#</b>	-0.078
Assemblers	<b>-0.464#</b>	0.056	-0.078	<b>0.321*</b>	0.094	0.003	<b>-0.283*</b>	-0.034	<b>-0.503#</b>	-0.149	<b>-0.711#</b>	<b>-0.221*</b>	0.023
Elemen. occ.	<b>-0.189*</b>	<b>0.382*</b>	<b>0.243#</b>	<b>0.376#</b>	<b>0.358*</b>	<b>0.452#</b>	<b>0.375#</b>	<b>0.193*</b>	-0.235	<b>0.170*</b>	<b>-0.538#</b>	<b>0.238*</b>	0.221

**Table 3.3** Who is more likely to change occupation? Random effects probit regression. Continued

Explanatory variables:	Germany	Denmark	Netherlands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal	Austria	Finland
<i>Sectors</i>													
Mining <i>etc.</i>	<b>-0.437*</b>	<b>-0.703</b>	-0.335	<b>0.741</b>	0.170	<b>-0.363</b>	<b>0.512*</b>	0.084	-0.282	<b>0.323*</b>	<b>-0.441#</b>	0.195	<b>0.423*</b>
Man. food	<b>-0.421*</b>	-0.092	0.139	0.096	0.220	0.060	<b>0.519#</b>	<b>0.265*</b>	-0.246	<b>0.279*</b>	-0.022	0.312	0.047
Man. textiles	-0.204	0.265	0.209	0.620	0.251	-0.072	<b>0.561#</b>	<b>0.226</b>	<b>-0.432</b>	<b>0.381#</b>	0.066	0.150	0.097
Man. paper	<b>-0.510#</b>	-0.208	-0.049	0.343	0.126	-0.097	0.300	<b>0.232</b>	-0.309	0.170	0.034	0.140	0.111
Man. coke	<b>-0.429#</b>	-0.342	0.053	0.335	0.314	-0.081	0.247	<b>0.336#</b>	<b>-0.449</b>	0.145	0.049	0.335	0.122
Man. metal	<b>-0.410#</b>	-0.207	0.129	0.445	0.113	-0.250	<b>0.503#</b>	0.111	-0.058	<b>0.260*</b>	<b>-0.233</b>	0.172	-0.120
Other man.	-0.129	0.196	0.068	0.465	0.152	-0.113	<b>0.563#</b>	<b>0.216</b>	-0.065	<b>0.278#</b>	0.054	-0.021	<b>0.351</b>
Construction	<b>-0.574#</b>	-0.125	<b>-0.355*</b>	0.167	0.134	<b>-0.521#</b>	-0.047	0.167	<b>-0.543*</b>	-0.105	<b>-0.346#</b>	-0.059	-0.147
Wholesale	-0.225	-0.058	-0.069	0.374	0.130	-0.162	0.228	0.080	<b>-0.459*</b>	-0.026	<b>-0.203*</b>	-0.047	-0.060
Hotels, <i>etc.</i>	-0.130	0.078	-0.082	0.095	0.176	-0.214	0.264	<b>0.307*</b>	-0.386	<b>-0.317#</b>	<b>-0.694#</b>	-0.057	0.165
Transport <i>etc.</i>	<b>-0.428#</b>	-0.172	<b>-0.307</b>	0.571	0.055	<b>-0.445*</b>	0.188	0.051	<b>-0.483*</b>	<b>-0.312#</b>	<b>-0.228*</b>	0.020	-0.107
Financial int.	<b>-0.856#</b>	-0.137	-0.037	0.384	-0.139	<b>-0.354</b>	<b>0.472#</b>	-0.126	<b>-0.661#</b>	0.147	<b>-0.398#</b>	0.007	-0.026
Real estate	<b>-0.425#</b>	-0.009	-0.022	0.146	0.232	-0.152	<b>0.432#</b>	<b>0.300*</b>	<b>-0.522*</b>	<b>-0.184</b>	-0.173	0.052	0.111
Public ad.	<b>-0.496#</b>	-0.298	-0.180	0.329	-0.001	-0.196	0.037	0.010	<b>-0.564*</b>	<b>-0.186</b>	<b>-0.229*</b>	0.134	-0.085
Education	<b>-1.098#</b>	-0.130	<b>-0.864#</b>	-0.118	-0.094	<b>-0.607#</b>	-0.077	0.003	<b>-1.351#</b>	<b>-0.688#</b>	<b>-0.472#</b>	-0.267	-0.321
Health <i>etc.</i>	<b>-1.004#</b>	-0.313	<b>-0.330*</b>	0.113	-0.045	<b>-0.509#</b>	0.151	-0.046	<b>-0.744#</b>	<b>-0.254*</b>	-0.057	0.121	-0.304
Social serv.	<b>-0.457#</b>	-0.238	-0.168	0.582	-0.008	-0.254	0.272	-0.024	<b>-0.520*</b>	<b>-0.319#</b>	<b>-0.311#</b>	0.102	-0.076
Max. lik.	-7 501	-1 656	-8 577	-2 685	-2 264	-10 067	-3 770	-6 209	-2 175	-9 126	-8 198	-5 004	-2 603
Observations	23 163	7 720	18 126	5 790	16 464	20 505	8 584	22 472	11 336	18 799	20 411	12 836	9 071

Significant at 10%, \* Significant at 5%, # Significant at 1%; other explanatory variables: dummies for year. Reference category for occupations: Legislators, senior officers and managers; reference category for sector: Agriculture, hunting and forestry and fishing.

We can summarise these results in terms of the main factors associated with instability. The core contributory factors would seem to be those which describe (from the respondents' point of view) unsatisfactory or uncertain work: being in a fixed-term contract, in casual work, or overqualified, or having relatively low job satisfaction. These are more important and consistent in their effects than demographic factors or either the occupation or the industry in which the respondent works. This confirms the results of our earlier tables, where we showed that these factors tend to go together. The outcome suggests that occupational fluidity has a great deal to do with people seeking a job that suits them and in which they feel secure. In the process, however, they increase the rate of occupational flexibility.

In this sense the latter is an indirect measure of a more deep-lying instability. It applies whether the actual change involves upward, downward, or sideways mobility. As we have seen, in fact most of this appears to be upward mobility. Is this as simple as it seems? In Table 3.4 we focus on this direction of change (compared to all others who move either down, sideways, or who do not move at all) using a random effects probit model. We then do the same for downward moves. We find that it is best to view these tables together as, surprisingly perhaps, the factors that drive upward mobility also drive the reverse.

We focus in this discussion only on our four variables of interest – job satisfaction, overqualification, fixed-term work, and casual work. All the coefficients in the case of job satisfaction are negative in respect of upward mobility while eight of the twelve coefficients are negative for downward mobility (though these are not always statistically significant in either table). Thus, high job satisfaction is negatively associated with a move either up or down (though more consistently so in the latter). Those with high job satisfaction tend to stay in the same occupation, those with low satisfaction to move to higher status jobs, though some also move down. We find the same polarisation in the case of overqualification. This is strongly associated with upward mobility in most countries, so that many people in fact move into better, more demanding jobs where they are no longer overqualified; but in several countries some of the overqualified move downwards, thereby presumably becoming even more overqualified. It seems therefore that overqualified describes for some people a process of continuing job failure. The results for fixed-term work and for casual work show the same sort of division. Some people in such work move up, some down.

This leads to three basic conclusions. First, the system has a tendency to 'clear'. Most people become matched to better jobs over time. Second, while most occupational changes consist of upward mobility, this it seems is often from a low start: that is, many people are in insecure jobs where they are overqualified and have low job satisfaction; most tend to work their way out of this situation during their careers. Third, some do not, and for these people things can get even worse over time. Finally it is worth pointing out that we observe no clear country patterns to these effects. For instance, in respect of insecure work the results for Germany, Italy, the UK, Ireland, the Netherlands and Portugal are all similar.

**Table 3.4** Who is more likely to move upward? Random effects probit regression

Explanatory variables	Germany	Denmark	Netherlands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal	Austria	Finland
Age	<b>-0.004*</b>	<b>-0.023#</b>	<b>-0.008#</b>	0.001	<b>-0.024#</b>	<b>-0.010#</b>	-0.001	<b>-0.006#</b>	-0.003	<b>-0.003*</b>	<b>-0.002</b>	-0.001	0.078
Married	-0.041	-0.086	-0.018	-0.058	0.012	<b>-0.067*</b>	<b>-0.167#</b>	<b>-0.076*</b>	-0.072	<b>-0.091#</b>	<b>-0.057</b>	-0.027	-0.081
Sex	0.030	-0.097	-0.022	<b>-0.169#</b>	<b>-0.096</b>	0.009	<b>0.089*</b>	<b>-0.149#</b>	0.072	-0.004	<b>-0.059</b>	<b>-0.151#</b>	<b>0.138*</b>
Job satisf.		<b>-0.181#</b>	-0.025	<b>-0.052#</b>	<b>-0.092#</b>	<b>-0.034#</b>	<b>-0.038*</b>	-0.013	-0.031	<b>-0.043#</b>	-0.011	<b>-0.035</b>	-0.026
Overqualif.		<b>0.360#</b>	<b>0.100#</b>	0.043	<b>0.259#</b>		<b>0.121#</b>	-0.007	-0.066	<b>0.089#</b>	<b>0.089#</b>	0.053	<b>0.212#</b>
Some educ.	-0.041	<b>-0.130</b>	<b>0.185#</b>	-0.066	0.065	0.003	0.037	0.018	-0.083	0.026	0.054	-0.045	<b>0.144*</b>
No educat.	-0.014	-0.123	<b>0.231#</b>	0.007	-0.001	0.027	-0.049	-0.028	-0.128	<b>-0.094#</b>	<b>-0.112*</b>	0.040	<b>0.131</b>
Fixed term	<b>0.222#</b>	<b>0.448#</b>	<b>0.248#</b>	0.080	<b>0.424#</b>	<b>0.116</b>	<b>0.159</b>	<b>0.396#</b>	0.155	<b>0.089#</b>	<b>0.145#</b>	0.046	<b>0.239#</b>
Casual work	0.185	<b>0.443#</b>	0.190	-0.061		<b>0.279#</b>	<b>0.141</b>	<b>0.308#</b>	-0.080	0.089	<b>0.310#</b>	0.086	-0.060
Other arr.		<b>0.900#</b>	<b>0.104</b>	<b>0.347</b>			0.115	<b>0.179</b>	0.205	-0.059	-0.008	-0.043	-0.011
<i>Sectors</i>													
Mining etc.	-0.232	-0.246	-0.264	0.662	<b>0.733</b>	-0.186	-0.113	-0.145	-0.157	-0.032	-0.218	0.312	0.194
Man. food	<b>-0.260</b>	0.235	0.087	0.318	<b>0.746</b>	-0.063	-0.045	-0.124	-0.005	<b>-0.165</b>	-0.038	0.281	-0.159
Man. textiles	-0.126	0.579	-0.072	0.506	<b>0.977*</b>	0.010	-0.105	-0.046	-0.289	-0.088	0.037	0.170	-0.544
Man. paper	<b>-0.278</b>	0.088	0.065	0.593	<b>0.797</b>	-0.020	-0.242	0.009	-0.268	-0.127	0.003	0.112	-0.030
Man. coke	-0.151	-0.477	0.181	0.466	<b>0.835*</b>	-0.148	<b>-0.360*</b>	0.011	-0.232	<b>-0.164</b>	-0.009	<b>0.546#</b>	0.051
Man. metal	<b>-0.237*</b>	-0.270	0.085	<b>0.655</b>	0.615	-0.178	-0.036	<b>-0.207*</b>	0.062	-0.078	-0.157	0.250	-0.183
Other man.	-0.066	0.346	0.048	0.496	<b>0.760</b>	-0.079	0.044	-0.098	-0.345	-0.057	-0.024	0.058	0.161
Construction	<b>-0.451#</b>	0.018	-0.188	0.349	<b>0.665</b>	<b>-0.351*</b>	<b>-0.316*</b>	<b>-0.168</b>	<b>-0.403</b>	<b>-0.263#</b>	<b>-0.124</b>	0.040	-0.179
Wholesale	-0.120	0.120	0.026	0.459	0.605	-0.232	<b>-0.349#</b>	<b>-0.226*</b>	-0.300	<b>-0.302#</b>	<b>-0.147*</b>	0.051	-0.062
Hotels, etc.	-0.248	0.270	0.178	0.303	<b>0.746</b>	-0.161	-0.114	<b>-0.247*</b>	-0.374	<b>-0.570#</b>	<b>-0.539#</b>	0.060	0.274
Transport etc.	-0.163	0.180	-0.086	0.540	<b>0.857*</b>	<b>-0.261</b>	-0.108	<b>-0.219*</b>	-0.246	<b>-0.268#</b>	-0.068	0.115	-0.110
Financial int.	<b>-0.415#</b>	-0.122	0.130	0.325	0.598	-0.183	0.054	<b>-0.461#</b>	<b>-0.550*</b>	0.076	-0.110	0.095	-0.039
Real estate	<b>-0.214</b>	0.063	0.137	0.402	<b>0.876*</b>	-0.119	-0.008	-0.156	-0.171	<b>-0.182*</b>	-0.085	0.221	-0.001
Public ad.	<b>-0.191</b>	0.056	0.078	0.420	0.590	-0.088	<b>-0.315*</b>	<b>-0.251#</b>	-0.324	<b>-0.153</b>	-0.004	<b>0.348</b>	-0.113
Education	<b>-0.661#</b>	-0.215	<b>-0.604#</b>	0.069	0.578	<b>-0.534#</b>	<b>-0.894#</b>	-0.052	<b>-1.220#</b>	<b>-0.852#</b>	<b>-0.305#</b>	0.224	<b>-0.591#</b>
Health etc.	<b>-0.547#</b>	-0.031	-0.033	0.310	0.591	<b>-0.273</b>	<b>-0.418#</b>	<b>-0.181</b>	<b>-0.417</b>	<b>-0.455#</b>	<b>0.175*</b>	<b>0.355</b>	<b>-0.333</b>
Social serv.	-0.210	0.125	0.006	<b>0.691</b>	0.521	-0.246	-0.209	<b>-0.197*</b>	-0.149	<b>-0.258#</b>	<b>-0.261#</b>	0.253	-0.183
Max. lik.	-4 815	-976	-5 540	-1 858	-1 385	-6 479	-2 516	-3 959	-1 199	-6 293	-4 820	-3 036	-1 526
Observations	23 163	7 731	18 128	5 815	16 474	20 518	8 647	22 534	11 336	18 805	20 435	12 869	9 078

Significant at 10%, \* Significant at 5%, # Significant at 1%; Other explanatory variables: dummies for year. Reference category for occupations: legislators, senior officers and managers; Reference category for sector: Agriculture, hunting and forestry and fishing.

**Table 3.5** Who is more likely to move downward? Random effects probit regression

Explanatory variables	Germany	Denmark	Netherlands	Belgium	France	UK	Ireland	Italy	Greece	Spain	Portugal	Austria	Finland
Age	-0.000	<b>-0.024#</b>	<b>-0.003</b>	-0.002	<b>-0.017#</b>	<b>-0.006#</b>	<b>-0.005*</b>	<b>-0.005*</b>	-0.005	-0.001	<b>-0.002</b>	0.001	-0.002
Married	0.015	-0.047	-0.013	<b>-0.109*</b>	-0.051	-0.022	-0.012	<b>-0.099*</b>	-0.007	<b>-0.056</b>	-0.010	0.003	-0.064
Sex	<b>0.076*</b>	<b>-0.161*</b>	-0.012	<b>-0.178#</b>	-0.032	<b>-0.073*</b>	<b>-0.085</b>	<b>-0.179#</b>	-0.054	<b>-0.060</b>	0.009	<b>-0.125#</b>	-0.046
Job satisf.		<b>-0.137#</b>	<b>-0.051#</b>	-0.009	-0.049	<b>-0.022*</b>	0.000	<b>-0.038#</b>	-0.015	0.006	0.008	0.019	-0.034
Overqualif.		<b>-0.144*</b>	0.026	-0.013	-0.049		0.003	0.027	-0.053	<b>0.064*</b>	0.026	-0.031	<b>0.109</b>
Some educat.	<b>-0.075</b>	-0.027	-0.045	-0.049	-0.066	0.011	0.055	<b>-0.100</b>	<b>-0.218#</b>	0.031	<b>0.103</b>	-0.082	0.063
No education	0.014	-0.143	<b>-0.145#</b>	-0.082	0.046	<b>0.090#</b>	-0.022	-0.021	<b>-0.213*</b>	<b>-0.149#</b>	0.013	-0.094	0.074
Fixed term	<b>0.280#</b>	<b>0.434#</b>	<b>0.151</b>	0.040	<b>0.534#</b>	<b>0.160*</b>	0.079	<b>0.279#</b>	0.137	-0.043	<b>0.159#</b>	0.091	<b>0.373#</b>
Casual work	0.062	<b>0.353*</b>	0.274	0.235		<b>0.234*</b>	0.046	<b>0.265#</b>	0.051	0.074	<b>0.174*</b>	0.434	-0.093
Other arr.		<b>0.589</b>	0.002	0.190			0.128	0.172	0.138	<b>0.175*</b>	<b>0.202#</b>	0.078	0.343
<i>Sectors</i>													
Mining etc.	<b>-0.279</b>	-5.934	0.058	0.403	-0.281	<b>-0.323</b>	0.063	0.000	<b>-0.466</b>	-0.020	<b>-0.451#</b>	0.081	0.297
Man. food	<b>-0.293</b>	<b>-0.599*</b>	0.071	-0.116	<b>-0.695*</b>	<b>-0.344*</b>	-0.017	0.134	<b>-0.458</b>	-0.042	-0.042	-0.052	-0.187
Man. textiles	-0.252	-0.066	0.290	0.282	<b>-0.608</b>	<b>-0.308</b>	0.204	0.070	<b>-0.483*</b>	-0.014	-0.040	0.259	0.313
Man. paper	<b>-0.260</b>	<b>-0.682</b>	0.049	-0.150	<b>-0.605*</b>	-0.209	0.035	0.007	-0.285	-0.166	-0.004	-0.045	-0.067
Man. coke	<b>-0.281*</b>	-0.420	0.092	0.056	-0.306	<b>-0.319*</b>	0.009	<b>0.289*</b>	<b>-0.477</b>	<b>-0.281#</b>	0.023	-0.030	-0.119
Man. metal	-0.169	-0.247	0.005	0.034	<b>-0.720#</b>	<b>-0.332*</b>	0.176	0.143	-0.228	-0.087	-0.041	0.126	-0.104
Other man.	-0.044	-0.014	0.067	0.139	<b>-0.538*</b>	-0.222	0.126	0.144	-0.027	<b>-0.202*</b>	0.082	-0.038	0.105
Construction	<b>-0.261*</b>	<b>-0.355</b>	<b>-0.230</b>	0.108	<b>-0.648#</b>	<b>-0.447#</b>	-0.224	0.045	<b>-0.439*</b>	<b>-0.287#</b>	<b>-0.250#</b>	-0.110	-0.124
Wholesale	-0.104	-0.321	-0.053	0.099	<b>-0.529#</b>	<b>-0.326*</b>	0.069	<b>-0.177</b>	<b>-0.512*</b>	<b>-0.317#</b>	-0.137*	-0.103	-0.045
Hotels, etc.	0.107	0.033	-0.051	-0.056	<b>-0.555*</b>	<b>-0.291*</b>	0.113	0.107	-0.323	<b>-0.369#</b>	<b>-0.257#</b>	-0.093	-0.137
Transport etc.	<b>-0.253</b>	<b>-0.632*</b>	<b>-0.278*</b>	0.105	<b>-0.786#</b>	<b>-0.508#</b>	-0.164	-0.123	<b>-0.556*</b>	<b>-0.504#</b>	<b>-0.190*</b>	-0.091	-0.279
Financial int.	<b>-0.497#</b>	-0.230	0.108	0.182	-5.694	<b>-0.336*</b>	<b>0.343*</b>	-0.100	-0.324	-0.090	0.035	-0.009	-0.053
Real estate	-0.106	-0.246	0.149	0.003	<b>-0.505*</b>	-0.245	0.111	<b>0.230*</b>	<b>-0.451</b>	<b>-0.178*</b>	0.140	0.162	0.007
Public ad.	<b>-0.256*</b>	<b>-0.368</b>	0.024	0.143	<b>-0.581#</b>	-0.234	0.059	<b>-0.214*</b>	<b>-0.452*</b>	<b>-0.331#</b>	-0.024	0.113	-0.017
Education	<b>-0.902#</b>	-0.130	<b>-0.473#</b>	0.015	<b>-0.638#</b>	<b>-0.511#</b>	<b>-0.329</b>	<b>-0.330#</b>	<b>-1.211#</b>	<b>-0.732#</b>	-0.030	0.006	<b>-0.380</b>
Health etc.	<b>-0.534#</b>	<b>-0.366</b>	-0.083	0.259	<b>-0.661#</b>	<b>-0.294</b>	0.056	0.077	<b>-0.531*</b>	<b>-0.382#</b>	0.116	<b>0.291*</b>	-0.218
Social serv.	-0.218	<b>-0.433*</b>	0.026	0.097	<b>-0.621#</b>	<b>-0.297</b>	0.198	-0.097	<b>-0.411</b>	<b>-0.397#</b>	<b>0.174*</b>	-0.001	-0.011
Max. lik.	-4 280	-773	-5 191	-1 798	-761	-5 839	-2 106	-3 549	-1 160	-5 774	-4 869	-2 976	-1 165
Observations	23 163	7 731	18 128	5 815	16 474	20 518	8 647	22 534	11 336	18 805	20 435	12 869	9 078

Significant at 10%, \* Significant at 5%, # Significant at 1%; Other explanatory variables: dummies for year. Reference category for occupations: legislators, senior officers and managers; Reference category for sector: agriculture, hunting and forestry and fishing.

### 3.2 Mobility of IT workers

The theme of our argument so far is that it is difficult to view occupational change in recent years simply as a reflection of technologically biased social upgrading which gives people new opportunities to both use and be rewarded for their talents and education. This is partly because there is so much movement across occupations and industries, which we assume limits the accumulation of skills in at least some cases, partly because some of this is socially downward (though only a small proportion), and partly because the factors that drive people to change occupations include indicators which imply escape from bad jobs (rather than from *any* job to a better job). Some evidence for this is supplied by the association we observe between this occupational movement on the one hand and overqualification, low job satisfaction, and insecure employment on the other. To test this further we focus now on a specific occupational group, IT workers, whom we would expect to face high demand for their technical skills. Do we see the same sort of associations in their case?

It has often been argued that specialist IT work is a type of occupation where skills are highly in demand. Job moves for IT workers are therefore a good means of career progression, with the result that commitment to organisations, which are often not in the IT industry (e.g. work as a software manager for a supermarket chain), is relatively low. Those with the right skills can exploit the overall market shortage and shop round for jobs, leading to above-average intra-organisational mobility. Such ‘boundaryless’ careers could even suggest a possible basis for managerial control, if IT specialists were able to form a cadre or elite source of skills. However, this ‘ascendancy theory’ as it has sometimes been called, has been found to be unrealistic because the very mobility of IT workers militates against their forming a stable core. At the same time, people in IT occupations might find their progress constrained through the pace of innovation itself, which inhibits stable or easily agreed assessments of the value of their work or skills (King et al., 2005; Rose 2002). It has also been argued that the technologies associated with some new skills are subject to rapid obsolescence either directly, or indirectly through replacement by more cost-effective technologies or uses of technology (McMurtrey et al., 2002).

These critiques suggest that the view of IT workers as some sort of dominant group, achieving this dominance through their technical skills, falls down partly because as soon as IT workers extend their skills outside the IT profession they are no longer part of that profession. Their mobility, if they truly are as mobile as suggested, is a weakness. It is therefore important to test the true extent of mobility in and out of the occupation. Table 3.6 shows the proportion of moves in and out of IT. The data are based on the BHPS and GSOEP, both of which form part of the ECHP but which provide more detailed occupational data in the original surveys (three rather than two digit ISCO – necessary to identify IT).

**Table 3.6** Percentage of stayers, movers and leavers in selected professions over pairs of waves (GSOEP and BHPS)

	IT	Accountancy	Personnel	Engineering
<i>GSOEP</i>				
Stayers	57.7	45.2	68.3	63.3
Leavers	19.1	29.2	14.6	18.0
Joiners	23.2	25.7	17.1	18.7
<i>Observations</i>	2 740	1 403	414	7 438
<i>BHPS</i>				
Stayers	47.3	55.9	33.5	38.1
Leavers	25.4	27.8	32.8	30.5
Joiners	27.3	26.3	33.7	31.3
<i>Observations</i>	1 535	2 043	535	1 976

The table measures change as transitions across pairs of years and shows the proportion of people staying in, or moving in or out of IT work, in comparison with three other (arbitrarily chosen) professions, in both countries. (The figures are in fact based on pooled pairs of waves, and so the observations are person-waves rather than individuals. In other words, people can and do appear more than once over time.) For the moment the analysis ignores different types or levels of IT work, and it also does not reveal whether people move from or into unemployment rather than from or into other work. The concern is to test the relative degree of flux in IT.

Is IT special? In fact, all four professions show a great deal of turnover, and are therefore, in terms of membership, fairly unstable over time, and IT is not exactly a classic 'revolving door' occupation. In Germany it is less stable than either personnel or engineering, but more so than accountancy. In Britain it is, if only by a slight margin, the most stable profession. Thus, rather than witnessing the dispersion of IT expertise in the labour market through occupational migration, IT is if anything almost a ghetto. It is difficult to see to what extent the occupation could be a basis for 'ascendancy' given the volatility that we observe, but at the same time we cannot view this, relatively speaking, as a boundaryless occupation. Finally, although IT reveals greater flux in both countries, it is far greater in Britain. Institutional and cultural factors would also appear to play a role.

The term profession rather than occupation has been used in respect of the last table because these groups contain several different types of job, and profession, although an inadequate label, is a looser description. In the case of IT, with ISCO 88 this group includes IT department managers (ISCO code 1236), designers, analysts and programmers (2131/2 and 9), and technical or associate professional (3120-2). In Table 3.7a we now show flows between these categories and in or out of any IT job, using GSOEP data.

**Table 3.7a** Percentage flows into IT occupations and from outside IT across pairs of years (GSOEP)

Year 1	Year 2	Managers	Analysts	Technical
Non-IT		19.8	30.4	28.5
Managers		62.3	0.6	0.8
Analysts		12.8	61.3	4.0
Technical		5.1	7.7	66.8
Observations		144	951	1 132

The table shows the origins of each occupational category in the IT profession from one year to the next, including the proportion drawn from outside the profession altogether. Each column therefore shows what sort of job in any year workers in a particular type of job were doing in the previous year (though 'non-IT' includes not working). Taking managers as an example, 62.3% were managers the previous year, which means that over one third were not. Of the new entrants, slightly more managers are brought in from outside IT rather than promoted from the other IT categories, while for analysts the route is overwhelmingly external. In IT, recruitment from other types of work is the rule. Here the revolving door is more apparent.

Table 3.7b shows the same analysis for the BHPS. For a start we can see that the BHPS contains far more IT managers than the GSOEP, amounting to as much as 25% of all IT workers compared to 7% in the case of Germany. This difference is likely to reflect a higher propensity of people in Britain to describe their job as managerial than in other countries. On the other hand, the data show that a higher proportion of IT workers has a degree than in Germany, so this could be a realistic self-assessment. Whatever the problems of comparing countries on the basis of such self-reports, it is clear that this is likely to be consistent over time, and over time we can see that there is a much higher recruitment from outside than in the case of Germany. It would appear, therefore, that in Britain it is much more likely that new skills in IT are bought 'off the shelf'. Far from being a dominant profession, IT is characterised by considerable churn.

**Table 3.7b** Percentage flows into IT occupations and from outside IT across pairs of years (BHPS)

Year 1	Year 2	Managers	Analysts	Technical
Non-IT		35.9	30.9	57.1
Managers		50.9	4.3	1.9
Analysts		12.5	63.8	1.4
Technical		0.7	1.0	39.6
Observations		286	661	195

We have looked at entry into in descriptive terms. Now we seek to model the factors associated with entry into IT occupations (unfortunately, as a result of small numbers, disre-

garding the different occupational levels shown in Table 3.7). To do this, we again contrast outcomes with those for some other professional occupations as in Table 3.6. We undertake the analysis using event history modelling. This allows us to control for the variable time people in the sample are 'at risk' of entering the occupation. That is, people enter the occupation at different times in the sampling period. We of course, at least with these data, know nothing about previous occupational transitions or how long those entering these occupations were in other jobs, unemployed, and so on. This period of time is 'left censored'.

The purpose of the analysis is not only to compare the factors which are associated with the probability of entering one of these four types of job in general terms but specifically to compare the role of overqualification, which we have found above to be important in encouraging people to change occupations. Now we wish to see whether *entry* into IT jobs is associated with overqualification. Broadly speaking, if demand for technical skills is such that supply has difficulty keeping up, as is often assumed, then we would expect a tendency towards *underqualification*, as those with the necessary aptitudes but not the qualifications are absorbed and subsequently trained to the right level. If there is no problem in supply, and perhaps even excess, then we would expect some overqualification. Unfortunately, although we can compare IT to other professions in each country we cannot directly compare the two countries, as the BHPS in fact carries no specific measure of overqualification. For this reason, we use what is called the 'empirical' method to calculate the variable in the British analysis. This requires calculating the average education of people in that job (in the sample). People who are overqualified are those who have above this average. We define average in fact as 'typical' or modal. It is important to note that this applies to a type of job, not to a work organisation. We cannot tell whether the person is working with people generally of a higher or lower level of education. Further, given that a common qualification of those in these occupations is a degree, overqualification measured in this sort of way is in fact impossible where this is the case. We therefore analyse *underqualification*, that is, cases where people have below the average for the job. We should also point out that as the BHPS is much smaller than dedicated labour force surveys, the average might carry some measurement error, though the sorts of educational distributions we actually observe in the sample are unsurprising.

Of course, those about to enter a specific occupation can only be over or underqualified for this job when they arrive there. In modelling these transitions into the job we are therefore in a sense examining the role of *future* over or underqualification. Where, for instance, we find that the probability of entry is higher for the overqualified than for the underqualified and suitably matched then it is possible to suggest that the occupation attracts overqualified people. That is, there is a route into the profession for those who have higher qualifications than is typical in the job. In the case of the BHPS the relative nature of the construction of the variable makes for a particularly interesting interpretation, though more tenuous. If a specific type of job attracts people who are underqualified, this implies some imbalance in skill relationships such as deskilling. If people currently in a job have more qualifications than new entrants, then this suggests that this type of job is being deskilled. Presumably new entrants are required to learn on the job rather than have a traditionally expected qualification. It is also of note that such imbalances cannot be corrected over a career when people get promoted, as promotion would only increase the extent of underqualification. However, a deskilled job is not the same thing as a

deskilled worker. The person who is underqualified may well feel a great benefit in doing work of a higher educational status.

We begin with the more easily interpreted German results. These are shown in Table 3.8a. A coefficient of one means there is no effect. Over one indicates a positive effect (the probability of it occurring is greater than of it not occurring), while under one shows a negative effect. No model is provided for entry into personnel as numbers were too small (so, for comparative reasons, this group is left out of the BHPS analysis too). The models are very limited, including only one occupational indicator, workplace size (as we cannot assume that entry into an occupation depends on knowledge of the type of place where the person will be working, though in two models there is a tendency to enter larger organisations). However, standard demographic measures are included, and of most interest is that while entry into IT and engineering is mostly male (as would be expected), entry into accountancy is mostly female. Also of note is that entry into all three professions is, despite the variety of jobs described (including equipment operators in the case of IT), decidedly graduate. This makes the over and underqualification results especially interesting. New entrants into IT are likely to be overqualified and unlikely to be underqualified. The same applies to accountancy. However, new engineers are likely to be neither – they will be matched to the job they do. Overall, therefore, it would appear that engineering requires graduates who also do graduate work, but IT and accountancy require graduates some of whom might not do graduate work.

**Table 3.8a** Event history models of entry into three occupations, proportional hazard models (GSOEP)

	IT	Accountancy	Engineering
Age	0.97***	0.99	0.97***
Male	3.04(*)	0.42***	3.15***
Married	0.74*	1.05	1.05
Has degree	2.62***	1.45*	3.12***
Workplace size	1.18***	0.95	1.20***
Overqualified	1.82***	1.43	0.57***
Underqualified	0.28**	0.27**	0.32***
Events	342	196	536

\*\*\*  $p < 0.001$  \*\*  $p < 0.01$  \*  $p < 0.05$  (\*)  $p < 0.1$ .

Precisely as in the German case, the British results show a predominantly male entry into IT and engineering but female into accountancy which also, as in Germany, is the least graduate, and in fact in Britain is not primarily graduate. Workplace size also has the same general relationship with entry (though the actual figures cannot be compared because the scales for the German and British variables are different). Finally, when we look at underqualification, accountancy is again the odd one out in Britain, showing a reduced tendency to entry without average qualifications, while in the other two professions, especially in engineering, underqualified entry is common. However, as already indicated, these figures cannot be compared to Germany as the basis for the calculation of the variable is entirely different, while in addition, the baseline in the German analysis is matched individuals while in the BHPS the baseline includes both matched and overqualified peo-

ple. Finally, the relationship between actual and average qualifications is constrained by the way that underqualification is calculated, so that we cannot be sure how independent these effects might be. Nevertheless, it seems reasonable to infer that even while new entrants into both IT and engineering are likely to be graduates some will be underqualified. The implication is a fairly skewed or polarised entry.

These results suggest that entry into IT works very differently in the two countries. In Germany there is an emphasis on having too much education, perhaps to ensure entry in the first place but also an adequate job. Entry into IT in Britain seems less formal, less credentialed. This seems to fit in with the greater fluidity found in the earlier tables in and out of IT in Britain compared to Germany. Institutional differences do seem to play a role. Technology is not primary.

**Table 3.8b** Event history models of entry into three occupations, proportional hazard models (BHPS)

	IT	Accountancy	Engineering
Age	0.96***	0.97***	0.98***
Male	1.15(*)	0.35***	2.70***
Married	0.61*	0.57*	0.77
Has degree	1.70***	0.48***	4.11***
Workplace size	1.01	0.89**	1.10***
Underqualified	3.73***	0.54***	29.78***
Events	360	439	540

\*\*\* p < 0.001 \*\* p < 0.01 \* p < 0.05 (\*) p < 0.1.



## 4 Conclusions

In the introduction to the WP9 report we considered the significance of fairly traditional ways of looking at work flexibility and also at the knowledge value of work, finding in the literature some but nevertheless limited support for the idea that employment generally has become less secure. There is no clear trend in this direction. However, it is difficult to separate trends from cycles, and job security depends primarily on a buoyant economy, which broadly describes much of the period reviewed here. Further there are some slight indications of greater flexibility at work, above all in terms of job intensification.

We also cannot, on the basis of a review of the literature, see any clear national groupings in whatever changes are occurring. Rather, each country seems to have its own trajectory, and this might also have different dimensions which are not nationally consistent. The area where we can least usefully try to impose some sort of international structure on outcomes is in the production and use of skills. These seem nationally highly specific.

Empirically we have sought to go beyond the limitations which previous analysis has come up against in discussion of work flexibility and the value of work through two broadly related methods. First, we have looked at skills in terms of the degree of fit with a job. We find that this varies considerably by country and by occupation. More important, those who are least likely to feel they are doing the work for which they were trained are likely to be in relatively insecure employment. To this we added analysis of job satisfaction. Again we find that those who are least satisfied are likely to be in insecure work.

Second, we have examined a form of flexibility, comprising switches between occupations and industries, which we consider tells us something different about the nature of work, as one would imagine that individual investments in an occupation, therefore also the costs of transfer across occupations, might be high. When we look at the degree of changes between occupations and industries we find that some countries exhibit far more flexibility than others, though it is not clear that there is any obvious national pattern to this. But, even though many moves might be entirely voluntary and appear to involve upward mobility, it suggests that employment insecurity cannot be measured solely by job tenure or type of contract. There is a considerable degree of flux even in the basic attachment people have to the type of job they do. That some of this tenuous connection has negative implications is suggested by the fact that job satisfaction rises when people switch either occupations or industries. This implies that we should pay more attention to career than we do to the specific conditions people face at any single point in time. The primary focus of this report has indeed been on career. Even if job tenure – a more common measure of job insecurity – is not reducing substantially it is possible that people's careers are affected in other ways which either force or encourage them in quite large numbers to change the type of work they do.

Our final analysis has shown that in occupations like IT where skills are in high demand, entry into the profession is especially fluid. This indeed suggests that people with these skills can not only change jobs easily but change occupations. IT is a sort of currency which can buy this sort of mobility. But this also means that new jobs in IT come from primarily outside the occupations rather than through promotions. Skills are bought of the shelf. However, IT is not actually distinctive in this respect. It is not special, as any high-level skills convey the same advantage. In fact, more important is that in terms of occupational turnover in general, of the two countries studied, Britain is far more fluid than Germany, even to the extent that it is perhaps possible to make one's way in IT in Britain without adequate qualifications, whereas in Germany IT workers are likely to be overqualified.

In summary, looking at indicators of the nature of work - the skills required, and the stability of work within an occupation - we find a widespread tendency to occupational instability, fed to some extent by people in insecure work who presumably change the type of work they do in order to better themselves. Job insecurity, low job satisfaction, and a feeling of being overqualified all tend to go together. But we also find very considerable national variation in this tendency. This makes the determination of clear European-wide changes very difficult, but it also suggests that some countries do better than others in avoiding the most negative forms of instability.

# Annex: ECHP occupations and industries

## Occupations

1. Legislators, senior officers and managers
2. Professionals
3. Technical and associates professionals
4. Clerks
5. Service and shop workers
6. Skilled agricultural and fishery workers
7. Craft and related
8. Operatives and assemblers
9. Elementary occupations

## Economic Sectors

1. Agriculture, hunting and forestry, fishing
2. Mining and quarrying and electricity, gas and water supply
3. Manufacture of food products, beverages and tobacco
4. Manufacture of textiles, clothing and leather products
5. Manufacture of wood and paper products, publishing and printing
6. Manufacture of coke, refined petroleum, chemicals, rubber and plastic product;
7. Manufacture of metal products, machinery and other equipment
8. Other manufacturing
9. Construction
10. Wholesale and retail trade, and repair of vehicles, personal or household goods
11. Hotels and restaurants
12. Transport, storage and communication
13. Financial intermediation
14. Real estate, renting and business activities
15. Public administration and defence, compulsory social security
16. Education
17. Health and social work
18. Other community, social and personal service activities, extra-territorial organisations



## Bibliography

- Ashenfelter O., Harmon C. & Oosterbeek H. (1999), 'A Review of Estimates of the Schooling/Earnings Relationship, with Tests for Publication Bias', *Labour Economics* 6(4): 453-470.
- Auer P. & Cazes S. (eds.) (2003), *Employment Stability in an Age of Flexibility*, International Labour Office, Geneva.
- Baltagi B.H. (2001), *Econometric Analysis of Panel Data*, Wiley, London.
- Card D. (1999), 'The Causal Effect of Education on Earnings', *Handbook of Labor Economics*, Vol. 3A. Ed. by Ashenfelter, O.C. and Card, D. Amsterdam, Elsevier: 1801-1863.
- European Commission (2003), *Employment in Europe 2003: Recent Trends and Prospects*, Luxembourg.
- Harmon C., Walker I. & Westergaard-Nielsen N. (eds.) (2001), *Education and Earnings in Europe. A Cross-Country Analysis of the Returns to Education*, Edward Elgar, Cheltenham.
- Hartog J. (2000), 'Over-Education and Earnings: Where Are We, Where Should We Go?' *Economics of Education Review*, 19(2): 131-147.
- Heckman J.J., Lochner L.J. & Todd P.E. (2003), 'Fifty Years of Mincer Earnings Regressions', *IZA Discussion Paper*, No. 775.
- King Z., Burke S. & J P. (2005), 'The 'Bounded' Career: An Empirical Study of Human Capital, Career Mobility and Employment Outcomes in a Mediated Labour Market', *Human Relations*, 58(8): 981-1007.
- McMurtrey M., Grover V., Teng J. & Lightner N. (2002), 'Job Satisfaction of Information Technology Workers: The Impact of Career Orientation and Task Automation in a Case Environment', *Journal of Management Information Systems*, 19(2): 273-302.
- Rose M. (2002), 'IT professionals and Organisational Ascendancy: Theory and Empirical Critique', *New Technology, Work and Employment*, 17 (3): 154-69.