Measuring the quality of employment in the EU*

Chapter 4

1. Introduction

In 1997, the European Employment Strategy (EES) was launched as a coordinated effort to implement policies and actions aimed at boosting labour market outcomes in the EU. Since 2000 and in the framework of the Lisbon *Growth and jobs* strategy launched in 2000, the EES overarching objectives have been further enriched by encompassing not only *full employment*, but also *promoting quality and productivity at work*. Hence, quantitative and qualitative aspects (or *more and better jobs*) are both highly important elements within the EU employment policy agenda.

10 years after the launch of the EES, European Union (EU) labour market performance has significantly improved in quantitative terms (i.e. higher employment rates and lower structural unemployment), while no clear-cut conclusions can be drawn with regard to job quality developments.

In recent years, some developments have caused general concern in the public opinion about the perceived 'erosion' in the quality of jobs in the EU. These include:

- Increased market integration at international level (i.e. globalisation) may lead to more frequent episodes of downsizing and outsourcing, particularly in sectors more affected by competitive pressures.
- Increased use of temporary work, which is often linked to precarious employment.
- Skill-biased technological progress, putting low-skilled workers especially at risk.
- Socio-demographic factors, such as population ageing and the progressive replacement of the 'male breadwinner' by the dual wage earner model which, while having led to positive developments such as the increased participation of women in the labour market, has also implied growing difficulties to combine work and private life.

Overall, these factors are often perceived to go hand in hand with increased job insecurity; a deterioration of working conditions (e.g. increased stress and work-related health problems); reduced possibilities to combine work with other private and social responsibilities; and increasing inadequacy of existing social security schemes to cope with more heterogeneous and uncertain individual employment histories. All these concerns call for taking a closer look at job quality levels and trends in the EU.

Moreover, a number of dimensions of job quality are likely to affect – directly or indirectly – labour productivity. These include the provision of training at the workplace, which plays a key role in improving workers' skills, as well as work organisation practices and work-related health outcomes, which may have significant motivational effects via their impact on job satisfaction. In the context of the poor productivity performance of the EU during the current decade, these considerations further support an attempt to re-assess job quality outcomes in Europe.

In addition to being one of the overarching objectives of the EES, job quality has been the focus of both conceptual and policy concerns since the end of the 1990s and beginning of the current decade. In particular, following a 2001 Commission communication[1], a comprehensive framework for monitoring and analysing job quality was endorsed by the European Council of December 2001 in Laeken (sections 2.2 and 2.4). This framework recognises the complexity and multi-dimensionality of the concept, following which appropriate quality indicators were included in the 2002 *Employment Guidelines*.[2]

Since 2003, the emphasis on job quality issues has somewhat waned following, among other things, the macroeconomic downturn in 2002–04. In 2006–07, the employment policy debate began focusing on the flexicurity approach, aimed at guiding labour market reform strategies in a way that reconciles increased adaptability of workers and enterprises with 'new'

* This chapter is largely based on Davoine et al. (2008).

1 See European Commission (2001a).
2 European Commission (2002).

forms of employment security that promote labour market transitions. However, the role of quality in work in flexicurity policies remains to be clarified in the EU policy debate (see Box 1).

In the first half of 2007, under the impulse of the German EU Presidency, job quality returned to the EU policy agenda, as the Council[3] identified 'good jobs' as a key element of a renewed European social model capable of withstanding the challenges of globalisation. Following Council conclusions, the Commission adopted[4] the 'Renewed Social Agenda' for Europe in the 21st century, highlighting the promotion of more and better jobs as one of its key elements.

Quality in work is a multi-dimensional phenomenon, which in principle may touch a broad set of individual job's and workers' characteristics, ranging from wages, training, health and safety at work, work organisation, reconciliation between work and family life, etc. As socio-economic literature does not appear to have reached a clear consensus on a definition of variables to include – let alone on a weighing scheme – any attempt to analyse and monitor job quality needs to be considered with great care. Additionally, some of the relevant aspects are more of a qualitative and subjective nature, thus raising obvious measurement problems.

This chapter reassesses the EU concept of job quality in the context of recent developments in the socio-economic literature and proposes an enriched framework for its analysis. Based on this framework, job quality models or regimes across the EU are characterised.

The chapter is structured as follows. Section 2 first presents the theoretical background and policy context, and then critically reviews the EU job quality concept. The analytical core of the chapter, section 3 identifies a taxonomy of job quality models in the EU and compares results with those derived using the EU job quality concept. It also presents a dynamic analysis of job quality in the EU in recent years. Part 4 concludes.

2. Job quality: economic concept and policy goal

2.1. Importance of job quality

The EES includes among its overarching objectives not only the pursuit of full employment, but also raising productivity and the promotion of quality in work. In a nutshell, this implies simultaneously aiming at more and better jobs. However, it is thus necessary to clarify the meaning of 'better jobs' and present the policy rationale.

In a neo-classical model of a perfectly competitive labour market, wages fully capture job quality aspects. Wage differentials fully compensate for the disutility of work and any downsides associated with a particular job.[5] However, the economic literature suggests that, in practice, wage differentials do not fully compensate for all job differences, mainly due to a number of market failures, such as incomplete information, matching costs, monopsony power, human capital, etc. Hence, wages alone do not capture all aspects of the quality of work. In addition, other characteristics of the job including human capital, working conditions, health risks, and job satisfaction, need also to be considered to form an overall picture.

The level of human capital associated with a particular job or occupation is an important dimension of job quality. The theory of human capital (Becker, 1964) introduces a crucial distinction between generic and specific skills. Firms have no incentive to finance generic skills, because such an investment would be entirely reaped by workers, while workers may not afford to invest in education themselves due to credit market imperfections. It has been found that, in practice, most training schemes combine elements of general and specific skills – hence there is an inherent tendency to under-provide training if left to the market (Booth and Snower, 1996). Moreover, in order for firms to invest in firm-specific skills for their workers, productivity has to exceed wages and both parties should be involved in stable relationships.[6]

Given that wages do not take into consideration all aspects related to the quality of work, employees' answers to survey questions on job satisfaction and well-being have been increasingly used to assess job quality. They tend to confirm the insufficiency of wages as an overall measure of job quality: significant rises in gross domestic product (GDP) per capita and wages in developed countries over recent decades have not been reflected in an equivalent improvement in reported levels of job satisfaction. Various explanations have been advanced for this apparent 'paradox'.[7] According to the 'economics of happiness' literature (Layard, 2005), above a certain income threshold, workers seem to care more (or as much) about relative incomes than about its absolute value. In addition, Green (2006) suggests that a number of work organisation practices, leading to work intensification and lower worker autonomy for carrying out tasks, may have largely offset the positive impact of higher real wages on overall job satisfaction, particularly in Anglo-Saxon countries.

3 The informal Employment, Social Policy, Health and Consumer Affairs (EPSCO) Council held in Berlin (18–20 January 2007).

4 European Commission (2008).

5 In a nutshell, the theory of compensating wage differentials is based on three main assumptions: i) workers maximise utility; ii) perfect information about the job, including occupation risks and all non-pecuniary characteristics associated with it; and iii) perfect mobility. See Bonhomme and Jolivet (2005).

6 For specific training, a necessary condition for the efficiency of investment decisions is that it must be possible to sign long-term, non-renegotiable contracts to avoid the hold-up problem (see Cahuc and Zylberberg, 2004, p. 658). The hold-up problem describes the following: the employer finances firm-specific investments, leaving them exposed to turnover/replacement costs that may oblige the firm to compensate the worker, who has benefited from this investment, allowing them to keep part of the surplus.

7 Actually, this is a paradox only if one assumes that wages capture all relevant jobs' features.

Increased attention has also been paid recently to a number of policy concerns, such as workers' career prospects, labour market transitions and employment security. Broad definitions of job quality, formulated both in academic circles (e.g. Green 2006) and by international organisations (EU, International Labour Organization, ILO) tend to include these and other aspects, such as industrial relations, labour market institutions and policies (e.g. flexicurity), and background information on the socio-economic context.

The transitional labour markets (TLMs) school (Schmid and Gazier, 2002) highlights the alleged 'erosion of standard employment'[8], stressing the importance of studying labour market transitions[9], and the distinction between good and bad ones (see section 2.2 below). In the context of fostering good transitions, reforms of employment protection legislation that have loosened regulations on fixed-term and other non-standard contracts – while maintaining existing legislation on permanent contracts – may be counterproductive. In particular, they may help create segmented labour markets, where workers under non-standard contracts face poorer working conditions and less favourable career prospects.

All these new theoretical and policy considerations provide an opportunity for revisiting the EU concept of job quality and discussing the main empirical determinants of job quality indicators.

2.2. Job quality in economic theory

Concern for work quality is relatively recent as a subject of interest for social scientists. This in part reflects the predominant role played by the neoclassical economic theory, and the resulting corollary that wage differentials essentially compensate for all the non-pecuniary downsides of work. Section 2.1, however, mentioned that a number of market failures strongly suggest that wages do not provide an accurate (social) valuation for many jobs and occupations.

According to the economics of happiness literature, although being closely related, the concept of subjective happiness covers many more aspects of human well-being than the standard concept of utility (Frey and Stutzer, 2002). One finding of this literature is the consistently large influence of non-financial variables on self-reported satisfaction. In particular, the absolute level of wages is weakly correlated with subjective levels of job satisfaction.[10] As regards the determinants of job satisfaction, ranking and habit formation effects seem to dominate when compared with wage-level effects. The ranking effects refer to the finding that, all the rest being equal, workers are 'unhappy' if they are paid less than their colleagues, while wage rises tend to have only transitory effects (Clark, 1999). The economics of happiness literature therefore emphasises the relevance of the relative position in the income distribution rather than the absolute level of income. This recalls the relative income theory of consumption (Duesenberry, 1948) which assumes that individuals are not so much concerned about their absolute consumption level as they are with their consumption relative to other people ('Keeping up with the Joneses'), thus implying that the share of income consumed depends on an individual's position in the income distribution of the population.

Related to the economics of happiness literature is the notion of 'procedural utility', meaning that individuals care not only about the outcomes usually considered in economic theory (e.g. pay and hours of work), but also about the conditions and processes leading to such outcomes. According to this idea, all the rest being equal, workers prefer autonomy and networking at work to working in a Taylorist[11] organisation.

However, habit formation effects point to some weaknesses of job satisfaction surveys. The main advantage of approaches based on workers' preferences is to avoid an ethnocentric or paternalistic view of job quality conditioned by the researcher's culture or point of view. In addition, job satisfaction has been shown to be negatively correlated with turnover and absenteeism rates (Hackman and Oldham, 1980; and Appelbaum and Berg, 1997). Nevertheless, other authors have warned against the use of job satisfaction indicators as a measure of job quality. Using the 1997 *International Social Survey Programme* questionnaire on work orientations which covers 23 countries and the 2000 Spanish survey on quality of life at work, Llorente and Macías (2005) do not find a link between objective job quality indicators (e.g. wages, type of contract, work organisation practices, etc.) and levels of job satisfaction. The authors explain this result by arguing that workers' expectations and the objective characteristics of their jobs tend to conform over time. According to some psychologists (e.g. Festinger, 1957), individuals tend both to adapt their expectations to actual conditions and to look for jobs with objective characteristics that better match their expectations.

This discussion illustrates that a 'good' job quality concept has to be multidimensional, including both objective and subjective indicators. Green (2006) adopts a broad definition of job quality, focusing exclusively on job characteristics (i.e. disregarding contextual socio-economic variables). In his framework, job quality is evaluated looking at the range of capabilities and rewards granted to workers to achieve their own well-being and fulfil the firm's goals, including wages, skills used in the job, the intensity of work,

8 Defined by the change in paradigm from full-time permanent contracts to a diversity of working-time arrangements, employment contracts, and intermediate statuses between work, unemployment and inactivity.

9 Not only within work, but also between work, education, unemployment, inactivity, and non-paid family care activities.

10 *…the evidence says that on average people are not happier today than people were fifty years ago. Yet at the same time average incomes have more than doubled. This paradox is equally true for the United States and Britain and Japan* (Layard, 2005).

11 'Taylorism' refers to a management approach that calls for specifying job tasks, routines, and tools in detail.

autonomy and discretion in the tasks performed, and social networking at work. Green (2006) highlights the potential negative contribution of work intensification to overall job satisfaction over recent decades, particularly in the UK, due to 'effort-biased' technological and organisational changes.

Compared with more 'academic' definitions of job quality (e.g. Green, 2006), the EU's definition differs mainly on two respects:

i) it does not include an explicit reference to either wages or the intensity of work; but

ii) it includes aggregate labour market (or context) variables in the set of indicators used to monitor job quality.

In order to better serve the EES, which also monitors variables related to labour market dynamics and career advancement, Green's (2006) framework should be complemented. The TLM theory (Schmid and Gazier, 2002) is highly relevant in this context, giving a dynamic or lifecycle perspective to employment quality issues, highlighting the interactions between employment and other life spheres. This school stresses the change in paradigm from 'standard employment' to differentiated employment careers, with a variety of working-time and contractual arrangements, and more frequent changes of statuses between employment, unemployment, inactivity, education, family care and non-paid activities.

The transition matrix is an important descriptive tool for the TLM theory. One key issue is to distinguish between good and bad transitions in a lifecycle perspective. In some of its earlier editions (see, e.g., European Commission, 2004b) the *Employment in Europe* report has analysed transition dynamics by activity status, contractual arrangement and pay level to provide evidence on workers' upward mobility in the EU. According to the TLM School, employment quality should provide flexible arrangements, particularly as regards working time, while also enhancing security. The TLM fully recognises the importance of other quality dimensions, such as the right to (re-)training, occupational (re-) deployment, family life, suitable working time arrangements, etc. (Schmid, 2006). Gender issues are implicitly addressed by the focus on the rights of workers to choose the working-time arrangements that better suit their needs throughout the lifecycle.

2.3. Job quality as a policy goal

The EES was launched in November 1997 in the Luxembourg Jobs Summit anticipating the entry into force of the Amsterdam Treaty. The EES introduced a new working method: the open method of coordination (OMC). While safeguarding the powers of Member States in the field of employment policy, the OMC establishes quantified common targets to be achieved at Community level, putting into place surveillance mechanisms encouraged by pooling experience. At the launch of the EES, job quality was not specifically addressed.[12] The job quality issue was first introduced at the Lisbon Council in March 2000, which puts forward the objective of more and better jobs for all. At the December 2000 Nice Council, employment quality is included in the European Social Agenda. In 2003, improving quality and productivity at work became one of the three overarching objectives of the *Employment Guidelines* for 2003–05, together with full employment and strengthening social cohesion and inclusion.

In 2001, the Commission adopted a communication that provides a broad framework for promoting quality in work.[13] The chosen concept of job quality includes 10 dimensions[14], each of them quantified by specific indicators encompassing both characteristics of the job and of the worker, such as those related to skills, working conditions, reconciliation between non-working and working life, health and safety at work and job satisfaction, as well as aspects covering the wider socio-economic context (e.g. employment rates, growth in aggregate labour productivity). In 2003, the Commission adopted another communication[15] that reviewed progress in improving quality in work in the EU. In an annex, it includes the list of indicators approved by the Council to be used for monitoring quality in work (see section 2.4).[16]

The communications on job quality stress the importance of synergies between job quality and the other main objectives of the EES – namely full employment, labour productivity, and social cohesion and inclusion. In fact, progress in some dimensions of job quality, such as more and better investment in human capital and vocational training or the adoption of innovative forms of work organisation can foster innovation activities, and thereby productivity growth (Lorenz and Valeyre, 2006). However, reforms of employment protection legislation, focusing exclusively on easing the rules on fixed-term contracts, may not only aggravate labour market segmentation, but also have negative effects on productivity, as high labour turnover rates, associated with large shares of temporary work, reduce firms' incentives to invest in their workers' training (Dolado et al., 2001).

Job quality issues regained visibility within the EU employment policy debate in the first half of 2007. In fact, the informal Employment, Social Policy, Health and Consumer Affairs Council (EPSCO) held in January 2007 during the German Presidency put forward a number of 'principles' for 'good work' – specifically

i) fair wages;

12 The four main policy pillars, or objectives, were employability, entrepreneurship, adaptability and equal opportunities.

13 European Commission (2001a).

14 i) Intrinsic job quality; ii) skills, life long learning and career development; iii) gender equality; iv) health and safety at work; v) flexibility and security; vi) inclusion and access to the labour market; vii) work organization and the work–life balance; viii) social dialogue and worker involvement; ix) diversity and non-discrimination; and x) overall work performance.

15 European Commission (2003).

16 It should be remembered that such a list was the outcome of a political negotiation between Member States, leading to partial divergence with respect to initial Commission Services' proposal.

ii) protection against health risks at work;

iii) workers' rights to assert their interests and to participate;

iv) family-friendly working arrangements;

v) enough jobs.

Job quality is increasingly seen as one of the key elements of a renewed European Social Model which can reconcile economic efficiency and social cohesion in an environment characterised by more intense global competition.

The European Foundation for the Improvement of Living and Working Conditions (European Foundation) devised a framework for addressing work and employment quality concerns (European Foundation, 2002) built around four main dimensions:

i) career and employment security

ii) health and well-being of workers

iii) reconciliation of working and non-working life

iv) skill development.

This framework bears a strong resemblance to that of the EU, except for excluding some aspects which relate more to overall labour market outcomes than to the job itself (e.g. employment rates).

International organisations like the ILO and the Organisation for Economic Cooperation and Development (OECD) have also included job quality issues in their agendas. In 1999, the ILO developed the concept of 'decent work', which includes four strategic objectives, namely:

i) the promotion of labour rights

ii) employment

iii) social protection

iv) social dialogue.

Due to the presence of developing as well as developed countries in the ILO, its concept includes labour rights and social protection aspects in its definition. Given that the external dimension is one of the five key areas[17] for the future of the EES (EPSCO Council, December 2007), this has allowed the emergence of synergies between the EU and the ILO's job quality strategies. In this line, the EU has shown support for promoting the decent work agenda in the world in a series of policy documents.[18]

The OECD has not included job quality within the main goals of its original jobs strategy, which was more focused on labour market de-regulation. More recently, however, it has developed such an agenda, having significant points in common with the EES, such as the emphasis on the role of human capital and work–life balance.

In 2007, the fourth international seminar on the measurement of the quality of work took place in Geneva. Experts from interested countries and international organisations were present, namely the ILO, the European Foundation, Eurostat and the Directorate-General for Employment, Social Affairs and Equal Opportunities (DG EMPL).[19] This seminar was an opportunity to compare the existing frameworks for measuring quality of work established by the ILO (decent work), the EU (quality of work), and the European Foundation (job and employment quality), bringing them together into a proposed framework for international use, described by the heading 'quality of employment'. At the seminar, there was general agreement to organise the proposed international framework for quality of employment around 11 dimensions and a list of about 50 indicators.[20]

Concerns about the 'decline of good jobs' have also been raised within the United States' (US) academic and political debate. The focus in the US is firmly on wages as a central measure of job quality; hence Schmitt (2008) defines a good job as one paying above the median male hourly wage and providing health insurance and a pension plan. According to this definition, the share of good jobs in the US labour market declined somewhat between 1979 and 2005, from 23.1% to 22.1%. However, controlling for compositional effects of the US labour force – namely age and education levels – the decline is estimated to be much larger, reaching 15.8% in 2005[21] and signalling substantial erosion in job quality in the US.

Using longitudinal data, Hacker (2006) argues that work has become riskier and more unstable in the US over past decades. He points to an overall 'risk shift' taking place in the US economy, whereby the burden of risk-sharing has been gradually passed from government's welfare policies and employers' funded health and pension plans onto workers. In this context, the old 'American work contract', characterised by some degree of risk-sharing between workers and employers, has been replaced by a different one characterised by more frequent use of restructuring and downsizing, together with a more limited offer of health and pension plans as part of the overall workers' compensation package. As a result, employees face higher risks, and in case of dismissal may be forced to accept substantial wage cuts and/or deteriorating working conditions. High educational attainment no longer constitutes a guarantee of income security and career progress, as wage inequality has significantly increased also among highly educated and older workers, together with the incidence of long-term unemployment.

17 The other four priority areas are: flexicurity, active inclusion, the *New skills for new jobs* initiative and active ageing.

18 European Commission (2001b, 2004a and 2006a), see also the site on the EU and Global Trade: http://ec.europa.eu/trade/issues/global/index_en.htm.

19 The United Nations Economic and Social Council (UNECE) acted as the secretariat. All papers and presentations from the seminar are available on the UNECE site: http://www.unece.org/stats/documents/2007.04.labour.htm.

20 The proposed 11 dimensions are: i) access to employment; ii) child labour and forced labour; iii) income from employment; iv) skill development and lifelong learning; v) hours of work and working-time arrangements; vi) flexicurity; vii) balancing work and non-working life; viii) fair treatment in employment; ix) safe work; x) social protection in employment; and xi) social dialogue. A taskforce is currently in charge of developing the achievements of the April 2007 seminar. A new seminar is planned for mid-2009 to discuss a list of indicators.

21 The workforce is divided in 12 groups, according to age and education attainment levels.

Box 1: Job quality and flexicurity

Consideration of job quality issues at EU level predates the more recent debate on flexicurity policies, while the articulation of the two concepts is not always clear. In many ways, both concepts are embedded in the specific economic and political context of the period when they entered the debate. Hence, concerns about job quality originated in the prevailing political climate at the end of 1990s reflecting the relatively favourable macroeconomic conditions at the time as well as the specific concerns of some Member States.

The subsequent deterioration of the economic situation during the early part of this decade triggered a shift of focus in the EU from job quality to job creation, with the emphasis on labour market reforms to make them more efficient and adaptable to change. Concerns about excessive labour market rigidity, which is detrimental to employment creation, has led a number of Member States to undertake, since the late 1990s, reforms aimed at tackling their strict employment protection rules. In most cases, though, these have substantially lessened regulations on the use of temporary and other non-standard jobs, while maintaining existing provisions on permanent employment contracts. Such reforms have contributed to significant reductions in unemployment but at the same time led to segmented labour markets, with increasing numbers of workers 'trapped' in temporary contracts with little chance of moving to more secure jobs. This has resulted in a widespread perception of higher job insecurity and precariousness (Boeri, 2008), thus conveying the idea that having more jobs necessarily implies that many of them are of 'bad' quality.

The EU policy debate on flexicurity has been a response to the concerns about segmentation of labour markets. Flexicurity is defined as 'an integrated strategy to enhance, at the same time, flexibility and security in the labour market' (European Commission, 2007b). It can therefore be argued that the main difference between the flexicurity approach and job quality lies on the increased emphasis of the former on the *overall labour market performance* rather than on individual jobs' characteristics and working conditions.

At the same time, however, while calling for 'sufficiently flexible contractual arrangements' (EPSCO Council conclusions December 2007) the flexicurity strategy recognises the potential negative effects of reforms 'at the margin' and underlines that flexibility should be associated with successful transitions over time (e.g. from job to job and from unemployment/inactivity to work) as well as upward mobility to better jobs – i.e. offering higher pay and better working conditions (European Commission, 2007b). Hence, there is no contradiction in principle between reforms aiming at enhancing the flexibility and dynamism of labour markets, and those aimed at improving job quality.

Furthermore, the flexicurity approach encompasses a number of policy tools aimed at supporting successful moves within the labour market, including the provision of training/lifelong learning programmes, enabling workers to continually upgrade their skills and thus, enhance their adaptability to change. This constitutes another area of synergy with job quality as training is a key component of the latter, both in the Laeken definition and in the extended framework proposed in this chapter. In this context, the growth in the number of fixed-term contract jobs may have discouraged both employers and employees from investing in human capital and contributed to depressing the rate of labour productivity growth in the EU over the last decade.

Moreover, the common principles of flexicurity (EPSCO Council conclusions December 2007) give an equal emphasis to external and internal (i.e. within the enterprise) aspects of flexibility. In relation to the latter, they call for promoting high-quality and productive workplaces and good organisation of work. In fact, firms in industrialised economies have increasingly adopted innovative or 'high performance' work organisation practices (OECD, 1999), including teamwork, task rotation, worker autonomy and enhanced participation in decision-making, total quality management, etc.

One branch of the economic literature (Ichniovski et al., 1997; Caroli and van Reenen, 2001) has highlighted the positive impact of new work practices on productivity, especially in connection with IT and the availability of a skilled workforce. As regards the impact of new work practices on working conditions, however, the indications in the literature are ambiguous. Although there is evidence (Askenazi et al., 2001) that some of those practices, such as task rotation and quality norms, can lead to increased frequency of work injuries and greater mental strain, other contributions underline that appropriate combinations of them (e.g. increased task complexity accompanied by greater autonomy and discretion at work; see Karasek, 1998 and European Commission, 2007a) may reduce stress and increase job satisfaction. This implies that specific 'clusters' of innovative work practices can improve firms' profitability, job quality in general, and working conditions in particular.

In conclusion, flexicurity has to some extent implied a shift of focus from individual jobs' characteristics to the overall labour market performance and reform strategies. However, this does not mean that there is a trade-off with job quality issues, but rather that these approaches should be seen as complementary. Flexicurity does not call for the systematic dismantling of employment protection rules but rather for their redesign in order to maximise workers' transitions to 'better' jobs. Skills, training and human capital formation, together with efficient work organisation in the firm, are key ingredients for improving both workers' adaptability and labour productivity, implying strong synergies between flexicurity policies and job quality improvements.

2.4. Monitoring job quality: the Laeken indicators

This section reviews the list of job quality indicators endorsed at the Laeken European Council in December 2001 and discusses their adequacy to capture and monitor the multidimensionality of the concept. The EU definition comprises 10 dimensions of job quality, proposing for each area key and context indicators. However, for some dimensions, not all indicators have yet been agreed or developed for lack of political consensus. Table 1 provides the list of Laeken indicators, classified by job quality dimension. Each job quality indicator is briefly discussed and, in some cases, complementary indicators are proposed.

- **Intrinsic job quality** – the importance of addressing the issue of the transition between labour market statuses, pay levels and contract types is consistent with a dynamic perspective of job quality as stressed by the TLM framework. Moreover, the inclusion of job satisfaction complies with the recommendation to use both objective and subjective indicators of job quality, as previously discussed (see section 2.2 above). However, the absence of data on the level and distribution of pay is a major omission.

- **Skills, lifelong learning and career development** – on this dimension, the Laeken indicators are in line with other theoretical approaches, such as the human capital literature and the TLM school. However, the specific in-

Table 1: The Laeken indicators of job quality

Dimension	Indicator
1) Intrinsic job quality	Transitions between non-employment and employment and, within employment, by pay level
	Transitions between non-employment and employment and, within employment, by type of contract
	Satisfaction with type of work in present job
2) Lifelong learning and career development	Percentage of the working age population participating in education and training by gender, age group, employment status and education level
	Percentage of the labour force using computers in work, with or without specific training
3) Gender equality	Ratio of women's gross hourly earnings to men's for paid employees at work
	Employment rate gap between men and women
	Unemployment rate gap between men and women
	Gender segregation in occupations[1]
	Gender segregation in sectors[2]
4) Health and safety at work	The evolution of the incidence rate[3]
5) Flexibility and security	Number of employees working part-time and with fixed-term contracts as a percentage of the total number of employees
6) Inclusion and access to the labour market	Transitions between employment, unemployment and inactivity
	Transitions between non-employment and employment or training
	Total employment rate, and by age group and education level
	Total long-term unemployment rate, and by gender
	Percentage of early-school-leavers[4]
	Youth unemployment ratio[5]
7) Work organisation and the work–life balance	Difference in employment rates for individuals aged 20 to 50 in households having or not a child aged between 0 and 6 years
	Children cared for (other than by the family) as a proportion of all children in the same age group
	Employees who left over the last year their job for family duties and intend to go back to work but are currently unavailable for work
8) Social dialogue and workers' involvement	No agreement
9) Diversity and non-discrimination	Employment rate gap for workers aged between 55 to 64 years old
	Employment and unemployment rate gaps for ethnic minorities and immigrants
10) Overall economic performance and productivity	Growth in labour productivity (both per hour worked and per person employed)
	Total output (both per hour worked and per person employed)
	Percentage of the population having achieved at least upper secondary education by gender, age group and employment status

Source: Adapted from European Commission (2003).
Notes: (1) The occupational segregation index is calculated as: $i = \frac{1}{2}\sum\left|\frac{M_i}{M} - \frac{F_i}{F}\right|$ *where M, total male employment; Mi, the number of males in occupation i; F, the total female employment; and Fi, the number of females in occupation i. The index varies between 0 and 1. A higher index means more segregation in the distribution of occupations by gender (Emerek et al., 2003). (2) The segregation-by-sector index is calculated as in the previous footnote but using economic sector instead of occupation. (3) Defined as the number of accidents at work per 100 000 persons in employment. (4) Percentage of 18–24 year-olds having achieved lower secondary education or less and not attending further education or training. (5) Unemployed aged 15–24 as a percentage of total population in the same age bracket.*

dicators chosen present two main weaknesses:

i) they focus exclusively on participation in vocational training, disregarding its intensity both in terms of volume (i.e. number of hours) and cost per participant;

ii) they concentrate on the supply side of skills (except for the indicator concerning the use of computers).[22]

- **Gender equality** – this dimension reflects the importance of gender issues in the EU. One methodological caveat concerns gender segregation indicators (both by economic sector and occupation). Evidence shows that their relative stability over time results basically from two offsetting trends:

  i) an increase in female employment in jobs implying hierarchical responsibilities;

  ii) an increase in female-dominated low-qualified jobs[23] (Emerek et al., 2003).

- **Health and safety at work** – this dimension considers only one indicator – the rate of serious accidents at work. Therefore, a number of important variables are not captured, including occupational diseases, stress at work and work intensity.

- **Flexibility and security** – this dimension has recently been renamed 'Flexicurity', which adopts a holistic perspective of labour market policies and institutions, compared with the concept of job quality (see Box 1 above). The Laeken indicators on this dimension are rather limited in their scope, basically concerning part-time and fixed-term employment. It is difficult to draw clear cut conclusions on the desirability of these contractual arrangements, though fixed-term contracts are more likely to be associated with undesirable outcomes than part-time jobs as evidenced by lower voluntary take-up rates for the former. Nevertheless, although voluntary part-time work may facilitate the reconciliation between work and family life, it can also harm career prospects.

- **Inclusion and access to the labour market** – this dimension includes several indicators on the overall socio-economic and labour market context, such as employment rates, and long-term and youth unemployment rates. This is partly at odds with the theoretical debate, as summarised in section 2.3, which emphasises the role of individual's job characteristics as key determinants of job quality.

- **Work organisation and the work -life balance** – this dimension has a strong gender orientation, taking into account the policies favouring the reconciliation between work and family life, such as the availability of childcare and care systems for older people. However, this dimension does not include indicators on working practices, such as the extent of autonomy granted to workers, job rotation, teamwork or networking practices. This contrasts with the attention paid in the literature to the impact of new work organisation practices on job quality and worker satisfaction (section 2.2).

- **Social dialogue and worker involvement** – at present this job quality dimension is not covered by any indicator, although the theoretical debate (section 2.2) identifies worker consultation, participation in decision-making and good social relationships at work as important elements of job quality. This should be seen, therefore, as a major weakness in practice.

- **Diversity and non-discrimination** – this component is complementary to the gender dimension, introducing age, the national origin of workers and minority issues in the analysis of job quality.

- **Overall economic performance and productivity** – this dimension largely refers to contextual macroeconomic indicators, such as the growth rate and level of labour productivity in the whole economy. The choice of indicators for this component makes it difficult to evaluate outcomes in terms of job quality, because while on the one hand, job quality is positively correlated with productivity levels, largely reflecting higher levels of human capital; on the other, it tends also to be negatively correlated with productivity growth rates, reflecting the catch-up of poorer countries.

2.5. Conclusions

The theoretical overview provided in section 2.2, section 2.3's comparison with frameworks elaborated by other international institutions and the synthetic review of the Laeken indicators in section 2.4 enable the main strengths and weaknesses of the EU's current categorisation of job quality to be identified.

The main strong points can be cited as follows:

- The EU's job quality framework is broad in its scope, thereby acknowledging the multi-dimensionality of the concept.

- Both subjective and objective measures are considered.

- It provides a dynamic perspective, taking into account both labour market and pay transitions, together with a well-developed gender and work–life balance perspective.

22 E.g. highly educated young adults may easily become dissatisfied if qualification requirements in their first job are lower than their initial level of education (Belfield and Harris, 2002).

23 Since 1992, especially in southern EU Member States, the share of women has increased both among managers and professionals and among some categories where women were already over-represented, such as service workers and clerks. This occupational polarisation of female employment would not be captured using an indicator of gender segregation.

However, the following weak points can be listed:

- The EU's job quality framework includes economy-wide indicators that are not directly related to the characteristics of a particular job and only provide information on the socio-economic context.

- The EU's framework excludes some indicators, which have been identified as relevant and important, such as wages, work intensity and some more qualitative aspects of human capital formation.

Based on this summary, and following the findings of the economic literature, section 3 contains some suggestions for improving the EU's job quality framework by considering a number of complementary aspects. The resulting enlarged framework is then used to provide a typology of job quality 'models' in the EU, along the following four dimensions:[24]

- **Socio-economic security** – this approximately covers dimensions 1, 5, 6 and 9 in the EU's definition, but includes variables on wages.

- **Training** – this roughly corresponds to dimensions 2 and 10, but incorporates variables on qualitative aspects.

- **Working conditions** – this roughly encompasses dimensions 4 and 8, but also covers variables on work intensity.

- **Reconciliation of working and non-working life and gender balance** – this roughly corresponds to dimensions 3 and 7.

24 This typology is relatively similar to the one proposed earlier by the European Foundation and discussed in section 2.3 above.

3. Job quality regimes in the EU

3.1. Comparative capitalism and job quality

This section presents the results of a detailed empirical analysis of the main dimensions of job quality intended to classify EU Member States using a reduced number of job quality 'regimes'. The analytical framework is derived from the theory of institutions and comparative capitalism[25], which highlights the existence of different country-specific institutional arrangements which result, in turn, in different socio-economic outcomes and distinct capitalism models.

The 'comparative capitalism' approach makes two main assumptions:

1. Economic actions represent a particular form of social actions that need to be coordinated and managed by institutional arrangements (Jackson and Deeg, 2006).

2. Institutions are interdependent or complementary, implying that institutions in a given domain affect outcomes in other areas (e.g. welfare/employment protection policies affect the working of product markets and firms' adaptability) and that overall macroeconomic performance depends on policy interactions rather than on individual policies.

The major results of this literature can be summarised as follows: institutional interdependence does not guarantee economic efficiency in itself and can be associated with sub-optimal outcomes. Different institutional arrangements may be equally effective in terms of obtaining good socio-economic outcomes – i.e. they may be 'functional equivalents', implying that the comparative analysis of capitalism models does not provide a unique normative recommendation on the 'best' institutional arrangements. It is possible to relate various typologies of capitalism, such as those developed by Hall and Soskice (2001) and Amable (2003), to different job quality outcomes, even though this literature does not explicitly address the issue of job quality. In this context, a careful reading suggests that job quality is likely to be influenced by the following institutions:

- **Industrial relations and the wage bargaining system** – for example, the degree of centralisation and coordination of wage bargaining can have a huge impact on how economic shocks affect wage determination (Calmfors and Driffil, 1988).

- **Education and training system** – the availability and intensity of education and training affects job quality, but the relationship between how national education and training systems are organised and the accumulation of skills is unclear (Crouch et al., 1999).

- **Welfare systems, labour market policies and institutions** – Esping-Andersen's (1990) welfare model is especially relevant for considering gender issues and the reconciliation of working and non-working life.

- **Work organisation practices** – more advanced forms of work organisation[26] are often associated with complementary human resource management policies, yielding higher compensation packages. However, they may in some cases imply work intensification and more stress at work (Askenazi and Caroli, 2002).

The empirical analysis carried out in section 3.2 identifies different models of employment quality in Europe and proposes a typology. The job quality typology should, however, not be

25 See the literature on 'varieties of capitalism' (Hall and Soskice, 2001) and the work of the French Regulation School (Boyer, 2006 and Amable, 2003).

26 New forms of work organisation are characterised by high levels of autonomy at work, task rotation and teamwork, task complexity, problem solving and communication structures at work.

considered 'normative' – i.e. ranking models or (implicitly) recommending any given model over any other.

3.2. Job quality regimes

This section presents a taxonomy of European job quality models based on an enlarged dataset that includes the Laeken indicators, together with a number of complementary variables discussed above (see section 2). The aim is to better identify the main dimensions of job quality, better characterise national job quality regimes, and use the results to compare the Laeken indicators with the enlarged dataset.

The methodology used corresponds to the 'tandem analysis' (Nardo et al., 2005). First, a principal component analysis (PCA) is carried out, followed by a cluster analysis (CA). PCA is a multivariate technique that aims to reduce a large number of variables to a limited number of factors that account for most of the variability in the original data.[27] CA is then applied to the countries' scores along the factors previously identified in order to group Member States into a few distinctive clusters, based on some measure of 'distance'.[28]

The following three criteria are used to define the set of variables/indicators to be considered in the analysis.

- First, additional indicators on important aspects not covered by the Laeken indicators are considered, such as wages, work intensity and some qualitative aspects of training.
- Second, for simplification purposes some detailed breakdowns of the Laeken indicators are not included.
- Third, equal importance is given to the four dimensions of job quality identified in section 2.4 in order to correct any imbalance in the Laeken list of indicators:
  - i) socio-economic security
  - ii) education and training
  - iii) working conditions
  - iv) reconciliation of working and non-working life/gender balance.

Although discussion in section 2 above would call for the exclusion of socio-economic contextual variables, a few are retained in the analysis (see the last section of Table 2), such as employment rate, productivity etc., in order to characterise the different job quality models in terms of aggregate socio-economic performance.[29]

Table 2 lists the set of variables/indicators included in the analysis (classified using four dimensions) and their correlation coefficients for the three main principal components identified in the PCA. The analysis is carried out for the EU and based on the most recent data available, mainly covering the period 2005–06. Figures are mainly derived from the Labour Force Survey (LFS), the compendium of indicators for monitoring the *Employment Guidelines*, approved by the Employment Committee (EMCO), and the fourth wave of the European Working Conditions Survey (EWCS) carried out by the European Foundation. The detailed list of data with respective sources can be found in the annex to this chapter.

While at odds with discussion in section 2, the list excludes indicators of labour market transitions solely due to unavailability of suitable data sources, as calculation of transition probabilities requires longitudinal datasets following individual employment histories over several years, such as the European Union Statistics on Income and Living Conditions (EU-SILC), which is not yet available for a sufficient number of EU Member States.

The three principal components account for more than half (52.3%) of the overall variability in the data. Using the correlation coefficients between the variables and the principal components (see also Chart 1), it is possible to interpret the first three principal components as follows: the first one, which accounts for 26.4% of the total variance in the data, is *positively* correlated with average wages, job satisfaction, good prospects for career advancement, participation in training and use of computers. In contrast, it is *negatively* correlated with the in-work risk of poverty, the long-term unemployment rate and a number of indicators associated with unfavourable working conditions, such as long working days, health at risk because of work[30], and jobs involving painful or tiring positions.

The first factor can be interpreted as capturing *socio-economic security* and *(good) working conditions*. Correlations with a few socio-economic contextual variables (at the bottom of Table 2) suggest that a higher score tends to be associated with better labour market outcomes (e.g. higher employment rates and lower youth unemployment ratios) as well as favourable outcomes in terms of productivity levels. These results imply the existence of synergies – instead of a trade-off – between qualitative and quantitative outcomes in the labour market. However, the first factor also displays a positive

27 This is achieved by transforming correlated variables into a new set of uncorrelated factors: the principal components. The latter can then be interpreted as capturing one or more dimension(s) of the concept under analysis (e.g. job quality). However, application of this multivariate technique warrants a few words of caution about its robustness and the policy conclusions that can be derived from it. First, PCA is based on correlations and, hence, does not necessarily provide any indication of causal relationships. Second, results of clustering are often sensitive to the particular methodology and parameters chosen for the procedure. Third, the success of PCA largely depends on its ability to reduce the initial set of variables to a limited number of principal components; hence variables weakly correlated may be wrongly discarded.

28 See Box 1 in *Employment in Europe 2006*, p. 109 (European Commission, 2006b) for more details on the methodology of PCA and CA.

29 Moreover, the long-term unemployment rate is also included to capture the ability of a certain 'regime' to ensure sustainable labour market attachment, contributing to workers' socio-economic security.

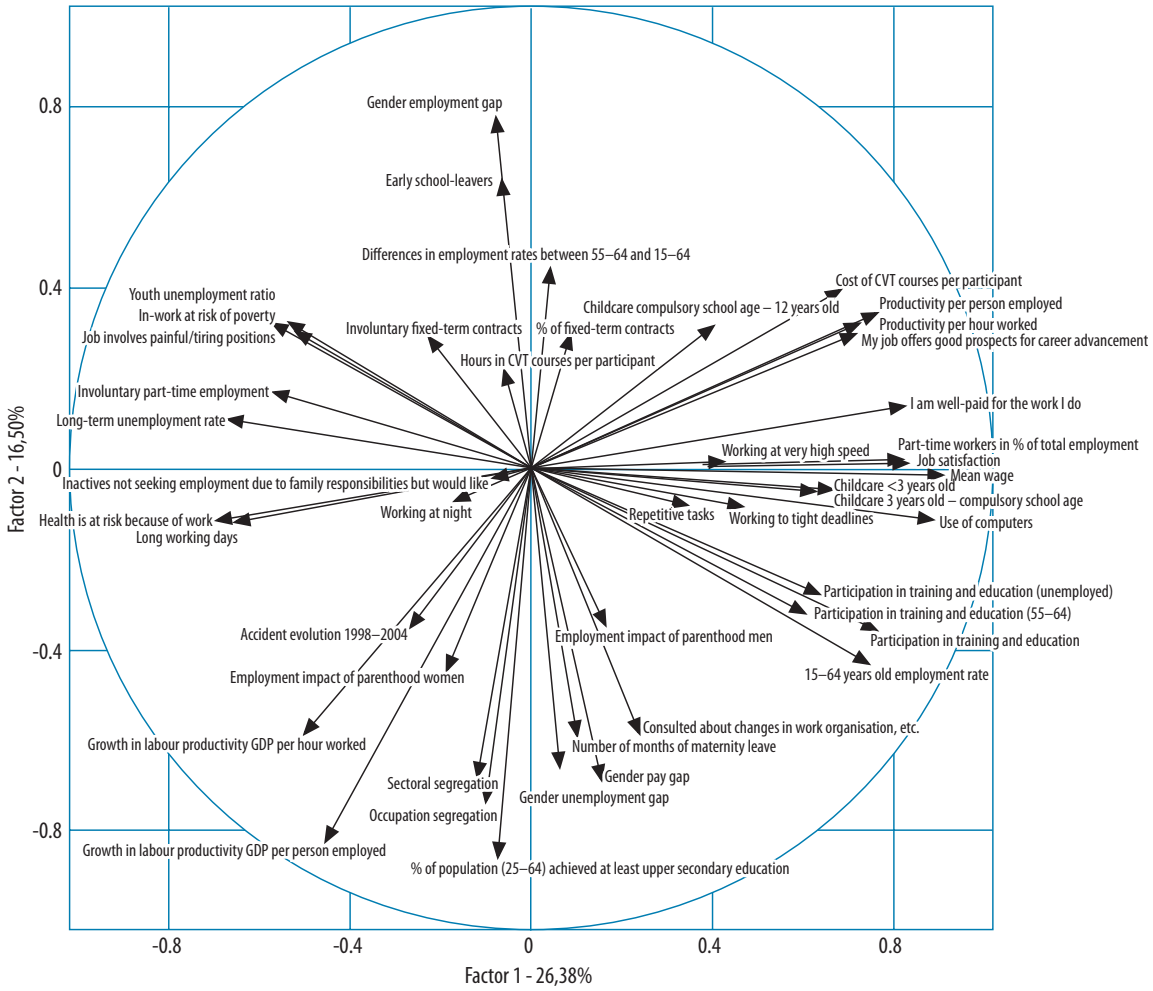
30 Moreover, background analysis carried out in Davoine et al. (2008) highlights that the variable 'health at risk because of work' can summarise a broad range of physical risks associated with work, such as 'breathing in smokes, fumes, dust etc…' or 'job involves moving heavy loads'.

Table 2: PCA analysis on an extended set of job quality indicators

Principal components	D1	D2	D3
Variability (%)	26.4%	16.5%	9.4%
Cumulative (%)	26.4%	42.9%	52.3%
Correlations with principal components			
Socio-economic security			
Job satisfaction	**0.81**	0.02	-0.29
Perception of being well paid for the work done	**0.82**	0.14	-0.14
Wages	**0.90**	-0.01	0.02
Prospects for career advancement in the job	**0.71**	0.29	-0.08
Share of fixed-term contracts	0.09	0.30	0.32
Share of involuntary fixed-term contracts	-0.22	0.29	**0.40**
In-work at risk of poverty	**-0.56**	0.32	0.23
Long-term unemployment rate	**-0.66**	0.11	**-0.45**
Education and training			
Participation in training and education	**0.76**	-0.35	0.19
Participation in training and education for workers aged 55–64	**0.60**	-0.32	0.29
Participation in training and education (unemployed)	**0.63**	-0.27	0.24
Cost of training per participant	**0.67**	0.39	0.02
Hours in training per participant	-0.06	0.21	**0.50**
Early school-leavers	-0.07	**0.62**	0.28
Use of computers	**0.88**	-0.11	-0.13
Population's educational attainment	-0.07	**-0.84**	-0.19
Reconciliation-gender balance			
Gender pay gap	0.15	**-0.67**	-0.11
Gender employment gap	-0.08	**0.77**	-0.20
Gender unemployment gap	0.06	**-0.65**	0.01
Gender sectoral segregation	-0.12	**-0.67**	0.09
Gender occupational segregation	-0.10	**-0.73**	-0.03
Part-time employment rate	**0.82**	0.01	-0.08
Involuntary part-time employment	**-0.56**	0.17	**0.43**
Employment impact of parenthood on women	-0.18	**-0.43**	**-0.59**
Employment impact of parenthood on men	0.16	-0.33	-0.34
Availability of childcare (less than 3 years old)	**0.66**	-0.05	**0.46**
Availability of childcare (3 years old-compulsory school age)	**0.63**	-0.05	0.10
Availability of childcare (compulsory school age-12 years old)	0.39	0.31	**0.40**
Inactives not seeking employment due to family responsibilities	-0.07	-0.01	0.03
Length of maternity leave	0.10	**-0.58**	0.39
Working conditions			
Work accident rate	-0.26	-0.35	**0.43**
Painful/tiring positions at work	**-0.51**	0.30	**0.52**
Tasks' repetitiveness	0.33	-0.08	**0.51**
Health at risk because of work	**-0.69**	-0.11	**0.46**
Working to tight deadlines	**0.46**	-0.08	0.00
Working at very high speed	**0.41**	0.02	0.23
Consulted about changes in work organisation	0.24	**-0.57**	0.07
Long working days	**-0.64**	-0.12	-0.01
Working at night	-0.16	-0.07	**-0.65**
Socio-economic context			
Employment rate for people aged 15–64	**0.74**	**-0.43**	0.23
Older workers' employment rate gap	0.04	**0.44**	**-0.54**
Youth unemployment ratio	**-0.53**	0.31	-0.10
Growth in labour productivity, per person employed	**-0.45**	**-0.81**	-0.01
Growth in labour productivity, per hour worked	-0.34	**-0.68**	0.12
Productivity per employee	**0.75**	0.34	-0.16
Productivity per hour worked	**0.72**	0.32	-0.11

Source: Adapted from Davoine et al. (2008).
Note: All listed variables are 'active' – i.e. they all contribute to the definition of the principal components. Correlations larger than 0.4 in absolute value are in bold.

Chart 1: Correlation coefficients between variables and the two principal components, representing 42.9% of overall variability in the data



Source: Davoine et al. (2008).

correlation with work intensity indicators (i.e. working at high speed and under tight deadlines), which suggests that problems of work intensification may be more acute in countries with high wage/productivity and good socio-economic security outcomes.

The second principal component, which accounts for 16.5% of the overall variability in the data, is *positively* correlated with the gender employment gap and the share of early school-leavers, but *negatively* correlated with educational attainment, gender occupational/sectoral segregation and the pay gap as well as the number of months of maternity leave. Hence, this factor can be interpreted as representing gender balance and initial education. As regards gender balance, the second axis suggests the existence of a trade-off between female employment, on the one hand, and gender occupational/sectoral segregation and the pay gap[31], on the other hand. Concerning contextual variables, the second axis is negatively correlated with growth in labour productivity, possibly implying the negative impact of low levels of educational attainment. Finally, this axis is also negatively correlated with an indicator on social dialogue at the workplace (i.e. share of workers being consulted on changes in work organisation).

The third principal component, which accounts for 9.4% of overall variability in the data, can be interpreted as capturing some aspects related to working conditions and gender balance not captured in the first two axes. The third axis is *positively* correlated with the repetitiveness of tasks and the change in the number of accidents in the 1998–2004 period, but *negatively* correlated with working at night. Furthermore, it is positively associated with the share of involuntary fixed-term employment. As regards gender issues, it is positively correlated with the availability of childcare. Finally, the third axis appears to be positively correlated with hours spent in training[32], which can be interpreted as a proxy of its intensity.

Chart 1 plots the correlation coefficients between the variables and the first two principal components using the 'unitary circles'.[33]

31 When women's labour market participation is low, occupational/sectoral segregation and pay gap tend also to be low.

32 The first axis captures participation in training.

33 A variable close to the unitary circle has a high correlation with a linear combination of the two principal components being considered, hence it is well represented by one (or both) of them.

In the second step of the analysis, country scores on the principal components are used to classify Member States across a reduced number of clusters based on their similarity/dissimilarity in terms of the main dimensions of job quality. In other words, each cluster groups those countries sharing a relatively similar model of job quality.[34]

The resulting taxonomy appears to identify four job quality systems in the EU (see Table 3), which can be characterised as follows:

Table 3: Results of the CA, using an ascending hierarchical method on the list of job quality indicators of Table 2

Nordic	Continental	Southern	Eastern
DK	BE	ES	CZ
NL	LU	MT	EE
UK	DE	IT	LT
SE	AT	PT	HU
FI	IE	EL	BG
	FR		LV
	CY		SK
	SI		RO
			PL

Source: Adapted from Davoine et al. (2008).

- A **Nordic cluster**, including Denmark, Finland, Sweden, the UK and the Netherlands – this system is characterised by high wages[35] and overall good socio-economic security, together with good working conditions. It also displays high participation in training and large availability of childcare facilities. Job satisfaction, employment rates and productivity levels are also relatively high. However, average work intensity is higher than in other clusters. Hence, this cluster ranks relatively high on the first axis. It is, nonetheless, in a low-to intermediate position on the second axis, which reflects a relatively low gender employment gap and a relatively high average educational attainment.

- A **Continental cluster**, including Belgium, Germany, Austria, Luxembourg, France, Ireland, Cyprus and Slovenia – this system is close to the average EU situation in most indicators. It ranks in an intermediate-to-high position both on the first axis, which signals a relatively favourable situation in terms of socio-economic security and working conditions, and on the second axis, which suggests the prevalence of intermediate-to-high gender employment gaps and intermediate-to-low levels of educational attainment. The low ranking along the third axis is associated with a relatively high employment gap for older workers.

- A **Southern cluster**, including Greece, Portugal, Italy, Malta and Spain – this system is characterised by an overall unfavourable performance in terms of job quality. Countries in this cluster display intermediate-to-low scores on the first axis, which are associated with low levels of socio-economic security, training and working conditions. Furthermore, they tend to be located on the upper end of the second axis, signalling relatively low levels of educational attainment, large gender employment gaps and a lack of social dialogue. A higher-than-average score on the third axis in this cluster – namely in Spain, Portugal and Greece – reflects the importance of labour market segmentation in these countries.

- A **New Member States' cluster**, including Poland, Romania, Hungary, Bulgaria, Slovakia, the Czech Republic, Latvia, Lithuania and Estonia – this system has relatively low scores on the first axis, particularly in Poland, Slovakia and Romania, which imply low socio-economic security and rather unfavourable working conditions (e.g. high health risks), which are partly offset by the relatively low work intensity. However, these countries display an intermediate-to-low score on the second axis, due to the relatively high level of initial education achieved. Finally, they are characterised by low productivity levels and high productivity growth rates, as expected in 'catching-up' countries.

Chart 2 plots countries' scores along the first two axes (socio-economic security/working conditions and gender balance/initial education).

All considered, this analysis points to significant differences across EU Member States as regards job quality, with Scandinavian countries, together with the Netherlands and the UK, showing better outcomes. Furthermore, these results do not seem to support the hypothesis of a trade-off between job quantity and quality, as for instance, countries belonging to the Nordic cluster exhibit both good outcomes in terms of employment rates, productivity levels and other indicators related to job quality.

The results of this clustering exercise, using the list of indicators of Table 2, are quite similar to those obtained in the literature, such as Esping-Andersen's and Amable's typologies (see section 3.1). In addition, they are roughly in line with the taxonomy of flexicurity regimes identified in the 2006 and 2007 editions of *Employment in Europe*. However, an

34 The technique used is the hierarchical ascending clustering method which consists in grouping similar cases (countries in our analysis), by maximising inter-classes 'distance' and minimising intra-classes 'distance'. A classification tree is obtained that is partitioned at a certain 'cut-off point' chosen by the researcher in order to get an 'optimal' number of clusters. See Nardo et al. (2005) for details.

35 i.e. high wages compared with the EU average. The reader should keep in mind that this does not say anything about wage distribution. This information is partially captured via the share of working poor. As the latter is negatively correlated with the first axis, the Nordic cluster is also characterised by relatively more equal wage distribution at the lower end of the earnings scale.

important difference can be found in the absence of an Anglo-Saxon specific model of job quality, as the UK is included in the Nordic model, while Ireland joins the Continental one. This reflects both the set of variables chosen for the analysis[36] and the functional equivalence across different models.

3.2.1. A comparison with the Laeken indicators

A similar multivariate analysis was carried out using the Laeken set of indicators of job quality, in order to evaluate the value added of considering a broader set of indicators. Table 4 displays the correlation coefficients between the Laeken indicators and the first three principal components.

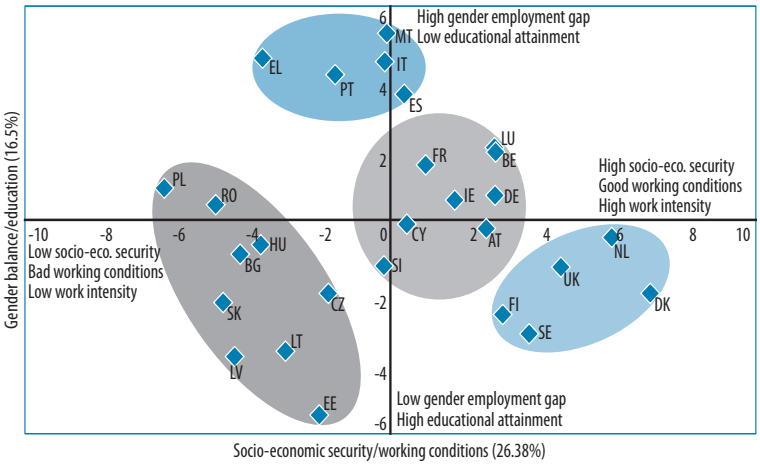
The three principal components account for almost two thirds (63.9%) of the overall variability in the data. The first factor is positively correlated with participation in education and training, employment rates and the availability of childcare facilities. However, it is negatively correlated with unemployment rate indicators. The second factor is positively correlated with the gender pay gap and indicators on occupational/sectoral segregation, and negatively correlated with the gender employment gap and early school-leavers. The third principal component is negatively correlated with early school-leavers (although more weakly than the second axis) and the change in the number of accidents, and positively correlated with the employment gap of older workers.

Comparing the results obtained using the Laeken indicators (section 3.2.1) with those using the enlarged set (section 3.2) suggests that the latter provides a better interpretation of the various dimensions of the job quality concept for two main reasons:

- First, the broad set of indicators enables the various dimensions of job quality to be better characterised using a PCA. In particular, including wage-related variables is vital for interpreting the first axis as representing socio-economic security aspects of job quality. The inclusion of health at work risks and work-intensity indicators in the broad set is also crucial to associate the first axis with working conditions.

- Second, some variables included in the Laeken indicators are statistically redundant – i.e. they are highly correlated. In particular, this concerns gender and age breakdowns of participation in training and education, and employment and unemployment variables. This suggests that there is room for streamlining in the Laeken set of indicators.

Chart 2: PCA – country scores on an enlarged job quality framework: socio-economic security/working conditions and gender balance/education



Source: Adapted from Davoine et al. (2008).

Table 5: Results of the CA based on the Laeken indicators, using an ascending hierarchical method

Nordic	Continental	Southern	Eastern I	Eastern II
DK	BE	ES	CZ	PL
UK	LU	MT	EE	SK
SE	DE	IT	LT	
FI	AT	PT	HU	
	IE	EL	BG	
	FR		LV	
	NL		RO	
	SI		CY	

Source: Adapted from Davoine et al. (2008).

The results of the CA corresponding to the Laeken indicators are presented in Table 5.

The clusters identified in Table 5 are similar to those derived in section 3.1 (Table 3). All countries belong to the same group as before, with the exceptions of Cyprus, which is included in the Eastern I cluster, and the Netherlands, which is included in the Continental cluster. The Eastern cluster is split now in two groups – one including Poland and Slovakia, reflecting their high unemployment and low employment rates. Chart 3 plots Member States' scores along the first two principal components.

36 The existing typologies in the literature are essentially based on institutional variables, such as the strictness of employment protection legislation or spending on labour market policies, which are absent from the present exercise. Secondly, the absence of transition rates by activity status, type of job contract and pay level prevents the current analysis from capturing possible differences in terms of dynamic job quality outcomes between UK and Nordic countries. However, UK and Ireland differ significantly in terms of education and training performance – i.e. UK is characterised by a much larger share of people participating in training programmes – putting into question the homogeneity of an 'Anglo-Saxon' cluster.

Table 4: PCA analysis using the Laeken job quality indicators

	D1	D2	D3
Variability (%)	36.4%	18.9%	8.6%
Cumulative (%)	36.4%	55.3%	63.9%
Correlations with principal components			
Job satisfaction	**0.67**	-0.25	0.23
Participation in training and education (PTE)	**0.94**	0.02	0.11
PTE – women	**0.93**	0.06	0.07
PTE – men	**0.93**	-0.03	0.18
PTE – age group 25–34	**0.94**	0.03	0.16
PTE – age group 35–44	**0.94**	0.03	0.10
PTE – age group 45–54	**0.92**	0.02	0.11
PTE – age group 55–64	**0.79**	0.00	0.00
PTE – low educational attainment	**0.81**	0.09	-0.01
PTE – medium educational attainment	**0.87**	-0.22	0.10
PTE – high educational attainment	**0.84**	-0.09	0.16
PTE – employed	**0.89**	0.00	0.15
PTE – unemployed	**0.81**	-0.06	-0.07
PTE – inactive	**0.88**	-0.08	0.08
Use of computers	**0.77**	-0.15	0.37
Gender pay gap	0.34	**0.60**	-0.15
Gender employment gap	-0.38	**-0.69**	0.04
Gender unemployment gap	0.30	**0.48**	-0.39
Sectoral segregation	0.14	**0.58**	-0.37
Occupational segregation	0.12	**0.65**	-0.33
Change in the number of accidents in the 1998–2004 period	-0.01	0.34	**-0.43**
Involuntary part–time employment	**-0.52**	-0.03	-0.35
Involuntary fixed–term contracts	-0.20	-0.20	-0.01
Employment rate for people aged 15–64	**0.87**	0.10	-0.17
Employment rate for people aged 15–24	**0.80**	-0.23	-0.09
Employment rate for people aged 25–54	**0.67**	0.42	-0.06
Employment rate for people aged 55–64	**0.64**	0.23	**-0.50**
Employment rate for people with low levels of education (ISCED 0–2)	**0.59**	**-0.69**	-0.15
Employment rate for people with medium levels of education (ISCED 3–4)	**0.83**	0.06	-0.24
Employment rate for people with high levels of education (ISCED 5–6)	**0.51**	0.40	-0.38
Long-term unemployment rate	**-0.69**	0.27	0.44
Long-term unemployment rate for women	**-0.69**	0.16	**0.51**
Long-term unemployment rate for men	**-0.64**	0.36	0.34
Early school-leavers	-0.23	**-0.75**	**-0.51**
Early school-leavers (women)	-0.23	**-0.70**	**-0.49**
Early school-leavers (men)	-0.22	**-0.73**	**-0.55**
Youth unemployment ratio	**-0.57**	-0.01	**0.48**
Employment impact of parenthood (women)	-0.09	**0.51**	0.02
Employment impact of parenthood (men)	0.22	0.15	-0.28
Availability of childcare for 3 years old	**0.69**	-0.25	0.02
Availability of childcare between 3 years of age and compulsory schooling age	**0.55**	-0.18	0.03
Availability of childcare between compulsory schooling age and 12 years of age	0.27	-0.48	-0.23
Inactives not seeking employment due to family responsibilities	0.03	-0.06	-0.43
Difference in employment rates between people aged 55–64 and 15–64	-0.24	-0.25	**0.63**
Growth in labour productivity (GDP per person employed)	-0.11	**0.91**	-0.13
Growth in labour productivity (GDP per hour)	-0.02	**0.76**	-0.11
Productivity per employee	**0.46**	-0.45	0.46
Productivity per hour	**0.41**	-0.44	0.42
Fraction of the population aged 25–64 with secondary education or more	0.20	**0.93**	0.20
Fraction of women with upper secondary education or more	0.20	**0.94**	0.14
Fraction of men with upper secondary education or more	0.20	**0.89**	0.26
Fraction of workers with fixed–term contracts	0.07	-0.28	0.21
Fraction of part–time workers in total employment	**0.69**	-0.25	0.27

Source: Davoine et al. (2008).
Note: All listed variables are 'active' (see Table 2). Correlations larger than 0.4 in absolute value are in bold.

3.3. Assessing job quality trends

Time series are used to characterise the dynamics of job quality in the EU mainly since the mid-1990s. Two multivariate techniques are used:

- Kohonen (or self-organising) maps
- Synthetic indices.

Similar to PCA, Kohonen maps reduce a large dataset to a limited number of dimensions (Kohonen, 1995). This chapter uses a particular form of Kohonen maps – constrained Kohonen maps[37] to group countries in terms of job quality and map the evolution in their relative rankings over time.

Synthetic indicators are normally used to provide a summary measure of multidimensional concepts, such as job quality, by aggregating various dimensions (Nardo et al., 2006). Hence, they are a useful tool for assessing diffenences in job quality across EU Member States and evaluating the magnitude and direction of change over time.[38]

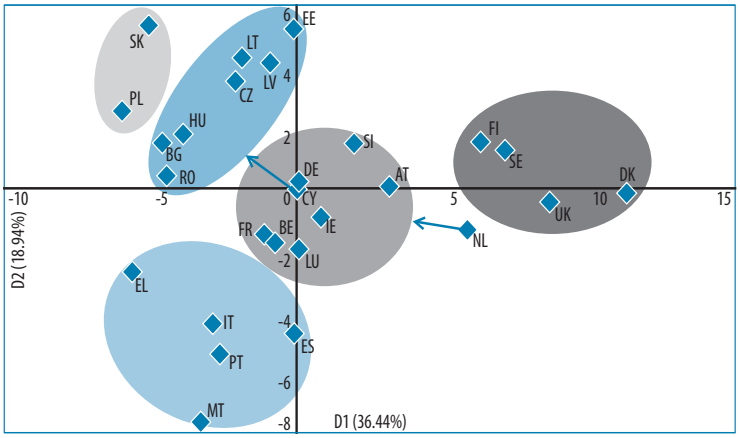
The analysis of job quality trends is based on a narrower set of variables than the cross-section one (section 3.2), namely because of both geographical and time coverage problems with a number of potentially relevant variables. As a result, various Member States are excluded from the analysis – namely Germany, the UK, Bulgaria, Lithuania, Slovenia, Malta and Romania – whereas others are only partially covered over the period considered.[39]

*Table 6: List of variables included in the time-series analysis of job quality**

Variable	Direction of the impact on job quality	Available for 1983–2004	Available for 1995–2004
1 year transitions from non-employment to employment	(+)	yes	yes
Long-term unemployment rate	(-)	no	yes
Part-time rate	Ambiguous, excluded from the index	yes	yes
Involuntary part-time	(-)	yes (only for index)	yes
Share of employment with fixed-term contracts	(-)	yes	yes
Older workers (55-64) employment gap	(-)	yes	yes
Gender employment gap	(-)	yes	yes
Gender pay gap	(-)	no	yes
Gender occupational segregation	(-)	no	yes
Participation in education and training	(+)	yes	yes
Upper secondary education attainment	(+)	no	yes
Non-standard hours**	(-)	no	yes
In-work accidents rate	(-)	yes	yes (only for index)

Source: Adapted from Davoine et al. (2008).
*Note: * The data source is the LFS, except for the gender pay gap (European Communities' Households Panel, ECHP) and the in-work accidents' rate (European Statistics of Accidents at Work, ESAW, and national sources).*
*** This variable includes shares of workers working at night, on Saturday, on Sunday and, only for the analysis with Kohonen maps, shift work.*

Chart 3: PCA on Laeken portfolio: country scores on the first two axes



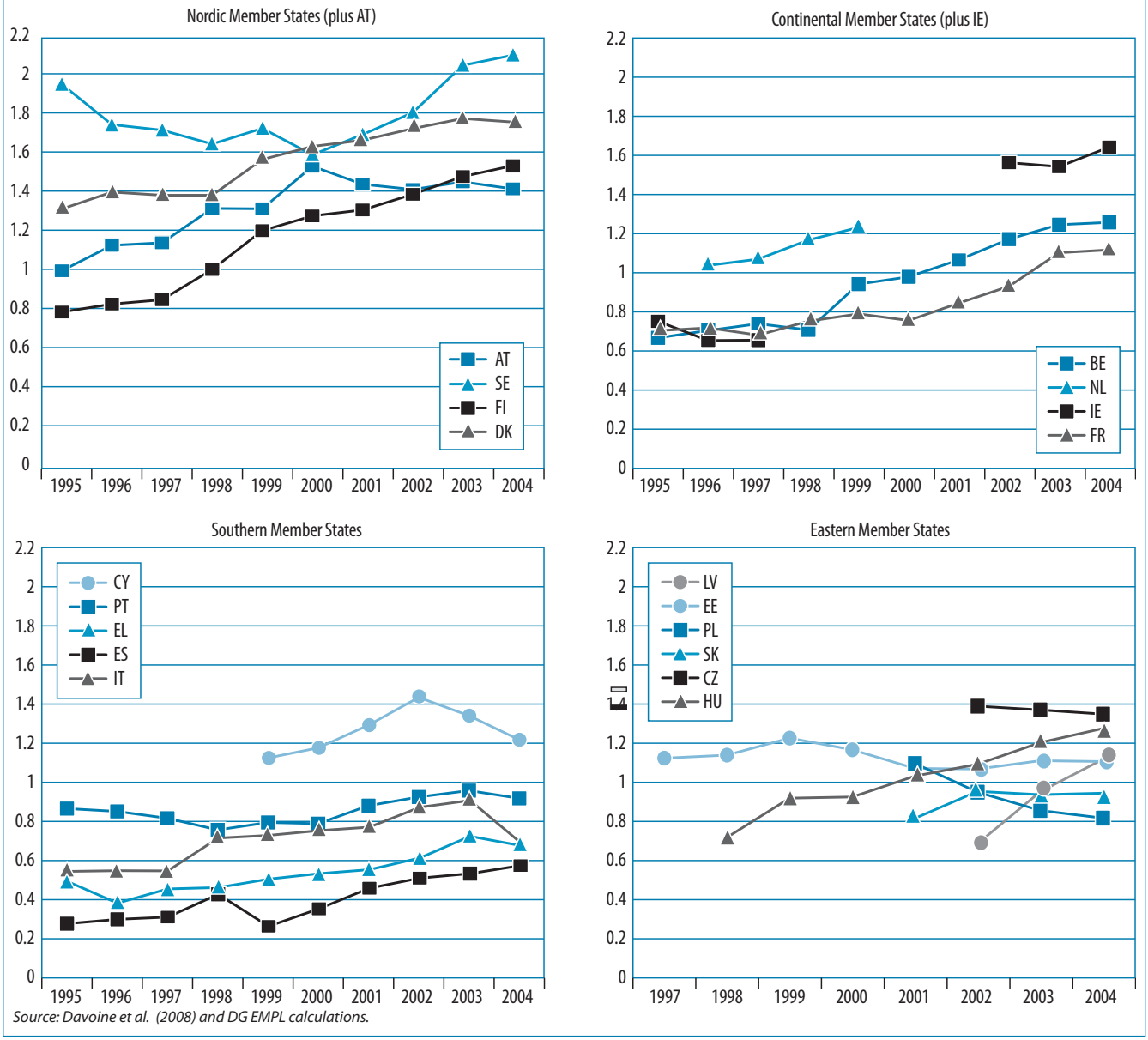
Source: Adapted from Davoine et al. (2008).

37 This particular technique was developed at SAMOS (centre of economic research of the Sorbonne University, Paris) (Aaron et al., 2003).

38 Synthetic indicators are computed as follows. First, variables to be included are standardised in order to render them comparable. Second, synthetic indicators are calculated by adding or subtracting the standardised variables according to their likely impact on job quality, respectively, positive or negative. Therefore, variables that have an ambiguous impact are excluded from the calculations. Variables are given equal weights. Table 6 lists the variables included, their respective signs, and time coverage.

39 The more limited country coverage has allowed to include one-year transition rates between non-employment and employment, calculated based on the LFS, which were absent in the cross-section analysis in 3.2. However, this represents only a minor improvement as the LFS does not allow calculating transitions by pay level and contract type and does not provide information other than the individual's activity status the year before the survey.

Chart 4: Synthetic index of job quality



Source: Davoine et al. (2008) and DG EMPL calculations.

Finally, given that some variables are not available before the 1990s[40], the analysis is run for two different periods: from 1983 to 2004 covering the EU-15, and from 1995 to 2004, incorporating the new Member States.

3.3.1. Kohonen maps

Using a Kohonen map, Table 7 shows the evolution of job quality in the EU since 1994. Member States are ranked into 10 classes, which are further divided into four main groups (drawn using different shades). The results of the latter are largely similar to those obtained using the tandem analysis of principal components and CA carried out in section 3.2.

Nordic countries (e.g. Denmark, Finland and Sweden) are grouped together in the best-performing group, while some southern Member States (e.g. Greece and Italy) are included in the worst-performing group. Continental Member States, such as Belgium, France and the Netherlands, stand in an intermediate position. The table records changes in the composition of job quality clusters (or the relative ranking of countries) over time. First, a fourth group appears from 2000, including most new Member States, suggesting that their EU accession has increased the degree of heterogeneity in job quality outcomes. Secondly, some changes in the relative rankings of Member States have taken place over time. On the one hand, Austria, France and Ireland appear to have moved from an intermediate to a top position, suggesting a process of catching-up with Nordic Member States.[41] On the other hand, Estonia and Poland have experienced some deterioration in their relative position.[42]

40 Kohonen maps cannot include variables which are not available throughout the entire period considered.

41 Spain and Portugal also appear to have improved their relative position with respect to Greece and Italy since 2000. However, the ranking of Spain is likely to be overestimated due to the exclusion of the workers' accidents rate.

42 The former has moved from a top to an intermediate position, while the latter has moved from an intermediate to a position at the bottom.

Table 7: A Kohonen map of job quality indicators (1994–2004)

class	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
1		SE	FI	EE	EE	FI	DK	AT	AT	AT	AT
1			SE	FI	FI	SE	FI	DK	DK	DK	DK
1					SE		SE	FI	IE	IE	IE
1								SE	SE	SE	
2	DK								FI	FI	FI
2										FR	FR
2											SE
3		FI	AT	SE	AT	AT	AT	EE	LV	LV	LV
3			DK		DK	EE	EE				
4	BE	DK		DK	NL	DK	HU	SK	EE	EE	EE
4	FR								PL	SK	SK
5		AT	NL	AT	FR	NL	BE	HU	SK		CZ
5				NL				PL			
6	IE	BE	FR		BE	BE	CY	BE	HU	HU	BE
6					HU	FR	FR		CZ	CZ	HU
7		FR	BE	BE		HU		FR	BE	BE	CY
7				FR							
8	EL	IE	IE	IE	ES	IT	ES	CY	CY	CY	ES
8	IT	PT			PT		PT	PT	FR	ES	PT
8									PT	PT	
9			ES	ES		EL		ES	ES		
9				PT							
10	ES	ES	EL	EL	EL	ES	EL	EL	EL	EL	EL
10	PT	EL	IT	IT	IT	PT	IT	IT	IT	IT	IT
10		IT	PT							PL	PL

Source: Davoine et al. (2008).
Note: In each year countries are grouped across squares in the grid, corresponding to decreasing levels of job quality from the top to the bottom along the vertical axis. The number of classes is initially set to 10, yielding a variable number of groups (drawn using different shades).

By reducing the geographical coverage to the EU-15, a Kohonen map can be calculated for a longer period (1983–2004) (see Table 8). The extended time horizon allows for further qualification of previous results. First, southern Member States (e.g. Italy, Greece and Spain) appear to have joined the intermediate group in 1998, suggesting some catching-up in the EU-15. Second, Italy is sometimes located in the middle group, together with Denmark. Third, Austria and France are frequently located close to the Nordic group.

3.3.2. Synthetic indices

A synthetic job quality index is plotted in Chart 4.[43] Results are broadly in line with those obtained in section 3.2. Austria is at the top of the rankings, closer to Nordic Member States, while Southern countries are at the bottom. The Netherlands, France and Belgium are situated in an intermediate position. New Member States also tend to have intermediate scores. Chart 4 suggests that job quality has generally improved across EU Member States over the 1995–2004 period. The rise appears to be more pronounced in Ireland, Finland, France, Belgium, Denmark and Hungary, whereas in Poland and Estonia job quality has slightly deteriorated.

Taken together, the Kohonen maps and synthetic indices suggest an overall positive trend in job quality, particularly in Ireland, France and Austria.[44] Although the heterogeneity across Member States has increased since the 2004 enlargement, Member States can be grouped into a few job quality clusters, the composition of which has remained relatively unchanged over time.

These results should be taken with care, especially those related to synthetic indexes. In fact, results depend on the choice of variables, method of aggregation and weighing scheme. The reader should bear in mind that the range of job quality components considered is relatively limited due to data availability problems. The choice of equal weights is largely arbitrary, although being transparent, simple and in line with the literature which does not establish any clear 'hierarchy' between the different components of job quality.

Nonetheless, these results are in line with those derived from similar exercises undertaken in the literature, such as the Job Quality Index calculated by the European Trade Union Institute (Leschke et al., 2008) and based on 15

43 The index in Chart 4 is calculated by excluding the gender pay gap as this leads to slightly improved time coverage of some Member States. The corresponding index numbers are displayed in the data annex together with those including the gender pay gap.

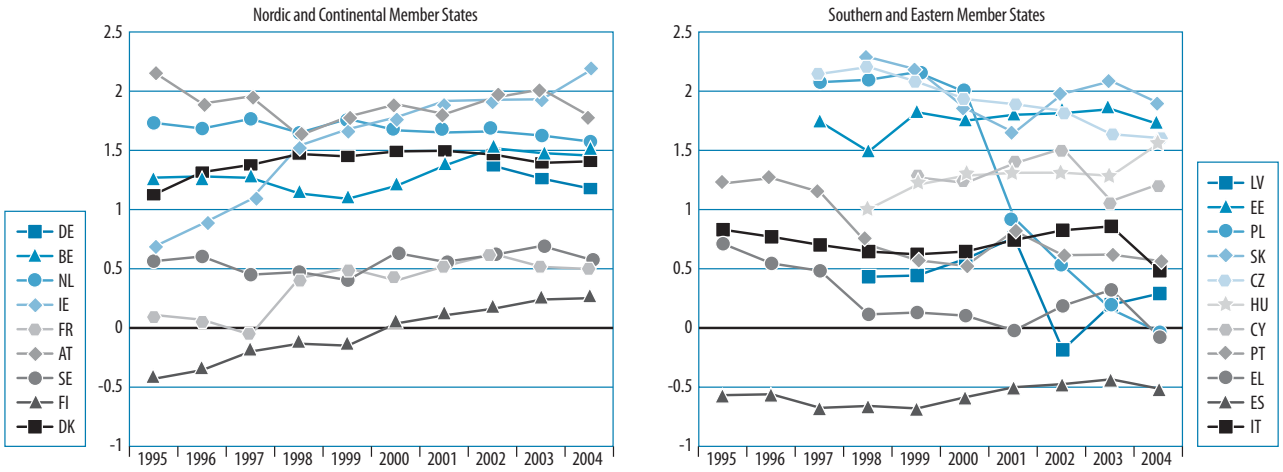
44 This is essentially linked to the fact that these three Member States join the Nordic cluster towards the end of the period in the 1994–2005 Kohonen Map. Looking at the synthetic index alone, however, the evidence is weaker as other Member States display similar improvements. Finally, trends in individual variables should also be examined in order to identify what drives overall job quality improvements. For instance, in the case of France, this is mainly determined by diminishing share of involuntary part-time, declining work accident's rate and older workers' employment gap, as well as increasing training participation.

Table 8: A Kohonen map of job quality indicators (1983–2004)

class	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
1	DK	DK	DK	DK	DK	DK	DK	DK	DK	DK	DK
2					FR	FR	FR	FR		FR	FR
3	FR	FR	FR	FR	BE	BE	BE	BE	BE	BE	BE
4			BE	BE	IT	IT	IT	IT	FR	IT	IT
5	IT	IT							IT	EL	EL
6	EL	EL	EL, IT	EL, IT	ES, EL	ES, EL	ES, EL	ES, EL	ES, EL	ES	ES
class	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
1	DK	SE	SE	DK, SE	DK, SE	DK, SE	DK, SE	DK, SE	DK, FI, SE	DK, FI, SE	DK, FI, SE
2	FR	DK	DK, FI	FI			FI	FI			
3	BE	FI	AT, FR	AT, FR	ES, FI	AT, FI	AT	AT	AT, IT	DE, BE	AT, FR
4	IT	AT, BE, FR	BE	BE	AT	IT	EL, IT	BE, IT	DE, BE	AT, FR	DE, BE
5	EL	IT	IT	IT	IT	EL		FR	FR	IT	IT
6	ES	ES, EL	ES, EL	ES, EL	BE, FR, EL	BE, ES, FR	BE, ES, FR	ES, EL	ES, EL	ES, EL	ES, EL

Source: Davoine et al. (2008).

Chart 5: Index of flexible employment



Source: Davoine et al. (2008) and DG EMPL calculations.
Note: The index is the average of involuntary part-time rate and temporary employment rate, both with minus sign, augmented by 1.

indicators covering six dimensions[45] of job quality. Preliminary results for the EU-15 point to a slight improvement on average in overall job quality between 2000 and 2005-7 (as the most recent year available differs across the indicators included), confirming familiar country ranking, with high scores for Scandinavian Member States and the UK, and low scores for southern Member States (ETUI, 2008).

3.3.3. Job quality sub-indices

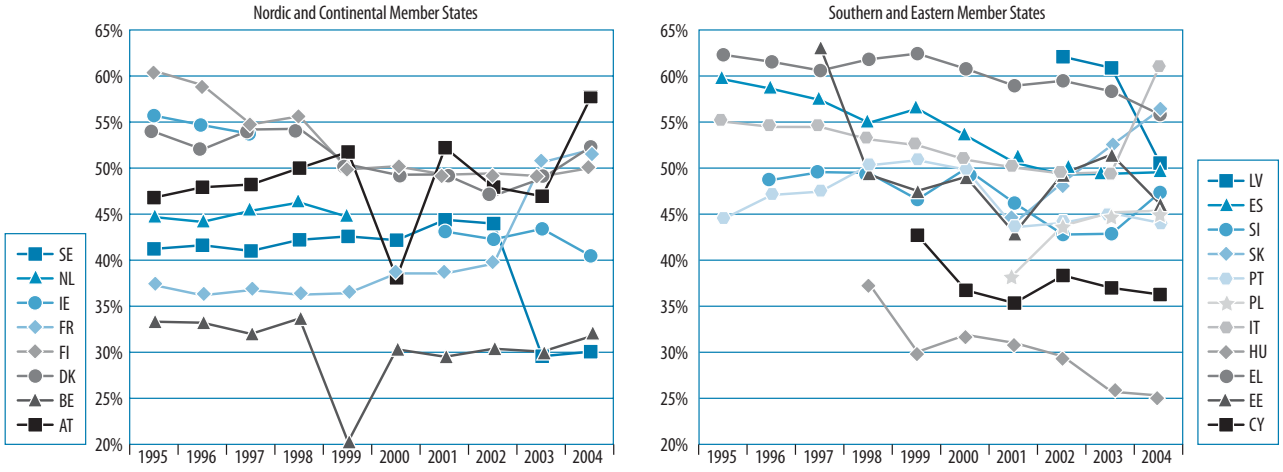
This section calculates sub-indices on the evolution of selected aspects of job quality, such as the degree of flexibility of employment relations, atypical working hours and gender balance.

Covering the period 1995–2004, the sub-index on the degree of flexibility of employment relations combines the rate of involuntary part-time work with the rate of temporary employment. A higher/lower score corresponds to a lower/higher incidence of temporary and/or involuntary part-time employment. The sub-index is plotted in Chart 5. Spain and Greece have low values of this index throughout the period, reflecting a high incidence of precarious forms of employment. A significant deterioration in this index can be observed after 2000 in Poland, because of the rapid growth in involuntary temporary employment. This index has improved in France and Ireland.

The sub-index on atypical working hours is computed by summing up the shares of workers working at night, on Saturdays and on Sundays. Results for the period 1995–2004 are plotted in Chart 6.

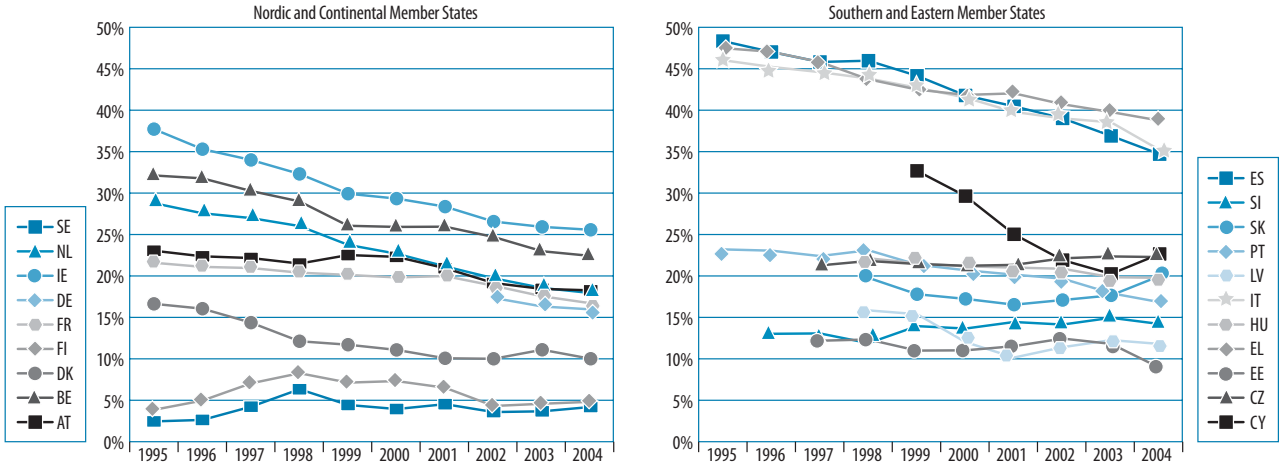
45 i.e. 1) wages; 2) non-standard employment; 3) working time and work–life balance; 4) working conditions and job security; 5) skills and career development; 6) collective interest representation.

Chart 6: Share of workers with atypical working hours*



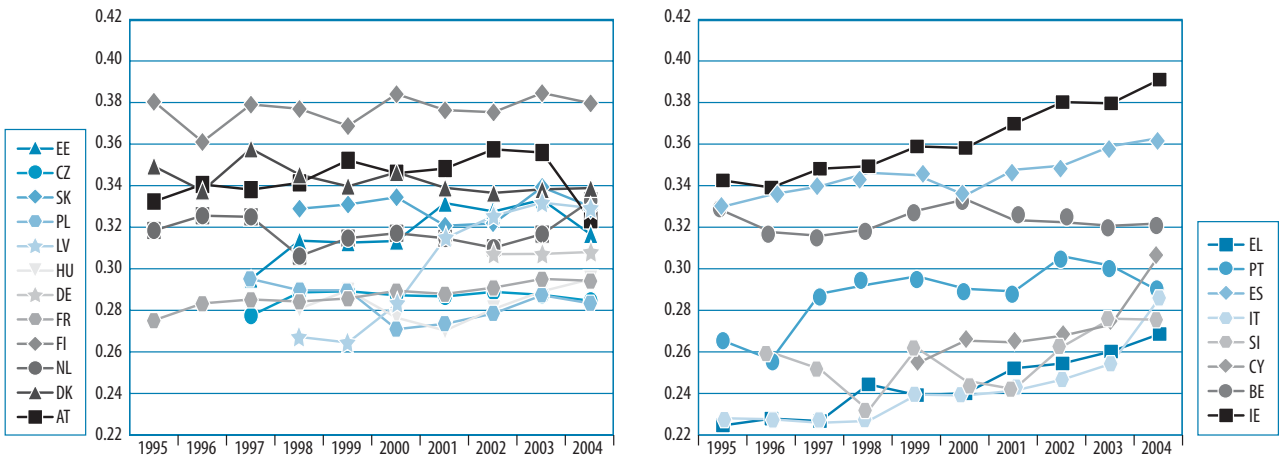
Source: Davoine et al. (2008).
*Note: * i.e. the sum of shares of workers working at night, on Saturday and on Sunday.*

Chart 7: Gender employment gap



Source: Davoine et al. (2008).

Chart 8: Index of gender segregation by sector



Source: Davoine et al. (2008).

Some southern Member States (e.g. Greece, Spain, Italy), new Member States (e.g. Latvia, Estonia and Slovenia), together with Nordic countries (e.g. Denmark and Finland), show a relatively high incidence of non-standard working hours, although it decreases over the period, particularly in Spain. Only in a minority of Member States (e.g. France, Austria, Poland and Slovenia) has an increase in this sub-index been observed over the period.

Chart 7 displays gender employment gaps between 1995 and 2004. It suggests two main developments.

– First, the best performers are Nordic Member States, although new Member States also have relatively low employment gaps.

– Secondly, a convergence pattern across the EU can be identified, as countries with the largest gender gaps at the start of the period (e.g. southern Member States, Ireland and Belgium) also experienced the largest reduction over the period.

Chart 8 displays gender segregation by sector of activity. Comparing Charts 7 and 8 provides some support for the existence of a trade-off between the female employment gap and gender segregation (see section 3.2), as Member States which have reduced the former most tend also to be those where segregation has risen (see the left-hand Graph in Chart 8 – e.g. Ireland, Spain, Greece, Italy and Cyprus).

4. Conclusions

Job quality is fully enshrined in the EES as reflected by the call to achieve more and better jobs. However, significant employment growth in the EU over the last decade has gone together with widespread concerns about the quality of a large share of European jobs related to the growth of temporary work, the larger exposure of jobs to competitive pressures and perceptions of deteriorating working conditions and higher work intensity.

Against this background, this chapter provides a critical review of the EU job quality concept based on recent developments in socio-economic literature and on empirical analysis. While the EU concept acknowledges the multi-dimensionality of job quality and includes both objective and subjective variables, room for improvement can be identified. Firstly, the current concept does not include crucial variables such as wages and work intensity while only partially covering certain dimensions such as training and education. On the other hand, it includes aggregate economic variables not directly related to specific job and worker characteristics

Based on this assessment, this chapter proposes a more developed analytical framework based on four main dimensions of job quality:

i) wages and socio-economic security;

ii) working conditions and work intensity;

iii) skills and training;

iv) the reconciliation of work with private life (including gender equality aspects).

Reflecting this enlarged framework, EU Member States are mapped into a reduced number of job quality models or regimes, highlighting the significant degree of heterogeneity of job quality outcomes across Europe. In 2005–06 four models can be identified in the EU:

i) **Northern, including the UK and the Netherlands** – high wages, good working conditions, but also high work intensity, as well as high educational attainment and participation in training;

ii) **Continental** – close to the average EU situation for most of the indicators;

iii) **Southern** – relatively low wages, low rates of participation in education and training, unfavourable working conditions and relatively larger gender employment gaps;

iv) **New Member States** – low wages, unfavourable working conditions, together with relatively high educational attainment and low gender employment gaps.

A comparison with results based on the Laeken definition of job quality suggests that such an enriched framework would allow for a better taxonomy of European job quality models, essentially by improving the interpretation of the axes along which such models are defined.

Based on a more limited set of variables, and narrower country coverage, the chapter also characterises the dynamics of job quality over time in the EU. Results suggest a slight overall improvement from 1994 to 2004, although trends vary to some extent across Member States, as well as a near stability in the geographical composition of job quality models.

Finally, results suggest the existence of significant synergies between the number of jobs and their quality, as well as between job quality and labour productivity. In fact, countries with the most favourable combinations across various job quality dimensions (such as northern Member States, the Netherlands and the UK) also appear to hold high ranking positions in terms of employment rates and productivity.

The results of this analysis, nevertheless, have to be considered as preliminary and taken with some caution, especially as regards the limited time/geographical coverage and relatively narrow range of variables in the dynamic analysis as well as the insufficient treatment of labour market transitions (by labour market statuses, type of contract and income levels). In particular, an analysis of labour market transitions is necessary to assess crucial aspects of both labour market flexibility and security, such as future career prospects. In the current European context, adequate treatment of labour market transitions is particularly relevant because job quality concerns are often associated with larger perceived risks of job loss and precarious labour market attachment.[46]

46 A detailed analysis of labour market transitions requires use of longitudinal data sets, such as the European Union Statistics on

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Data annex

Table 1a: Description of the data

Variable	Year	Source
Socio-economic security		
Job satisfaction: % of workers who declare "I am satisfied/very satisfied with my working conditions"	2006	Q36, 4th EWCS
"I am well paid for the work I do"	2006	Q37b, 4th EWCS
Mean wage in PPS	2001	ECHP and Davoine et al. (2008)
"My job offers good prospects for career advancement"	2006	Q37c, 4th EWCS
Fixed-term contract as a percentage of total number of employees	2006	LFS
Involuntary fixed-term contracts as percentage of fixed-term contracts	2006	LFS
Percentage of employed whose equivalised disposable income is below 60% of national median equivalised disposable income	2001	EMCO Compendium
Long-term unemployment rate	2006	LFS
Education and training		
Percentage of population aged 25–64 participating in education or training programmes	2006	LFS
Percentage of population aged 55–64 participating in education or training programmes	2006	LFS
Percentage of unemployed participating in education or training programmes	2006	LFS
Cost of Continuous Vocational Training (CVT) courses per participant	1999	CVTS2
Hours of CVT courses per participant	1999	CVTS2
Share of the workforce working with computers (PCs, network, mainframe)	2006	Q11K, 4th EWCS
Percentage of the population aged 18–24 with at most lower secondary education (ISCED level 2) and not in further education or training	2006	LFS, EMCO Compendium
Percentage of the population aged 25–64 having completed at least upper secondary education (ISCED3 level)	2006	ESTAT
Reconciliation-gender balance		
Difference between men's and women's average gross hourly earning as percentage of average men's hourly earning (for paid employees at work)	2001	National sources and ECHP
The difference in employment rates between men and women in percentage points	2006	LFS
The difference in unemployment rates between women and men in percentage points	2006	LFS
Gender segregation by sectors, calculated as the average national share of employment for women and men applied to each sector; differences are added up to produce a total amount of gender imbalance presented as a proportion of total employment (NACE classification)	2006	LFS, EMCO Compendium
Gender segregation by occupation (same as in previous cell by occupation/ISCO classification)	2006	LFS, EMCO Compendium
Part-time employment as a percentage of total employment	2006	LFS
Involuntary part-time as percentage of part-time employment	2006	LFS
Employment impact of parenthood for women: the difference in percentage points in employment rates without the presence of any children and with the presence of a child aged 0-6	2006	LFS, EMCO Compendium
Employment impact of parenthood for men: the difference in percentage points in employment rates without the presence of any children and with the presence of a child aged 0-6	2006	LFS, EMCO Compendium
Childcare: children cared for (by formal arrangements other than family) as a proportion of all children of the same age group (<3 years old)	2006	EMCO Compendium
Childcare: children cared for (by formal arrangements other than family) as a proportion of all children of the same age group (from 3 years old to compulsory school age)	2006	EMCO Compendium
Childcare: children cared for (by formal arrangements other than family) as a proportion of all children of the same age group (from compulsory school age to 12 years old)	2006	EMCO Compendium
Inactive not seeking employment but would nevertheless like to have work, but not searching due to personal or family responsibilities	2005	LFS, EMCO Compendium
Length of maternity leave in months (with benefits replacing at least 2/3 of salary)	2005	EMCO Compendium

Working conditions		
The evolution of accident rate defined as the number of serious accidents at work per 100 000 persons in employment	1999-2004	ESAW, EMCO Compendium
"Job involves painful/tiring positions"	2006	Q11a, 4th EWCS
"Job involves short repetitive tasks of <10min"	2006	Q20a, 4th EWCS
"My health is at risk because of work"	2006	Q33, 4th EWCS
"Working at very high speed"	2006	Q20Ba, 4th EWCS
"Working with tight deadlines"	2006	Q20Bb, 4th EWCS
"Consulted about changes in work organisation and/or working conditions"	2006	Q30b, 4th EWCS
"Working more than 10 hours a day"	2006	Q14e, 4th EWCS
"Working at night for at least 2 hours between 10pm and 5am"	2006	Q14a, 4th EWCS
Socio-economic context		
Difference in employment rates between 55–64 years old and 15–64 years old	2006	LFS
Youth unemployment ratio: total unemployed young people (15–24 years) as a share of total population in the same brackets	2006	LFS, EMCO Compendium
15–64 year-olds' employment rate	2006	LFS
Labour productivity (GDP per hour worked)	2005	ESTAT, EMCO Compendium
Labour productivity (GDP per person employed)	2005	ESTAT, EMCO Compendium
Growth in labour productivity (GDP per hour worked)	2004	ESTAT, EMCO Compendium
Growth in labour productivity (GDP per person employed)	2004	ESTAT, EMCO Compendium

Source: Davoine et al. (2008).
Note: EWCS, European Working Conditions Survey; CVTS, Continuous Vocational Training Survey; EMCO, Employment Committee; LFS, Labour Force Survey; ECHP, European Communities' Household Panel; and ESAW, European Statistics of Accidents at Work.

Table 2a: Synthetic index of job quality, without gender pay gap

	IT	ES	EL	PT	CY	FR	IE	NL	BE	DK
1995	0.54	0.28	0.49	0.87		0.67	0.72		0.64	1.31
1996	0.55	0.30	0.38	0.85		0.69	0.62	0.99	0.67	1.39
1997	0.55	0.31	0.45	0.82		0.65	0.63	1.02	0.71	1.38
1998	0.71	0.43	0.46	0.76		0.72		1.11	0.68	1.38
1999	0.73	0.26	0.51	0.79	1.12	0.75		1.18	0.90	1.56
2000	0.75	0.35	0.53	0.79	1.18	0.72			0.93	1.63
2001	0.77	0.46	0.55	0.88	1.29	0.81			1.02	1.66
2002	0.87	0.51	0.61	0.93	1.43	0.89	1.49		1.12	1.72
2003	0.91	0.53	0.72	0.96	1.34	1.05	1.47		1.19	1.77
2004	0.69	0.57	0.68	0.92	1.22	1.07	1.57		1.20	1.75
	FI	SE	AT	HU	CZ	SK	PL	EE	LV	
1995	0.78	1.95	0.99							
1996	0.82	1.74	1.12							
1997	0.84	1.71	1.14					1.12		
1998	1.00	1.64	1.31	0.72				1.14		
1999	1.20	1.72	1.31	0.92				1.23		
2000	1.27	1.59	1.53	0.93				1.17		
2001	1.30	1.69	1.44	1.03		0.82	1.10	1.07		
2002	1.38	1.80	1.41	1.09	1.39	0.96	0.95	1.07	0.69	
2003	1.47	2.04	1.45	1.20	1.37	0.94	0.86	1.11	0.95	
2004	1.53	2.10	1.41	1.28	1.35	0.95	0.82	1.11	1.12	

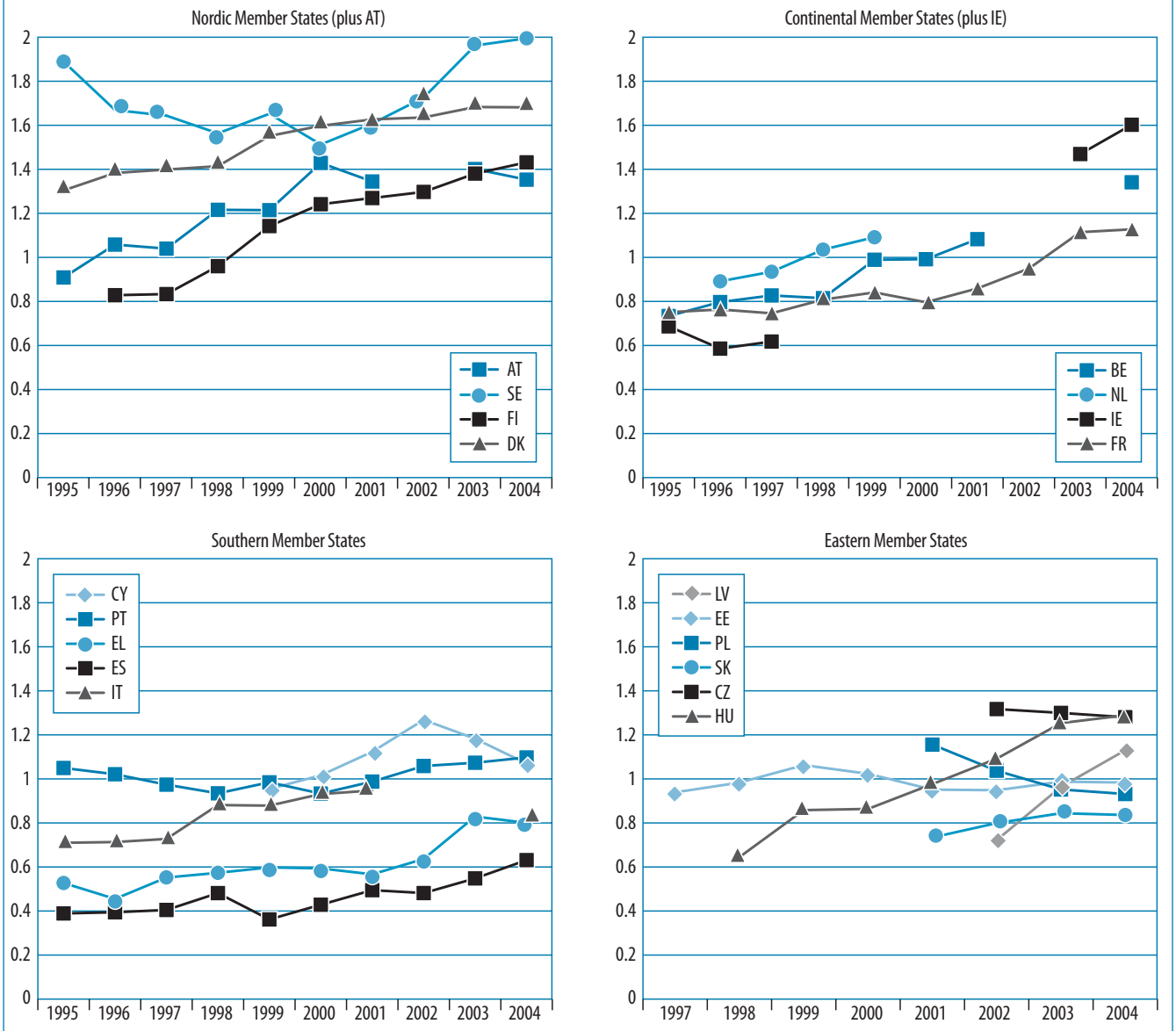
Source: Davoine et al. (2008) and DG EMPL calculations based on LFS, ESAW and national statistical sources.
Note: Chart 4 above is based on these figures.

Table 3a: Synthetic index of job quality, including gender pay gap

	IT	ES	EL	PT	CY	FR	IE	NL	BE	DK
1995	0.71	0.39	0.53	1.05		0.75	0.69		0.73	1.30
1996	0.71	0.39	0.46	1.02		0.76	0.59	0.89	0.80	1.38
1997	0.73	0.40	0.55	0.97		0.75	0.62	0.93	0.83	1.40
1998	0.88	0.48	0.57	0.93		0.81		1.04	0.81	1.41
1999	0.88	0.36	0.60	0.98	0.95	0.84		1.09	0.99	1.55
2000	0.93	0.43	0.59	0.93	1.02	0.80			0.99	1.60
2001	0.95	0.49	0.57	0.99	1.12	0.86			1.08	1.63
2002		0.48	0.64	1.06	1.27	0.95				1.64
2003		0.55	0.83	1.07	1.18	1.11	1.47			1.68
2004	0.86	0.63	0.80	1.10	1.07	1.13	1.60		1.34	1.68
	FI	SE	AT	HU	CZ	SK	PL	EE	LV	
1995		1.89	0.91							
1996	0.83	1.67	1.06							
1997	0.83	1.64	1.04					0.94		
1998	0.96	1.56	1.22	0.64				0.98		
1999	1.14	1.65	1.21	0.86				1.06		
2000	1.24	1.51	1.43	0.86				1.02		
2001	1.27	1.61	1.34	0.98		0.73	1.16	0.95		
2002	1.30	1.73		1.09	1.32	0.80	1.04	0.95	0.72	
2003	1.38	1.96	1.40	1.25	1.30	0.84	0.95	0.99	0.96	
2004	1.43	2.00	1.35	1.29	1.28	0.84	0.93	0.98	1.13	

Source: Davoine et al. (2008) and DG EMPL calculations based on LFS, EMCO Compendium, ESAW and national statistical sources.

Chart 1a: Synthetic index of job quality, including gender pay gap



Source: Davoine et al. (2008) and DG EMPL calculations.