

Employment in Europe 2003

Recent Trends and Prospects

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Note

The report is based on data available as of July 2003. More recent data, and subsequent data revisions, are available on request from Eurostat. For further information on employment analysis and for direct access to the data and charts of this report, please visit our website: http://europa.eu.int/comm/employment_social/employment_analysis/index_en.htm

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A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>).

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Foreword by the Commissioner

This is the 15th edition of *Employment in Europe*. And, like the first edition, this one arrives at a difficult time. Europe recovers slowly from recession, after several years of strong economic growth and employment creation. However, there are major differences between the present situation, and that of the past.

The first difference – and this is the purpose of this report – is that we are now much better informed about the way Europe's labour markets work than we were 15 years ago. We understand the factors driving the demand for labour, and its supply. We have learnt about the social and economic forces that determine the nature and form of the workplace. We are discovering the way in which our economies and labour markets interact.

The second difference is that employment policy is a key part of the European Union agenda. No longer do we hear the argument that employment is a national responsibility, to which Europe has at most a minor contribution to make.

We have come to appreciate the extent of the inter-dependence that exists between Member States. Reflecting the fact that two-thirds of each Member State's external trade is with other EU members and reflecting the impact of the common currency. And reflecting the way national and EU-wide employment policies are now being developed in partnership.

The established EU labour law framework is an important feature of life, given that the commitment to maintaining a level playing field is as strong for the labour market, as it is for the markets for goods and services. However, the Treaty revisions of Maastricht and Amsterdam have dramatically raised the profile of employment policy, and increased the political commitment to common action.

The new paradigm has shifted the focus towards greater co-operation between Member States, and within them. We have now developed the so-called 'open method of co-ordination' as a way of pursuing policy reforms – embracing a mixture of common goals and guidelines, targets, and follow-up performance assessment - across the entire range of active and passive labour market policies at national, European, and local and regional level.

This method works particularly well given the diversity of European systems. It conforms to a common European model – in that there is agreement on the need for balance between the private and public realm in ensuring economic and social equilibrium – while accepting considerable diversity of method in, say, the management of unemployment insurance funds, or the organisation of training. The EU's policy coordination accommodates very different methods of financing, from the use of direct taxes on labour, to more diversified forms of revenue raising.

This somewhat eclectic approach has proved extremely successful. Encouraging governments to be more innovative in policies, and more open in working with social partners. It also respects a Europe where the desire of citizens and States to pursue our futures together is always accompanied by a balancing wish to respect our individuality and differences.

Since these new policy processes started to be applied in the latter part of the 1990s, the momentum has been strong and accelerating. The processes now extend, not just across the employment field, but across social policies generally, including thorny issues like pension reform.

The momentum needs to be maintained. It is not enough for countries simply to shop for best practices. We need to dig deeper. To identify the root causes of success and failure in our economies and societies. To understand not only what works and does not work now, but the ways in which we can best meet new challenges in the future.

That is why the *Employment in Europe* report has been, and remains, so important for the development of employment policies. By promoting rigorous analysis, and respect for evidence, it has discouraged governments from relying on pre-conceived notions or prejudice, and encouraged innovation.

This year's report is no exception in this respect. It investigates the link between employment specialisation and productivity. It assesses the real job creation needs that flow from the targets agreed at the Lisbon, Stockholm and Barcelona European Councils. It identifies the skills gaps that are emerging, not just from changing patterns of demand, but from the changing demographic composition of the workforce.

It reflects on the future nature of wage bargaining in an increasingly integrated and expanding Union. It considers success and failure in promoting more flexible work organisation and labour mobility. And looks into the consequences of adopting more up-to-date notions of job quality.

Last but not least, it considers the consequences of the ageing of the European workforce, and the extent to which immigration of foreign nationals can be seen as part of the policy response, or as a separate policy issue which needs to be addressed in its own terms.

This issue of *Employment in Europe* also provides, wherever possible, data and information about the future EU Members. The basic characteristic of the labour market of the acceding countries is the lack of labour demand. In particular we should note the increase in the employment rate for women in contrast to the reduction of employment for men due to structural changes in the industrial sector.

I strongly recommend this report to you. And I look forward to making maximum use of its findings to develop even stronger, and more effective, employment and social policies in the future.

Anna Diamantopoulou

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Introduction

During 2002 Europe continued to feel the impact of the prolonged economic slowdown, with a lack of vigour in the economy exacerbated by geo-political tensions, continued low confidence and high oil prices. As a result, the EU economy ended 2002 on a very weak note, with this sluggishness continuing in the first half of 2003, but with a moderate recovery expected in the second part of the year. During the initial phase of the slowdown employment levels appeared fairly resilient, and the rise in unemployment remained quite limited, but the European labour market's resilience appears recently to have weakened somewhat. Recent data on the first quarter of 2003 suggest that employment has stagnated. The limited preliminary information available for the second quarter of 2003 is not conclusive but one cannot exclude that annual employment growth might turn out negative in particular if employment growth in the third and fourth quarters turns out to be negative. Nevertheless even under these difficult circumstances progress has continued towards meeting the employment targets set by the Lisbon, Stockholm and Barcelona Councils, albeit at a reduced pace compared to recent years. In contrast, due to strong domestic demand, the acceding countries and other candidate countries¹ have, in general, experienced a more limited slowdown under the present economic climate, with growth slowing only moderately during 2002. Employment, though, declined in the acceding countries overall and for the candidate countries as a whole.

Against this background some important issues will be addressed in the following chapters. Chapter 1 provides a detailed overview of the situation in the European labour market, and in particular the impact of the current economic slowdown on employment. Chapter 2 examines the effects of employment specialisation on labour productivity growth. Chapter 3 reports on an initial approach to the analysis of wage formation processes at various levels, concentrating firstly on analysing main determinants of earnings, pay and productivity and secondly on identifying major pay-related incentives and disincentives in European labour markets. The following chapter addresses the issue of quality in work, considering new developments in the area of relevant indicators and examining longer-term transitions and labour market dynamics. Chapter 5 addresses the issue of employment and labour market participation of older workers, with a particular emphasis on the interactions between the Stockholm and Barcelona targets. Finally, chapter 6 discusses in some detail the potential that migration presents for European labour markets.

¹ The acceding countries group are Cyprus (CY), the Czech Republic (CZ), Estonia (EE), Hungary (HU), Malta (MT), Lithuania (LT), Latvia (LV), Poland (PL), Slovenia (SL) and Slovakia (SK). Accession countries are Bulgaria (BG) and Romania (RO), and the group of candidate countries includes the previous 12 plus Turkey (TR).

Executive summary

The main themes developed in this year's report:

- *productivity, skills and sectoral mobility*
- *wage structures and determinants in an enlarged Europe*
- *flexibility, security and quality in work*
- *ageing and the labour supply of older workers*
- *the contribution of immigration to labour supply*

Uncertainty about the timing of the economic recovery persisted in 2003.

The resilience of the European labour market appears to be weakening...

... with falling employment in some Member States but still positive, although declining, growth in others.

The main reaction so far has been in productivity and in the reduction of hours worked, but the risk of a downturn in employment remains.

The resilience of the European labour market to the weakness of economic activity concerns all sectors. Employment growth in the services sector has continued although at a slower pace.

I. Employment issues for Europe

The new European Employment Strategy adopted by the Council in July pursues three overarching objectives: full employment; promotion of quality and productivity; and fostering cohesion and inclusive labour markets. This year's report looks at several important issues of relevance to the new strategy. In the area of productivity, the relationship between productivity, skills, the sectoral composition of employment, and growth is examined. A separate chapter also presents evidence on the structure of wages across different sectors and the relationship to productivity. Quality in work is addressed in the context of labour market flexibility and dynamics. Finally, the ageing of the population and immigration are examined with regard to the implications for labour supply and employment.

II. Economic and employment context

During 2002 Europe continued to feel the impact of the prolonged economic slowdown, low confidence and the uncertainty about the timing and strength of the US recovery. As a result EU GDP growth averaged only around 1 % in 2002. The weakness of economic activity carried over to the first half of 2003, but growth is expected to resume moderately in the second half of the year and to accelerate in 2004.

Between the first and the second half of 2002 EU employment growth declined from 0.5% to 0.2%, and by the last quarter of 2002 had virtually reached a standstill. Meanwhile, by the first quarter of 2003 the unemployment rate had increased by 0.7 percentage points compared to its lowest level reached in the second quarter of 2001, although, at 8.0 %, it was still lower than the levels observed over the second half of the 1990s. By July 2003 the unemployment rate for the EU had increased to 8.1 %.

The employment performance of the Member States in 2002 was somewhat mixed. In some employment growth had already become negative in the last quarter of 2001 while in several others it became so over the course of 2002. However, for most Member States average annual growth for 2002 still remained positive despite having slowed-down relative to 2001.

EU employment has not declined under the current slowdown but may do so in the second quarter of 2003. The main adjustment has occurred in productivity and hours worked. For the EU as a whole there may not be much scope for containing the impact of the slowdown through further reductions in working hours if it continues. Also the decline in productivity growth cannot continue unchecked for much longer. This raises the possibility of a more marked downward adjustment in employment levels in the course of 2003 unless a strong pick-up in the economy materialises soon.

The reaction of employment to the current economic slowdown has so far been more moderate than in the previous slowdown, reflecting a path of job creation and destruction different to that of the early 1990s. Smaller declines in employment have occurred so far in agriculture and industry, while greater job creation has occurred in the services sector. This resilience has essentially been a consequence of the changes in the European labour market which occurred over the second half of the 1990s, where the interaction between rising female and youth participation, the increasing educational level of the workforce and greater availability of new types of contracts facilitated the development of an employment-intensive macro-economic regime.

Due to strong domestic demand the acceding countries have experienced a more limited economic slowdown than the EU, but despite this overall employment has continued to decline, essentially due to negative employment growth in Poland. Unemployment has declined over recent years for most of the acceding countries, except notably in Poland where the rate has risen to close to 20%. Similar to the EU, employment growth in the acceding countries as a whole is expected to stagnate in 2003, but should see a slight improvement in 2004 to around the 1% level.

Despite the weak economic growth, EU activity and employment rates have continued to increase, in particular for women, but at a much lower pace than in preceding years. In 2002 the overall employment rate rose by a modest 0.2 percentage points to 64.3%. This increase was driven by the rise in the female employment rate, which reached 55.6%, while the male employment rate declined slightly to 72.8%. The employment rate of older workers increased by about 1.4 percentage points to just above 40%, but still remains far below the 50% Stockholm target. Looking to the forthcoming enlargement, reaching the Lisbon employment target of 70% for an enlarged EU will require the creation of about 22 million jobs by 2010, equating to a net employment creation of around 3 million jobs per year.

III. Productivity, skills and sectoral mobility

After 1995, the convergence of European productivity toward US levels reversed as productivity growth declined in the EU and accelerated in the US. The slowdown in EU productivity growth occurred in a period of strong job creation for high-skilled people, who should be more productive, while employment for the less skilled declined.

The slowdown of EU productivity growth reflects a decline in productivity growth for all sectors, while in the US productivity growth was driven by strong gains in "Business sector services". In the 1980s and the first half of the 1990s, the change in the sectoral composition of employment helped Europe to catch up with US productivity levels. After 1995, further changes in the sectoral mix of employment avoided what would otherwise have been an even stronger decline of EU productivity growth relative to the US.

There is evidence that the surge in US productivity growth over the second half of the 1990s was driven by strong improvements in ICT-using and ICT-producing sectors. In Europe productivity growth increased only in the ICT-producing sectors and to a lower degree than in the US. Productivity grew faster in Europe than in the US in ICT-producing services, in ICT-using manufacturing and in the non-ICT sectors, but much slower in the ICT-using services sector and consequently slower for the economy as a whole. The better performance of the US economy therefore suggests the importance of the diffusion of new technologies throughout the entire economy.

The report shows that the distribution of skills in the entire economy can affect productivity growth. There is also evidence of advantages from concentration of high-skilled people in sectors characterised by intense patterns of innovation. Concentration of high-skilled people in such sectors, in particular high-tech sectors, promotes productivity growth. Finally, the findings suggest that mobility across sectors of those with higher levels of education might benefit low- and medium-skilled people.

For both the existing Member States and the acceding countries, the main policy implications, are:

Technological progress is a process that makes old knowledge obsolete and requires the development of new capabilities and new knowledge. Adaptability is a wide concept encompassing both real wages flexibility and flexible contractual arrangements as well as investment in knowledge and measures improving quality in work. They enhance the development of both formal and informal skills and of workers' adaptability.

The employment situation in the acceding countries as a whole has deteriorated, essentially due to developments in Poland.

Progress towards the Lisbon and Stockholm employment rate targets requires stronger efforts, with employment rates for older workers requiring particular attention.

The European paradox: a slowdown in the EU productivity growth despite strong employment growth for skilled people.

Sectoral productivity growth and structural change in employment help explain developments in productivity relative to the US.

The US experience points towards the importance of diffusion of new technologies throughout the entire economy

Skills and sectoral mobility have a clear beneficial impact on productivity growth. Adaptability, wide diffusion of knowledge ...

Education and training policies that promote the wide diffusion of knowledge are important. For all skill groups, life-long learning becomes a central element of a strategy for productivity growth. The pervasiveness of knowledge is crucial to enhance and diffuse throughout the whole economy the use of new technologies and to prevent segmentation of the labour market between workers with different types of education.

... and sectoral mobility are important elements of a strategy for productivity growth

Sectoral mobility can also facilitate growth. Employment mobility across sectors can promote growth when it occurs for the highly educated or when it is associated with an upgrading of the knowledge base of the less well educated. With a stagnating working age population resulting from ageing and no significant pools of young, better educated people replacing older workers, reallocation of employment across sectors may require an increase in workers' mobility between sectors.

IV. Improving productivity and wage structures

Further improvements in productivity and wage structures are key to increasing economic growth.

Through their link with productivity, profits and consumption, labour costs and wages are key determinants of economic growth and overall employment performance. The new generation of Broad Economic Policy Guidelines and Employment Guidelines has highlighted the importance of wages, labour costs and productivity. One issue of particular importance is the role of non-wage labour costs, and notably of taxes and social security contributions, for employment performance and social cohesion. In particular the tax burden on low paid labour needs to be reduced to foster employment creation.

In particular, the tax burden on low paid labour needs to be reduced to foster employment creation, but the relationship between non-wage labour costs and wages is complex.

Non-wage labour costs are a crucial determinant of total labour costs. There is, however, no simple relation between the two, because the relative size of net wages, taxes and social security contributions differs significantly across countries. In fact, the two countries with the highest gross hourly labour costs in Europe – Sweden and Denmark – are respectively the countries with the highest and lowest share of non-wage labour costs. Hence, when interpreting variations in wage levels, differences in taxation structures and the financing of social security have to be taken into account.

Wage bargaining has reflected productivity developments, and there is evidence of significant wage differentiation across sectors and firms. Persisting high unemployment disparities across regions indicate that wage bargaining systems should reflect local labour market conditions.

Wage bargaining systems in current and future EU Member States allow wages to reflect productivity effectively taking into account differences in skills, but appear to do less so for local labour market conditions and in particular regional productivity and unemployment differences. In some Member States, wage growth has also been slow to adapt to productivity growth. There is further evidence of significant wage differentiation across skills, firms and industries, while wage differentiation across regions is much less pronounced. Given persistent unemployment disparities across regions wage bargaining systems should allow wages to reflect local labour market conditions.

Nevertheless, wage structures may in some cases not create the right incentives for occupational choice or sectoral and regional mobility.

In all EU countries, wages are generally higher among the high-skilled, and in high productivity industries and services. Wage structures in the acceding countries are similar, with the notable exception of the manufacturing sector where, in contrast to the EU, relative wages are significantly below average. While generally more pronounced in the services sector, the extent of wage differentiation differs significantly across countries. In some cases, it seems that wage structures do not create appropriate incentives to attract people into economic activities that are key to productivity and economic growth such as research and business services.

But productivity is not the only determinant of wages: traditional seniority- and tenure-based pay schemes and gender gaps persist. Wages also reflect a variety of worker, job and firm characteristics.

Productivity is not the only determinant of wages. Traditional seniority- and tenure-based pay schemes persist, indicative of internal labour markets that tend to offer long-term employment relationships and provide effective insurance against wage variations and employment risks. Furthermore, gender pay gaps which cannot be explained by differences in productivity persist in all EU labour markets. On the other hand, there is a considerable degree of flexibility in the way how European wage formation systems reflect differences in skills, but also factors as diverse as contract status, firm size, career interruptions, earnings risks and, although to a lesser extent, local labour market conditions.

The extent to which these factors impact on remuneration levels differs considerably across the EU Member States. For example part-time or temporary work incurs strong wage reductions in some countries, most notably in the Netherlands. In other countries, notably France, Belgium and Austria, much lower, though still negative, wage effects on temporary employment go hand in hand with positive wage premia for part-time work.

There is little evidence of any effective compensation of employment risks by means of additional wage premia. Only in the UK do employment risks seem to be compensated for to some extent by higher wages. In other countries such as Denmark or Spain, no link can be established between wages and employment risks. This absence of any employment risk compensation mechanism could be explained either by high levels of social protection or by employment protection or both. Furthermore, in some Member States – notably France, Italy and Germany – there is evidence of quite strongly segregated labour markets, where those with the highest employment risk also face lower wages.

With the deepening of an enlarged single market and the EMU, there is a need for further labour market adjustments. Labour markets will have to increase their capacity to adapt and to manage structural change, including reforms of pay structures. Moving to more flexible labour markets could be facilitated by the further development of unemployment insurance systems and active labour market policies.

V. Flexibility, security and quality in work

Efforts to promote more flexible work organisation and facilitate labour mobility, both geographical and occupational, while taking into account the need for job security, is another key element of the Lisbon reform agenda. An appropriate balance between flexibility and security helps to support the competitiveness of firms, increase quality and productivity at work and facilitate the adaptation of firms and workers to economic change.

There is a wealth of flexible working arrangements in European labour markets, including contractual and working time arrangements. Many European employees work under temporary contracts or in part-time work. Many also work (unpaid) overtime or outside core hours. There is, furthermore, a considerable amount of movements between labour market states over time, both in the short- and long-term.

Up to a quarter of Europeans remain in jobs of relatively low quality. For some Member States, little or no significant changes in the dimensions of quality in work covered in the report can be found. And this is despite a relatively strong employment performance over the second half of the 1990s. In particular the share of low-skilled employees in comparatively low paying jobs continues to vary remarkably across EU Member States, ranging from less than 30% in the Netherlands, Finland and Italy to more than 50% in Germany.

On the other hand, there have been improvements in transition rates out of low quality employment in some Member States with quite favourable labour market transition patterns – notably Denmark, Ireland, Austria, Belgium and the Netherlands. While transition patterns also improved considerably in Spain and France, the overall career opportunities of people in low quality jobs in these countries remained largely below average. While persistence in low quality employment remained highest in the UK, transition out of such work into unemployment was lower than in other Member States. Persistence in unemployment also remained strong in several Member States.

The balance between flexibility, on the one hand, and security, on the other - in combination with the need to improve the functioning of labour markets and quality in work - is a delicate one both for the existing and new Member States. Relatively high degrees of labour market flexibility seem to be consistent with major shares of employees in insecure employment relationships, as well as with high shares of employees in low paid, low productivity employment without access to training or career prospects.

Employees on part-time or temporary contracts face substantially lower wages, ...

... and those employees at highest risk of losing their job incur significant wage penalties in some Member States, while social protection systems and active labour market policies compensate for employment risks.

Necessary labour market adjustments could be facilitated by the further development of unemployment insurance systems and active labour market policies.

The promotion of flexible work organisation and labour mobility, geographical and occupational, while taking into account the need for job security, is crucial.

There is a variety of flexible working arrangements, both in contractual and working time arrangements.

At the same time, many employees remain in low quality employment, with little evidence so far that quality in work improved over the second half of the 1990s.

In some Member States quality dynamics have clearly improved. In others, persistence in low quality employment or unemployment remains strong.

The balance between flexibility and security - in combination with the need to improve the functioning of labour markets and quality in work - is a delicate one...

...but quality in work and flexibility can mutually reinforce each other and induce employers to create jobs and employees to fill them and stay in the labour market.

Both government and social partners need to strengthen transitional labour markets in order to compensate for increases in flexibility and employment instability.

Population ageing, low employment rates for older workers and early withdrawals from the labour force place an increasing burden on social protection systems.

As life expectancy increases, the EU acts to increase employment of older workers and encourage them to stay longer in the labour force.

Reaching the Stockholm and Barcelona targets will require greater efforts.

The employment rates for older workers in acceding countries are generally lower than in the EU.

The low-skilled start working life earlier and withdraw from the labour force sooner

Older workers are not concentrated in declining sectors and complement,

Higher flexibility can improve quality in work and contribute to a better employment performance. Training, career development opportunities and other quality elements such as working time flexibility and job security are for many people key inducements to take up work and to stay in the labour market. Low wage employment, less regulation and more flexible work organisation – such as greater opportunities for part-time work and flexible working hours – can make it easier both for people to join the labour force and for firms to take them on.

Active labour market policies with a view to strengthening transitional labour markets – unemployment insurance systems and investment in human capital in particular – are ways to compensate for increasing employment instability. Given the synergies between quality in work and overall employment performance, measures are needed to increase job creation and improve quality in work, while retaining an appropriate balance between flexibility and security. Social dialogue and worker involvement play an important role in this respect, notably for improving quality in work and productivity of low quality jobs.

VI. Ageing and the labour supply of older workers

The population of the EU is ageing rapidly. Employment among older workers (those aged 55-64) is low and many withdraw from the labour force at relatively early ages. With the baby-boomer generation reaching retirement age, the number of workers leaving the labour force and going into retirement will increase markedly over the coming years. This, together with low fertility rates and increasing life-expectancy, will negatively affect the ability to finance pension and health care systems. These developments also put increasing pressure on those in employment to be more productive in order to ensure rising living standards for the whole population.

In a context where people live for 20 years after withdrawing from active life, increasing participation and employment will become crucial. The EU has therefore set itself two important objectives to be achieved by 2010: To increase the employment rate of older workers to 50% (Stockholm target) and to delay by five years the age at which older workers stop working (Barcelona target). In 2002 the employment rate for older workers in the EU15 stood at 40%, while in 2001 the average exit age from the labour force was 59.9 years.

Meeting the Stockholm target for the EU15 would require an increase in employment of those in the 55-64 age group by 7 million between 2002 and 2010 (900,000 a year). It is thus crucial that those in the age group 55-64 in 2010 are retained in employment and do not retire early in the meantime. Although 2002 showed a marked improvement in employment for older workers, between 1997 and 2001 the EU only managed a rate of about 250,000 a year. Nevertheless, this shows that it is possible to progress towards the ambitious 50% target and should encourage greater efforts, particularly from those Member States which are lagging behind.

The employment rates for older workers in acceding countries (30% on average) are generally much lower than in existing Member States (40%). Moreover, disparities in the employment rates between high- (56%) and low-skilled older workers (19%) are stark. Older workers in acceding countries also withdraw earlier from the labour force than in most of the existing EU Member States. Since labour force participation continues to decline their average exit age from the labour force is likely to fall further.

The employment rate for high-skilled older workers (61%) is twice that for the low-skilled (31%). Low-skilled workers leave the labour force earlier (some three years on average) than their high-skilled counterparts. At EU level, the average exit age for the high-skilled was 62.3 years in 2001, compared to 58.7 years for low-skilled workers. This is due not to a shorter, more compressed employment career for the low-skilled but rather to a working life that starts a few years earlier than for the high-skilled.

Older workers today are not concentrated in declining sectors. Indeed, they are over-represented in knowledge intensive-sectors such as education. Moreover, sectoral employment growth for young

and older workers moves in the same direction, which suggests that they are not employment substitutes for one another but rather complement each other.

Firstly, work-related health problems increase with age. Musculo-skeletal disorders mostly concern low-skilled occupations, whereas the incidence of stress-related health problems is more predominant for high-skilled, non-manual occupations. This underlines the importance of measures to improve working conditions and to pay more attention to health and safety in the workplace.

Secondly, the increase in employment of older workers in recent years is related to the higher incidence of part-time work. At the EU level, half the employment creation for older workers is accounted for by increases in part-time employment, which now represents about 22% of their total employment. This indicates that promoting more flexible working time arrangements may be a way of achieving good a balance between work and private life in line with the needs of older people.

Thirdly, older workers receive significantly less training than prime-age workers, particularly so if they are low-skilled. This is partly because employers assume that they will not be in the labour force long enough to benefit from expected productivity increases. There is, however, a positive relationship between older workers staying longer in the labour force and the provision of training. This implies that measures to increase training for older workers as well as to keep them in the labour force longer and measures on early retirement would need to go hand-in-hand.

VII. The contribution of immigration to increases in labour supply

Over the last two decades, immigration of foreign nationals into the EU area has increased steadily, reaching an absolute annual level of immigration higher than that of the US. In Northern Europe the main reason for immigration is the re-uniting of families, while in the south it is the search for employment. There are important differences in the proportion of immigrants in EU Member States. A significant number of them are likely to be undeclared, as indicated by the numerous legalisation operations carried out by Member States.

In 2002, the employment rate of non-EU nationals was about 14 percentage points lower than that for EU nationals (10 percentage points for men and 17 percent points for women). The gap was wider for prime-age workers than for the young and the older workers. The unemployment rate of non-EU nationals was more than twice the rate for EU nationals. Non-EU nationals, particularly women, are also at a disadvantage in terms of wages. The whole distribution of migrant workers tends to be skewed towards low skills, which may help explain the over-representation of migrants in some sectors.

The relative situation of non-EU nationals has not improved after the deterioration experienced in the 1993/94 recession. It worsened even further for older and low-skilled workers. Migrant women are also lagging behind in terms of labour market integration, except in Southern Europe. While the high-skilled migrants reduced their employment gap with respect to EU nationals, it nevertheless remains higher than for any other educational group. The high percentage of early school leavers among non-EU nationals (35.1% versus 16.7% for young EU-nationals) is of particular concern as it hampers their adaptability to structural change and the integration of future non-EU national workers.

The integration of non-EU nationals into the European labour market varies widely depending on the host country and the country of origin. On average, it is far from satisfactory. The Thessaloniki European Council stressed the need to explore legal means for third-country nationals to migrate to the Union, taking into account the reception capacity of the Member States, within the framework of an enhanced co-operation with the countries of origin that would prove beneficial for both sides. It also called for an accurate and objective analysis of these issues, to help develop and promote policy initiatives for more effective management of migration in Europe. These initiatives will contribute to promoting the integration of established migrants.

rather than substitute for, younger workers.

Promoting active ageing and eliminating incentives for early exit from the labour market and early retirement, are key dimensions.

Better work-related health conditions, flexible working time arrangements,

training for older workers needs to be promoted.

EU immigration flows are becoming higher than in the US, with significant differences between Member States.

However, the integration of non-EU nationals into the labour market is unsatisfactory.

Over time, the relative position of non-EU nationals has not improved.

There is a need for comprehensive integration policies and a forward-looking approach to immigration.

Chapter 1 Panorama of the European labour markets

Introduction

This chapter provides a detailed overview of recent developments in the European labour market and compares this with developments for certain other economic partners. The impact of the current economic slowdown on employment is reviewed and the reasons for the resilience experienced so far in the EU labour market are looked at in detail. The chapter also presents a review of sectoral employment trends, and in particular the variation across sectors in the creation or loss of employment over recent years.

Recent labour market performance

While 2002 saw a continued decline in GDP growth in the EU (down to just above 1% in 2002 from 1.6% in 2001), the US experienced a moderate recovery to around 2.5% growth (compared to 0.3% the year before). Despite the international economic slowdown and the weakness in the EU economy, strong domestic demand helped the acceding countries grow by 2.3% on average in 2002, down only marginally on 2001 (table 1). The situation for the candidate countries as a whole (including Bulgaria, Romania and Turkey) was also more positive, with growth for 2002 being at a level of over 4%.

The EU economy ended 2002 on a very weak note. Although during the initial stage of the current economic slowdown EU employment remained quite resilient, with only a limited rise in the unemployment rate (up to 7.7% in 2002 from 7.4% a year earlier), the situation weakened during the latter part of 2002. The initial resilience, which was due to such factors as the large share of employment in the relatively stable services sector and greater possibilities to reduce working hours rather than employment thanks to more flexible contracts, has diminished. This combined with expectations of only modest job creation

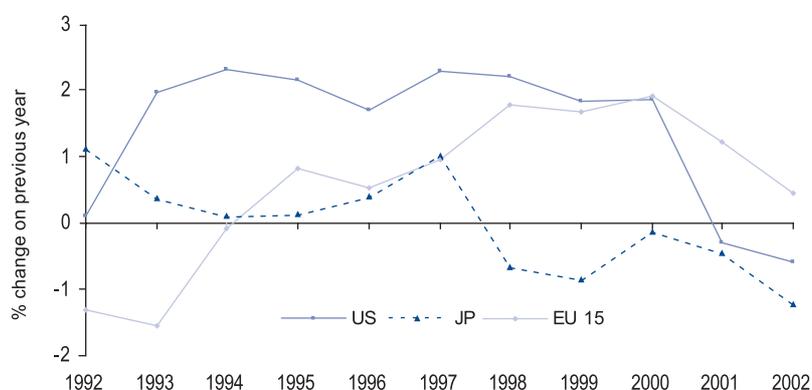
Table 1 – International Comparison of Key Indicators (2002)

	EU15	Acceding Countries	EU25	USA	Japan
Population (millions)	378.5	74.5	453	281	127
GDP (in 1000 million PPS current prices)	9161	830	9991	9654	3174
GDP Growth at constant prices (annual % change)	1.0	2.3	1.1	2.5	0.2
Employment Rate (as % of working age population)	64.3	55.9	62.9	71.9	68.2
Employment Growth (annual % change)	0.4	-1.2	0.2	-0.6	-1.2
Unemployment Rate (as % of civilian labour force)	7.7	14.8	8.9	5.8	5.4

Source: GDP and employment growth from AMECO database, Commission Services. Employment rate based on annual averages of LFS, Eurostat. Unemployment rate from the harmonised unemployment series, Eurostat. Population from demographic statistics, Eurostat.

Note: US employment rate refers to persons aged 16 to 64

Chart 1- Employment growth rates in the EU, US and Japan, 1992-2002



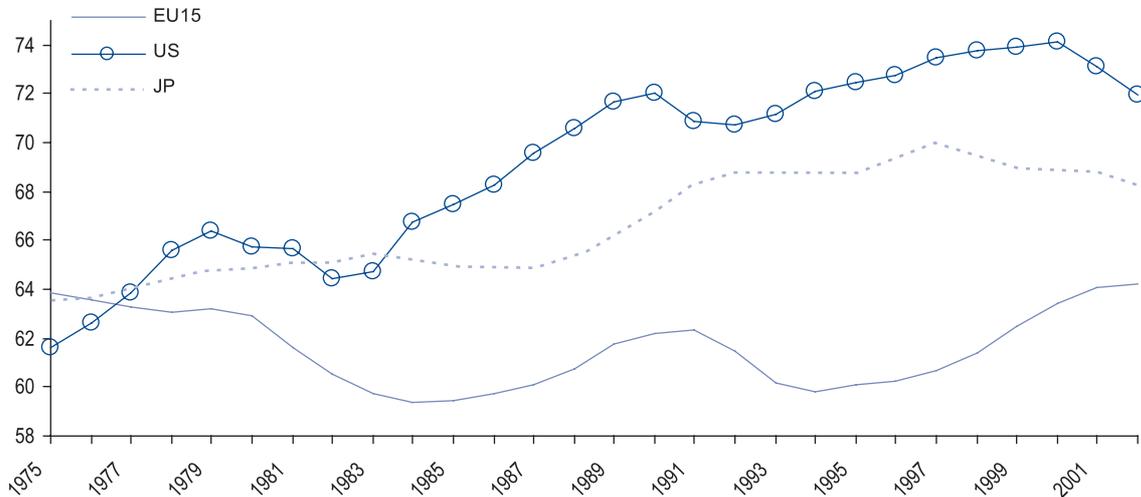
Source: AMECO database, Commission Services

and more sizeable rises in the labour force are expected to lead to further rises in unemployment. The Commission's Spring Economic Forecasts foresees the annual unemployment rate to reach 8.0% in 2003.

Nevertheless, for 2002 as a whole employment in the EU is estimated to have grown, albeit by a modest 0.4%, which is equivalent to a net employment increase of just over 0.6 million jobs, after growing by 1.2% in 2001. Net job creation continued in several Member States despite the prolonged slowdown in economic activity.

By contrast, and despite a moderate recovery in GDP growth, the US saw net employment continue to fall in 2002 (down by around 0.6%, following on from the decline of the year before) and unemployment continue to rise, averaging 5.8% for the year as a whole. Meanwhile the situation in Japan deteriorated further with continued employment losses (charts 1 and 2). Despite the resilience of the acceding countries' GDP growth, average employment declined by around 1.2% during 2002. In line with this, average unemployment levels, already noticeably higher than for the EU, increased to just under 15% for the

Chart 2 - Employment rates in the EU, US and Japan 1975-2002 (% of working-age population)



Source: DG EMPL calculation based on long-term trends in employment and population, Commission Services

acceding countries as a whole, essentially due to the increase in unemployment in Poland.

The slowdown in EU employment growth, which began in the first half of 2001, continued into 2002. By the last quarter of 2002, the average annual growth in employment for the EU as a whole had virtually reached a standstill (table 2). Looking at developments at Member State level, employment contraction has been a feature of the labour markets in Germany since the last quarter of 2001, in Austria and Denmark since the first

quarter of 2002, and in Belgium, Finland, Portugal and Sweden since the latter half of 2002. Employment growth stagnated in the UK over 2002. In nearly all the remaining Member States employment growth generally declined over 2001 and 2002 but still remained positive.

As a consequence of these developments, the employment growth for the year as a whole compared to 2001 has been somewhat mixed across Member States (chart 3). Most countries saw positive employment growth but

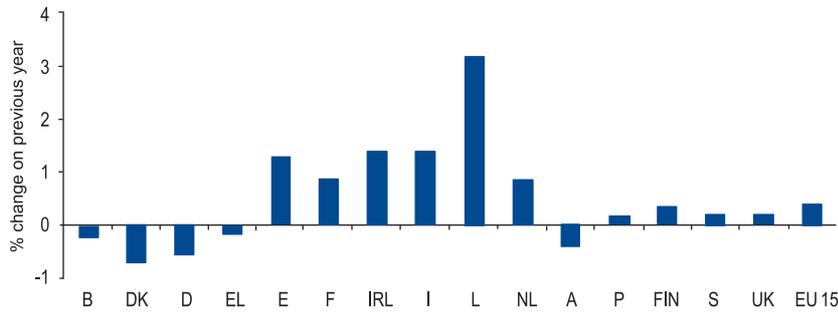
at rates much below those of recent years. However, annual rates did remain above the 1% level for Ireland, Italy, Luxembourg and Spain. On the other hand, annual growth rates in Austria, Belgium, Denmark, Germany and Greece all became negative in 2002. For the acceding countries, only the Czech Republic, Estonia and Latvia saw noticeable positive employment growth, while the growth rate for Poland was markedly negative at around minus 3% (chart 4).

Table 2 - Annual change in employment growth, by quarter

	2000q1	2000q2	2000q3	2000q4	2001q1	2001q2	2001q3	2001q4	2002q1	2002q2	2002q3	2002q4
B	1.6	1.8	2.1	2.0	1.9	1.8	1.4	0.7	0.1	0.0	-0.4	-0.5
DK	0.5	1.4	0.0	0.1	0.1	0.5	0.4	0.5	-0.8	-0.1	-0.7	-1.3
D	1.7	2.3	1.7	1.5	1.0	0.6	0.2	-0.1	-0.2	-0.5	-0.7	-0.9
EL	-1.7	-0.4	0.4	1.1	0.7	0.3	-0.5	-1.9	-1.6	-0.5	0.0	1.3
E	2.9	3.5	3.6	3.6	3.6	2.3	1.9	1.8	1.3	1.5	1.3	1.0
F	2.4	2.6	2.7	2.6	2.3	1.9	1.5	1.2	1.1	0.9	0.8	0.7
IRL	6.1	4.9	4.0	3.8	3.6	2.7	2.8	2.5	2.1	1.9	0.5	1.0
I	1.1	1.5	2.2	2.8	2.5	2.0	1.7	1.4	1.9	1.5	1.1	0.9
L	5.6	5.4	5.4	6.2	6.1	5.9	5.6	4.8	4.1	3.4	2.7	2.4
NL	2.1	2.3	2.3	2.2	2.2	1.9	1.8	1.7	1.2	0.9	0.7	0.5
A	1.2	1.1	0.0	0.7	0.6	0.5	1.0	0.4	-0.3	-0.4	-0.4	-0.5
P	i.e	i.a	2.2	2.3	1.9	1.4	1.1	1.2	0.5	0.9	0.5	-1.2
FIN	2.1	2.1	2.6	2.3	1.0	1.2	0.6	1.3	0.9	0.3	0.3	-0.2
S	2.1	2.6	2.3	2.8	3.0	1.7	2.0	1.0	0.4	0.3	0.1	-0.1
UK	1.5	1.2	0.7	1.0	0.8	0.8	0.6	0.3	0.4	0.1	0.1	0.1
EU15	1.7	2.0	1.9	2.0	1.8	1.4	1.0	0.7	0.6	0.5	0.3	0.1

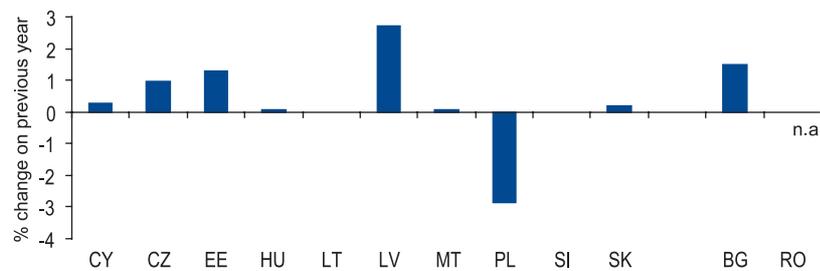
Source: Eurostat, QLFD

Chart 3- Employment growth for the EU Member States, 2002



Source: Eurostat, QLFD

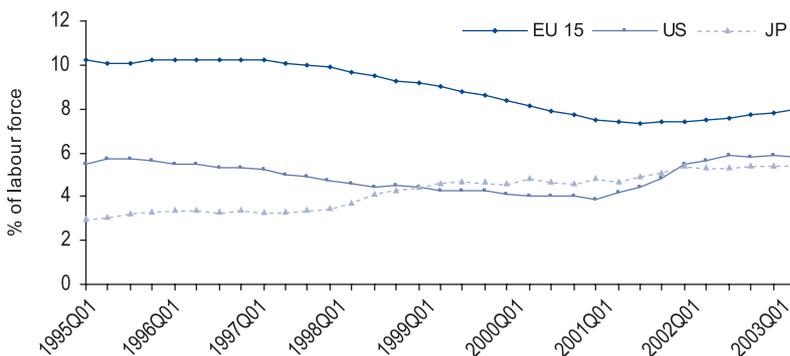
Chart 4- Employment growth in the acceding and accession countries, 2002



Source: AMECO database, Commission Services

Note: growth for RO for 2002 not available due to methodological changes

Chart 5- Evolution of unemployment rates in the EU, US and Japan, since 1995 (seasonally adjusted quarterly data)



Source: Eurostat, harmonised series on unemployment

Within the EU, the fall in the EU unemployment rate which began in the late 1990s bottomed out in the second quarter of 2001 at 7.3% (chart 5). There then followed a period of moderate quarterly increases which saw unemployment climb to 8% by the first quarter of 2003, with Luxembourg and the Netherlands having the lowest unemployment rates (below 4%) at that time and Spain the highest (11.4%). In June 2003 the EU unemployment rate stood at 8.1%. While the EU saw only moderate rises in unemployment, the US experienced a sharper adjustment from its low of 3.9% in the fourth quarter of 2000 so that by the second quarter of 2002 the unemployment rate had reached 5.9%, where it then stabilised for the rest of 2002. Despite this development, the US unemployment rate still remains some 2 percentage points lower than that for the EU. In Japan, unemployment levelled off to a degree in 2002 following the rising trend of recent years, to stabilise at around 5.4%.

As foreseen by the Commission's Spring Economic Forecasts sluggishness in the EU economy continued in the first half of 2003. Recent indicators suggest disappointing GDP growth, at a rate lower than the 1.3 % foreseen by the spring forecasts. The delay in the arrival of the recovery will now shift the expected rebound of economic activity to the year 2004. The Spring Economic Forecasts expected a better situation in the acceding countries. For these countries as a whole GDP growth for 2003 is expected to be 3.1%, and to rise to 4.0% in 2004.

With the continued weakness in the economy, employment in the EU is not expected to grow in 2003, although it is forecast to increase by around 0.6% in 2004. For the accession countries employment growth is also expected to stagnate in 2003. However, a slight improvement (growth of around 1%) is foreseen for 2004, as employment losses due to enterprise restructuring are progressively compensated for by higher employment creation.

Against the background of these recent developments in labour market performance in Europe, a new, more operational European Employment Strategy has recently been adopted to confront the new challenges arising from developments such as enlargement, faster economic change and ageing populations (box 1).

Box 1 – The new European Employment Strategy and the streamlining of the policy coordination processes

Following a review in 2002 of the first five years of the European Employment Strategy (EES), the European Commission adopted the outline of a revised EES in January 2003 to confront new challenges such as faster economic change, ageing populations and enlargement. In April 2003 the Commission made a formal proposal for new employment guidelines and recommendations. These new employment guidelines and recommendations were finalised and formally agreed by the Council in July, on the basis of the Commission's proposal, following their endorsement at the 2003 Thessaloniki European Council.²

The new EES pursues three overarching objectives:

- full employment, including meeting the Lisbon and Stockholm employment targets;
- the promotion of quality and productivity at work, reflecting the need for better jobs in a knowledge-based economy and the need to promote EU competitiveness; and
- the fostering of cohesion and inclusive labour markets, by reducing social and regional disparities in relation to employment.

The new employment guidelines consist of a more concentrated set of priorities which follow the objectives of: active and preventative measures for the unemployed and inactive; making work pay; fostering job creation and entrepreneurship; combating undeclared work; increasing labour supply and promoting active ageing; promoting adaptability and mobility in the labour market; investment in human capital and lifelong learning; gender equality; supporting integration and combating discrimination in the labour market for people at a disadvantage; and helping address regional employment disparities. These are often supported by quantified targets.

Responding to the Barcelona Summit's request for simpler and more effective guidelines, and the need to streamline EU policy coordination processes, the new guidelines cover a specific timeframe (2003-2010) and should remain stable until a mid-term review in 2006. More emphasis is now put on the results to be achieved and monitoring the implementation of the guidelines by Member States, as well as streamlining of the EES with other EU policy coordination processes such as the broad economic policy guidelines. Governance of the strategy will be improved through more effective service delivery, strong involvement of social partners and civil society, mobilisation of all relevant actors and adequate financial support.

Labour market adjustments to the recent slowdown and the resilience of EU employment.

The EU and US have shown variations in the speed of their labour market adjustments to the recent economic slowdown (chart 6). In the US employment growth reacted in close synchrony with the slowdown in GDP growth, declining from the third quarter of 2000 onwards and becoming negative from the last quarter of 2001 until the second quarter of 2002. It resumed only at the end of 2002. EU employment growth initially remained quite stable following the slowdown, and only began to decline in the first quarter of 2001 onwards, and at a much more gradual rate than in the US.

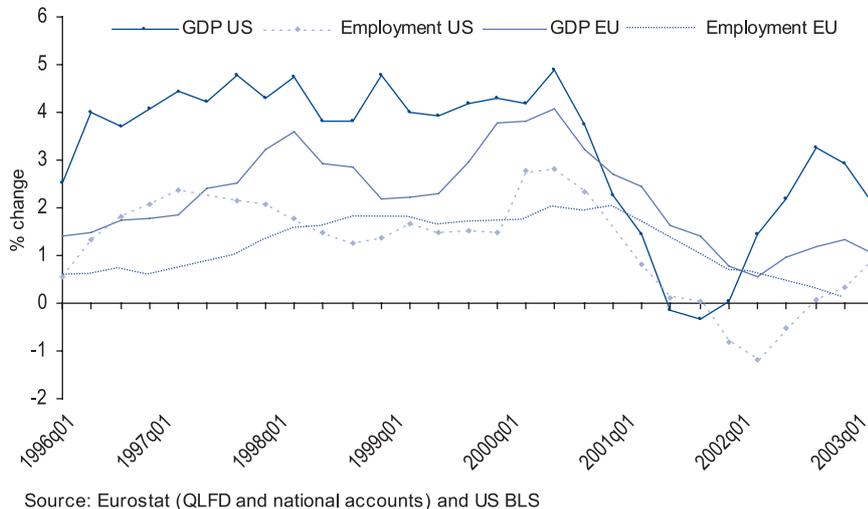
Comparing the current slowdown with that of the late 1980s/early 1990s, the reaction of EU employment now appears more rapid in terms of time but more moderate in terms of magnitude (chart 7).

Looking at employment behaviour between cyclical peaks and cyclical troughs - the timings of which are determined from the extremes in the output gap - it appears that employment continued to grow during the recent cyclical downturn (chart 8). This occurred despite a decline in GDP growth for the first two years following the peak that was even stronger than that over the same period in the early 1990s (chart 9). Looking at sectoral developments, there is a significant difference between the two comparison periods with regard to the employment changes experienced across all sectors. There have been far fewer job losses in agriculture and industry during the current downturn than in the downturn of the early 1990s. In addition, the services sector has created far more jobs during the current slowdown than it did during that of the early 1990s (chart 10).

Contrary to the experience of the early 1990s, the EU unemployment rate continued to decline for about four quarters following the peak in growth of the second quarter of 2000. Even though it then increased moderately over the following quarters, only by the first quarter of 2003 had it reached the same level as that at the peak of the expansion (chart 11).

² Further information can be found on the DG Employment and Social Affairs website at http://europa.eu.int/comm/employment_social/employment_strategy.

Chart 6 - Employment and GDP growth in the EU and the US, 1996-2003
(quarter over quarter of the previous year)

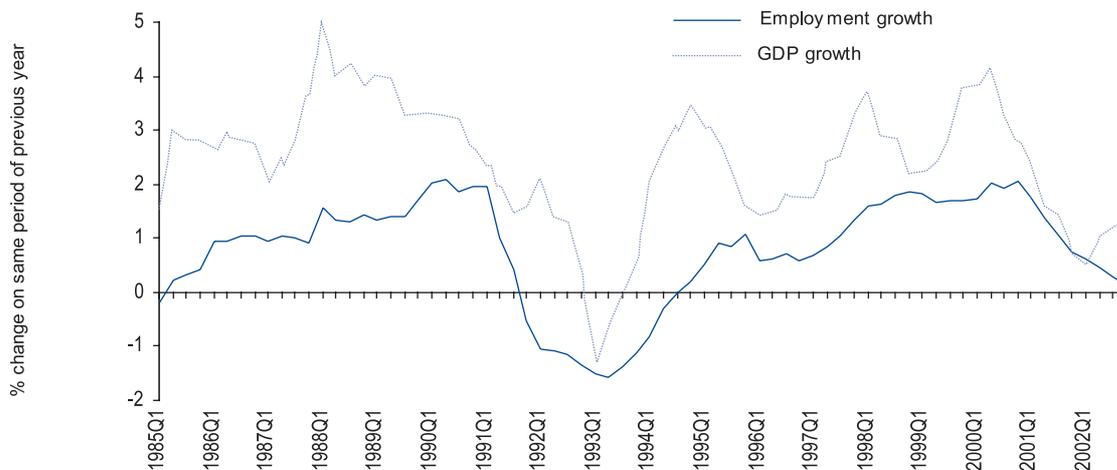


inside the home by women was transformed into paid employment.

- Increasing skills levels and youth participation

The change in the skills structure of the working age population also contributed to the increase in employment and participation rates. From 1995 to 2001 the share of low-skilled people in the working age population declined from 46% to 39% while that of the medium- and high-skilled rose from 38% to 43% and from 15% to 19% respectively. As shown in *Employment in Europe 2002*, the shift towards a more educated labour force drove up the employment rate, with rising skill levels contributing to a more employable and adaptable workforce.

Chart 7 - EU 15 GDP and Employment Growth, 1985-2002



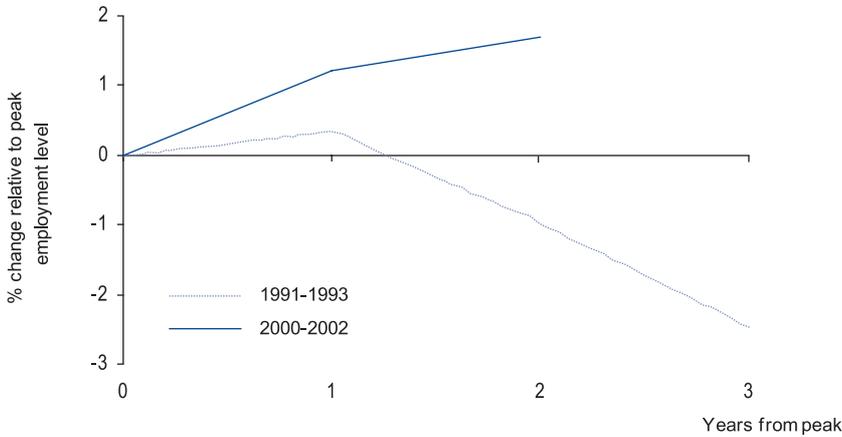
The previous results indicate that employment now reacts less than in the past to weakness in economic activity but is more synchronised with it. A better understanding of the reasons for the current resilience can be gained by looking at some fundamental changes that took place in the second half of the 1990s and which affected the mechanisms linking employment and participation with the economic cycle. These changes, which appear to have modified the trend component of employment, were:

- Increasing female participation

Between 1995 and 2001 female participation rose by about 3.6 percentage points (from 56.6% to 60.2%) against an increase in the male rate of only 0.4 percentage points (from 77.8% to 78.3%). The increase in female participation not only created the conditions to meet the labour demand during the growth phase of the economic cycle, but also increased employment as work traditionally done

The increase in both the level of education and the participation of young people (aged 15-24) was influenced by easier access to part-time jobs, and from 1997 the activity rate for young workers began to rise. Between 1995 and 2001 the share of those employed part-time rose from 19% to 23%. The share of young people who completed tertiary education (high-skilled) also increased over time. The easier access to part-time jobs allowed them to combine work with education or training, resulting in more young people

Chart 8- Evolution of employment from cyclical peaks, EU 15 (annual profiles)



Source: AMECO database, Commission Services
 Note: data re-based at 0 at the peak of the economic cycle, dating based on output gap

joining the labour force without dropping out of education.

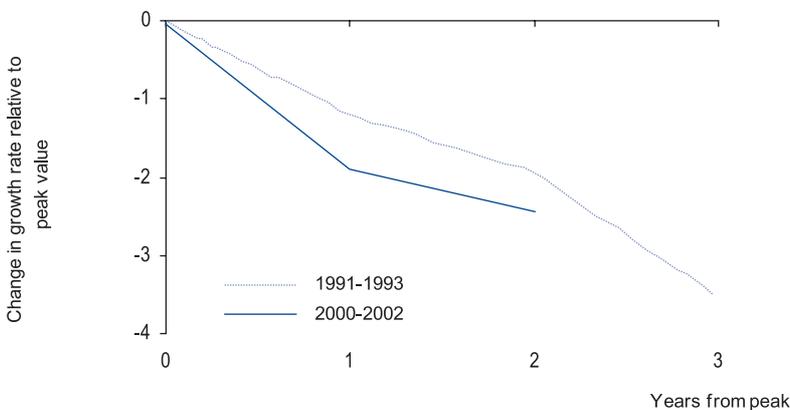
- Extended use of new contractual arrangements (part-time and fixed-term contracts)

About 30% of the total employment growth over the period 1995-2001 was accounted for by the increase in the number of fixed-term contracts. The increase in part-time jobs, mostly taken by women, represents more than 40% of all jobs cre-

ated in the same period. The availability of more flexible working hours arrangements, that allowed a better balance between family life and working time, led to an increase in participation.

Altogether, the interaction between increasing participation, a change in the skills and gender composition of the working age population and greater availability of new types of contracts facilitated the development of an employment-intensive macro-economic regime, which was also supported by more

Chart 9- Evolution of GDP growth from cyclical peaks (annual profiles), EU15



Source: AMECO database, Commission Services
 Note: data re-based at 0 at the peak of the economic cycle, dating based on output gap

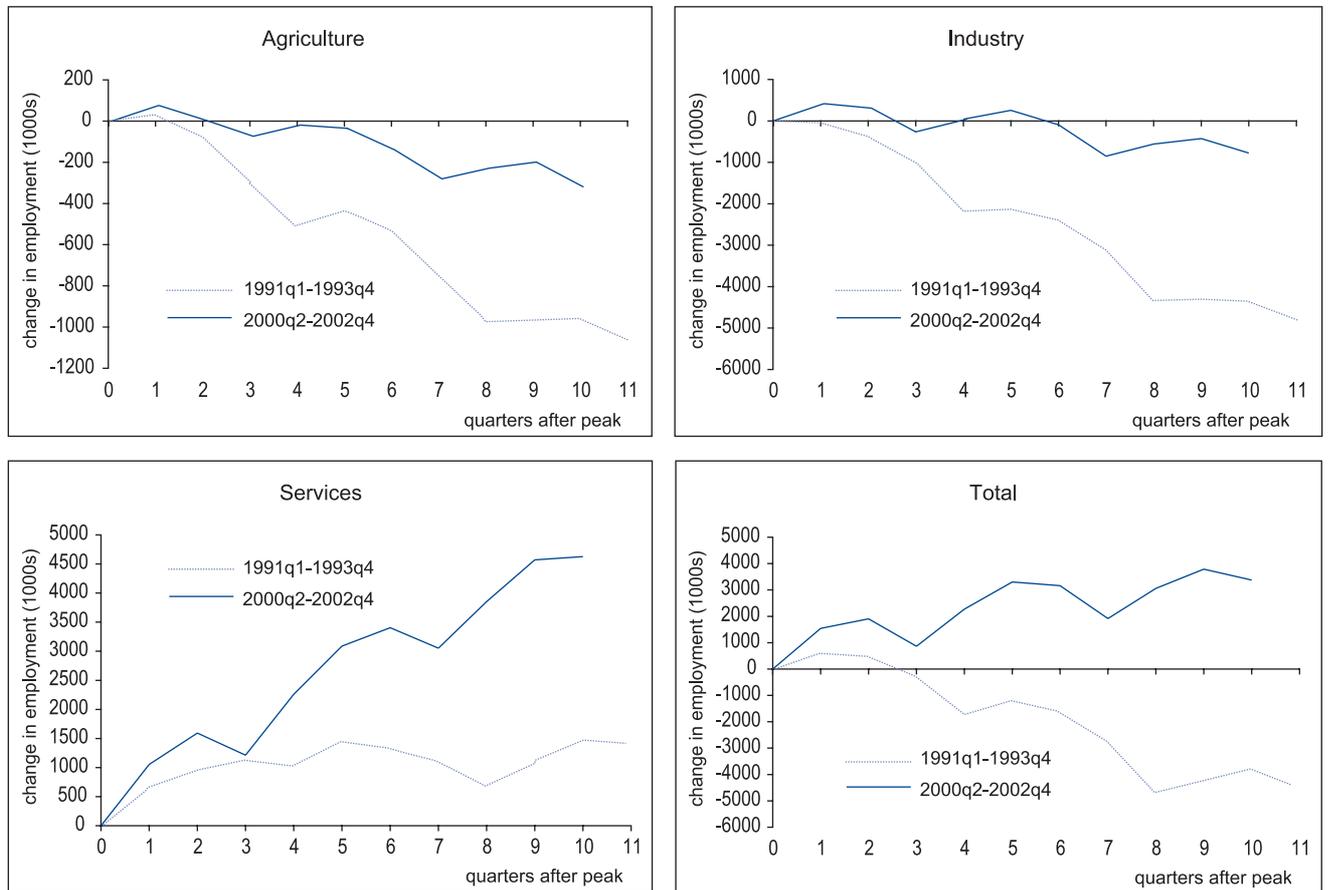
employment-friendly wage setting by the social partners and cuts in non-wage labour costs.

The employment behaviour observed at the current economic juncture could be seen as reflecting a combination of a still increasing trend, which reflects permanent or long-term changes in employment levels, and a falling cyclical component in employment. The structural changes which occurred in the labour market in the 1990s affected the long-term employment trend, which, as shown in chart 12, is at least for the moment still growing at around the 1% level, despite the more marked current decline in actual employment growth.

Notwithstanding the until now moderate reaction of the EU labour market to the worldwide economic downturn, there are signs of an increase in the public's perceptions of the risk of a deterioration in the employment situation. Apart from the effects of geo-political uncertainties and of the falls in the stock markets, this worsening of perceptions may be partly due to the recent evolution of layoff announcements (box 2) and the reduced confidence arising from uncertainties in future employment stability. Public confidence might also reflect a fundamental uncertainty that may have arisen out of labour market changes of the 1990s, which by increasing labour market responsiveness may, as a result, have reduced public perceptions of employment and income protection. The deterioration in consumers' unemployment expectations could anticipate a major negative response in employment in the forthcoming quarters.

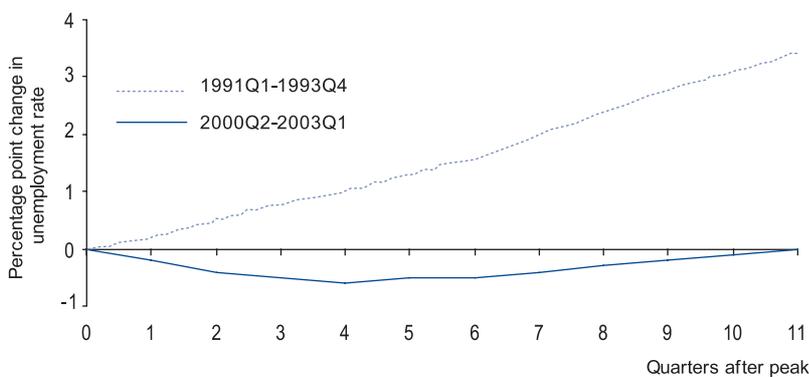
Looking at the recent development of key employment-related indicators (table 3), it is clear in terms of average annual growth rates that the reaction of the labour market during the current slowdown has been quite different to that in the 1991-1993 period. In the earlier slowdown there was a major adjustment in employment as well as a reduction in average hours worked, while productivity increased. During the present slowdown employment has not declined, although the rate of growth has slowed, and the main reaction has been in productivity and in an acceleration in the reduction of average working hours compared to the immediately preceding period of economic expansion (1996-2000). For the

Chart 10- Evolution in Employment Levels from Cyclical Peaks



Source: Eurostat, QLFD

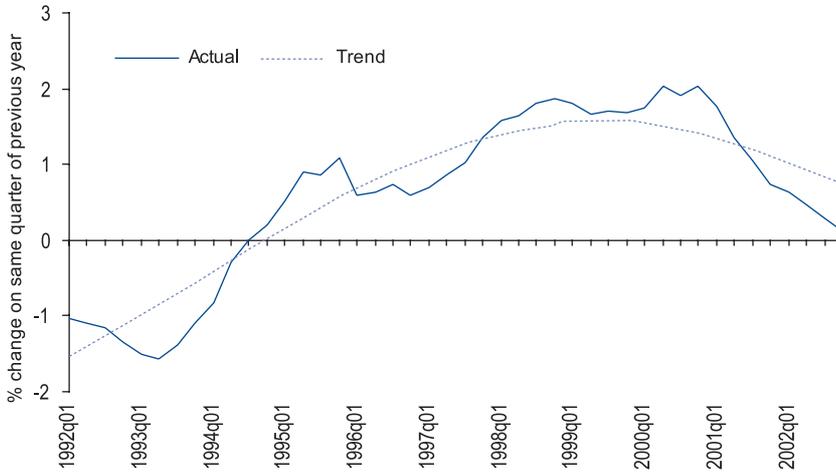
Chart 11- Evolution of unemployment rates from cyclical peaks, EU15



Source: Eurostat, QLFD and harmonised series on unemployment
 Note: data re-based at the peak of the economic cycle, dating based on output gap.
 The harmonised unemployment rate for the EU is not available before 1993, so data for 1991q1-1993q4 is based on QLFD available since 1991q1.

EU as a whole there may not be much scope for containing the impact of the slowdown through further reductions in working hours if it continues, and the decline in productivity growth cannot continue unchecked for much longer. This raises the possibility of a downward adjustment in employment levels over the coming months unless the slowdown comes to an end soon and the long-awaited pick-up in the economy strongly materialises.

Chart 12- Employment growth in the EU
(% change with respect to the same quarter of the previous year)



Source: Eurostat and DG Employment calculation on Eurostat data

Table 3 – Average annual growth rates in employment related indicators (in % terms)

	1991-1993	1996-2000	2000-2002
Employment	-1.42	1.59	0.84
Av. Annual Hours Worked	-0.57	-0.37	-0.52
GDP	0.44	2.96	1.36
GDP/ Employed person	2.05	1.40	0.58
GDP/ Hour worked	2.49	1.75	1.02

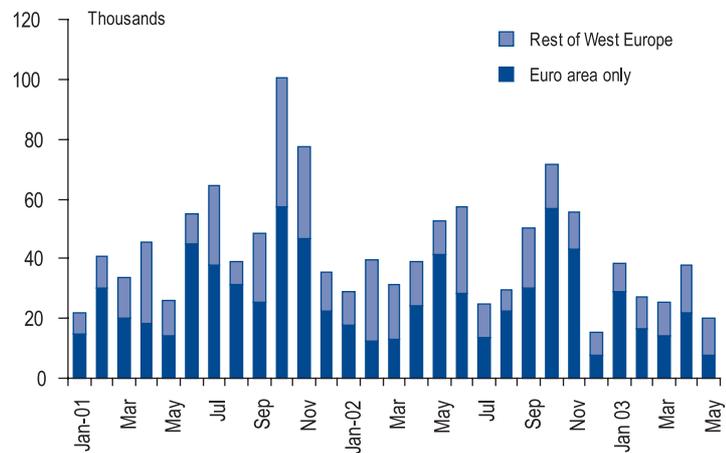
Source: DG EMPL calculations based on data from AMECO database, Commission Services and Eurostat

Box 2 – Evolution of layoff announcements

The recent evolution in layoff announcements (affecting European workers) by major companies (chart 13) indicates that total layoffs announced in Western Europe over the course of 2002 were not much down on the total for 2001 (around 497,000 compared to 588,000), with announcements peaking in October for both years. Although the number of job cut announcements in early 2003 are down on the levels of autumn 2002, recent patterns indicate that this is generally a quiet period of the year for layoff announcements, which tend to occur more often between June and November.

Looking at the sectoral composition of the layoff announcements that have occurred since the start of 2002, it is clear that the sectors that were the main drivers of employment creation between 1995 and 2001 have experienced the greatest number of announcements (table 4). This is especially the case for the finance and high technology and telecommunications sectors, which have been hit particularly hard during the current slowdown. In fact, these two sectors have continued to experience sizeable job cuts announcements into 2003, while most other sectors have shown a generally reduced level of announcements compared to those in

Chart 13- Job cuts announced by major companies, 2001-2003
(as affecting European workers)



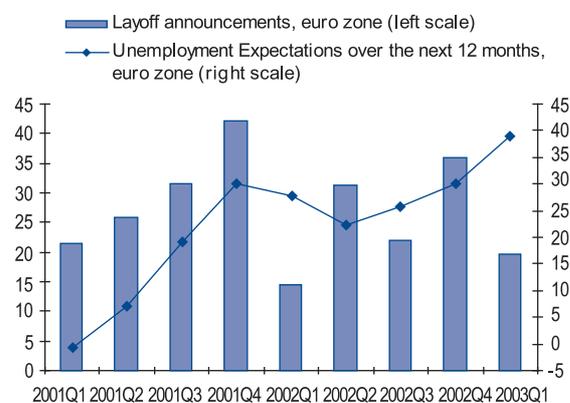
Source: Crédit Suisse, First Boston

2002. The “Transport” and “Leisure” sector and the “Metals and other manufacturing” sectors have also experienced sizeable recent layoff announcements, although the former seems most likely to have been a result of the impact on this sector of the Iraq war and the Severe Acute Respiratory Syndrome (SARS) outbreak.

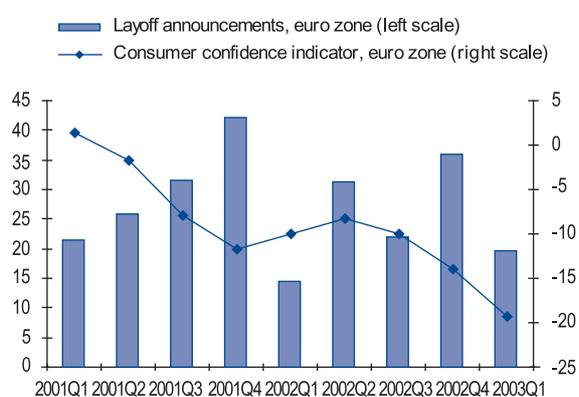
Table 4 – Sectoral composition of layoff announcements in Western Europe, thousands (2002 & early 2003)

	Finance	Tech/telco	Media	Chemical/ pharma	Constrn.	Metals inc. steel	Vehicles	Other manufac- turing	Retail	Utilities	Energy	Transport/ leisure
Jan 02	3.1	7.9	0.0	0.0	0.1	0.0	7.3	2.8	1.6	1.0	4.4	1.1
Feb	4.8	5.9	0.3	5.8	2.5	1.8	4.3	3.3	0.0	3.5	1.3	5.8
Mar	2.2	6.7	2.1	0.9	0.4	0.0	3.0	1.9	2.0	12.2	0.0	0.0
April	8.7	21.5	1.4	0.5	1.6	0.0	1.7	2.1	0.0	0.0	0.4	1.3
May	2.8	29.9	3.2	2.5	3.7	0.0	3.0	2.1	1.0	3.2	0.0	1.4
June	7.8	14.9	1.2	0.2	0.0	0.8	3.7	4.7	0.0	24.0	0.0	0.0
Jul	3.9	11.8	1.3	1.2	0.0	1.4	0.1	2.0	0.0	0.0	2.1	1.2
Aug	5.7	11.0	0.6	5.1	0.0	0.9	1.1	2.7	2.0	0.0	0.0	0.3
Sep	12.4	20.7	1.8	4.4	0.0	0.4	3.5	3.4	0.2	2.3	1.5	0.0
Oct	21.7	18.4	0.9	0.5	0.4	2.1	10.2	13.8	0.4	2.7	0.1	0.5
Nov	5.4	30.9	1.0	4.5	0.0	0.0	6.1	4.2	0.3	0.4	0.1	2.3
Dec	5.1	3.7	0.3	0.0	0.0	0.0	1.0	4.3	0.0	0.5	0.4	0.0
Jan 03	8.3	3.3	0.8	0.2	0.7	8.4	0.2	9.5	2.2	3.2	0.4	1.0
Feb	9.2	4.1	0.3	4.2	0.0	0.0	1.1	1.9	0.5	0.4	0.0	2.3
Mar	10.0	1.7	0.2	2.2	0.4	3.2	2.9	3.4	0.0	0.0	0.0	1.4
April	2.7	19.8	0.0	1.2	0.1	0.8	0.0	4.3	0.3	0.9	0.0	7.8
May	2.7	9.1	0.0	1.7	0.6	0.1	0.7	1.1	0.1	3.3	0.0	0.3
Total	116.4	221.5	15.3	35.1	10.4	19.9	49.7	67.5	10.4	57.7	10.5	26.6

Source: CSFB based on media reports

Chart 14. Unemployment Expectations and Layoff Announcements

Source: Eurostat

Chart 15. Consumer Confidence and Layoff Announcements

Source: Eurostat

In line with the continuing high level of layoff announcements and the experience of the last few years in this regard, consumers' unemployment expectations for the months ahead (chart 14) remain high, with the associated index having returned to an upward trend following a slight decline over the first half of 2002. Meanwhile consumer confidence trailed off again from the middle of 2002 and remains very subdued (chart 15), raising concerns over both the timing and the strength of the awaited recovery.

Unemployment

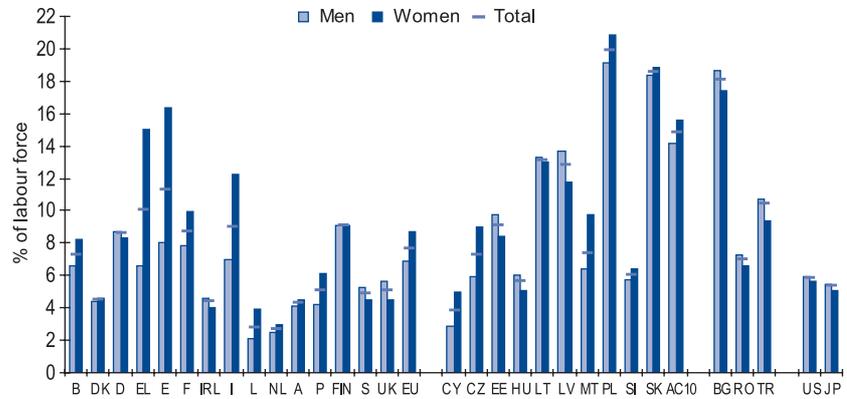
The average unemployment rate for 2002 as a whole was 7.7%, up from 7.4% one year earlier and still some 2 percentage points higher than for the US and Japan. An increase in the annual unemployment rate occurred in all Member States except Finland and Sweden, where the rate remained unchanged from the year before, and Greece and Italy, where the rates actually declined slightly. Despite the progress of the immediately preceding years, unemployment rates remain particularly high in Finland, Greece, Italy and Spain, and especially so for women in the latter three countries (chart 16).

Unemployment levels in the acceding countries as a whole, already noticeably higher than for the EU, increased slightly to just under 15%. Unemployment rates remain particularly high in the three Baltic States, and especially so in Poland and the Slovak Republic where the rates are close to the 20% level. For the acceding countries as a whole, the rise in the average unemployment rate in 2002 was essentially due to the increase in unemployment in Poland (which accounts for some 52% of the working age population of all the acceding countries), where the rate rose by 1.4 percentage points. Indeed, almost all the other acceding countries either saw no change or, more commonly, a decline in the unemployment rate compared to one year earlier.

Within the EU, the disparity in the average unemployment rate according to gender, although still significant, was slightly lower in 2002 than in 2001. The unemployment rate for men was 6.9% and for women 8.7% in 2002, compared to 6.5% and 8.6% respectively in 2001, reflecting the greater impact of the current economic slowdown on male unemployment. A higher unemployment rate for women is found in all Member States except Finland, Germany, Ireland, Sweden and the UK. For the acceding countries as a whole, the gender disparity in 2002 was slightly lower than in the EU with unemployment rates standing at 14.2% for males and 15.6% for females.

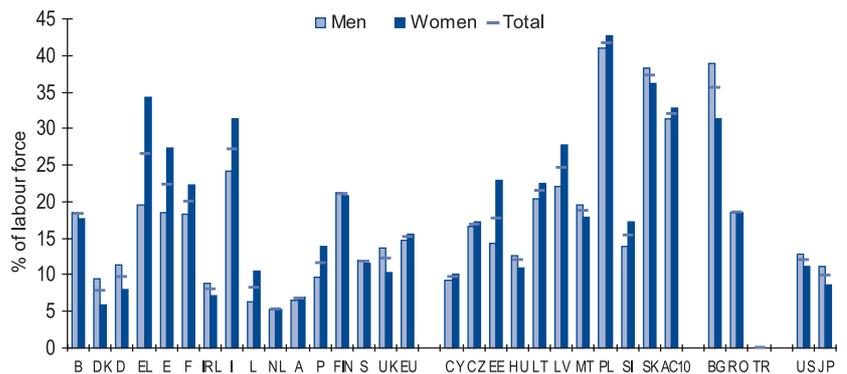
At just over 15%, youth unemployment in the EU remains around twice as high as the overall unemployment rate (chart 17) and is

Chart 16 - Unemployment rate by gender, 2002



Source: Eurostat, harmonised series on unemployment

Chart 17 - Youth unemployment rates by gender, 2002



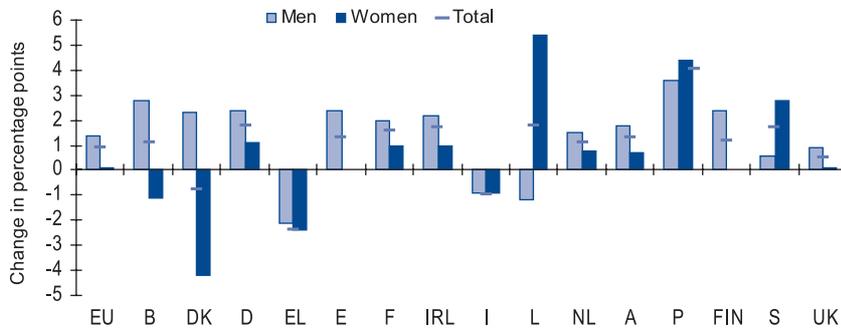
Source: Eurostat, harmonised series on unemployment
Note: data for Turkey unavailable

particularly high, at 20% or more, in Finland, France, Greece, Italy and Spain. While the overall EU unemployment rate increased by 0.3 of a percentage point in 2002, the male youth unemployment rate increased by a whole percentage point compared to the previous year, although it remained fairly stable for young women. Indeed, between the second quarter of 2001 (when overall EU unemployment bottomed out) and the last quarter of 2002 male youth unemployment rose in all Member States except Greece, Italy and Luxembourg (chart 18). The increase was particularly strong (over 2 percentage points) in Belgium, Denmark, Finland, Germany, Ireland, Portugal and Spain. For young women the picture was more mixed with the

rate increasing particularly strongly in Luxembourg, Portugal and Sweden, and declining strongly in Denmark and Greece.

In the acceding countries the youth unemployment rate of about 32% is around twice as high as in the EU15. Similar to the situation in the EU, the unemployment rate for youth is around twice as high as the overall unemployment rate, and ranges from about 10% in Cyprus to as high as 42% in Poland. While overall there is little difference between male and female youth unemployment rates, there is quite a noticeable gap in certain acceding countries, notably Estonia and Latvia, although it is still less pronounced than in some existing Member States.

Chart 18- Change in youth unemployment rates between 2001Q2 and 2002Q4 (seasonally adjusted)

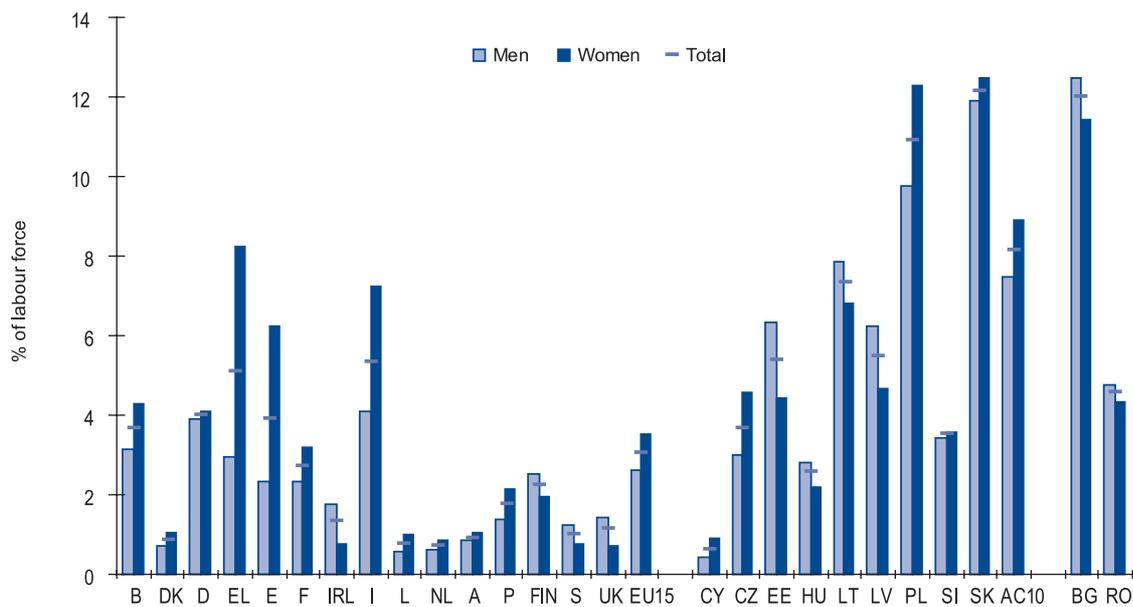


Source: Eurostat, harmonised series on unemployment

Slovakia (12%). For the group of acceding countries as a whole the gender disparity in long-term unemployment is slightly greater than that for the EU, although once again it is still less pronounced than in some existing Member States.

At the EU level, long-term unemployment has declined gradually from its peak level of 5.0% in 1994. The marginal improvement between 2001 and 2002 reflects mixed developments at Member State level, with the rate rising slightly in Belgium, Germany, Luxembourg and Portugal and either declining (most noticeably in Italy) or holding stable in the remaining Member States. Several countries have seen long-term unemployment rates stabilise at around the 1% level over recent years. On the other hand, Greece, Italy and

Chart 19- Long-term unemployment rates, 2002



Source: Eurostat, QLFD
Note: AC10 figure does not include Malta

Long-term unemployment affected around 3% of the EU labour force in 2002, being marginally down on the year before. Within the EU15 it remains most common in Greece and Italy, where more than 5% of the labour force is affected (chart 19). These two Member States, along with Spain, also have the greatest disparity between genders. For the EU as a whole, long-term unemployment

rates are higher for women than for men, although in Finland, Ireland, Sweden and the UK the opposite applies. Within the acceding countries, long-term unemployment (at 8.1%) is almost three times the level in the EU15, and rose by 0.6 percentage points between 2001 and 2002. Almost half of the acceding countries have rates over 5%, with the highest being those for Poland (11%) and

Spain have relatively high rates but these are declining fairly rapidly towards the EU average. For example, between 1998 and 2002 Spain halved its long-term unemployment rate to just below the 4% level, while in Italy it decreased from 7.0% to 5.3%.

In the group of acceding countries, unlike in the EU, long-term unemployment has

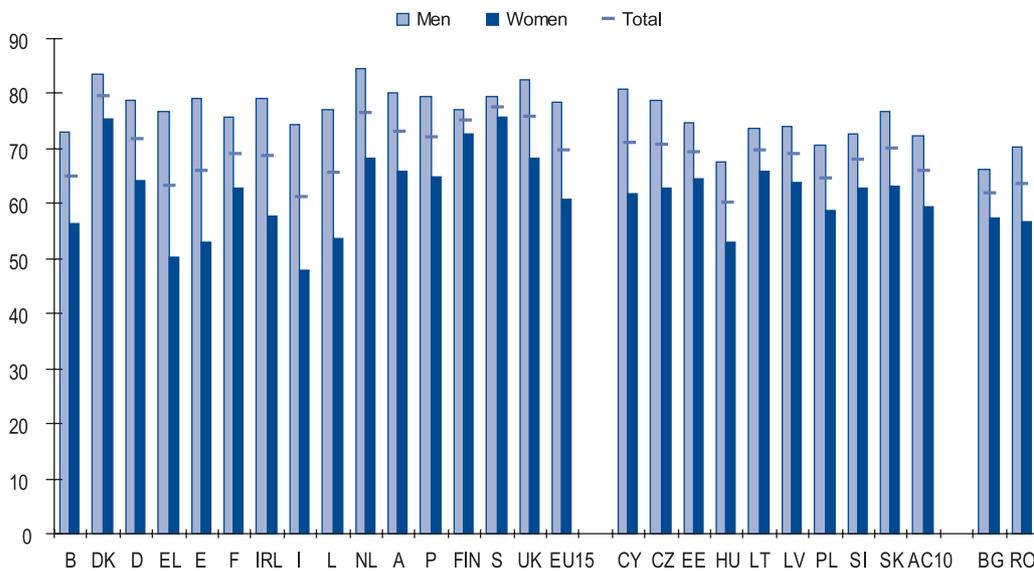
increased substantially over recent years, rising from 6.5% in 2000 to 8.1% in 2002. The largest rises were seen in Poland (up from 7.5% to 10.9%) and Slovakia (up from 10.1% to 12.1%), although by contrast rates have declined in the other acceding countries over this period.

Activity rates

The activity rate for the EU has continued to increase slightly despite the recent economic slowdown. In 2002 the activity rate for the EU as a whole stood at just under 70%, up half a percentage point on one year earlier, and with the rates for individual Member States ranging from as low as 61% in Italy to as high

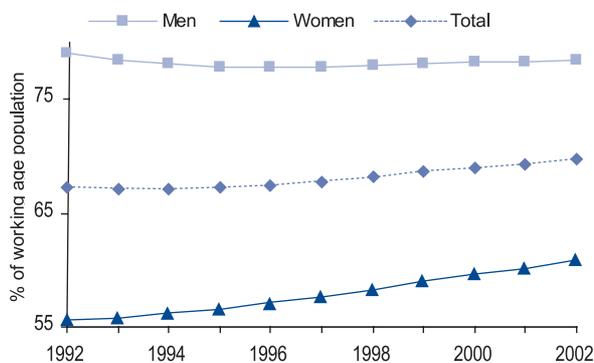
as almost 80% in Denmark (chart 20). The difference between the activity rates for men (78.4%) and women (60.9%) stood at some 17.5 percentage points. However, while activity rates for men have remained rather stable over the last decade (generally in a range between 78-79%) those for women continue to follow a rising trend (chart 21). Hence, while male activity rates remained essentially unchanged from last year, those for women

Chart 20 - Activity rates by gender, 2002



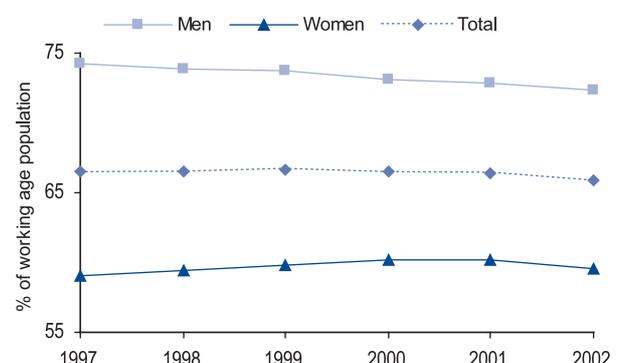
Source: Eurostat, QLFD
 Note: AC10 figure does not include Malta

Chart 21 - Evolution of EU activity rates 1992-2002



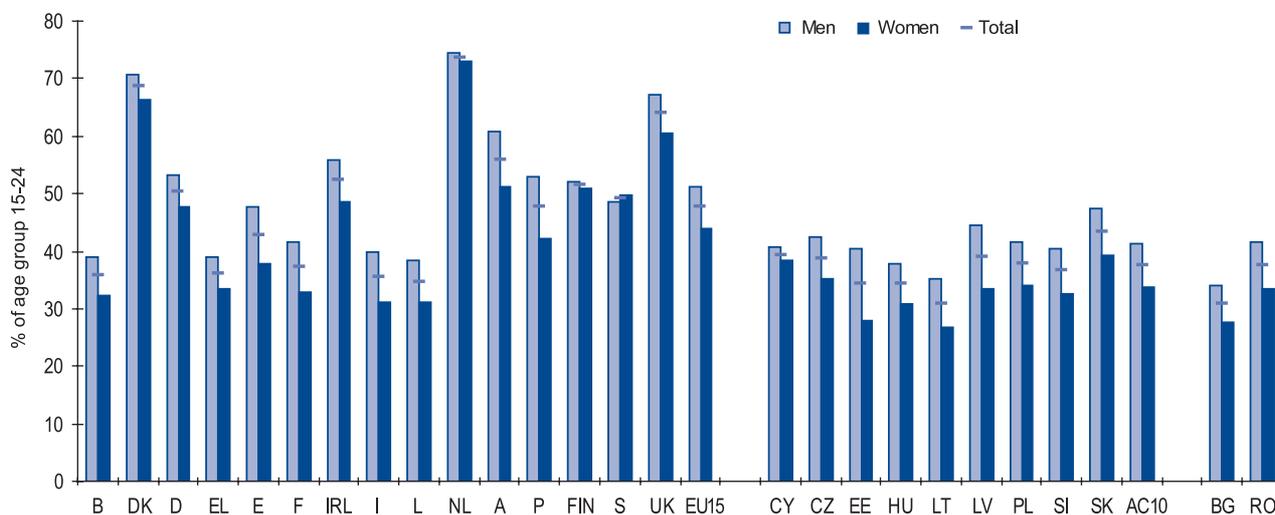
Source: Eurostat, QLFD

Chart 22 - Evolution of Acceding Countries' activity rates 1997-2002



Source: Eurostat, QLFD

Chart 23- Youth (aged 15-24) activity rates by gender, 2002



Source: Eurostat, QLFD
Note: AC10 does not include Malta

rose by 0.7 percentage points, and have risen some 5 percentage points in total over the last decade.

As a result the difference in participation rates for men and women at the EU level continued to decline in 2002 (down 0.6 percentage points). This development was reflected in almost all Member States, with Austria showing the greatest reduction in the gender gap in that year. Nevertheless, the gap in activity rates remains substantial in several Member States - Greece, Ireland, Italy, Luxembourg and Spain all have differences in excess of 20 percentage points.

Participation rates in the acceding countries are generally at only slightly lower levels than those of existing EU Member States, ranging from 60% in Hungary to 71% in Cyprus and the Czech Republic. For the acceding countries as a whole the average activity rate declined slightly in 2002 to just under 66%. This rate is slightly below that of the EU, but the difference between the activity rates for men and women is lower, at just under 13 percentage points. This is due to a lower overall activity level for men in the acceding countries (72.3%) compared to that in the EU, while female rates are very similar. Unlike the development in the EU, the activity rates for

women in the acceding countries grouping have remained broadly stable over recent years, while those for men have declined (chart 22).

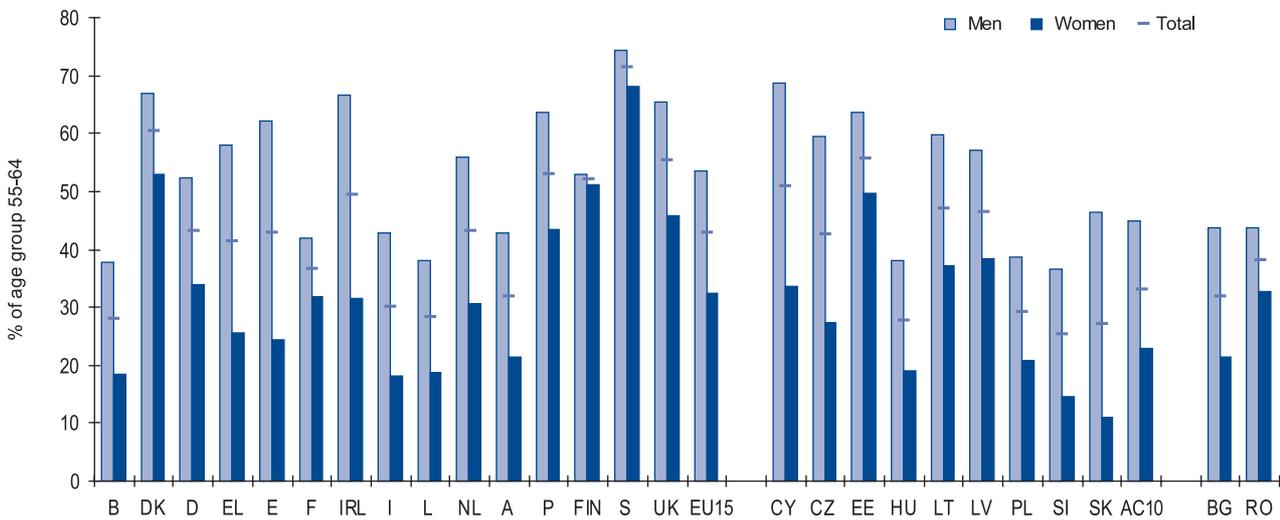
In 2002 the strongest increases in female labour market participation within the EU occurred in Spain and Austria, where rates rose by around 2 and 3 percentage points respectively. Rates also rose noticeably (over 1 percentage point) in Belgium, Greece, Luxembourg and the Netherlands. For male participation, developments were somewhat mixed across Member States, with the rate falling by 0.7 percentage points in Ireland but rising by the same degree in Spain. Finland, Germany, Ireland and the UK all saw male activity rates decline while those for females increased by similar amounts. Within the acceding countries, participation rates for men declined in all countries except the Czech Republic and Hungary, where rates remained unchanged, and Latvia where the rate rose slightly. Rates generally fell for women also, especially in Estonia and Poland which both saw declines of over one percentage point.

The EU activity rate for the youth age group (chart 23) at just below 48% is substantially lower than the overall activity rate for the EU, but the gender gaps in participation for

this age group are narrower. The difference between the activity rate for young men and young women is 7 percentage points. By contrast, while the older age group has an even lower overall activity rate (just under 43%), the gender gap is even more pronounced (over 20 percentage points) than for the EU as a whole, essentially due to very low participation by older women (chart 24). One consequence of this should be a natural reduction over time in the gender gap in the EU activity rate as the current older age group gradually passes beyond the age bounds of the working age population. Interestingly, while the youth activity rate at the EU level showed no improvement in 2002 compared to one year earlier, that for the older age group showed a substantial rise of 1.3 percentage points, spread fairly evenly between men and women.

Youth activity rates are generally quite low and fairly similar across the acceding countries, ranging from 31% in Lithuania to around 43% in Slovakia. All acceding countries have rates that are lower than the EU average. For the acceding countries as a whole, youth activity rates have declined over recent years (down 3 percentage points since 1997), mainly driven by a drop of almost 5 percentage points in the average male youth activity

Chart 24 - Older people's (aged 55-64) activity rates, 2002



Source: Eurostat, QLFD
Note: AC10 does not include Malta

rate and a large decrease between 2001 and 2002 of close to 2 percentage points. Gender disparities in youth participation rates are similar to those in the EU.

Participation rates for older workers vary markedly across the acceding countries and standing at 33% on average are much lower than in the EU. Rates are very low (below 30%) in Hungary, Poland, Slovenia and Slovakia but fairly high (over 45%) in Cyprus and the three Baltic States, especially Estonia (56%). For the acceding countries as a whole activity rates for older people rose slightly between 2001 and 2002, although they have changed little from the levels in 1997. Gender disparities in activity rates among older workers are just as pronounced in the acceding countries as in the existing EU Member States.

Employment rates and the Lisbon and Stockholm targets

Notwithstanding the recent slowdown in global economic activity the EU has continued to make progress towards reaching the Lisbon and Stockholm targets (box 3) as

far as current Member States are concerned (table 5), although at a much reduced rate compared to recent years. For 2002 as a whole the employment rate in the EU is estimated to have grown, albeit by a modest 0.2 percentage points, to reach a level of 64.3%. The employment rate for women rose more noticeably (by 0.6 percentage points) to 55.6%, while for men it fell very slightly (by 0.2 percentage points) to 72.8%. The employment rate of workers aged 55-64 changed more significantly from the year before, rising by some 1.4 percentage points to just above 40% and indicating a substantial improvement over 2002 in the progress towards achieving the Stockholm target for older workers.

Continuing the long-term increases in activity for women and the older population observed in many Member States is essential to achieve the employment growth needed to meet the Lisbon and Stockholm targets. Continuing structural reforms aimed at keeping older workers in the labour force longer, removal of disincentives to female participation in the labour force and raising skill levels in the labour force, in particular for the less-skilled, are, therefore, crucial.

In the context of the forthcoming enlargement, the employment rate in 2002 for an EU25 would have been just under 63% and it is estimated that some 22 million jobs would need to be created within the enlarged EU in order to achieve the Lisbon total employment rate target for 2010. This poses a real challenge for EU and national employment policies, even more so since zero employment growth is forecast for the EU25 as a whole for 2003. This means that in the remaining seven years a net employment creation rate averaging over 3 million per year will be required to reach the overall Lisbon target. This equates to the level achieved by the EU15 in 2000, the best year for employment creation in recent years.

Large variations remain between Member States in terms of the level of employment, with employment rates in 2002 ranging from just above 55% in Italy to more than 75% in Denmark (chart 25). Despite the overall improvement in the employment rate at EU level, declines in the rate compared to 2001 were experienced in several Member States, most notably in Germany, Ireland, Portugal and Sweden. By contrast, Austria, Greece, Italy and Spain saw useful increases in their

Box 3 – Lisbon and Stockholm employment rate targets

The Lisbon European Council of 2000 set as a new strategic goal for the EU over the 2000-2010 decade “to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion”. It specifically stated that the overall aim of employment and economic policies should be to raise the employment rate to as close as possible to 70% by 2010 and to increase the employment rate for women to more than 60% by the same year,

not least in order to reinforce the sustainability of social protection systems.

In addition to the 2010 Lisbon targets, the Stockholm European Council of 2001 set intermediate targets for employment rates in the EU in 2005 of 67% overall and 57% for women. It also set a new target for raising the average EU employment rate for older men and women (aged 55-64) to 50% by 2010.

Table 5 – Progress towards the Lisbon and Stockholm targets

	Total employment rate				Female employment rate				Older workers employment rate			
	2002	Gap below 2010 target	Change 2001-2002	Change 1997-2002	2002	Gap below 2010 target	Change 2001-2002	Change 1997-2002	2002	Gap below 2010 target	Change 2001-2002	Change 1997-2002
B	59.9	10.1	-0.1	3.0	51.4	8.6	0.4	4.9	26.7	23.3	1.6	4.7
DK	75.9	:	-0.3	1.0	71.7	:	-0.3	2.6	57.8	:	-0.1	6.1
D	65.3	4.7	-0.5	1.7	58.8	1.2	0.0	3.5	38.4	11.6	0.5	0.3
EL	56.7	13.3	1.2	1.6	42.5	17.5	1.6	3.2	39.7	10.3	1.8	-1.2
E	58.4	11.6	0.7	9.1	44.1	15.9	1.2	9.7	39.7	10.3	0.5	5.6
F	63.0	7.0	0.3	3.5	56.7	3.3	0.7	4.3	34.8	15.2	2.9	5.9
IRL	65.3	4.7	-0.4	7.8	55.4	4.6	0.5	9.5	48.1	1.9	1.2	7.7
I	55.5	14.5	0.8	4.2	42.0	18.0	0.9	5.6	28.9	21.1	1.0	1.0
L	63.7	6.3	0.6	3.8	51.6	8.4	0.7	6.3	28.3	21.7	2.7	4.4
NL	74.4	:	0.3	5.9	66.2	:	0.9	0.2	42.3	7.7	2.0	10.3
A	69.3	0.7	0.8	1.5	63.1	:	2.4	4.5	30.0	20.0	1.0	1.7
P	68.2	1.8	-0.5	2.6	60.8	:	-0.2	4.3	50.9	:	0.9	2.7
FIN	68.1	1.9	0.0	4.8	66.2	:	0.8	5.9	47.8	2.2	2.1	12.2
S	73.6	:	-0.4	4.1	72.2	:	0.0	5.0	68.0	:	1.3	5.4
UK	71.7	:	-0.1	1.7	65.3	:	0.2	2.1	53.5	:	1.2	5.2
EU15	64.3	5.7	0.2	3.6	55.6	4.4	0.6	4.9	40.1	9.9	1.4	3.7
2010 Target	70%				More than 60%				50%			

Source: Eurostat, QLFD

Note: The column “Gap below 2010 target” is for illustrative purposes only, since the 2010 target is for the EU overall and not individual Member States

employment rates, ranging in magnitude from 0.7 to 1.2 percentage points.

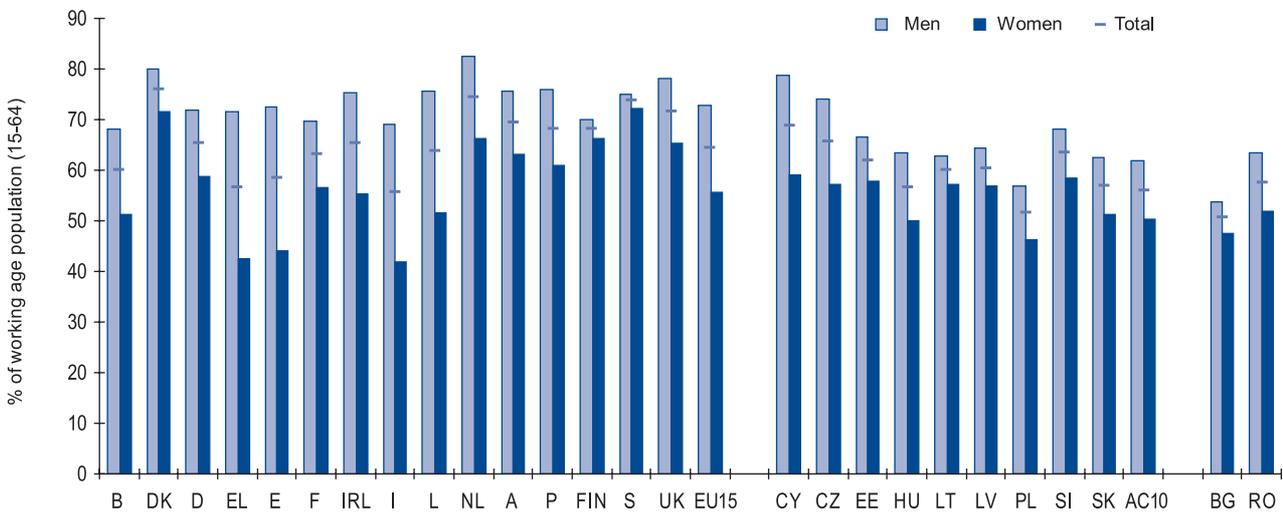
Among the acceding countries employment rates in 2002 ranged from around 52% in Poland to over 65% in Cyprus and the Czech Republic. For the acceding countries as a whole the average employment rate declined slightly (by around 1%) during 2002, essentially due to the negative employment growth in Poland. For all other acceding countries apart from Slovenia the employment rates either rose or remained stable compared to 2001.

Noticeable disparities persist within the EU with regard to the employment rates within different age groups (table 6). For the EU as a whole the employment rate for the youth age group (15-24 years) stood at 40.6% in 2002, ranging from below 30% in Belgium, Greece and Italy to as high as 70% in the Netherlands. The rate has increased in most Member States since 1996, and especially strongly in Finland, France, Ireland, the Netherlands, Spain and Sweden. In the acceding countries low youth employment persists, with all countries having youth employment rates well below the EU average, and as low as 22%

in Poland. The rates are declining, having fallen over recent years and quite markedly so in the Czech Republic, Estonia, Lithuania, Poland, Slovenia and Slovakia. Among the remaining candidate countries, Bulgaria has an extremely low youth employment rate of under 20%.

For the older age group (55-64) the employment rate for the EU as a whole stood at just over 40%, with Belgium recording the lowest rate (at just under 27%) and Sweden the highest (68%). The marked variation in employment rates for this age group reflects

Chart 25 - Employment rate by gender, 2002



Source: Eurostat, QLFD
 Note: AC10 does not include Malta

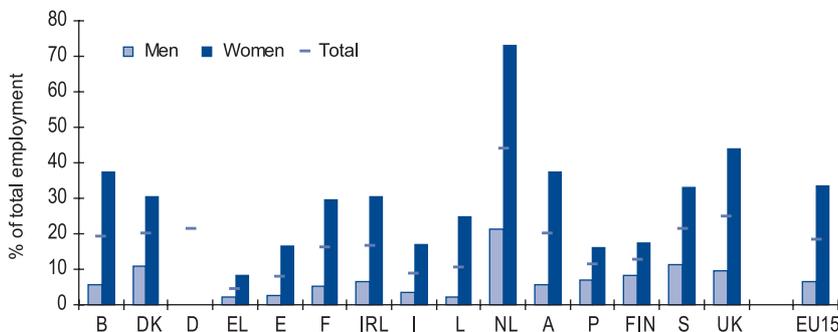
large differences across Member States mainly in the proportions of retired persons and of persons who are inactive due to illness or disability in this age group. Over recent years the employment rate for older people has risen substantially in all Member States except Austria, Germany, Greece and Italy.

Employment rates for older workers also vary quite considerably in the acceding countries, ranging from 52% in Estonia to as low as 23% in Slovakia. In general acceding countries have not experienced the same trend towards increasing employment rates for older workers as most EU Member States in recent years,

and in fact rates have fallen considerably in Poland. However, the Czech Republic, Hungary and Latvia are exceptions, their rates having risen substantially since 1998.

The difference between the overall employment rates for men and women in the EU narrowed further during 2002, as male rates fell slightly and those for females rose. Nevertheless, large gender differences of between 27 and 29 percentage points remain in Greece, Italy and Spain (where female employment rates are all below 45%). In the acceding countries as a whole there is a smaller gap between employment rates for men and women than in the EU, although it is above 15% in Cyprus and the Czech Republic.

Chart 26 - Part-time employment, 2002



Source: Eurostat, QLFD

Recent trends in employment creation according to form of employment

In 2002, 18% of workers in the EU were in part-time employment (only slightly higher than in 2001), although this form of employment accounted for as much as 44% of total employment in the Netherlands (chart 26).

Table 6 – Employment Rate by Gender and Age Classes, 2002

	Male employment rate	Female employment rate	Youth (15-24) employment rate	Older people (55-64) employment rate
B	68.2	51.4	29.4	26.7
DK	80.0	71.7	63.5	57.8
D	71.7	58.8	45.6	38.4
EL	71.4	42.5	26.5	39.7
E	72.6	44.1	33.3	39.7
F	69.5	56.7	30.1	34.8
IRL	75.2	55.4	47.9	48.1
I	69.1	42.0	25.8	28.9
L	75.6	51.6	32.3	28.3
NL	82.4	66.2	70.0	42.3
A	75.7	63.1	51.8	30.0
P	75.9	60.8	42.1	50.9
FIN	70.0	66.2	40.7	47.8
S	74.9	72.2	42.8	68.0
UK	78.0	65.3	56.3	53.5
EU15	72.8	55.6	40.6	40.1
CY	78.8	59.2	36.4	49.2
CZ	74.0	57.1	32.3	40.8
EE	66.5	57.9	28.2	51.6
HU	63.5	50.0	30.1	26.6
LT	62.7	57.2	23.8	41.6
LV	64.3	56.8	31.0	41.7
PL	56.9	46.2	21.7	26.1
SI	68.2	58.6	30.6	24.5
SK	62.4	51.4	27.0	22.8
AC10	61.8	50.2	25.4	30.5
BG	53.7	47.5	19.4	27.0
RO	63.6	51.8	28.7	37.3

Source: Eurostat, QLFD

Note: AC10 figure does not include Malta

The rate for the Netherlands is much higher than for any other Member State and is essentially due to the fact that almost three-quarters of female employment in that country is part-time. Indeed, part-time work remains predominantly a feature of female employment, with a third of women in employment having a part-time job compared to only 6.5% for men. While the share of part-time jobs changed little at the EU level in 2002, quite noticeable increases (of the order of 2 percentage points) occurred in Austria and the Netherlands, continuing the rapid rise in the share of this form of employment observed in these countries over recent years.

Fixed-term contracts were held by around 13% of EU employees in 2002, ranging from 31% in Spain to only around 5% in Ireland and Luxembourg (chart 27). Unlike part-time work, fixed-term employment is shared fairly evenly between men and women at EU level. Compared to the previous year, the share of fixed-term contracts declined in many Member States and moderately for the EU as a whole, with Austria and Greece seeing the largest declines. Indeed, the prevalence of this form of employment in the EU seems to have peaked in 2000 and its share has declined slightly over subsequent years.

The recent evolution in the growth rates for permanent, fixed-term, full-time and part-time employment of the working age population (table 7) show that at the EU level all forms of employment have experienced either a slowdown or a decline. Between the second quarter of 2001 and that of 2002 there was a slowdown in the creation of permanent employment compared to the previous 12-month period, but growth for this form of employment remained positive. On the other hand, fixed-term employment declined with the growth rate turning noticeably negative. Employment growth in terms of both full-time and part-time employment also declined relative to one year earlier but still remained positive overall.

Examining the evolution in net employment creation between the years 1997 (the year the European Employment Strategy was launched) and 2002 for those aged 15-64, reveals that for the EU as a whole net employment creation involving full-time employment was over twice that for part-time employment (table 8a and chart 28). Only Austria, Belgium

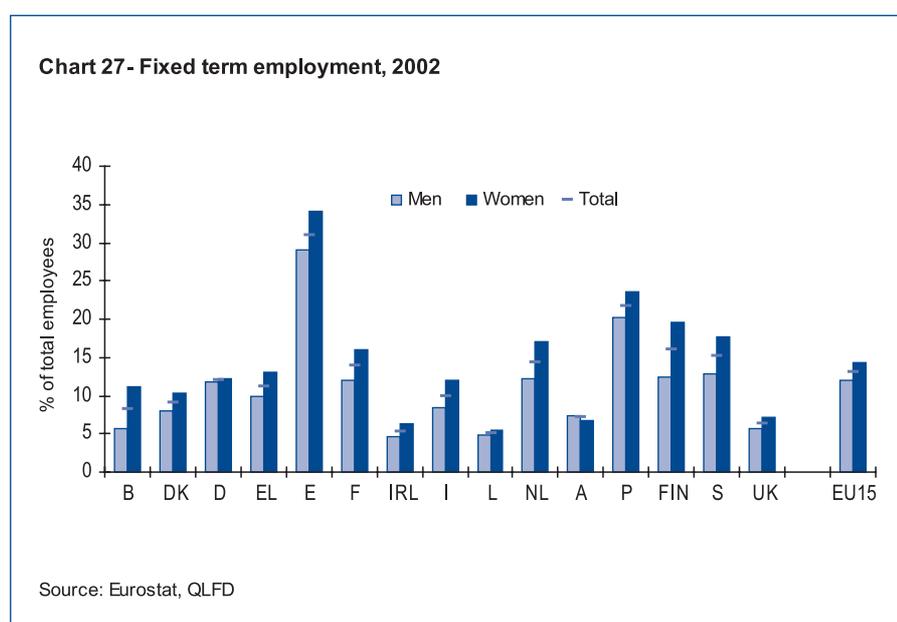


Table 7 – Recent evolution in annual employment growth rates in the EU15 between 2000 and 2002 according to form of employment

Annual growth rates (as %) in permanent and fixed-term employment of employees between 2000 and 2002				Annual growth rates (as %) in full-time and part-time employment between 2000 and 2002			
Permanent		Fixed-term		Full-time		Part-time	
2000Q2-2001Q2	2001Q2-2002Q2	2000Q2-2001Q2	2001Q2-2002Q2	2000Q2-2001Q2	2001Q2-2002Q2	2000Q2-2001Q2	2001Q2-2002Q2
2.1	1.3	0.4	-1.6	1.9	0.5	2.4	1.5

Source: Eurostat, LFS

Table 8a – Net employment creation 1997-2002 (full-time and part-time employment, for those aged 15-64, in 1000s)

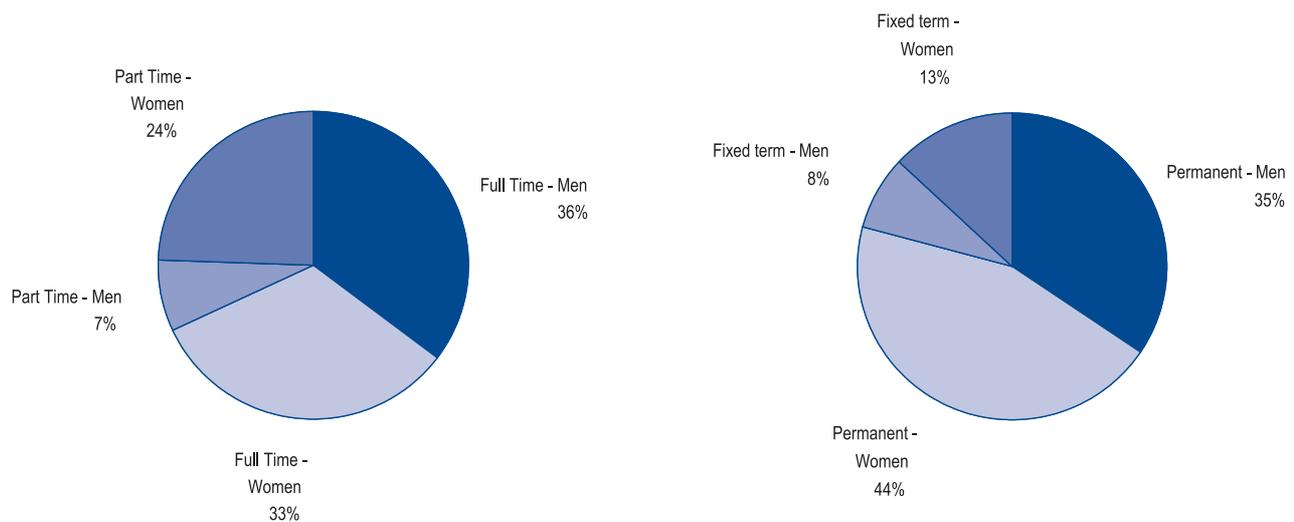
Member State	Full-time			Fixed-term			Total (net)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
B	-5	-7	2	218	60	158	213	53	159
DK	92	10	82	-46	-25	-21	51	-13	64
D	-389	-362	-27	1311	274	1037	922	-88	1010
EL	115	26	90	3	-5	8	119	21	98
E	2830	1601	1229	226	-2	229	3042	1587	1454
F	1756	911	845	179	-3	183	1935	908	1027
IRL	260	161	100	114	17	97	374	177	197
I	1228	633	594	457	75	383	1685	708	977
L	12	6	5	8	1	7	20	7	12
NL	150	134	16	831	257	574	966	387	579
A	-39	-3	-36	166	22	144	127	19	108
P	490	274	216	62	26	37	552	299	253
FIN	234	119	115	56	14	42	286	131	155
S	450	180	270	-55	50	-105	412	209	202
UK	1186	641	545	373	159	214	1550	791	759
EU15	8370	4324	4046	3904	919	2985	12252	5197	7055

Source: Eurostat, LFS

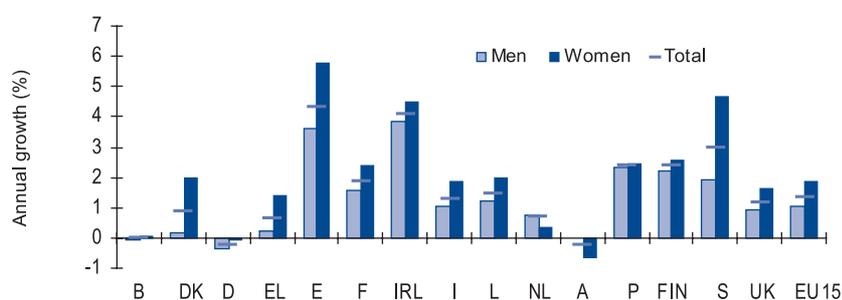
Chart 28- Employment creation in the EU 1997-2002 by type of employment

Employment creation by full time and part time employment

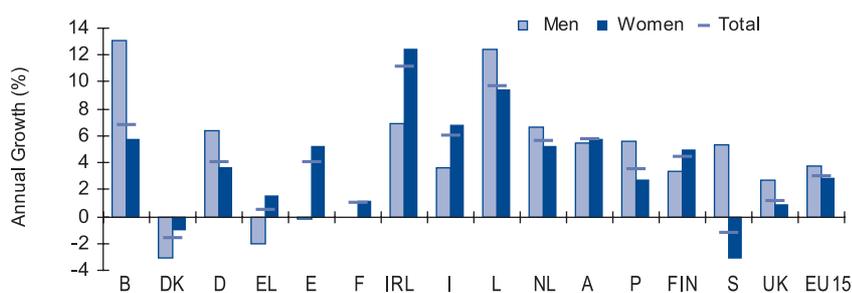
Employment creation by fixed term and permanent employment



Source: Eurostat, LFS

Chart 29- Average annual growth rates 1997-2002 - Full Time Employment

Source: Eurostat, LFS

Chart 30: Average annual growth rates 1997-2002 - Part Time Employment

Source: Eurostat, LFS

and in particular Germany saw a fall in full-time employment levels over this period, and part-time employment levels declined only in Denmark and Sweden. Although net full-time employment creation was fairly evenly split between men and women, the vast majority of net employment creation involving part-time work (over three quarters) was related to the employment of women. Most of the increase in female part-time employment was accounted for by employment developments in Germany, Italy and the Netherlands.

Looking at changes in relative terms, the annual growth rates in full-time and part-time employment over the period 1997-2002 (charts 29 and 30) indicate the variation in developments across Member States. For example, in Belgium the annual growth rate for part-time employment averaged around 7% while that for full-time employment was around zero. In Austria and Germany negative growth in full-time employment was countered by growth in part-time employment, while in Denmark and Sweden the reverse occurred. Finally, all other Member States saw positive growth rates for both forms of employment, with both rates being high in Ireland. At EU level growth rates for part-time employment were superior to those for full-time employment.

Table 8b - Net employment creation 1997-2002 (permanent and fixed term employment, employees only, aged 15-64, 1000s)

Member State	Permanent			Fixed-term			Total (net)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
B	188	66	122	61	22	40	249	87	162
DK	109	35	74	-49	-44	-5	66	-6	72
D	746	-149	896	194	44	150	763	-139	902
EL	228	117	111	38	7	31	266	124	142
E	2346	1315	1031	699	253	446	3031	1557	1474
F	1658	862	796	521	175	346	2203	1050	1153
IRL	287	123	164	-30	-11	-19	349	157	192
I	1069	400	669	381	137	244	1451	537	913
L	16	4	11	4	2	2	20	7	13
NL	568	176	392	303	162	141	908	355	553
A	122	8	115	-4	2	-5	119	9	110
P	144	82	63	422	206	216	496	248	248
FIN	251	147	104	55	10	45	304	156	149
S	251	134	117	185	80	105	412	201	211
UK	1972	1020	952	-182	-73	-109	1710	905	805
EU15	9957	4339	5617	2598	972	1626	12346	5247	7098

Source: Eurostat, LFS

Table 9 – Share (as %) of the working age population (15-64) by educational attainment levels in 2002

	Total			Men			Women		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
B	41.2	34.1	24.7	41.6	34.6	23.8	40.9	33.5	25.6
DK	27.8	48.9	23.4	26.6	51.9	21.5	28.9	45.8	25.3
D	24.1	56.9	18.9	20.8	56.7	22.5	27.5	57.2	15.3
EL	47.0	38.1	14.9	46.2	38.2	15.6	47.7	38.0	14.3
E	57.2	20.3	22.5	57.4	20.2	22.4	56.9	20.4	22.6
F	38.3	40.2	21.5	36.7	42.9	20.4	39.9	37.5	22.6
IRL	40.8	37.2	22.0	43.3	36.1	20.5	38.3	38.3	23.4
I	56.0	35.2	8.8	56.0	35.2	8.8	56.0	35.2	8.7
L	41.2	42.6	16.2	37.2	44.2	18.6	45.3	41.0	13.7
NL	36.0	42.6	21.4	33.6	43.2	23.3	38.4	42.1	19.5
A	26.4	58.9	14.7	21.6	62.7	15.7	31.3	55.1	13.6
P	78.0	14.1	8.0	80.4	13.5	6.0	75.6	14.6	9.8
FIN	30.1	43.0	27.0	32.1	43.9	24.0	28.0	42.0	30.0
S	22.5	54.3	23.2	24.3	55.8	19.9	20.7	52.8	26.5
UK	17.6	56.1	26.2	15.9	57.3	26.8	19.5	54.9	25.7
BG	33.5	49.0	17.4	34.5	51.8	13.7	32.6	46.4	21.0
CY	36.2	38.1	25.7	34.5	39.2	26.3	37.7	37.2	25.1
CZ	18.8	71.4	9.9	15.3	73.5	11.2	22.2	69.2	8.5
EE	21.5	54.3	24.1	23.7	58.0	18.3	19.6	51.0	29.5
HU	31.6	56.4	12.0	28.2	60.4	11.4	34.9	52.6	12.5
LT	24.0	39.7	36.2	25.5	44.8	29.7	22.7	35.0	42.3
LV	25.8	57.9	16.3	30.2	56.0	13.8	21.8	59.6	18.6
PL	25.8	64.3	9.9	25.0	66.5	8.5	26.5	62.2	11.3
RO	34.8	57.1	8.1	30.5	61.0	8.6	39.1	53.3	7.6
SI	27.3	60.8	11.9	24.5	65.1	10.4	30.2	56.4	13.4
SK	20.9	70.5	8.6	18.1	73.6	8.3	23.6	67.5	8.9
EU15	37.8	43.0	19.2	36.3	43.9	19.8	39.2	42.2	18.6
EU25*	35.6	46.5	17.9	34.2	47.5	18.3	37.0	45.4	17.6

Source: Eurostat, LFS

Note: *EU25 figure does not include Malta

Looking at net employment creation between the two reference years 1997 and 2002 in terms of permanent and fixed-term employment reveals that net employment creation involving permanent employment was almost four times that for fixed-term employment (table 8b and chart 28), and with net employment creation higher for women than for men in both forms of employment. While all Member States experienced a rise in employment involving permanent jobs, the level of fixed-term employment declined in Austria, Denmark, Ireland and the UK. Much of the rise in permanent employment was due to the large increases in this form of employment in France, Spain and the UK, which together accounted for some 6 million new jobs of this type.

Skills and employment

In 2002, low-skilled people represented close to 38% of the working age population in the EU while the high-skilled accounted for some 19% (table 9). The low-skilled still account for large proportions of the working age population in most of the southern European countries, the share being as high as 78% in Portugal. With regard to the proportion of high-skilled, this was largest in Finland (27%) and the UK (26%) and lowest in Portugal and Italy (both around 8% to 9%).

The largest gender difference in the proportion of the working population according to skills level relates to the low-skilled group, which accounts for 36% of men and 39% of women. The largest differences at Member State level were those between low-skilled men and women in Austria, Germany and Luxembourg. Similarly, large differences exist in the proportion of high-skilled men and

women in Germany and Luxembourg, with fewer high-skilled women than men, and in Finland and Sweden, where the opposite situation is found.

Among the acceding countries Lithuania has the highest proportion of high-skilled in the working age population (36%), while for the Czech Republic, Poland and Slovakia it is below 10%. In terms of gender differences in the skills breakdown of the working age population, the Czech Republic, Hungary and Latvia show the largest differences for men and women in the low skills group, while in the high skills group the differences are particularly strong for the three Baltic States, where the proportion of high-skilled women is much higher than that for men. In fact the proportion of the high skilled is greater for women in all the acceding countries except Cyprus and the Czech Republic.

The employment rate is generally greater the higher the educational level (table 10). In

Table 10 – Employment, unemployment and activity rates by education levels in 2002 (age group 15-64)

	Total, irrespective of education level			High			Medium			Low		
	ER	UR	AR	ER	UR	AR	ER	UR	AR	ER	UR	AR
B	59.7%	6.9%	64.1%	82.8%	3.5%	85.7%	65.7%	6.6%	70.3%	40.8%	11.3%	46.0%
DK	76.4%	4.3%	79.9%	87.0%	3.7%	90.3%	80.6%	3.6%	83.6%	60.4%	6.7%	64.8%
D	65.4%	8.6%	71.5%	83.0%	4.3%	86.8%	69.8%	8.7%	76.5%	43.6%	13.5%	50.4%
EL	56.9%	9.8%	63.1%	80.2%	6.8%	86.1%	57.2%	12.8%	65.5%	49.2%	8.5%	53.7%
E	58.4%	11.1%	65.8%	77.5%	8.7%	84.9%	58.2%	11.4%	65.7%	52.8%	12.4%	60.3%
F	62.9%	8.7%	69.0%	79.2%	5.5%	83.8%	69.8%	7.7%	75.7%	46.6%	13.0%	53.6%
IRL	65.0%	4.3%	67.9%	84.8%	2.3%	86.8%	71.2%	3.8%	74.0%	48.1%	7.0%	51.8%
I	55.4%	9.3%	61.0%	81.8%	5.6%	86.6%	64.8%	8.8%	71.0%	45.3%	10.8%	50.7%
L	63.6%	2.6%	65.3%	83.6%	1.7%	85.0%	69.1%	1.5%	70.2%	50.8%	4.7%	53.3%
NL	74.5%	2.6%	76.5%	86.8%	1.7%	88.4%	79.8%	2.1%	81.5%	61.7%	3.7%	64.0%
A	68.2%	4.9%	71.7%	85.0%	1.8%	86.6%	72.9%	4.8%	76.6%	48.2%	8.3%	52.6%
P	68.6%	4.8%	72.1%	88.6%	4.0%	92.3%	64.7%	5.3%	68.4%	67.3%	4.8%	70.7%
FIN	69.1%	10.5%	77.2%	85.5%	4.1%	89.2%	72.8%	10.4%	81.3%	48.9%	19.1%	60.5%
S	74.0%	5.0%	78.0%	86.2%	2.7%	88.6%	79.6%	4.8%	83.6%	58.2%	8.1%	63.3%
UK	71.5%	5.1%	75.3%	87.3%	2.6%	89.7%	77.3%	5.0%	81.3%	50.9%	10.1%	56.6%
BG	51.1%	18.3%	62.5%	75.7%	8.2%	82.5%	58.5%	17.7%	71.1%	27.5%	30.6%	39.6%
CY	68.5%	3.4%	70.9%	87.3%	2.4%	89.5%	71.5%	3.6%	74.1%	52.1%	4.2%	54.4%
CZ	65.6%	7.1%	70.6%	86.4%	1.8%	88.0%	73.1%	6.4%	78.1%	26.1%	20.6%	32.9%
EE	61.7%	9.6%	68.3%	80.1%	4.7%	84.1%	67.4%	10.3%	75.1%	26.6%	20.0%	33.3%
HU	56.5%	5.7%	59.9%	81.8%	1.7%	83.2%	66.4%	5.1%	70.0%	29.2%	11.5%	33.0%
LT	60.6%	13.2%	69.8%	78.4%	9.0%	86.2%	65.2%	16.0%	77.7%	26.2%	19.2%	32.4%
LV	60.5%	13.4%	69.8%	80.7%	6.6%	86.4%	67.3%	13.0%	77.4%	32.4%	24.0%	42.6%
PL	51.7%	20.2%	64.9%	82.4%	6.6%	88.2%	57.8%	21.2%	73.3%	25.0%	28.1%	34.8%
RO	58.6%	8.8%	64.2%	82.0%	4.1%	85.5%	64.3%	10.0%	71.5%	43.8%	7.6%	47.5%
SI	64.3%	6.1%	68.5%	86.4%	2.5%	88.6%	69.5%	6.1%	74.0%	41.8%	9.4%	46.1%
SK	56.5%	18.7%	69.5%	85.8%	3.9%	89.4%	65.0%	17.8%	79.1%	15.5%	46.1%	28.8%
EU15	64.2%	7.7%	69.6%	82.8%	4.6%	86.8%	70.5%	7.3%	76.1%	49.4%	10.8%	55.3%
EU25*	62.8%	8.9%	69.0%	82.8%	4.7%	86.8%	68.7%	9.2%	75.7%	46.6%	11.8%	52.8%

Source: Eurostat, LFS

Note: *EU25 figure does not include Malta

2002, the employment rate at EU level for the high-skilled (tertiary education completed) was 83% and for the medium-skilled (upper secondary completed) just above 70%. In contrast, the rate for the low-skilled (below upper secondary education) was under 50%. Within skills bands, the variation in employment rates across Member States is most noticeable for the low-skilled, where rates vary from 41% in Belgium to 67% in Portugal. For the high-skilled the variation in the employment rate is much less, ranging from about 78% in Spain to 89% in Portugal.

Among the acceding countries, employment rates for the low-skilled are generally extremely low, being mainly concentrated in the range 20-30% but going as low as 16% for Slovakia. In contrast, employment rates for the high-skilled are at levels comparable to those of the existing Member States. For the EU and acceding countries activity rates follow broadly similar patterns as those for employment rates, being generally a few

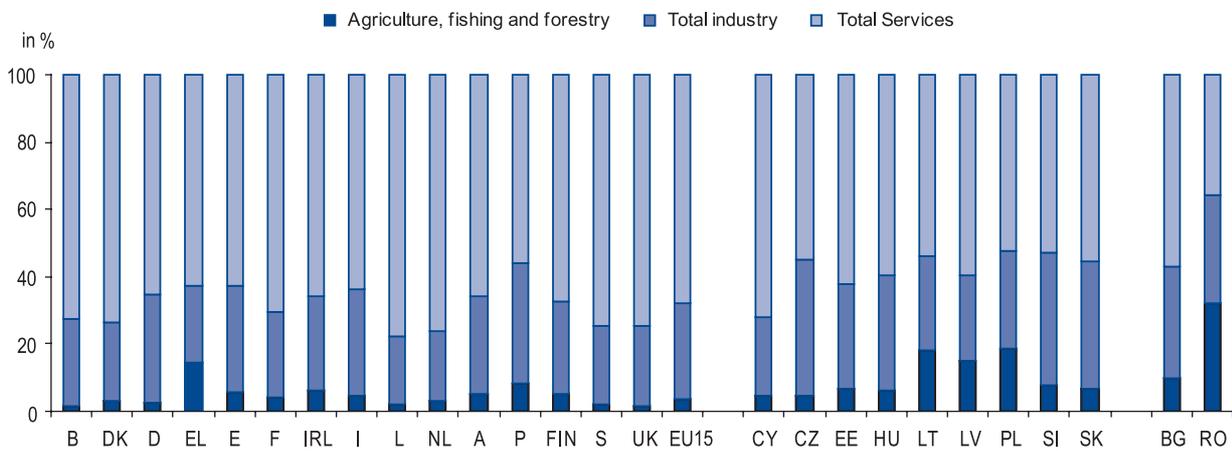
percentage points higher than the latter. However, for the medium- and low-skilled in Finland, Latvia, Lithuania, Poland and Slovakia there is a wide gap between activity rates and employment rates.

Unemployment rates in the EU for the low-skilled are more than double those for the high-skilled. Among the current Member States the greatest difference in the unemployment rate for the low- and high-skilled is found in Finland, where it is almost five times higher for the low-skilled. Austria, Belgium, France, Germany and the UK also have considerable differences between unemployment rates for the high- and low-skilled. Differences in some acceding countries are even more pronounced, the most extreme case being Slovakia where the unemployment rate for low-skilled is 46% compared to only 4% for the high-skilled.

Sectoral employment structure and trends, and employment creation/loss across sectors over recent years

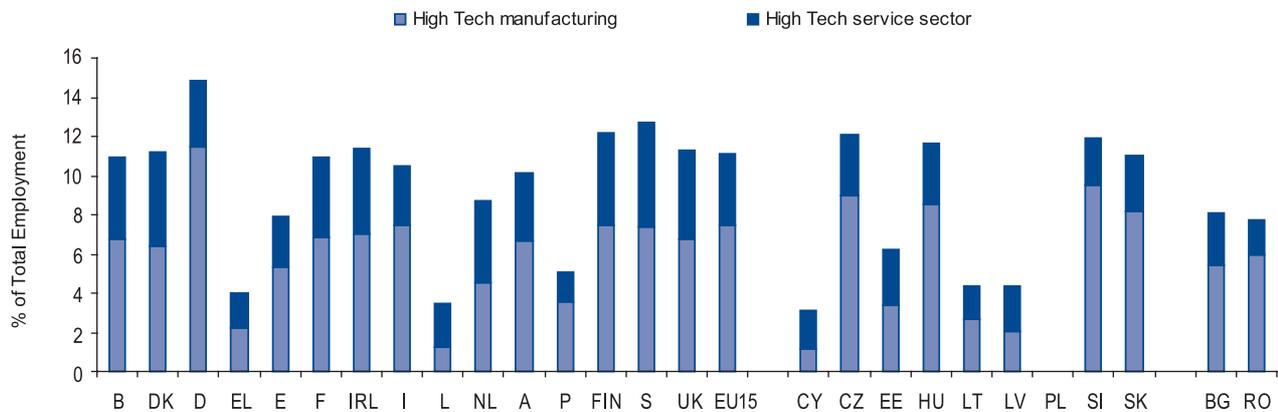
At EU level, the sectoral employment structure of the working age population within Europe in 2002 (table 11 and chart 31) is characterised by a dominant services sector (accounting for around 68% of total employment), a still sizeable industry sector (28% of employment) and a fairly minor agriculture sector in terms of employment (some 4% of total employment). Nevertheless, some noticeable differences remain between Member States in terms of the relative importance of these sectors within the national economies. For example, in Greece the agriculture sector still accounts for close to 15% of total national employment of the working age population, compared to as little as 1.3% in the UK. The

Chart 31- Comparative Employment Structure in 2002 (% of total employment 15-64)



Source: Eurostat, LFS

Chart 32- Employment in the High Technology Sector in 2002 (% of total employment 15-64)



Source: Eurostat, LFS

Note: data for Poland not available for NACE Rev. 1 at 2 digit level

proportion of national employment in the industry sector ranges from 20% in Luxembourg to about 36% in Portugal, while employment in the services sector ranges from 56% in Portugal to over three quarters of total national employment in Luxembourg and the Netherlands.

For the acceding countries as a whole, the services sector accounts for a lower propor-

tion of employment of the working age population compared to the EU, at less than 60% for the majority of these countries. Most also have a greater proportion of employment in the industry sector, which accounts for as much as around 40% of employment in the Czech Republic, Slovenia and the Slovak Republic. Agriculture remains an important source of employment in several acceding countries, accounting for over 18% of employ-

ment in Lithuania and Poland. In all acceding countries the proportion of the working age population employed in agriculture is above the average for the EU15.

While the sectoral make-up of employment of the working age population in Bulgaria seems broadly similar to that of the acceding countries, the employment structure for Romania differs markedly, with each of the

Table 11 – Comparative employment structure in 2002 (% of total employment 15-64)

Sector NACE rev.1 description	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	EU15	CY	CZ	EE	HU	LT	LV	PL	SI	SK	BG	RO
<i>Agriculture, fishing and forestry</i>	1.8	3.0	2.4	14.6	5.8	4.0	6.1	4.7	1.9	2.9	5.4	8.5	5.3	2.2	1.3	3.7	4.4	4.9	6.5	6.0	18.2	14.8	18.5	7.7	6.6	9.9	32.3
<i>Total industry</i>	25.8	23.6	32.5	22.8	31.4	25.5	28.2	31.8	20.1	21.1	29.0	35.5	27.2	23.1	24.3	28.4	23.5	40.4	31.2	34.3	27.7	25.9	29.1	39.6	38.2	33.0	32.2
Manufacturing	18.3	16.4	23.6	13.9	18.5	17.9	16.5	22.8	10.3	14.0	19.6	21.7	19.8	16.8	15.8	19.4	12.3	28.2	22.1	25.0	18.0	16.9	19.2	32.0	27.0	24.1	23.4
High Tech manufacturing	6.7	6.4	11.5	2.2	5.4	6.8	7.0	7.4	1.2	4.5	6.6	3.5	7.4	7.4	6.8	7.5	1.1	9.0	3.4	8.5	2.6	2.0	-	9.5	8.2	5.4	6.0
Construction	6.6	6.6	7.6	7.6	11.9	6.6	10.5	7.9	9.1	6.5	8.3	12.7	6.3	5.5	7.4	7.9	10.0	9.0	6.1	7.1	7.5	6.3	6.0	6.0	8.1	5.2	4.7
Wholesale, retails trade, repair of motor vehicles	14.3	14.6	14.0	17.2	15.5	13.1	14.2	15.5	12.4	15.8	15.8	15.4	11.9	12.3	14.9	14.6	18.7	13.1	15.1	14.5	15.1	15.0	14.4	13.4	12.9	15.2	9.6
Hotels and Restaurants	3.3	2.3	3.4	6.9	6.4	3.2	6.1	4.2	4.3	4.0	5.4	5.4	3.6	2.7	4.5	4.2	8.9	3.6	3.7	3.7	1.7	2.3	1.9	4.0	3.1	4.9	1.3
Transport, storage, communication	7.7	6.9	5.6	6.3	6.1	6.8	6.4	5.4	6.9	6.1	6.8	4.2	7.1	6.7	7.2	6.2	5.2	7.9	10.0	8.1	6.0	8.4	6.3	6.1	7.3	7.9	5.3
Air transport	0.4	0.4	0.2	0.2	0.2	0.4	0.5	0.3	1.5	0.5	0.2	0.3	0.3	0.2	0.2	0.3	0.8	0.1	0.3	0.3	0.2	0.2	-	0.2	0.1	0.2	0.1
Financial intermediation	3.8	3.4	3.7	2.4	2.5	3.0	4.1	3.1	10.7	3.7	3.7	1.7	1.9	2.1	4.6	3.4	5.9	2.1	1.2	2.0	0.9	1.0	2.4	2.4	1.8	1.3	0.8
Real estate, renting and business activities	8.7	9.3	8.5	5.9	8.0	10.0	9.2	7.8	8.2	12.6	8.1	5.0	10.9	13.3	11.4	9.3	5.7	5.4	8.0	5.9	3.8	4.2	4.7	5.0	4.8	3.8	1.7
Public administration, defence, social security	9.6	5.8	8.0	7.6	6.3	9.3	5.2	8.7	11.3	7.6	6.4	6.8	5.0	5.7	6.7	7.7	7.8	6.3	5.8	6.9	5.7	7.9	6.1	5.6	7.0	7.6	5.3
Education	8.1	7.8	5.6	6.4	5.9	7.6	6.4	7.4	7.0	6.6	6.2	6.1	6.6	8.2	8.2	6.9	6.6	6.5	9.1	8.2	9.7	8.3	6.6	6.8	7.8	7.4	5.0
Health and social work	12.4	18.4	10.4	4.6	5.5	10.6	9.1	6.1	7.9	15.1	8.6	5.1	14.5	18.7	11.1	9.8	4.1	6.2	5.2	6.2	7.0	7.1	6.6	5.6	6.5	5.8	4.2
Other social and personal activities	4.1	4.7	5.5	3.8	3.9	4.4	4.7	4.4	3.7	4.4	4.2	3.3	5.7	5.2	5.2	4.7	5.1	3.6	4.2	4.1	3.8	5.0	3.3	3.7	3.7	3.1	2.3
<i>Total Services</i>	72.4	73.4	65.1	62.5	62.7	70.5	65.7	63.5	77.9	76.1	65.6	55.9	67.5	74.7	74.4	67.9	72.1	54.7	62.3	59.6	54.0	59.3	52.5	52.7	55.2	57.1	35.5
High Tech service sector	4.2	4.8	3.4	1.8	2.5	4.1	4.4	3.0	2.3	4.1	3.5	1.5	4.8	5.3	4.5	3.6	1.9	3.1	2.8	3.1	1.9	2.3	-	2.4	2.8	2.7	1.7
Total High Tech sector	10.9	11.2	14.8	4.0	7.9	10.9	11.4	10.5	3.5	8.7	10.1	5.1	12.2	12.7	11.3	11.1	3.1	12.1	6.2	11.6	4.3	4.3	-	11.9	11.0	8.1	7.7
Knowledge intensive services	37.8	44.1	31.8	23.1	25.6	35.6	33.9	27.5	38.1	42.8	30.2	20.3	39.4	47.3	40.9	33.6	26.6	23.6	30.0	26.3	24.6	24.6	-	23.5	24.0	22.4	13.9

Source: Eurostat, LFS

three main sectors accounting for roughly a third of total national employment of those aged 15 to 64.

The relative importance of the high technology sector³ with regard to total employment varies considerably across countries (chart 32). For the EU15, the average proportion of employment of the working age population in the high technology sector is 11%. The highest proportion is found in Germany (almost 15% of all employment of those aged 15-64), which has a large proportion of people employed in

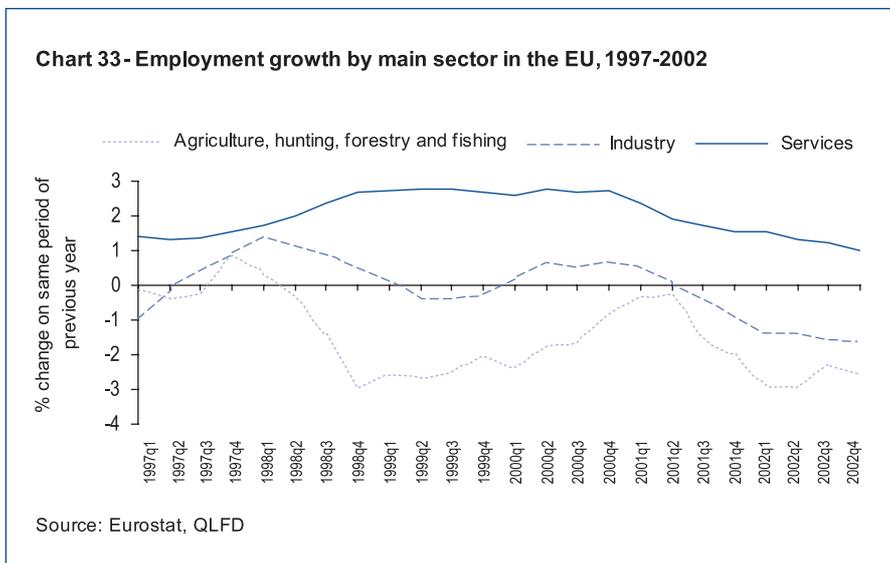
sector in particular continued to experience a decline in employment levels, although the rate of decline stabilised somewhat following the acceleration in negative employment growth seen over the course of 2001. For the services sector, employment continued to grow over 2002, although at a slower rate than in the immediately preceding years.

In France the loss of jobs in agriculture accelerated over the course of 2002. Employment growth in the industry sector turned negative at the start of the year, with the rate

positive, apart from in agriculture where the contraction seen at the end of 2001 continued more strongly into 2002. The services sector saw continued growth, although the rate declined over the course of the year. Unlike the other large Member States, employment in Italy's industry sector grew in 2002 with momentum increasing over the course of the year, in contrast to the stagnation in employment witnessed at the end of 2001.

Within the services sector (Chart 34), "Transport, storage and communication" and "Financial intermediation, real estate, renting and business activities" experienced the largest declines in employment growth since the start of the current economic slowdown. The decline in growth in the former has been particularly marked, exacerbated by the impact on the aviation sector of the events of 11 September 2001. As a result, growth in this area has fallen dramatically from around 5% in the first quarter of 2001 to become negative in the second half of 2002. By contrast, employment growth in "Wholesale and retail trade, repair of motor vehicles, and hotels and restaurants" and "Public administration and defence, social and health services etc." has remained quite stable over the last two years at around the 1% level. Developments in these sectors account to a large degree for the employment resilience in the services sector discussed earlier in the chapter, and reflect in particular the impact of rising female participation on employment growth in the services sector.

Looking at the longer term changes in sectoral employment in the EU between 1997 and 2002 (table 12 and chart 35), it is clear that the vast majority of employment growth over recent years has occurred due to developments in the services sector. Net employment creation in this sector between 1997 and 2002 amounted to an increase of over 11 million employed persons (or growth of around 12%), while for industry as a whole it was only about 1.5 million (or about 3% growth). Meanwhile, employment in the agriculture sector decreased by around 0.9 million (or 13%) for the EU as a whole, with all Member States registering a decline.



high technology manufacturing (close to 12%). Sweden has the highest proportion employed in the high technology services sector. Greece, Luxembourg and Portugal all have relatively low employment in the high-tech sector. Several of the acceding countries - the Czech Republic, Hungary, Slovenia and the Slovak Republic - have employment levels within the high technology field proportionally similar to those for the EU as a whole.

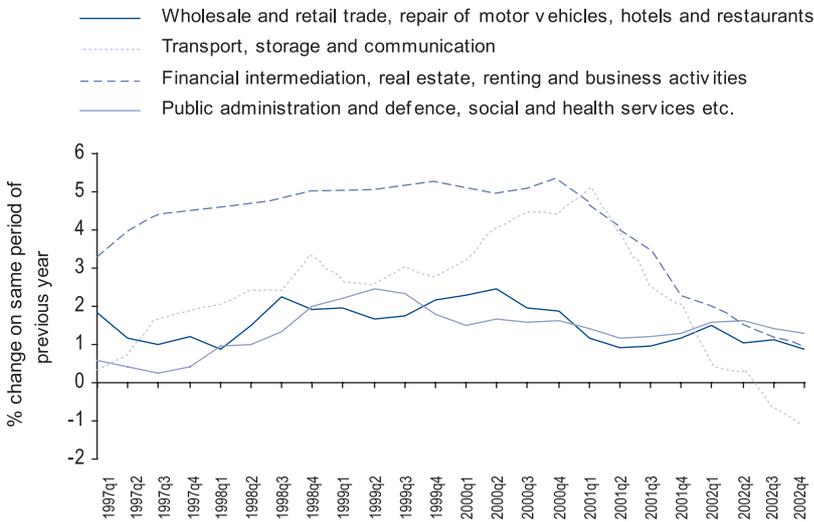
Between 2001 and 2002, the services sector was once again the most dynamic sector for employment growth in the EU, showing continued resistance to the ongoing economic slowdown (chart 33) and with growth remaining positive. By contrast, employment in the agriculture and industry sectors continued to contract in 2002. The agriculture

of employment contraction increasing in the following quarters, while in the services sector growth remained positive and stable at around the level seen at the end of 2001. In Germany, employment continued to contract in agriculture and more noticeably in industry, with the rate of decline in the latter picking up strongly compared to the previous year. In addition, employment growth in the services sector slowed over the course of the year and had virtually ground to a halt by the last quarter.

Meanwhile, in the UK both the agriculture and industry sectors saw continued heavy employment losses over 2002, while growth in services remained positive and fairly stable at around the level seen at the end of 2001. Developments in Italy were generally more

³ For the definition of the sub-sectors included in this sector, see *Employment in Europe 2001*

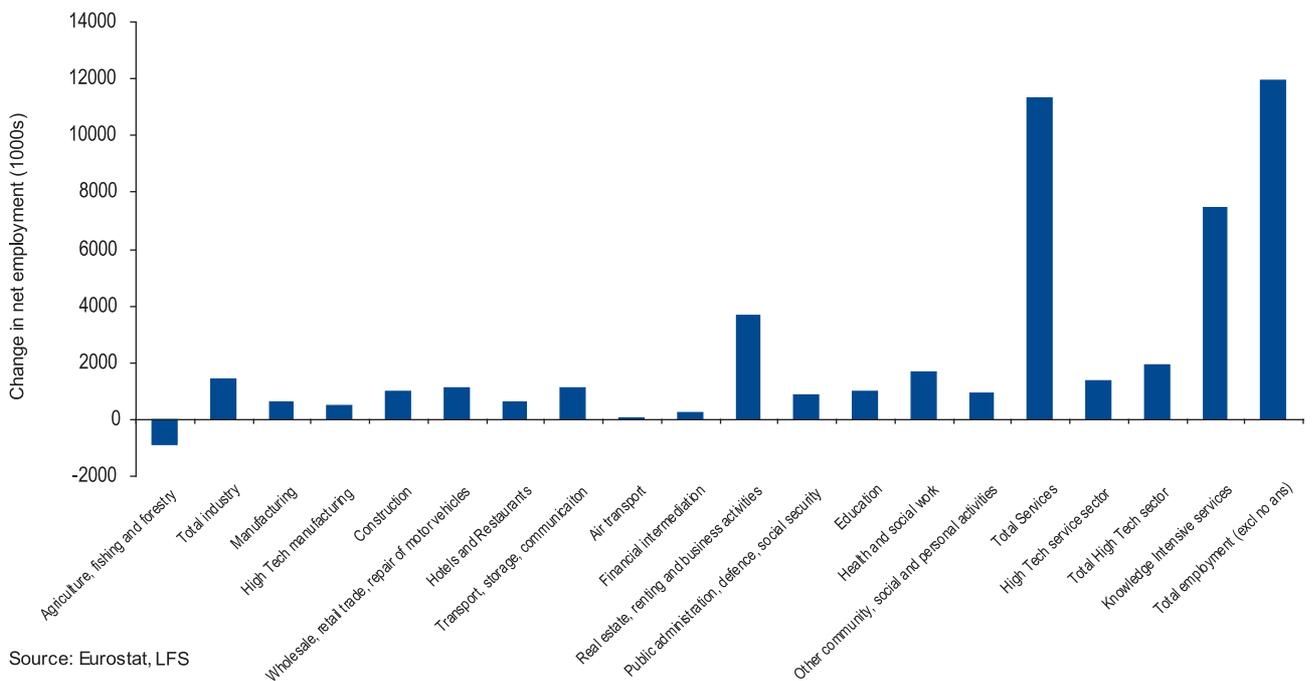
Chart 34 - Employment growth in the main service sectors in the EU, 1997-2002



Source: Eurostat, QLFD

Within the services sector, the largest increase in employment has been in “Real estate, renting and business activities” (an increase of some 3.7 million) and in “Health and social work” (up 1.7 million). Employment increases in “Wholesale, retail trade and repair of motor vehicles” and “Transport, storage and communication” have also been large, at around the 1.1 million level. While developments in employment in the services sector as a whole have been positive for all Member States, there have been some decreases in employment within specific areas in certain countries. The most notable exceptions to the general growth in employment in services were the declines in employment levels in “Hotels and restaurants” in Denmark, “Financial intermediation” in Italy and Portugal, “Education” in Belgium and Portugal, and “Other community services, social and personal activities” in Portugal. Most noticeable, however, was a decline in employment of almost a quarter of a million (or 8%) in “Public administration, defence and social security” in Germany.

Chart 35 - Change in EU 15 Employment between 1997 and 2002 by Sector



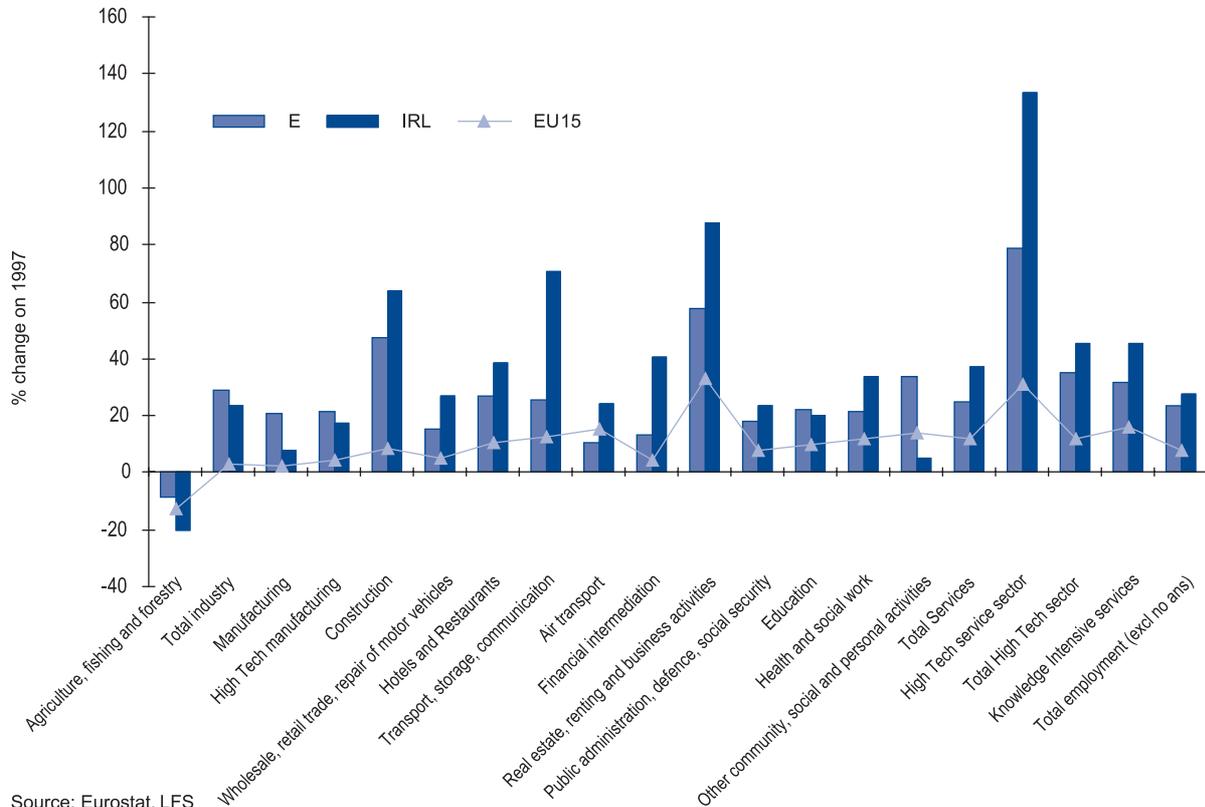
Source: Eurostat, LFS

Table 12 – Net employment differences between 1997 and 2002 by sector (employment 15-64, in 1000s)

	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	EU15
Agriculture, fishing and forestry	-28.9	-13.0	-126.8	-119.2	-85.1	-31.0	-26.1	-217.0	-0.1	-32.2	-32.2	-12.0	-29.9	-20.1	-93.5	-867
Total industry	-13.6	-58.2	-509.7	20.9	1129.1	238.2	91.6	500.5	-1.5	4.0	8.1	326.8	71.0	-9.0	-344.8	1453
Manufacturing	-18.3	-58.2	116.0	-18.3	509.2	146.4	20.3	416.6	-2.6	-44.7	-15.3	109.7	48.9	-32.5	-575.1	602
High Tech manufacturing	-16.8	4.6	297.5	1.2	151.8	71.0	17.9	147.3	-1.0	-34.4	13.2	9.0	30.3	-22.7	-153.6	515
Construction	11.4	3.4	-524.7	44.9	618.5	101.3	70.0	129.5	0.9	60.5	29.0	216.7	23.2	32.7	187.2	1002
Wholesale, retail trade, repair of motor vehicles	31.7	39.5	31.1	34.6	327.2	173.1	51.6	41.8	0.2	45.8	20.0	116.8	40.6	47.4	86.1	1088
Hotels and Restaurants	3.8	-16.8	69.1	43.1	217.4	58.8	28.7	25.9	-0.5	75.3	-1.3	47.4	25.6	10.1	43.6	630
Transport, storage, communication	26.3	-4.2	111.3	-3.5	200.9	234.2	45.2	76.1	1.2	40.9	26.1	27.8	11.1	30.9	288.3	1113
Air transport	-0.1	2.7	9.8	-3.6	3.3	26.1	1.6	13.2	1.0	2.0	4.8	0.2	-1.3	-0.7	-2.4	57
Financial intermediation	-3.3	2.1	61.2	-3.7	46.8	32.2	20.3	-14.7	2.7	34.7	-5.4	-41.0	-9.3	2.2	108.5	233
Real estate, renting and business activities	104.4	39.1	643.1	70.5	472.0	504.5	73.0	582.7	5.0	221.8	65.1	24.4	93.0	186.0	602.8	3687
Public administration, defence, social security	14.0	-5.3	-244.7	15.0	156.8	177.5	16.9	344.6	4.9	20.9	-5.7	31.7	9.2	29.4	297.5	863
Education	-17.9	13.6	122.6	17.7	174.1	158.2	18.3	73.2	2.2	45.9	15.4	-13.9	9.4	66.7	312.6	998
Health and social work	84.6	52.0	465.9	9.9	157.1	216.9	39.2	168.4	2.7	143.6	37.0	42.3	37.6	33.6	201.1	1692
Other community, social and personal activities	18.1	5.6	283.9	21.8	161.0	120.6	3.9	118.4	1.9	37.8	4.5	-40.3	30.6	33.0	120.3	921
Total Services	255.2	126.7	1558.4	216.9	1997.5	1732.5	302.4	1401.4	21.2	644.9	151.2	237.1	247.5	439.0	2019.5	1135.1
High Tech service sector	41.3	25.4	206.9	14.4	179.1	187.0	42.5	131.2	0.3	85.7	45.5	5.5	40.8	67.7	304.6	1378
Total High Tech sector	24.4	30.0	504.5	15.7	330.8	258.0	60.3	278.5	-0.7	51.3	58.7	14.5	71.1	45.0	151.0	1893
Knowledge intensive services	189.1	102.7	1429.3	95.9	993.1	1034.7	179.6	933.0	13.8	504.5	130.4	6.8	151.6	312.1	1406.9	7483
Total employment (excl no ans)	212.6	55.4	921.9	118.7	3041.5	1939.7	367.9	1684.8	19.6	616.6	127.0	551.9	288.6	409.9	1581.2	11937

Source: Eurostat, LFS

Chart 36- Sectoral Employment Growth for Ireland and Spain 1997- 2002 compared to the EU-average



Source: Eurostat, LFS

In the industry sector, there have been mixed developments across Member States. While employment in this sector increased for the EU as a whole, there were marked declines in corresponding employment levels in Denmark, Germany and the UK. While the decline in Denmark and the UK was essentially driven by job losses in “Manufacturing”, those in Germany were a result of the marked decline in employment in “Construction” of some 0.5 million, or 16%. These overall decreases were, however, more than offset by the 1 million increase in employment in the industry sector in Spain together with noticeable rises in France, Italy and Portugal, essentially due to large rises in employment in the manufacturing and construction industries.

All Member States except Luxembourg saw employment levels in the high technology sector rise between 1997 and 2002, leading to an increase of almost 2 million for the EU as a whole and with employment in high-tech services accounting for 1.4 million of this total. However, while all countries experienced increases in employment in high technology services, employment in high technology manufacturing declined in Belgium, Luxembourg, the Netherlands, Sweden and especially the UK. By contrast, it rose substantially in Germany, Italy and Spain, which together accounted for a rise in employment of 0.6 million. Employment in “Knowledge intensive services”⁴ has increased substantially, rising by almost 7.5 million since 1997, with Ireland and Spain seeing particularly large relative growth in this area.

Looking at the sectoral employment trends in terms of the relative growth in employment between 1997 and 2002 (i.e. the changes as a percentage of the 1997 sectoral employment levels, table 13) reveals that “Real estate, renting and business activities” and “High technology services” are the areas with the greatest employment growth rates - both showed increases of the order of one third. Within the service sector, growth has also been above average in “Transport, storage and communication”, “Health and social work”, “Air transport” and “Other community, social and personal services”.

All Member States have seen rises in employment in the service sector. The greatest relative increases occurred in Ireland and Spain (up 37% and 25% respectively on 1997

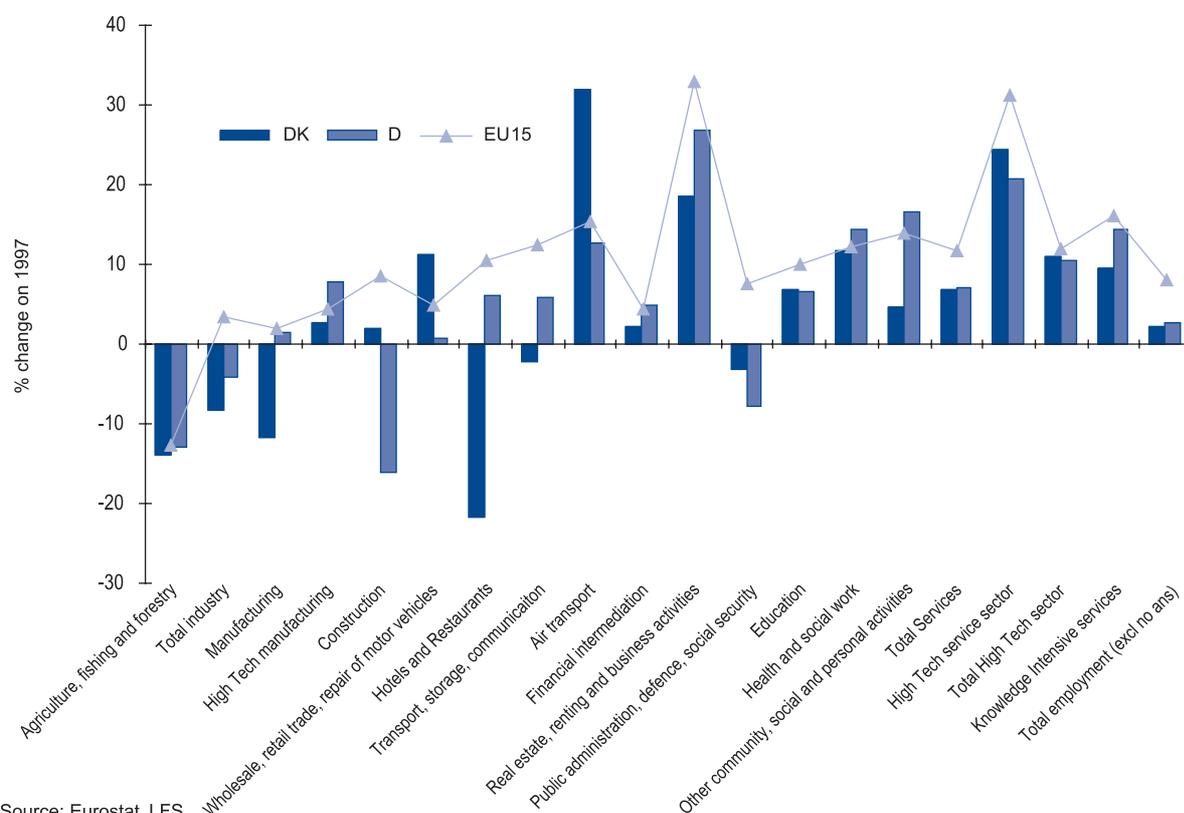
⁴ For the definition of the sub-sectors included, see *Employment in Europe 2001*

Table 13 – Changes in Employment 1997-2002, as a percentage of 1997 employment levels

	B	DK	D	EL	E	F	I	RL	L	NL	A	P	FIN	S	UK	EU15
Agriculture, fishing and forestry	-28.9	-13.8	-12.9	-17.5	-8.3	-3.1	-20.0	-17.7	-2.4	-13.3	-13.9	-2.8	-19.1	-17.7	-20.5	-12.7
Total industry	-1.3	-8.4	-4.2	2.4	28.6	4.1	23.6	7.9	-3.9	0.3	0.8	23.7	12.3	-0.9	-4.9	3.3
Manufacturing	-2.4	-11.7	1.4	-3.3	20.5	3.6	7.8	9.3	-11.9	-4.2	-2.1	11.8	11.6	-4.3	-11.6	2.0
High Tech manufacturing	-5.8	2.8	7.8	1.5	21.2	4.6	17.6	10.2	-30.3	-9.4	5.7	5.6	20.6	-6.7	-7.5	4.5
Construction	4.5	2.0	-16.1	18.2	47.3	6.9	63.9	8.1	5.5	14.5	10.4	55.0	18.3	16.2	10.1	8.6
Wholesale, retail trade, repair of motor vehicles	5.8	11.1	0.6	5.5	15.0	5.9	27.2	1.3	1.0	4.1	3.5	18.8	16.6	10.0	2.1	4.9
Hotels and Restaurants	2.9	-21.6	6.0	19.3	26.8	8.3	38.5	3.0	-6.3	34.3	-0.6	22.3	42.4	9.8	3.6	10.4
Transport, storage, communication	9.2	-2.2	5.9	-1.4	25.8	16.9	70.4	7.0	10.1	10.0	11.5	15.9	7.0	12.2	16.9	12.5
Air transport	-0.4	31.9	12.7	-34.6	10.8	44.4	24.4	31.9	50.6	6.1	115.3	1.9	-15.6	-6.9	-5.1	15.4
Financial intermediation	-2.1	2.3	4.8	-3.8	13.2	4.7	40.6	-2.2	15.6	14.6	-3.8	-33.6	-16.8	2.5	9.2	4.5
Real estate, renting and business activities	42.3	18.5	26.7	44.8	57.5	26.8	87.9	54.0	48.5	31.4	27.6	11.3	55.5	48.	23.4	33.0
Public administration, defence, social security	3.7	-3.3	-7.8	5.4	18.2	8.7	23.5	22.7	30.0	3.9	-2.4	10.8	8.3	13.9	18.9	7.6
Education	-5.2	6.9	6.6	7.7	22.4	9.6	20.3	4.9	20.2	10.5	7.2	-4.5	6.4	23.6	15.9	9.9
Health and social work	20.4	11.7	14.3	5.9	21.5	9.4	33.7	14.8	22.8	14.9	13.1	20.8	12.2	4.4	7.0	12.1
Other community, social and personal activities	12.4	4.7	16.7	17.8	33.8	13.0	5.1	14.3	36.9	13.3	3.0	-20.4	29.2	17.6	9.0	13.8
Total Services	9.6	6.9	7.1	9.9	24.6	11.5	37.0	11.5	17.0	13.1	6.6	9.7	18.2	16.0	10.8	11.7
High Tech service sector	32.2	24.3	20.7	26.3	78.9	23.9	133.1	25.2	7.3	39.3	54.1	8.0	55.9	42.8	32.0	31.3
Total High Tech sector	5.9	11.0	10.5	11.3	35.1	11.0	45.2	14.2	-9.8	8.8	18.5	6.3	32.3	9.1	5.0	11.9
Knowledge intensive services	14.2	9.5	14.3	12.1	31.7	13.9	45.2	18.8	24.0	19.1	13.2	0.7	19.2	18.3	14.1	16.2
Total employment (excl no ans)	5.6	2.1	2.6	3.2	23.2	8.9	27.5	8.5	11.7	9.2	3.6	13.0	13.8	10.6	6.0	8.1

Source: Eurostat, LFS

Chart 37- Sectoral Employment Growth for Denmark and Germany 1997-2002 compared to the EU-average



Source: Eurostat, LFS

levels), while Austria, Denmark and Germany saw the lowest relative growth at around 7%. Together with Portugal, Ireland and Spain also saw large relative employment growth in the industry sector, with all three recording especially large relative increases in the construction industry. Employment in industry on the other hand contracted in Denmark by around 8% and by between 4% and 5% in Germany and the UK. Belgium, Luxembourg and Sweden also saw some negative adjustment in employment levels in this sector. In agriculture, most Member States experienced major downward adjustments in employment levels. Belgium saw the largest decline with employment dropping by about 29% on 1997 levels, followed by the UK, Ireland and Finland with declines of the order of 20%. By contrast, relative declines in employment in agriculture have been fairly limited in France, Luxembourg and Portugal.

Employment in high technology services grew spectacularly in Ireland (up 133%) and

Spain (up 79%). Significantly above average growth in this area also took place in Austria, Finland, the Netherlands and Sweden. A similar pattern generally holds for developments in "Knowledge intensive services", although in this case Italy and Luxembourg also saw significantly above average growth while for Austria it was below average.

The strong overall employment growth in Ireland and Spain is reflected by above average growth in almost all areas apart from agriculture, the exceptions being "Air transport" for Spain and "Other community, social and personal activities" for Ireland (chart 36), and relates more to general economic trends in these Member States rather than specific changes in the sectoral structure of their economies. In contrast, Denmark and Germany, which have experienced the lowest overall employment growth relative to 1997 levels, witnessed more mixed development across sectors compared to the EU average (chart 37). For example, employment growth

in Germany was generally below the EU average for most sectors, and even negative for "Industry" as a whole, "Construction" and "Public administration, defence and social security", for which there was positive growth for the EU as a whole. It was, though, above the average for "High technology manufacturing", "Financial intermediation", "Health and social work" and "Other community, social and personal activities".

The labour market situation in an enlarged EU of 25 Member States

In the context of the coming enlargement, it is clear that the overall economic and employment indicators for an EU with 25 members will continue to be dominated by the situation in the group of existing Member States, which will still represent more than 80% of the population of the future EU25 (table 14). The

Table 14 – The impact on key indicators of enlargement from EU15 to EU25, based on 2002 data

	EU15	ACC10	EU25	As % of EU15		
				EU15	ACC10	EU25
Total Population (millions, as at 1.1.2003)	378.5	74.5	453	100.0	19.7	119.7
GPD (1000 million euros)	9,161	428	9,590	100.0	4.7	104.7
GDP (1000millionPPPs)	9,161	830	9,991	100.0	9.1	109.1
GDP per capita (1000 euros)	24.0	5.7	210	100.0	23.9	87.6
GDP per capita (1000 PPPs)	24.0	11.1	21.9	100.0	46.4	912
GDP per person in employment (1000 euros)	55.1	14.6	49.1	100.0	26.6	89.0
GDP per person in employment (1000 PPPs)	55.1	28.4	51.1	100.0	51.5	92.7
Employment 15-64 (1000 persons)	161,038	28,228	189,266	100.0	17.5	117.5
Working age population 15-64 (1000 persons)	250,623	50,497	301,120	100.0	20.1	120.1
Employment rate 15-64 (%)	64.3	55.9	62.9	100.0	87.0	97.8
Unemployment Rate (%)	7.7	14.8	8.9	100.0	192.2	115.1

Source: Eurostat, demographic statistics, LFS and harmonised series on unemployment; Commission Services, AMECO database for GDP indicators based on current prices

total population in an EU with 25 members will be some 20% larger than it is now in the EU of 15 members, while total employment will increase by about 18% and total GDP (in PPS terms) by 9%. Apparent labour productivity in acceding countries is just above 50% of that for the EU15, while GDP per capita is less than half the EU15's. Because of the relatively small total population of these 10 countries in comparison with the total population for the EU15, labour productivity and per capita GDP in an EU25 will be only 7% and 9% lower respectively than in the EU15.

Employment levels are significantly different between the group of existing Member States and the group of acceding countries. In 2002 the employment rate for the EU15 stood at 64.3%, compared to only 55.9% for the group of acceding countries. However, since the working-age population in the acceding countries represents less than 20% of the EU25's, some 80% of the employment rate in the new EU25 will be determined by the existing EU15 Member States. In light of this, in 2002 the employment rate for an EU25 would have equated to 62.9%. As mentioned previously, reaching the overall Lisbon employment target of 70% for an enlarged EU will require the creation of about 22 million jobs from 2002 to 2010. This would normally mean an average net employment creation of 2.8 million per year, but with zero employment growth forecast for the EU25 as a whole for 2003 the required rate is more likely to be around the 3 million per year level from 2004 onwards.

Demographic trends

In 2002 the total population of the EU increased by around 1.3 million, slightly down on last year's increase of 1.5 million, to reach an overall level of 378.5 million (table 16). This is equivalent to an annual growth rate of 0.35%. Most of this increase was accounted for by net migration flow into the EU, estimated at just over 1 million in 2002 and also slightly down on 2001's figure of 1.15 million. Natural population growth (live births minus deaths) decreased to around 0.31 million, reflecting a post-war low of 3.99 million in the number of live births and a slight increase in the number of deaths.

As in 2001, the natural increase in the population was the main component of population change during 2002 in Finland, France, Ireland and the Netherlands. For all the remaining Member States net migration accounted for by far the largest share of the net increase in population. In Germany, Greece and Italy the natural increase was negative - there were more deaths than births - but this was more than offset by the much larger increases in net migration which led to net increases in their populations. In terms of net migration per 1000 population, migration was highest in Ireland, Luxembourg, Portugal and Spain; these four Member States also had the highest overall relative increase in population.

For the acceding countries, total population declined during 2002 by some 0.14 million to reach a level of 74.5 million. The decrease was mainly due to negative natural growth,

although negative net migration also played an important role. However, in the Czech Republic and Poland, negative net migration was noticeably higher than the natural decrease in population. In terms of changes per 1000 population, the largest net decreases occurred in the Czech Republic, Estonia, Latvia and Lithuania.

Table 15 – Population change in 2002 (first estimates)

Country	Population 1.1.2002	Natural increase	Net migration	Total increase	Population 1.1.2003	Natural increase	Net migration	Total increase
	(1000)				per 1000 population			
EU15	377128	315	1028	1342	378471	0.8	2.7	3.5
B	10310	6	30	36	10346	0.6	2.9	3.5
DK	5368	5	14	19	5388	1.0	2.6	3.6
D	82440	-115	230	115	82555	-1.4	2.8	1.4
EL	10988	-5	35	30	11018	-0.4	3.2	2.8
E	40409	47	227	274	40683	1.2	5.6	6.7
F	59341	235	60	295	59637	3.9	1.0	5.0
IRL	3883	28	20	48	3931	7.1	5.1	12.2
I	56332	-18	150	132	56464	-0.3	2.7	2.3
L	444	2	3	5	449	3.6	6.7	10.3
NL	16105	61	29	90	16195	3.7	1.8	5.5
A	8139	3	17	20	8159	0.4	2.1	2.5
P	10336	3	70	73	10409	0.3	6.7	7.0
FIN	5195	7	6	12	5207	1.3	1.1	2.4
S	8909	0	33	33	8943	0.0	3.7	3.7
UK	58928	55	104	159	59088	0.9	1.8	2.7
AC10	74670	-84	-52	-136	74534	-1.1	-0.7	-1.8
CY	706	3	4	7	712	4.4	4.9	9.3
CZ	10206	-15	-48	-62	10144	-1.5	-4.7	-6.2
EE	1361	-5	-1	-6	1355	-3.9	-0.7	-4.6
HU	10175	-36	16	-20	10155	-3.6	1.6	-1.9
LT	2346	-12	-5	-17	2329	-5.3	-2.0	-7.3
LV	3476	-11	-5	-16	3460	-3.1	-1.6	-4.6
MAL	395	1	1	2	396	1.8	2.3	4.0
PL	38633	-6	-17	-23	38609	-0.2	-0.5	-0.6
SK	5379	-2	1	-1	5378	-0.3	0.1	-0.2
SI	1994	-1	3	2	1996	-0.5	1.5	1.1
BG	7845	-44	:	-44	7801	-5.6	:	-5.6
RO	22392	-62	:	-62	22330	-2.8	:	-2.8

Source: Eurostat, demographic statistics

Chapter 2 Employment specialisation and productivity growth

Introduction

Three years ago the Lisbon European Council drew up a broad policy framework aimed at enhancing competitiveness and achieving full employment. In the context of the three overarching objectives of full employment, quality and productivity and social cohesion and inclusion, the new European Employment Strategy, fully consistent with the BEPGs and both integrated with the Lisbon agenda, has put more emphasis on employment policies that may contribute to reverse the decline in labour productivity growth.⁵

After years of jobless growth, the second half of the 1990s saw the performance of the European labour market characterised by a rapid increase in employment and participation rates and a decline in the number of unemployed in the labour force. Employment in the EU recorded the highest growth rates over the last three decades, gradually reducing the gap with the US (table 16). The analysis carried out in *Employment in Europe 2002* showed that these improvements are, at least in part, structural, as witnessed by the decline in the structural rate of unemployment, the positive effect of skills upgrading on the evolution of the employment rate and the rapid increase in female participation.

As already documented in previous reports, European employment dynamics reflected different growth patterns according to levels of educational attainment. Employment growth appeared particularly buoyant for those with upper secondary and post-secondary education (the medium and high-skilled), while it declined for the less educated groups (the low-skilled). During the period 1995-2000, the employment growth for medium- and high-skilled workers was positive and stood at about 4% and 5% per annum respectively,

while for the low-skilled it was negative at -2.6% per annum. This contrasts with a positive growth for the low-skilled in the US with a rate similar to that of the medium-skilled but lower than that of the high-skilled.⁶

Despite the higher level of education inherent in the workforce, European GDP growth increased by less than total employment, which implied a decline in the rate of labour productivity growth (table 16). The opposite occurred in the US, it being widely reported that the Information Communications Technology (ICT) revolution led the surge in the US labour productivity growth during the second half of the 1990s.⁷ The pick-up in productivity growth was not only confined

it was high-skilled people, and high-skilled women in particular, who took these jobs. The slowdown in the European productivity growth associated with a rising level of education embedded in the workforce is a paradox, as the work of better educated people should also be more productive. This chapter tries to identify the relevance of the sectoral concentration of employment - referred to henceforth as employment specialisation - to productivity growth.

Section 1 will identify the sectoral contribution to the overall productivity growth, as well as the contribution of structural change. Section 2 will map some theoretical links between innovation, skills, employment

Table 16 – Employment, GDP and Productivity growth

	Employment		GDP		Productivity	
	EU	US	EU	US	EU	US
1970-1979	0.3	2.3	3.2	3.6	2.8	1.4
1980-1989	0.6	1.9	2.3	3.3	1.8	1.4
1991-1995	-0.5	1.6	1.5	3.1	2.0	1.5
1995-2000	1.4	2.0	2.7	4.1	1.3	2.1
2000-2002	0.9	-0.3	1.3	1.4	0.4	1.7

Source: Commission Services, Ameco database

Note: to avoid a jump in the series in the EU growth rates for the 1990s due to the German reunification, the average rate is computed for the period 1991-1999.

to the ICT sector but also occurred in services where meagre and stable growth rates were traditionally found. However, as shown in chapter 1, the gap between the EU and the US productivity growth is much smaller when productivity is based on hours worked rather than on the number of employed.

A simple explanation of the weak economic expansion associated with the strong employment increase in Europe would relate the modest GDP growth to the type of jobs created - mainly low productivity jobs in the service sector. Nevertheless, while it is true that most of the jobs created were in services,

specialisation and growth. Section 3 will describe the characteristic of the employment structure looking at the pattern of specialisation by total employment levels and by level of education, followed by an empirical analysis of the effects of employment specialisation on sectoral productivity growth.

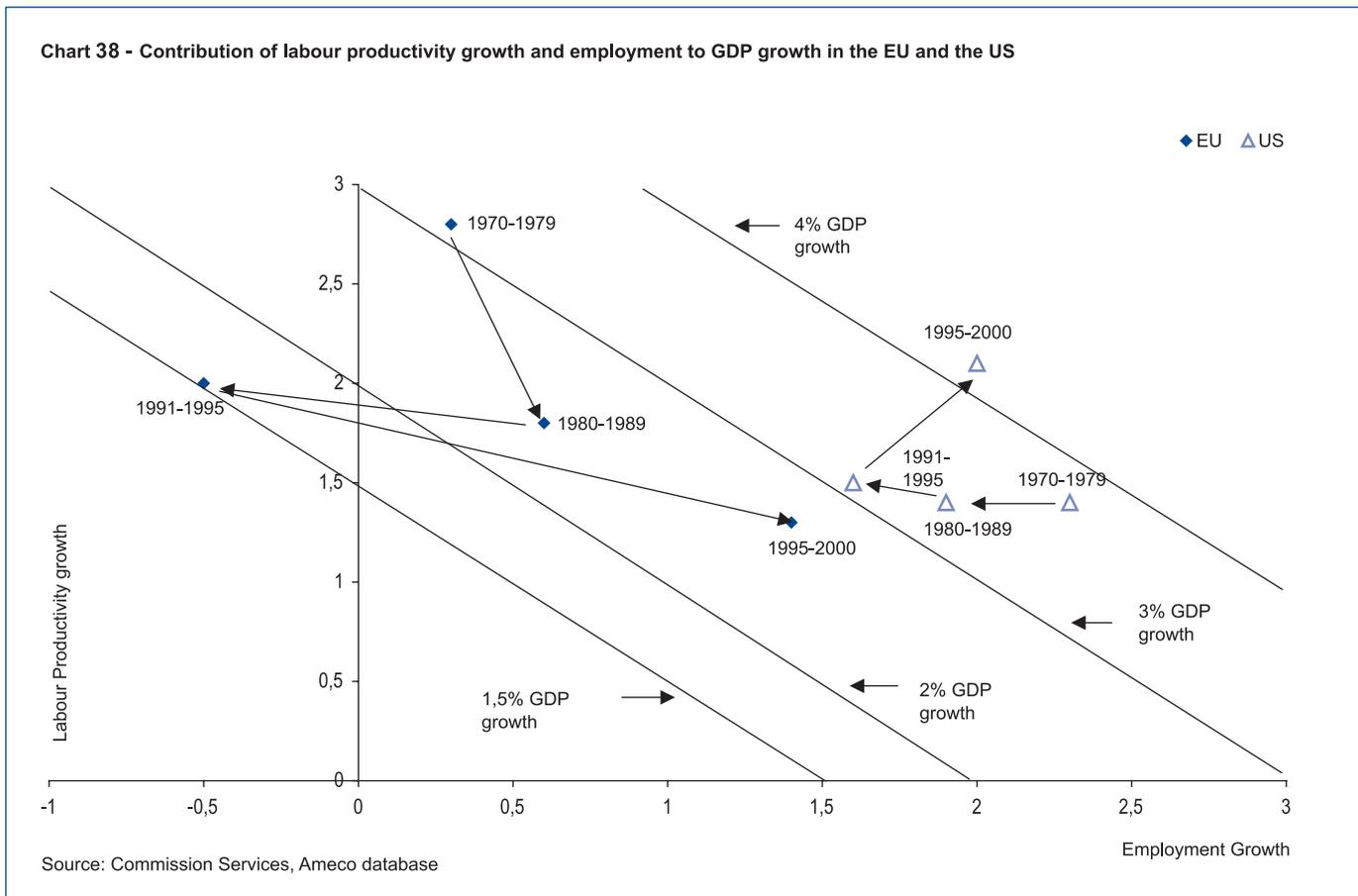
Structural change and productivity growth

It might be believed that high employment growth would naturally lead to lower pro-

⁵ Council Decision on guidelines for employment policies for the Member States.

⁶ Data for the US are available from the OECD only since 1997. Between 1997 and 2000 employment respectively for low, medium and high skilled grew at 0.6%, 0.9 and 3.1% on average. For the EU for the same groups the growth rate was -5.3%, 4.3%, and 4.4%.

⁷ See for example Jorgenson D.W. (2001) Information Technology and the US Economy, American Economic Review, vol.91, no1, pp. 1-32.



ductivity growth. The strong acceleration of labour productivity in the US accompanied by strong job creation, however, challenges this view. Chart 38 reports on the horizontal and on the vertical axis respectively employment and productivity growth. The dotted lines show the combination of employment and productivity growth consistent with different rates of GDP growth and represent the trade-off between employment growth and productivity growth. In the 1980s the increase in the average employment growth was not enough to compensate for the reduction in the average productivity growth in the EU. Thus, the rate of GDP growth implied by the different rates of employment and productivity growth declined from about 3% in the 1970s to about 2.5% in the 1980s. The restructuring of the European economies of the first half of the 1990s allowed productivity gains but at the expense of employment growth and was consistent with a growth rate of 1.5%. Pro-

ductivity growth declined after 1995 but the increase in employment growth brought GDP growth towards the average rate experienced in the 1970s. In the US, the deceleration of employment growth with no or small productivity gains until 1995 reduced the rate of GDP growth implied by the dynamics of employment and productivity. However, in the second half of the 1990s the pick up in the US productivity growth was coupled with strong employment growth, and the implied average GDP growth went above 4%.

Table 17 shows productivity growth for the EU and the US for different sectors and periods. In the 1980s, productivity grew faster in Europe than in the US with all sectors but “Agriculture” and “Manufacturing” having higher growth rates than the US. Within “Business sector services”, Europe performed better than in the US in “Transport and communication” and in “Finance, insurance and

real estate”, which absorbed about 6% and 8% respectively of total European employment (table 18). In the first half of the 1990s, Europe kept the average productivity growth of the 1980s through labour shedding in all sectors except “Business sector services” and social services, which, nevertheless, both absorbed less employment than in the 1980s and less than the US in the same period. By contrast, in the US, total labour productivity growth remained unchanged with negative growth only in “Agriculture” and “Finance insurance and real estate” and social services. Employment continued to grow at positive rates in all sectors but “Manufacturing” and “Electricity, gas and water supply”. In the second half of the 1990s productivity growth accelerated in the US and declined in Europe. The widespread pick-up in US productivity growth was particularly strong in the “Business sector services”, whose employment expanded at 2.8% per year. In the case of Europe,

⁸ It is important to stress that the definition of structural change used in the text is a pure quantitative one. Structural change in reality involves more than a simple change in the sectoral employment shares of the economy, as it has to do with the expansion of the variety of goods and improvements in their quality.

Table 17 – Sectoral productivity and employment growth

	Sectoral productivity growth ¹ (annual compounded growth rates)						Sectoral employment growth (annual compounded growth rates)					
	European Union ²			United States			European Union			United States		
	1980-1989	1991-1995	1995-1999	1980-1989	1991-1995	1995-1999	1980-1989	1991-1995	1995-1999	1980-1989	1991-1995	1995-1999
Agriculture	3.5	4.8	4.4	5.8	-1.5	5.9	-2.3	-4.1	-1.8	-0.8	1.9	-0.1
Manufacturing, mining	3.0	3.5	1.7	3.9	4.7	4.1	-1.3	-2.8	-0.1	-0.6	-0.1	0.0
Electricity, gas and water supply	3.0	4.2	5.1	1.2	2.6	1.5	0.2	-2.8	-2.5	1.4	-1.2	-1.3
Construction	2.6	1.3	-1.5	0.0	0.7	0.5	-1.0	-1.4	1.5	2.0	2.0	4.8
Business sector services	1.9	1.4	0.8	0.8	1.1	3.3	1.5	0.5	2.7	3.1	2.3	2.8
- Wholesale and retail trade	1.6	1.0	0.4	2.0	1.7	5.9	0.9	0.1	1.8	2.6	1.9	1.7
- Transport and communication	3.3	4.1	4.4	1.6	2.8	1.9	0.3	-1.2	1.3	1.1	2.0	2.9
- Finance, insurance and real estate	0.4	0.2	-1.0	-1.3	-0.1	0.9	3.5	2.0	4.7	4.9	3.0	4.6
Social and personal services	0.2	1.2	-0.2	0.1	-0.8	-0.3	1.7	0.4	1.6	2.1	1.6	1.6
Total	2.1	2.1	1.0	1.4	1.4	2.0	0.4	-0.6	1.5	1.9	1.6	2.0

Source: OECD Stan Database.

Note: 1 Productivity growth is calculated on the basis of the gross value added at constant prices. Thus, figures for productivity growth might not coincide with those of based on GDP at constant prices.

2 Due to the lack of data for Luxembourg and Ireland the EU productivity growth and employment shares figure exclude these countries. Due to rounding errors the rows and columns might not add exactly to 100.

To avoid a jump in the series in the EU growth rates for the 1990s due to the German reunification, the average rate is computed for the period 1991-1999.

Table 18 – Employment share (as a % of total employment)

	European Union			United States		
	1980	1991	1999	1980	1991	1999
Agriculture	9.9	7.1	5.4	3.3	2.6	2.5
Manufacturing, mining	24.4	20.5	17.7	20.4	15.5	13.3
Electricity, gas and water supply	0.9	0.8	0.7	0.8	0.8	0.6
Construction	7.9	7.0	6.8	5.3	5.0	5.6
Business sector services	31.0	35.1	38.6	39.7	43.8	46.3
- Wholesale and retail trade	17.2	18.3	19.1	23.9	24.8	24.7
- Transport and communication	6.0	5.9	5.8	5.1	4.8	5.1
- Finance insurance and real estate	7.8	10.9	13.7	10.7	14.1	16.5
Social and personal services	26.0	29.5	30.9	30.5	32.4	31.7

Source: OECD, STAN database

in the second half of the 1990s productivity growth declined in all sectors except “Electricity, gas and water supply”, while employment grew less than in the US.

At first sight one might be tempted to overlook the effect of structural change⁸ on labour productivity, focusing only on aggregate macro-economic performance with strong assumptions on the homogeneity of the economic structure. However, the recognition of variety in the economic structure highlights the role of dynamic change due to, for example, the relocation of employment from sectors with a low level of productivity to sectors with a high

level of productivity. Moreover, structural change influences productivity growth when it enhances the cumulative aspect of knowledge. Finally, specialisation and structural change may affect productivity growth when it entails a broad change in demand towards more sophisticated goods which may lead to efficiency gains in the production process insofar as the size of the market for these goods increases.⁹

Although there are different views on the mechanisms of economic growth, the potential role of composition effects for aggregate performance is undeniable.¹⁰ The diverging

developments between the US and the EU may be explained by a shift of resources from low productivity to high productivity sectors or vice versa. Since sectors differ in terms of productivity growth, a shift of factors across sectors with different characteristics could explain aggregate labour productivity dynamics. Moreover, employment shifts towards sectors with high or low productivity growth may affect the evolution of aggregate productivity even when productivity growth does not change at the sectoral level. Changes in the composition of employment from low to high productivity activities may have an effect on the overall productivity growth that is stronger the higher the share of employment in high productivity activities. Finally, aggregate productivity growth declines when the relative employment share increases in those sectors with low or declining productivity levels.

Productivity growth can be decomposed in such a way that structural change may be isolated. It is then possible to determine whether labour productivity growth has been due to a structural change effect; a productivity growth effect; or an interaction effect.¹¹ When positive and increasing over time, the

⁹ By contrast the relation between productivity growth and the changing sectoral composition of employment may lead to a slowdown in the growth rate of aggregate productivity if the demand pattern is biased towards those sectors or industries which display low productivity growth.

¹⁰ In a growing economy changes in the sectoral composition of employment do not involve necessarily a reduction of employment in some sectors, the only condition for change being that the sectoral rates of employment growth differ.

¹¹ Annex 1 describes the methodology, identifies the contribution of each effect accounted by different sectors. Annex 2 determines the relevance of the employment structure and of sectoral productivity growth for the EU-US total labour productivity growth gap.

first effect reflects the ability of a country to grow as resources are shifted from low to high productivity sectors. It also suggests that the change in employment specialisation is occurring in the “right” direction. The second term represents the growth rate of productivity in absence of structural change (i.e. within sector productivity growth). Finally, the interaction effect represents the

sectoral productivity dynamics rather than by structural change, with a declining contribution in the 1995-1999 period.

However, when we compare the change in average productivity growth between the 1980s and early 1990s (the first two columns of table 18) with the deceleration of the second half of the 1990s (columns 2 and 3) it

Therefore, between the 1980s and the first half of the 1990s, the relocation of employment from manufacturing to services and the respective rise and fall in productivity growth of these two sectors drove the pick-up of total labour productivity growth. By contrast, in the second half of the 1990s a change in the structure of employment was not enough to offset the deceleration of sectoral productivity growth. The contribution to total productivity growth of “Manufacturing” and “Business sector services” strongly declined, and in the last sector was even negative for “Finance, insurance and real estate” (chart 45 of annex 2.1).

In the US the productivity growth due to structural change, which stood at about 0.5% per annum in the 1980s, fell drastically in the first half of the 1990s, but increased slightly after 1995 (chart 39). As in the EU, between 1991 and 1995 the US sectoral contribution to total productivity growth picked up. Thus, the gap between the EU and the US productivity growth rose from about 0.6 percentage points in the 1980s to about 1 percentage point in the first half of the 1990s. After 1995, the rapid increase of productivity growth of US industries reversed the situation. For the first time since the 1970s, productivity dynamics were more buoyant on the other side of the Atlantic than in Europe. The rapid surge in productivity growth in the Business sector services and in particular in “Wholesale and retail trade” (chart 46 of annex 2.1) contributed greatly to the change towards a new pattern of productivity growth.

Table 19 – Labour productivity: structure and growth

Contribution to total growth of:	European Union			United States		
	1980-1989	1991-1995	1995-1999	1980-1989	1991-1995	1995-1999
Productivity growth effect	1.6 (79.5%)	1.94 (90.5)	0.64 (67%)	1.19 (87%)	1.25 (103%)	2.40 (93.7%)
Structural change effect	0.5 (26.2%)	0.31 (14.3%)	0.41 (42.8%)	0.48 (35.1%)	0.04 (3.3%)	0.22 (8.6%)
Interaction effect	-0.12 (-5.7%)	-0.10 (-4.9%)	-0.09 (-9.8%)	-0.30 (-22.2%)	-0.08 (-6.3%)	-0.06 (-2.26%)
Total labour productivity growth ¹	2.1 (100%)	2.1 (100%)	1.00 (100%)	1.4 (100%)	1.2 (100%)	2.5 (100%)

Source: Calculations on OECD Stan Database

Note: 1 Productivity growth is calculated on the basis of the gross value added at constant prices. Thus, figures for productivity growth may not coincide with those based on GDP at constant prices. EU productivity growth excludes Luxembourg and Ireland. Due to rounding errors the rows and columns might not add exactly to 100. In parentheses percentage of aggregate productivity growth. To avoid a jump in the series in the growth rates for the EU for the 1990s due to the German reunification, the average is computed for the period 1991-1999

Table 20 – The impact of structure on productivity growth

	European Union				United States			
	1980-1989	1990-1999	1991-1995	1995-1999	1980-1989	1990-1999	1991-1995	1995-1999
With structure of European Union	:	:	:	:	1.8	1.1	1.2	0.6
United States	-1.3	-1.5	-2.4	-0.6	:	:	:	:

Source: OECD, STAN database

Note: The figures represent the productivity gains (if positive) or losses (if negative) from adopting the structure of the country in the row

dynamic component of structural change and when positive signals the complementarities between structural change and productivity growth (positive productivity growth in expanding sectors and/or negative productivity growth in contracting sectors).

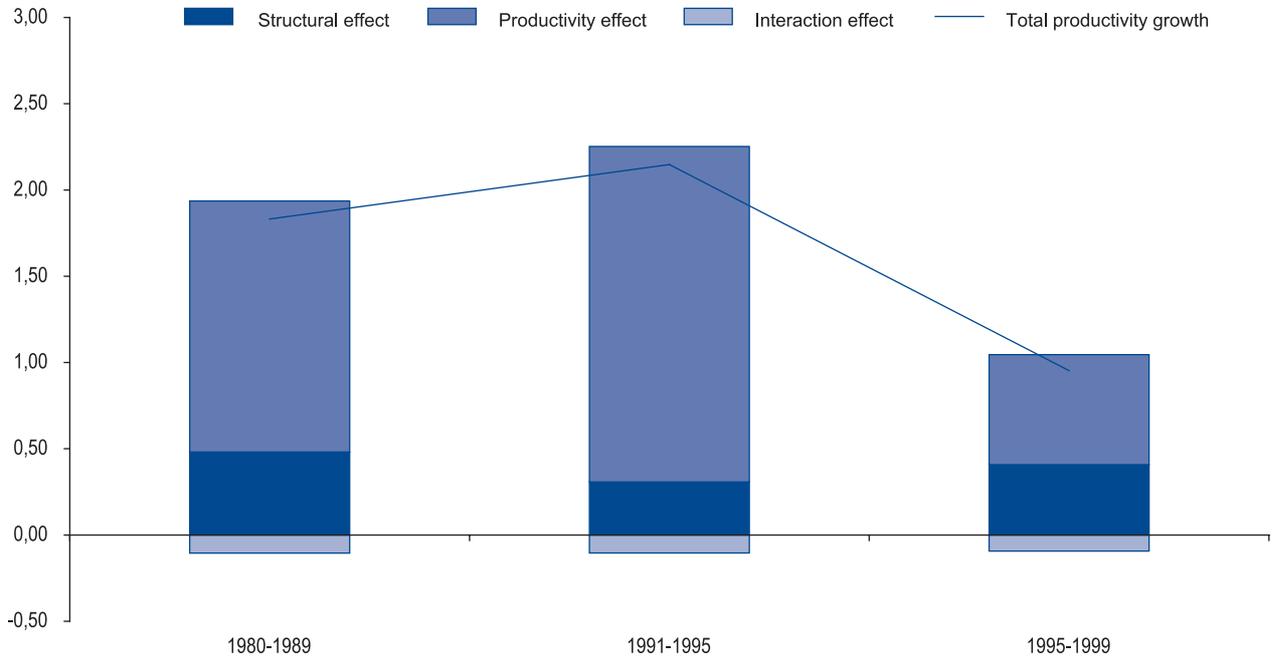
Table 19 and chart 39 show the outcome of the decomposition of productivity growth into these components. Within each period, the sectoral labour productivity growth accounts for the major part of total EU productivity dynamics - (about 80% and 90% of aggregate growth in the 1980s and in the first half of the 1990s respectively). Therefore, total productivity growth was mainly driven by

becomes apparent that different effects played a role. Indeed, in the 1991-1995 period the restructuring of the economy limited European productivity growth, while the rate of productivity growth within sectors accelerated with respect to the 1980s average.¹² In contrast, after 1995 the sharp decline in the sectoral productivity growth constrained total labour productivity dynamics, while the increase in the structural change effect avoided an otherwise stronger decline. Without any change in the structure of employment the European productivity growth would have declined from about 2% in the 1991-1995 period to about 0.6 in the 1995-1999 period.

The small contribution of structural change to total labour productivity growth does not imply that changes in the employment structure of the economy are irrelevant. The previous results show only that, on average, productivity growth is not driven to any large degree by changes in the structure of the economy, with underlying sectoral contributions of opposite sign reducing the contribution of each other (see charts 45-46 in annex 2.1). The importance of the structure is shown by table 20 comparing the effective growth rate of the EU and the US with the hypothetical rates obtained assuming for each country the employment structure of the other. It clearly emerges that the US would have higher productivity

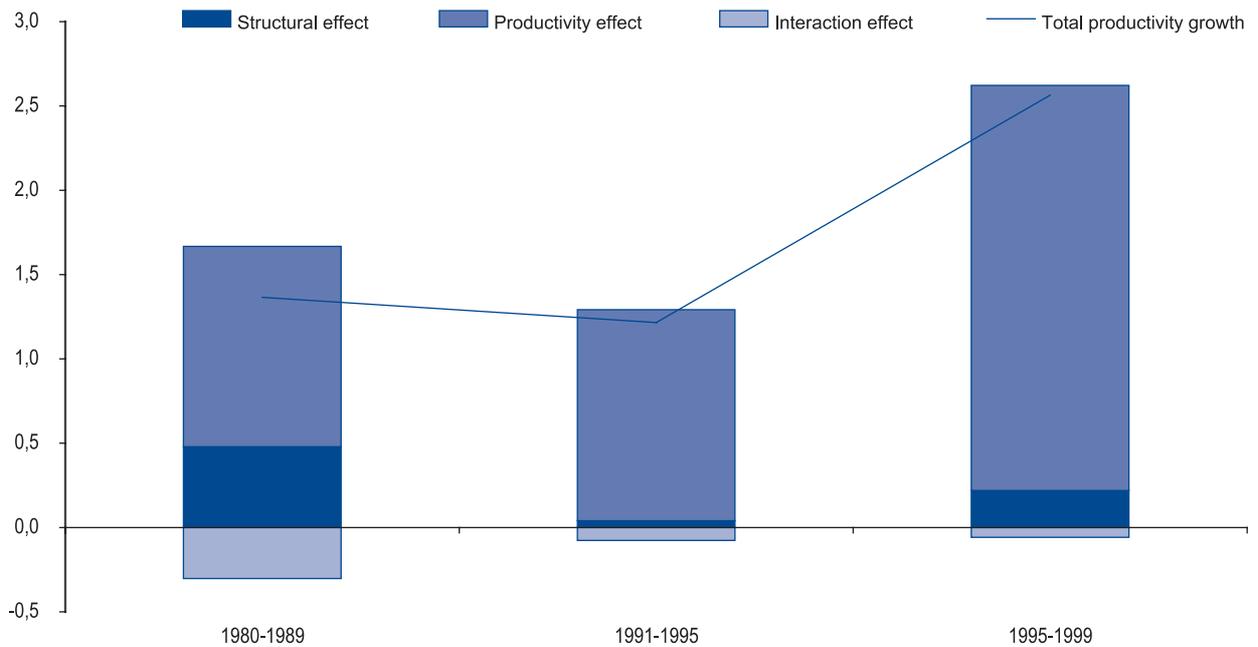
¹² The contribution of structural change to productivity growth was relatively small because the increase in productivity growth occurred in sectors with a declining employment share. This implied that, broadly speaking, the productivity gains in specific sectors operated on a declining share of workers in these sectors.

Chart 39 - Structural change and productivity growth: European Union

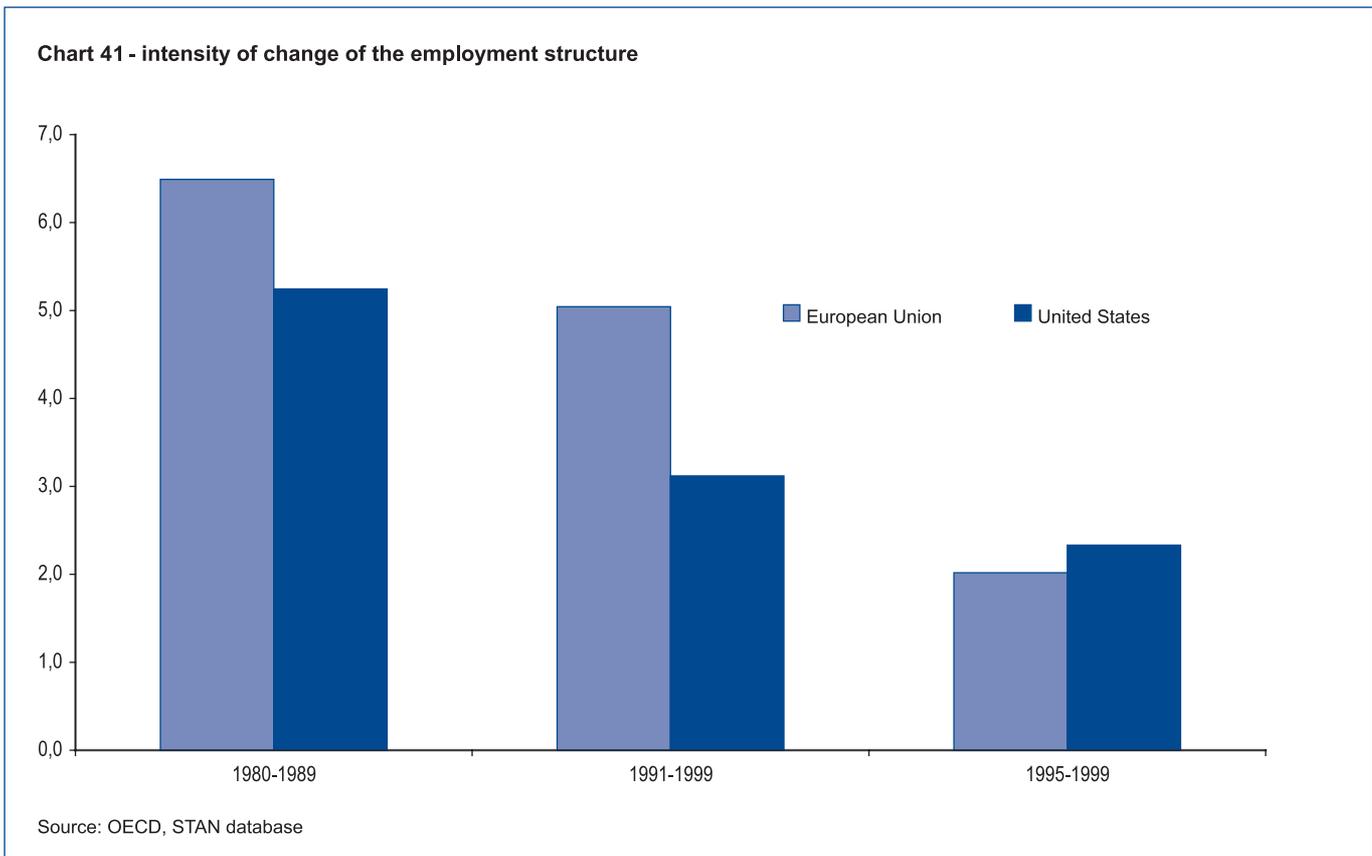


Source: OECD, STAN database

Chart 40 - Structural change and productivity growth: United States



Source: OECD, STAN database



growth had its structure been that of the EU while the opposite would occur in the case of Europe. Furthermore, the US gains in terms of the effective productivity growth would decrease over time. In contrast, the EU gap would have reached the highest value in the 1990s, but would have declined after 1995.

Thus, structural change can play a role in the international differences in productivity performance. When the EU-US total productivity growth is decomposed to account for the different sectoral composition of employment and of productivity of the two areas (annex 2.2) it turns out that the intra-sectoral productivity differences were in all periods in favour of the US. By contrast, the sectoral relocation of employment in Europe contributed to reduce the productivity gap with the US. These findings suggest that in the last decades structural change (i.e. changes in the sectoral composition of employment) in Europe has

contributed to a catching-up with the US productivity levels. This effect was stronger in the 1980s than in the 1990s, a period characterised by a change in the sectoral composition of employment that was more intense than in the US (chart 41).¹³ In the late 1990s the contribution to EU productivity growth stemming from structural change was higher than that of the first half of the 1990s. In the same years, the degree of change in the economic structure was as important as in the US. After 1995, changes in the EU sectoral productivity growth were not sufficient to reduce the gap with the US.

The low contribution that stems from structural change associated with a decline in productivity growth within sectors has two major consequences. Firstly, it puts a limit on European growth opportunities, at least without further “pure” productivity gains (i.e. coming from an increase in the sectoral

rate of productivity growth). This implies that the European economy should enter into the new technological regime, which emerged in the US thanks to the diffusion of ICT into the entire economy. As documented by several authors, despite the evidence on diffusion of ICT in Europe, its effects on productivity have been disappointing.¹⁴ The negative contribution of productivity growth in “Finance, insurance and real estate” and the declining effect stemming from “Manufacturing” also highlights the importance of diffusion and creation of knowledge.

Secondly, it shifts the attention from the quantitative aspects of structural change to the more qualitative ones. If economic growth is a process of continuous transformation, also changes in the employment structure might contribute to growth. However, not all types of relocation of employment across sectors are necessarily beneficial for growth. With

¹³ The chart shows the dynamics of the structure computed with an index of dissimilarity, summing up over all sectors the absolute values of the change in the share between the initial and the final year of each period appearing on the horizontal axis. It ranges from 0 (perfect stability in the structure) to 100 (perfect mobility) in the structure.

¹⁴ For example F. Daveri (2002) *The New Economy in Europe* in *Oxford Review of Economic Policy* vol. 18 no. 3; Bart van Ark, Robert Inklaar, Robert McGuckin and Marcel Trimmer (2002). The next sub-section will report evidence on the productivity performance across ICT industries for the EU and the US.

the emergence of a new technological paradigm, the more cumulative the innovation process embedded in new systems of production, the less an “old” or immutable pattern of specialisation may be able to capture entirely the potential unleashed by these systems of production. Moreover, it is undeniable that deepening European integration and economic and monetary union add a further dimension to competitiveness. Non-price factors such as knowledge and innovation also affect the quality of goods and services produced and, therefore, expand the growth opportunities of a country.

In open and well-integrated economies, the structure of comparative advantage made possible by particular relative endowments of resources or knowledge may promote growth if it bestows a cumulative nature to the production process. Thus, it is not simply the particular employment structure of the economy - for example, how many people in one country are employed in knowledge-intensive sectors - that may hamper or promote growth. Rather, the relative representation of a country's employment in one industry compared to the average representation of that industry in total EU employment (e.g. the share in one country of employment in knowledge-intensive sectors compared to the average share) could give a comparative advantage to the country. In this case the employment specialisation would matter for growth. The relevance of employment specialisation for productivity growth at the sectoral level will be discussed after the description in the next section of the contribution of ICT sectors to productivity growth.

The emergence of new technology has created an opportunity that will not last forever but should be exploited while it lasts.¹⁵ The Lisbon and Barcelona European Councils have clearly set priorities that favour innovation and diffusion of innovation. The focus has been put on measures which ensure mobility for all those involved in education, research and innovation; aim to lower regulatory barriers to professional recognition and barriers that result from failure to recognise formal qualifications and non-formal learn-

ing; and guarantee access for all citizens to new technologies. The Barcelona European Council also called for a significant boost to the overall R&D and innovation effort in the Union, emphasising in particular frontier technologies, with an increase in the overall spending on R&D and innovation aimed at approaching 3% of GDP by 2010.

The role of ICT

Using a different aggregation of the data it is possible to analyse the contribution of ICT technologies to total labour productivity growth. Van Ark et al. (2003)¹⁶ show that during the 1995-2000 period, productivity growth in the ICT-producing industries accelerated in the EU as strongly as in the US (table 21 columns 1-4). The similarity of EU and the US performance in these industries reflects different trends for manufacturing and services. The rapid surge of productivity in ICT-producing manufacturing was stronger in the US than in Europe and it was only partly reduced by a declining productivity growth in the ICT-producing services after 1995. In the latter sector productivity growth accelerated in Europe from 4.4% to 6.5%. In the ICT-using sectors the rate of growth of productivity remained basically stable in the EU while it picked up strongly in the US due to the acceleration of output per employed person in the ICT-using services. By contrast, ICT-using manufacturing performed better in Europe than the US, albeit less so after 1995. Finally, in the non ICT-industries productivity growth declined in Europe, in particular in the non-ICT manufacturing sector, and increased in the US as the productivity growth switched to a positive trend in the non-ICT services. Therefore, the European advantage of the first half of the 1990s faded away in the second half of the decade (see table 21).

The increase in the US productivity growth occurred along a long-run trend of high employment growth while in Europe the intense job creation was associated with a decline of labour productivity growth. Despite the negative relationship between European productivity and employment growth, data for in-

dustries show that in some expanding sectors employment and productivity did actually rise together. Furthermore, in the US in some industries a positive relationship between employment growth and productivity growth emerged. For example, between the first and the second half of the 1990s, the productivity growth of the ICT-using services rose in the US from 1.9% to 5.4% and employment from 0.7% to 2.0%. For the EU the relatively lower increase in productivity growth was matched by a stronger pick-up in employment growth (see table). By contrast, productivity growth in the ICT-producing services declined from 3.1% to 1.8% while employment growth rose from 2.2% to 6.9%. In the same industries European productivity growth accelerated from 4.4% to 6.5% while employment, which had been stable in the early 1990s, rose in the 1995-1999 period at an annual rate of 3.9%.

The initial sectoral employment structure of the US allowed it to benefit from the increase in productivity in all sectors, and in particular in those sectors enjoying a wide diffusion of new technologies. In Europe, the rising employment share in “Business sector services” and the slowdown in the productivity growth in this sector exacerbated the slowdown in the overall productivity growth. Furthermore, within this sector the productivity performance of the ICT-using industries was particularly disappointing while the ICT-producing industries “Telecommunications and computer services” did better in the EU than in the US. Van Ark et al. (2003) also show the existence of a major difference between Europe and the US in the way in which new technologies have been absorbed by the two economies, in particular in the ICT-producing industries. Indeed, between the first and the second half of the 1990s the proportions of industries with a positive relationship between productivity and employment growth declined in the US and increased in Europe. This difference might partly reflect the labour saving nature of new technologies introduced in the US which, as widely reported by other studies, greatly contributed to its boost in productivity. It also reflects the limited diffusion in Europe of new technologies in using services, and non-ICT services in particular

¹⁵ For example European Commission (2000) EU Economy Review 2000; F. Daveri (2002) *The New Economy in Europe* in Oxford Review of Economic Policy vol. 18 no. 3; Bart van Ark, Robert Inklaar, Robert McGuckin and Marcel Trimmer (2002), *Changing gear, Productivity, ICT and service industry: Europe and the United States*, GGGD Research Memorandum No. GD-60. The next sub-section will report evidence on the productivity performance across ICT industries for the EU and the US. Verspagen B. (2000) *Growth and Structural change: Trends, patterns and policy options*, Research Memoranda no 15, Maastricht Economic Research Institute on Innovation and Technology (MERIT).

¹⁶ Bart van Ark, Robert Inklaar, Robert McGuckin and Marcel Trimmer (2003) *The employment Effects of the “New Economy”*. A comparison of the European Union and the United States, National Institute Economic Review No. 184 April 2003, NIESR.

the difficulties in Europe of diffusion of new technologies in ICT-using services and non-ICT services.¹⁸

Innovation, skills, employment specialisation and growth

Growth opportunities are related to the existence of several constraints on the availability of resources and on their efficient and effective use. There is wide consensus that innovation and technological progress are the engines of growth. With a common monetary policy, the innovative capacity of a country, its competitiveness and potential growth depends even more than in the past on the production and diffusion of knowledge. Learning and the diffusion of learning, innovations and skills are among the key factors that drive technological progress and

growth. These factors are all crucial for the production and dissemination of knowledge and depend on the level and pervasiveness of education, training, learning on the job and R&D. The stock of human capital accumulation contributes to overall growth.¹⁹

There are important interactions between different learning and innovation processes. Innovations are the outcome of costly investments that require specialised knowledge and accumulated skills and experience as well as adequate physical infrastructures. Technological innovations expand the set of production possibilities and generate the incentives for acquiring the new skills needed to implement such technologies. In addition, the acquisition of skills reduces the cost of implementation of existing technologies and generates the incentives for new technologies to be developed. Through the Structural Funds, the Commission promotes investment in innovation and skills development in regions lagging behind and those undergoing structural adjustment. This emphasis has

been strengthened for the current 2000-2006 funding period and it recognises the important role innovation and skills have in stimulating economic growth.

When innovations are general purpose technologies (GPT) in the sense that they have universal and far-reaching applications, the lag between their invention and their use may lead to a decline in labour productivity growth as resources devoted to their discovery are not immediately profitable. Nevertheless, innovators engage in production in the expectation of profits accruing in the future. The benefits of more advanced GPT manifest themselves when enough complementary inputs have been developed, increasing the adoption of new GPT in the production of final goods. The longer the lag between the invention of GPT and their adoption in “mass production”, the higher is the period during which productivity growth declines. Therefore, both the production of complementary inputs and the rate of diffusion of GPT affect the length of the phase during which advanced GPT are not yet profitable. When there are complementarities between technological innovations and skills, the potential gains from an increasing level of education are constrained by the set of existing technologies and vice-versa.

The existence of lags between the invention of GPT and their adoption points towards the importance of measures that reduce the cost of adoption. Measures that foster the diffusion of new technologies and learning in general are therefore crucial. And if there are significant costs of learning, a highly skilled workforce offers obvious advantages. Skills are important not only because educated people adapt to change. But also because highly skilled people speed up the diffusion of technological progress by helping less skilled people get involved with it. The higher the rate of innovation the higher is, therefore, the demand for skilled relative to unskilled people. As new technologies become estab-

Table 21 – Productivity and employment growth in ICT and non ICT industries

	Productivity growth				GDP Share		Employment growth				Employment Share	
	1990-1995		1995-2000		2000		1990-1995		1995-2000		1990-1995	
	EU	US	EU	US	EU	US	EU	US	EU	US	EU	US
Total Economy	1.9	1.1	1.4	2.5	100	100	-0.6	1.1	1.2	2.0	100	100
ICT-producing industries	6.7	8.1	8.7	10.1	5.9	7.3	-1.7	0.6	2.8	4.9	3.9	4.9
ICT-producing manufacturing	11.1	15.1	13.8	23.7	1.6	2.6	-4.5	-1.6	0.4	1.5	1.2	1.6
ICT-producing services	4.4	3.1	6.5	1.8	4.3	4.7	0.0	2.2	3.9	6.9	2.7	3.3
ICT-using(a) industries	1.7	1.5	1.6	4.7	27.0	30.6	-0.7	0.3	1.3	1.6	27.3	28.7
ICT-using manufacturing	3.1	-0.3	2.1	1.2	5.9	4.3	-3.8	-1.6	-0.6	-0.8	6.1	4.2
ICT-using services	1.1	1.9	1.4	5.4	21.1	26.3	0.3	0.7	1.9	2.0	21.2	24.5
Non ICT Industries	1.6	0.2	0.7	0.5	67.1	62.1	-0.5	1.5	1.1	2.0	68.8	66.4

Source van Ark et al. (2003), op. cit.

Note: (a) Excluding ICT-producing

(b) EU includes Austria, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Spain, Sweden and the United Kingdom

¹⁷ Through the Structural Funds, the Commission promotes investment in innovation and skills development in regions lagging behind and those undergoing structural adjustment. This emphasis has been strengthened for the current 2000-2006 funding period and it recognises the important role innovation and skills have in stimulating economic growth.

¹⁸ Between the first and the second half of the 1990s, the EU proportion of industries in the non-ICT services with a positive relation between employment and productivity growth rose by 16% while in the US it grew by more than 100% (Van Ark et al. (2003)).

¹⁹ A recent report by Professors Angel de la Fuente and Antonio Ciccone examined the rationale for putting investment in human capital at the forefront of policies aimed at promoting economic growth and social cohesion. The report shows that investment in human capital contributes significantly to productivity growth; there is also clear evidence that human capital plays a role in fostering technological change and diffusion. Human capital investments appear attractive relative to alternative assets, both from the individual and from the aggregate perspectives. The findings of the report suggest that investment in people is both a crucial growth factor, particularly in the context of rapid technological change, and a key instrument for enhancing social cohesion. Angel de la Fuente and Antonio Ciccone (2003) Human capital in a global and knowledge-based economy, European Commission, Employment and Social Affairs. The report can be downloaded from DG Employment and Social Affairs website at the following address http://www.europa.eu.int/comm/employment_social/employment_analysis/conference_en.htm

lished in the economy, labour demand also rises for the less educated.²⁰

These considerations highlight the importance of flexibility in the sense of capability and propensity to accept new technologies. The process of internationalisation of production is increasing the competitive pressures coming from developing countries. This will require firms in developed countries to divert resources from industries and sectors producing traditional goods and services, which usually have a low elasticity of demand to world income, towards sectors and industries with higher technology and knowledge content, usually with a high elasticity of demand to world income.

In this context, also the demand side matters. Indeed, by incorporating new technologies, investments contribute to productivity growth and output potential. Moreover, new technologies enhance the role of learning accumulated through experience, so that an initial increase in GDP growth stimulated by investments spurs further productivity growth (increasing returns to scale), improves price competitiveness and triggers further GDP growth. However, the composition of output may put a limit to the benefits accruing from GPT.²¹

The sectoral composition of employment also matters. There are strong advantages and disadvantages from sectoral employment concentration, which invite testing. Firstly, one would expect that countries endowed with relatively more labour than capital would specialise in the production of goods that are more labour-intensive.²² However, when the skills composition of employment differs across countries, each of them might specialise in the production of goods and services requiring a more intensive use of

the specific skills they are more endowed with. In this case, not only the share of high-skilled people would be relevant but also the share of skilled people relative to the average share of its main competitors. If productivity growth depends on innovation and diffusion of technologies, then the high-skilled employment structure of a particular country could promote growth more than in another countries if domestic factors are in that country are comparatively more able to reap the benefits of innovation and diffusion. In this case, its concentration of high-skilled employment and thus its employment specialisation would matter for growth.²³

Secondly, if countries are more or less specialised in industries that require new technologies and specific skills or both, differences in the employment structure impinge upon the long-term effects of innovation on growth. Countries with better technologies and human capital employed in industries that use both technologies and human capital more intensively (referred to henceforth as key industries) have also higher growth potential. A changing endowment structure can change the learning capability of a country and lead to a changing pattern of catching up in sectoral productivity levels. In addition, specialisation by opening the possibility for further specialisation might lead to productivity growth via learning effects. This process of locking in enhances the existing differences between countries where the diffusion of knowledge is smaller.²⁴ For this reason it is important that people with different levels of education can manage new technologies and knowledge.

Thirdly, there is an important externality related to knowledge and knowledge spill-overs. For the low- and the medium-skilled, employment concentration in certain industries may

not by itself be a sufficient condition for high rates of innovation and growth. For example, sectors where the low- or medium-skilled are over-represented and knowledge spill-overs are limited might perform worse than sectors where there is a widespread diffusion of learning. However, when there are strong links between employed people with different levels of education (i.e. favourable framework conditions to develop a “cultural proximity”), a high concentration of employment for the less educated might contribute positively to productivity growth. Thus, accumulation of human capital may have an impact on technological capability and on the ability of a poorer country to catch up with richer countries.²⁵ This becomes more likely the more developed are the links between the most and the least educated in the production process. This can occur when then employment sectoral mobility is high for those with higher levels of education. This is because people with higher levels of education, when change jobs and move into different industries bring with them knowledge acquired in previous jobs, stimulate a more rapid diffusion of knowledge to those with lower levels of education.

On the basis of these considerations, table 22 summarises the expected effects on productivity growth of different employment specialisation variables. Industries with relative high concentration of high-skilled employment are expected to perform better than industries with a low concentration. For the low- and medium-skilled, one can distinguish between direct and indirect effects on productivity growth. For the low-skilled, the direct effect on productivity growth is likely to be negative as they lack the required level of competence to adopt and implement new technologies quickly.²⁶ In the case of the medium-skilled, the expected direct effect of a high concentration of employment

²⁰ It cannot be excluded that during the phase of diffusion of new technologies, a partial substitution of high-skilled with less expensive low-skilled occurs. Nevertheless, this should not be seen as a problem if production processes are flexible enough to develop new products and processes (i.e. if the economy grows).

²¹ When the structure of demand is dominated by sectors with a low income elasticity to overall world demand usually sectors that are intensive users of less advanced technologies and low-skilled workers - the incentives to adopt a new technology are small (i.e. the adoption costs are high), the pace of innovation is modest and the benefits from high-skilled small.

²² Under very restrictive hypotheses (among them perfect competition in all markets, free trade, no transport costs, same technologies), the Heckscher-Ohlin framework predicts that countries specialise in the production of goods they are relatively more endowed with. The basic idea is that countries differ in their relative stock of the different factors of production, and that this differential factor supplies influences the cost of producing particular goods.

²³ See for example Grossman G. M. and Helpman E. (1989) Comparative advantage and long-run growth, NBER Working Paper No. 2809.

²⁴ Technically, this effect might occur in the presence of dynamic scale effects due to increased specialisation, learning effects, embodied technological process or static increasing returns. See for example Krugman P. (1987) The Narrow Moving band, the Dutch Disease and the competitive consequences of Mrs. Thatcher: Notes on trade in the presence of Dynamic Scale Economies in Krugman P. Reconsidering Trade Theory.

²⁵ Landesmann M. and Stehrer R. (2000) Potential switchover in comparative advantage: Patterns of Industrial Convergence, Working Paper No 14 Johannes Kepler University of Linz. Landesmann M. and Stehrer R. (2002) Industrial specialisation trade and labour market dynamics in a multi-sectoral model of technological progress, Working Paper No 15

²⁶ For example, Caselli and Coleman show that for a number of OECD countries the educational level of workers is among the determinants of the investment in computers. Caselli F. and Coleman II J. (2001) Cross-country technology diffusion: the case of computers, American Economic Review, 91(2), pp. 328-335.

Table 22 – Expected effects on productivity growth of different employment specialisation variables

Specialisation	
Relative high concentration of low-skilled	-
Relative high concentration of medium-skilled	?
Relative high concentration of high-skilled	+
Specialisation in key industries	
Relative high concentration of low-skilled in medium- or high-tech industries	+
Relative high concentration of medium-skilled in medium- or high-tech industries	+
Specialisation and structural change	
Relative high concentration of low-skilled in countries with a rapid transformation of the structure for medium- and high-skilled	+
Relative high concentration of medium-skilled in countries with a rapid transformation of the structure for high-skilled	+

on productivity is uncertain and depends on how binding “routinised”(i.e. repetitive) production processes are for the adoption of new technologies.

The indirect effect works when people with lower levels of education benefit from interaction with those with higher levels of education. In this case the diffusion of new technologies would be speeded up by the exposure of the least educated to those with

higher levels of education. This might occur when people with lower educational levels “climb-up the ladder”, which means that their employment share increases in sectors where the adoption and use of technology is at a more advanced stage. In this case, one would expect productivity growth to be higher when the relative share of less educated people rises in the most dynamic industries. Alternatively, technological diffusion and adoption might occur when, in spite of an unchanged sectoral concentration, there is intense sectoral mobility for those with a higher level of education. In this case, one would expect that productivity growth would be higher in industries dominated by low- or medium-skilled employment when there is a significant change in the composition of employment for those with a higher level of education.

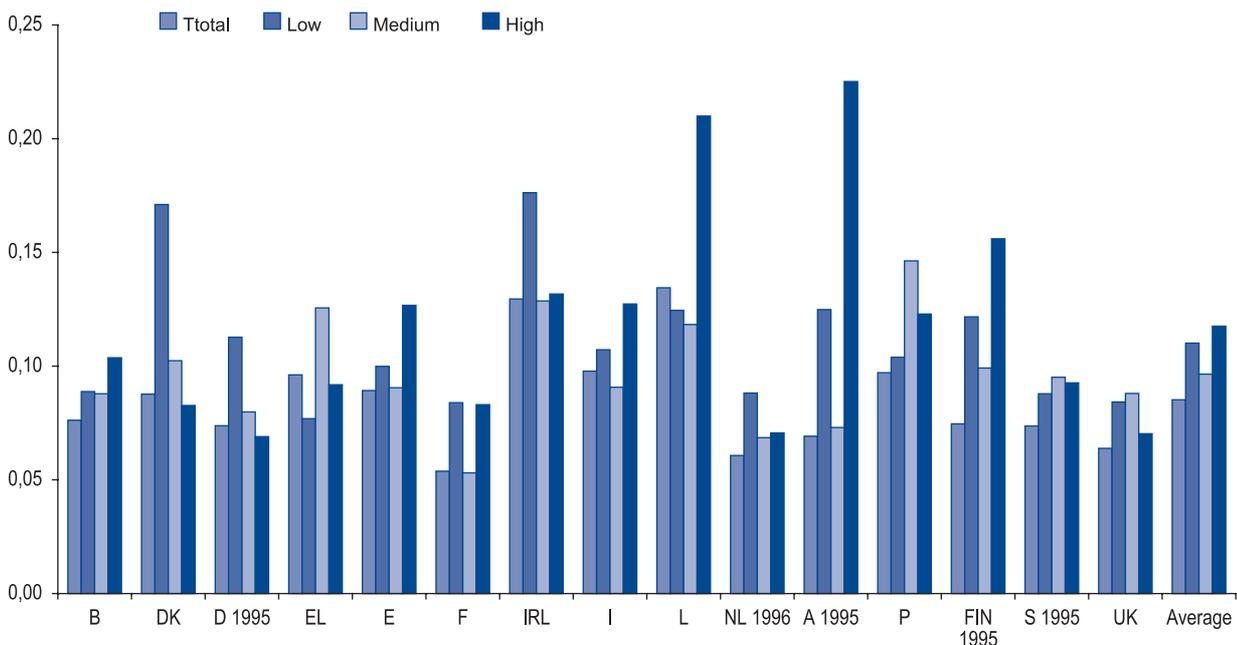
The structure of European employment specialisation

Before testing for the significance of these effects, this section describes the employment

specialisation variables used in the econometric analysis and provides a characterisation of the pattern of employment specialisation for total employment and the three formal levels of education. A country is highly specialised when only a few sectors account for a large share of total employment compared to what is observed for the EU as a whole. In this case the country is considered to have a comparative advantage in a few sectors only. Does this specialisation pattern reflect a similar structure of employment at all level of education? or does a specific educational level affect it more than others?

A highly aggregate description of the employment specialisation (i.e. of the potential gains or losses of competitiveness due to differences in the relative composition of employment) could hide relevant characteristics and changes over time of the comparative advantage occurring at a lower level of aggregation. Even though a sector as a whole absorbs a relative low share of total employment (i.e. with a share of employment lower than the respective share in the EU), it might be that at least one of its industries has a high level of specialisation. Using a classification of 56

Chart 42- Intensity of change in the employment structure by level of skills



Source: Eurostat, LFS

industries, this section analyses the characteristics of employment specialisation by levels of education.

From a dynamic perspective, chart 42 confirms the importance of the characteristics of employment specialisation for different levels of education. The chart shows for each Member State the mobility of the employment structure for total employment and for the three levels of education. The index, widely used in regional analysis, indicates the speed of employment structural change (i.e. the intensity of the relocation of employment across different industries - see box 4). If for a country the index is equal to zero, then it undergoes no structural change in the period 1995-2002; if the index is equal to one then the country undergoes complete structural change in the same period.

For total employment, the relative small values for France, the UK and Belgium suggest that no important changes occurred in the employment composition. In a relatively short period of time Ireland, Luxembourg and Italy transformed their structures by more than 10%. In terms of high-skilled, Austria, Luxembourg and Finland changed the most, by at least 15%. Finally, in six Member States the intensity of change appears smaller for low-, and medium-skilled employment than for high-skilled employment.

The measure of mobility of the employment structure gives no indication of the type of specialisation (i.e. which industry absorbs more employment). To characterise the extent of employment specialisation an index of sectoral employment concentration has been calculated for each sector and country. For each country, the index is defined as the ratio between the share of employment in a specific industry in the country and the share of the same industry in the EU aggregate (see box 4). The index provides information on the pattern of employment comparative advantage in so far as it evaluates a country's employment share in a certain sector with a benchmark (the country's employment share in total employment in the EU). The index measures the relative representation of a country's employment in one industry compared to the average representation of that industry in total EU employment. A value of the index greater/lower than 1 signals an above/below average specialisation in an

individual sector. The closer to 0 the index is the lower is the sectoral share of the country's employment in terms of the country's share of total employment. A value around 1 for several countries in a particular sector suggests the similarity of the employment structure across countries. For each sector, the index

has been constructed for total and low-, medium- and high-skilled employment. It is then possible to identify the patterns of specialisation of each country and its persistence over time for total employment and for the three educational groups.

Box 4 – How to measure specialisation

Measures of specialisation are usually based on sectoral production or exports (K. Laursen (2000) *Specialisation, trade and growth*, Routledge). Using employment shares highlights the specialisation from the input side while the former variables focus more on the output side. The Balassa index (BI) is one of the most widely used indicators in the analysis of trade specialisation. It is usually based on sectoral export and is defined as the sectoral relative export share in terms of a share of world exports. The index has also been used to define the technological specialisation. This index has several shortcomings: (i) its maximum value attainable changes over time and across countries and is equal to the ratio of world exports (employment) over each country exports (employment); (ii) the index is not symmetric. Therefore, its mean is a poor synthetic indicator of the average degree of specialisation while its median is more appropriate (see L. De Benedictis and M. Tamberi (2001), *A note on the Balassa index of revealed comparative advantage*). In this section we use the as measure of specialisation the relative sectoral employment share of country c in terms of its employment share over the EU aggregate. This is defined in symbols in the following way:

$$BI_{cs} = \frac{\text{share of employment in country c and sector s over total EU employment in sector s}}{\text{share of employment in country c over total EU employment}}$$

To avoid non-normality of the residuals, the econometric analysis of the next section adopts as measure of specialisation the Laursen normalisation of BI_{cs} (Laursen (2000), op. cit.):

$$\frac{BI_{cs} - 1}{BI_{cs} + 1}$$

Describing the indices of specialisation for 56 industries, three levels of skills and 15 Member States might be extremely cumbersome. To characterise the structure of specialisation, we will look at the distribution of the BI_{cs} index of specialisation. Charts 43 and 44 shows an approximation of the density function of the index. The density function are estimated by Gaussian kernel smoothing with an automatic bandwidth choice proposed by Silverman. In order not to modify artificially the shape of the distribution the non-negativity constraint has not been imposed on the kernel estimation. This implies that negative values are possible on the horizontal axis of the charts when the empirical distribution is skewed to the left despite only positive values of the index being observed.

For a specific sector, the index is not a simple average of the indices for low-, medium- and high-skilled. It depends also on the country's share of each educational group with respect to the relative EU aggregate, on the EU sectoral share of each educational group, and on the country share of total employment in the EU. Thus, a country with a sector-specific comparative disadvantage with respect to total employment can also have a comparative advantage in a certain educational group.

The indices of specialisation are based on the EU Labour Force Statistics, with a breakdown of data up to 2-digit according to the NACE rev. 1 classification and the ISCED standard classification of education. Data at this level of aggregation for all Member States is available from 1995. However, for the UK there was a reclassification of the codes assigned to medium- and low-skilled in 1999. For this reason, there is a break in the series and comparisons for these educational groups over time should be viewed with caution. Furthermore, to build the index of specialisation for different sectors the “no answers” not being attributed to any sector or skill level have not been considered in the totals. For the Netherlands ISCED data are available since 1996. Thus for this country the employment structure of this year is considered.

Intensity of change of employment specialisation (index of mobility of the employment structure)

To evaluate the mobility of the structure in a given country the following index is calculated using a 2-digit aggregation of employment data (56 sub-sectors):

$$\sum_i \left| \frac{N_i}{N}(t_1) - \frac{N_i}{N}(t_0) \right| / 2. \text{ The index ranges from zero to one, and indicates a complete}$$

mobility in the specialisation structure if the index is close to 1 and little change if the index is close to zero. It only gives an indication of the intensity of change and not of its direction.

A simple way to provide an empirical description of the regularities of the distribution of employment specialisation is represented in charts 43-44. The values of the specialisation index appear on the horizontal axis. On the horizontal axis 1 represents the demarcation value between de-specialisation and specialisation. A value higher/lower than 1 corresponds to a sector specialised/de-specialised. The height of the curve is an approximation of the relative number of sectors with a value of the index around that on the horizontal axis. The area below the curve between 0 and 1 represents the total number of de-specialised sectors (or the probability of having a de-specialised sector). When the density is symmetric and centred around 1, the distribution of the comparative advantage across sectors is not polarised, with no sectors being more specialised than others. When the distribution is asymmetric with a long right tail and with the median lower than 1, a large part of industries are de-specialised.

The opposite occurs when the distribution is asymmetric with a long left tail.

A closer look at the density for total employment (chart 43) reveals a fairly symmetric distribution centred around 1 for France and - ignoring for the moment the long tails - for Belgium, Denmark, Ireland (but only in 1995), Italy and the UK. This implies that the number of less specialised sectors is more or less the same as that of more specialised sectors. Within this group France and the UK have less heterogeneity in terms of comparative advantage of total employment - the distribution is “peaked” and “narrow”.²⁷ With the exception of Spain, where the number of sectors de-specialised prevails but the degree of de-specialisation is fairly distributed across industries, the remaining countries have a skewed distribution. In the case of Germany this signals the presence of a relatively larger number of specialised sectors, while for Austria it is related to the smaller number of very

de-specialised sectors and a larger number of sectors with structures of employment that are close to that prevailing in the EU.

In the remaining countries a majority of sectors are de-specialised. This is shown by the large part of the distribution being below 1. All countries except France, the Netherlands and Germany have a very high maximum value of the index of specialisation, implying a very high relative concentration of employment in specific industries. For these countries there is a strong dispersion in the model of specialisation. This is also evident from the very high maximum value of the index - (in countries such as Greece, Finland, Luxembourg, Belgium, Ireland, Italy, Spain and the UK)²⁸ - and reflects the co-existence of sectors with extremely high and extremely low levels of specialisation. For the Netherlands the distribution has a clear hump pointing to the co-existence of a segmented specialisation model. Some industries tend to cluster around a high concentration of employment and the remaining around low levels of specialisation. Ireland is the only country that in the second half of the 1990s experienced an increase in the number of sectors with high specialisation.

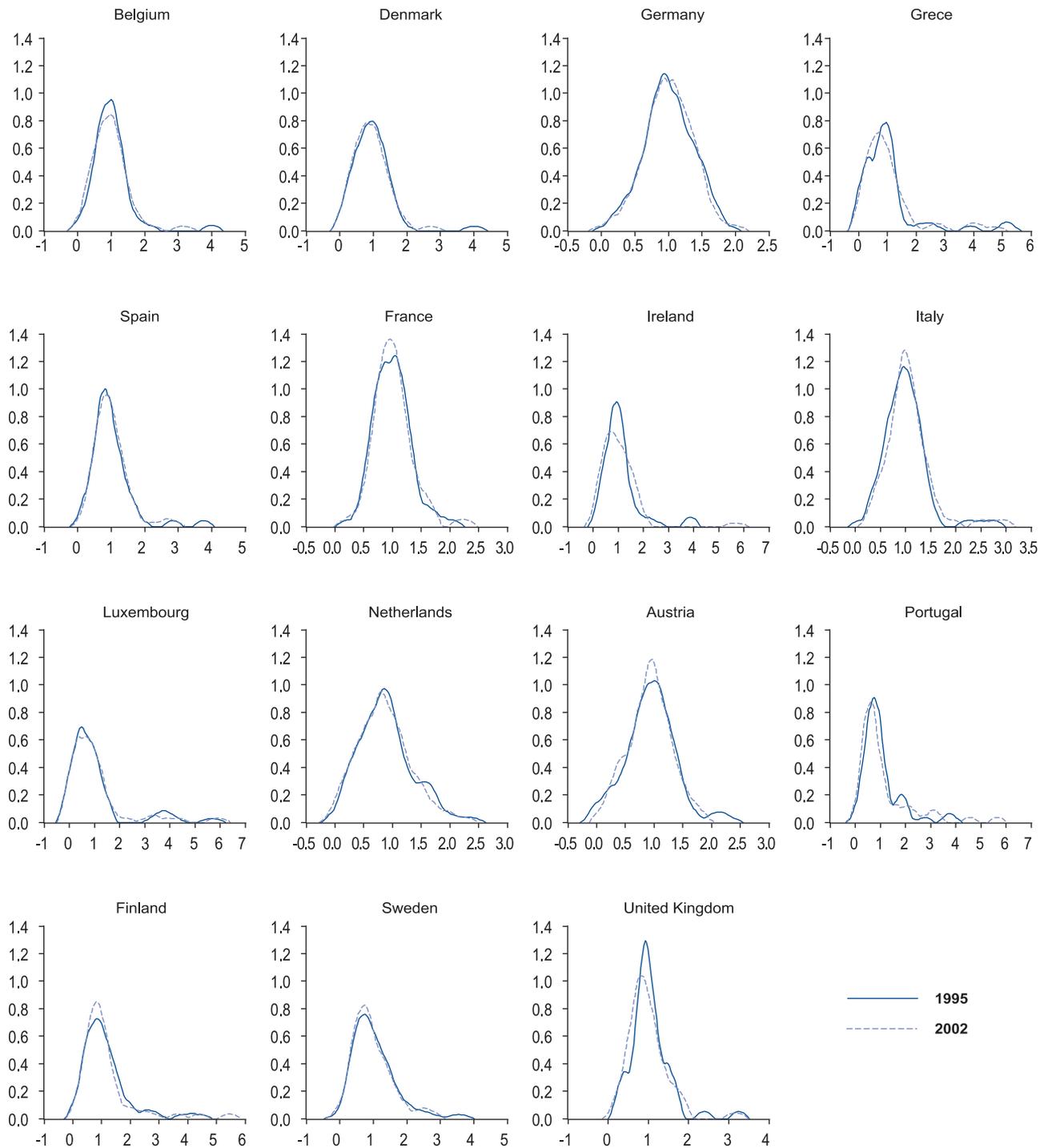
For some Member States, the distribution of comparative advantages for total employment hides heterogeneous patterns of specialisation by levels of education. Chart 44 shows the density of the index of specialisation for total employment and the three educational groups for 1995. For all countries, except Germany and France, the shapes of these distributions are not centred around 1, implying that at all levels of education it is common to find few sectors with a high specialisation. The charts for Austria and, in particular for Italy, also show humps for the high-skilled, indicating the existence of polarisation in the specialisation which is not present for the medium- and the low-skilled and disappears for total employment (see chart 44).²⁹ Thus, in these countries the high-skilled employed are likely to be in sectors clustered around

²⁷ The UK, however, also has sectors with relatively high comparative advantage - Extraction of crude petroleum and natural gas, Manufacture of coke, Activities auxiliary to financial intermediation and Renting of machinery and equipment without operator and of personal and households goods.

²⁸ The maximum is achieved in different sectors of the economy. For Belgium and Luxembourg this is observed for the sub-sector Extra-territorial organisations and bodies; for Denmark by Water transport; for Greece by Manufacture of tobacco products and for Finland by Forestry.

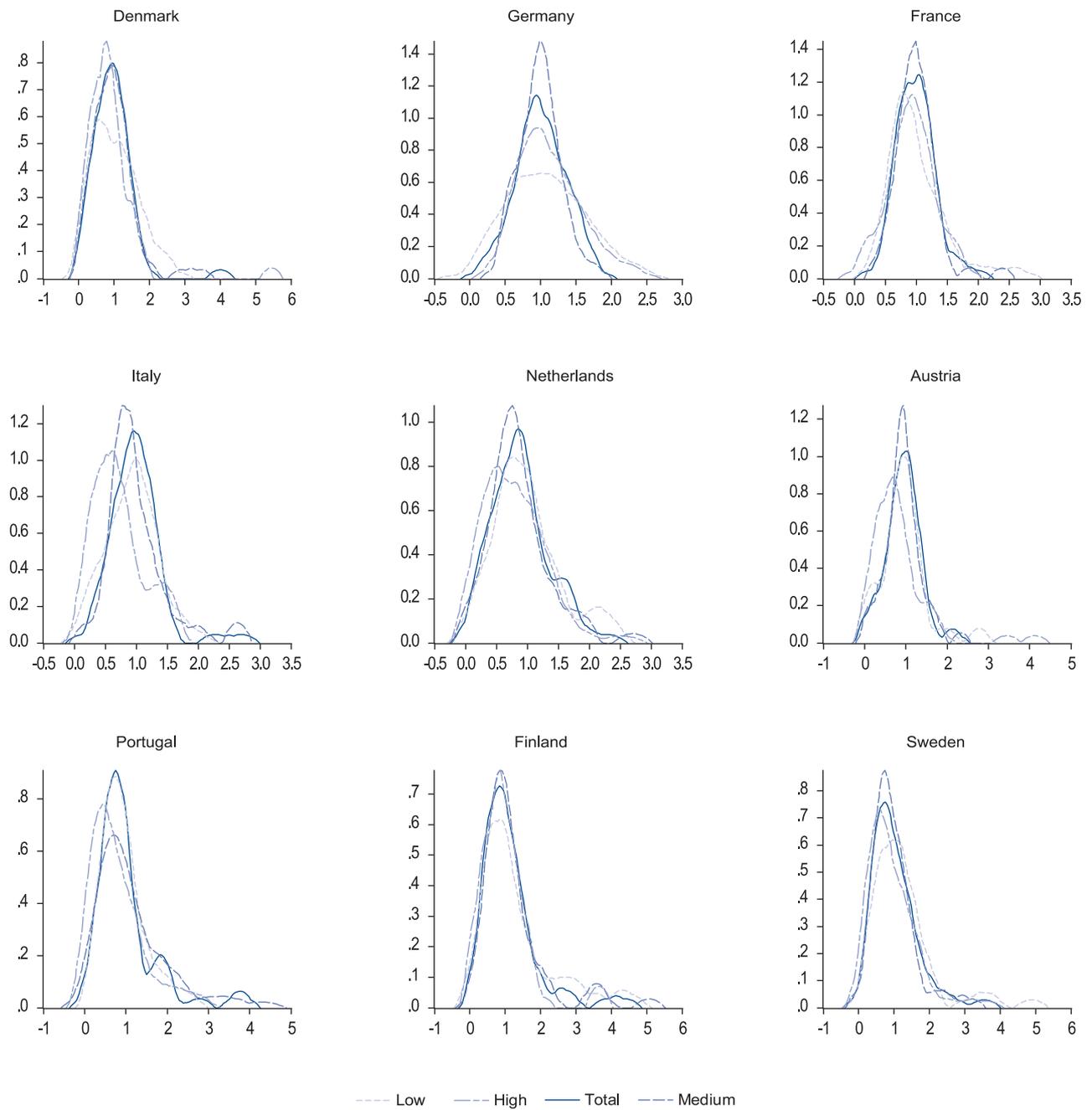
²⁹ However, the “island” of sectors with high comparative advantage in high-skilled disappeared in the 2002 distribution.

Chart 43 - Distribution of the specialisation index: total employment



Source: Eurostat, LFS

Chart 44 - Distribution of specialisation accross sectors for total employment and by level of education; 1995



Source: Eurostat, LFS

two different levels of specialisation (a very low and a very high) rather than around a common average. A significant polarisation is observed in the case of the low-skilled in the Netherlands (see chart), which also has a very dispersed and de-specialised structure of its employment specialisation model in high-skilled more than any other educational level. Denmark has a relatively higher number of sectors with low specialisation in low- and high-skilled, while in Sweden this is true for all educational levels.

France and Germany, despite having a distribution centred on 1 - a pattern of specialisation less uneven than the other countries, have different degrees of heterogeneity in employment structure. In Germany, this diversity is the highest for the low-skilled and the lowest for the medium-skilled. This implies that compared with the EU benchmark, sectors with a very high share of the total numbers of the low-skilled employed in the country co-exist with sectors with an extremely low share.³⁰ For France the distribution for the medium-skilled is more concentrated across industries than for the high- and the low-skilled, with industries where the least educated are employed displaying a very high level of specialisation (as shown by the long right tails).³¹ Finally, Italy and Austria have a larger number of de-specialised sectors in high-skilled than in medium-skilled, while for Portugal the number of sectors de-specialised in medium-skilled is greater than the number of sectors de-specialised in the other levels of education.

The effect of specialisation on productivity growth: econometric analysis

The previous sections showed that total labour productivity growth hides quite different dynamics of productivity growth at the sectoral level. Also the employment structure varies between countries and within countries the composition of employment by educational level differs across sectors. This section explores whether, and how, the diversity of employment specialisation is reflected in the productivity growth of industries. The analysis also takes into account a series of factors considered to be among the determinants of productivity growth. It describes first the variables used in the econometric estimates.³²

The effects of employment specialisation have already been discussed but it is important to stress that an increase in sectoral employment concentration has a positive impact on productivity when it affects competitiveness through its effect on non-price factors such as innovation, knowledge and diffusion of knowledge, learning-by-doing, education and skills. Clearly the skills composition of the workforce and, its distribution across different sectors as explained earlier is central to verify the effect of a certain employment structure on productivity growth.

The sectoral ratio of investment to output is included as a measure of propensity to invest out of income but also of the technical progress embodied in new capital. The intensity of expenditures in R&D represents a proxy for the innovation effort. The estimates also

consider the effect of a technological catch-up, defined as the ratio between each sector's R&D intensity relative to the maximum value for that sector in the sample of EU countries. The change of each industry share of value added in the EU captures variation in the composition of output common to all Member States.³³ Finally, the initial level of productivity determines the speed of convergence of productivity level across industries.

Results

Firstly, the simple hypothesis that the relative structure of employment in the initial year influenced the rate of productivity growth for the following five years (table 23 column 1) was tested. Columns 2-7 replicate the same estimate of column 1 but controlling also for other relevant variables. The role of technological catch-up was then investigated. Table 24 reports the outcome of a similar estimation, but includes a variable that reflects technological catch-up rather than the intensity of R&D expenditure. The basic idea is that differences between followers and the leader in R&D intensity may benefit those behind the technological frontier because of the effects of imitation and diffusion by the leader (the advantage of "relative backwardness").³⁴ However, the advantage of backwardness does not lead to an automatic catch-up and requires the development of an adequate set of factors (a high level of "social capability") that allow a country to "import" the technologies of the leader. Thus, the technological gap might lead to either convergence or divergence. Moreover, countries closer to the technological frontier depend more on the development of "new" knowledge than those lagging behind.³⁵ The effects of the variables not related to the employment structure are discussed first.

³⁰ These sectors are R&D for the maximum value and Fishing for the minimum. For the medium-skilled the least and the most specialised sectors are Recycling and Fishing.

³¹ The maximum value for low-skilled is in Recycling. In 2002 the distribution for France moves rightward - more industries with high specialisation in high skilled employment - but also presents two humps for extreme values, implying the emergence of three clubs of specialisation. The first with low levels of comparative advantage, the second with a structure similar to that of the EU and the third with substantial specialisation in high skilled. Using the classification based on the ICT intensity, the first group gathers non-ICT industries (Land Transport, Personal and Social services, Agriculture, Mining and Construction) and one ICT-using industry (Recycling). The third group includes one industry of the ICT-producing services (Computer services), two of the ICT-using services (R&D and Wholesale trade and commission trade), one of non-ICT manufacturing (Manufacture of tobacco products) and two of the non-ICT services (Air transport and Extra-territorial organisation).

³² For the US comparable data on employment by educational attainment and industries are not available. For this reason the analysis is limited only to the European countries.

³³ Since this variable is endogenous, its inclusion may lead to a biased estimate of its effect on productivity growth. However, the effects of the remaining explanatory variables are statistically different from zero when this variable is not included among the determinants of labour productivity growth.

³⁴ Authors such as Gerschenkron, Baumol and Abramowitz, developed this idea. See Pagerberg J. (1994) for a survey on growth and technology, Technology and International differences in the growth rates in *Journal of Economic Literature* vol. XXXII pp1147-1175 and for an application Pagerberg J. (1988) *International Competitiveness in Economic Journal* vol 98, pp 355-374 and Pagerberg J. and Verspagen B. (2002), *Technological-gaps, innovation- diffusion and transformation: an evolutionary interpretation*, in *Research Policy* vol. 31 pp1291-1304.

³⁵ The rationale for including R&D to the squared and to the cube is the following. Since R&D is a costly it might have a positive impact on productivity growth only when a certain threshold of expenditure is achieved (i.e. a too low expenditure might not be enough to trigger a cumulative learning process that favours growth). The non-linear terms allow the learning effects of R&D to be taken into account.

Effects of non-structural variables

The effect of the initial productivity level on productivity growth is negative, implying convergence across industries and countries. Industries that were under-performing in 1995 have been growing faster and, therefore, “catching up” with the others. The speed of convergence is generally low when the effects of specialisation alone are taken into account. When the intensity of R&D expenditure is allowed to play a role, the speed of convergence increases but it falls to virtually zero (no convergence) when the effort of R&D requires a minimum threshold to be achieved before having positive effects on productivity. Convergence increases when investment rate influences productivity growth. One also notices positive effects on productivity growth of the investment output ratio and of the change in the sectoral share of the EU value added. The gap in the technological intensity is always positive, in particular when the effect of investment output ratio is considered. This implies that the lagging behind industry of one country could benefit from technological diffusion from the leading industry of another country. Moreover, it cannot be excluded that the advantage of backwardness tends to disappear and even become negative in industries that are close to the technological frontier. Therefore, without an appropriate development of their own technology, the dynamics of diffusion of knowledge can lock industries and countries in their initial position.

Effects of employment specialisation

Productivity growth always correlates positively with specialisation in high-skilled employment. This implies that industries where most of the skilled people were concentrated in 1995 performed, in the following five years, better than industries with a relatively low specialisation at this educational level. Being

specialised in high-skilled is good for productivity growth. High specialisation in medium-skilled is associated with low productivity growth while for low-skilled the relation is either insignificant or negative.

Effects of employment specialisation in specific sectors

The relationship between specialisation and growth may work through complex links between low- medium- and high-skilled employment that promote growth only when there are strong complementarities between people with different levels of education and between them and the type of production process in which they are involved. These considerations suggest looking for different effects of specialisation by level of education in industries sharing common characteristics. This hypothesis is tested in table 25. Economic activities have been reclassified adopting the OECD classification in low-, medium-, and high-tech industries³⁶ for “Manufacturing and mining“, while all activities belonging to services are pooled. Since this classification is based on a very detailed aggregation (not available for the variables needed to compute productivity) each industry in the database is mapped in one of the low-, medium-, and high-tech categories when at least one activity classified as such appears in the more aggregate classification. Estimates similar to those in table 16 have been repeated, but testing for different effects of employment specialisation on productivity growth in “low“, “medium“, “high-tech industries“, “Services“ and “Agriculture“.

The positive contribution to productivity growth of specialisation in high-skilled is confirmed. Productivity growth depends positively on the relative sectoral concentration of high-skilled employment. A necessary condition to have an increase of high-skilled concentration in all sectors is for each sector to have a growth rate for high-skilled employment that is higher than the growth rate of each sector’s total employment. A closer

look at the different impacts for each of the five typologies of industries reveals that the highest contribution is obtained in the case of “Agriculture” and “high-tech industries” while it is the lowest for “low-tech” and “Services” industries. Specialisation in medium-skilled is significant but negatively correlated with productivity growth in “Services” and “high-tech industries”. Finally, sectors with high specialisation in low-skilled perform better in medium-tech industries than in any other industry.

The negative impact on productivity growth of the specialisation in medium-skilled may be related to the statistical classification of people employed with an intermediate level of education, which is too broad to account for the heterogeneity -and implicitly for different productivity - of the group with an intermediate level of education. Alternatively, the effect of a high specialisation in medium-skilled may be positive when associated with a transformation of the economy as a response to technological innovation and organisational change. As pointed out by Metcalfe J.S. Foster J. and Ramlogan R. (2002): “Transformation or adaptation is the way the economy responds to novelty in the form of innovation... Transformation in the form of structural change, and the shifting balance of resource allocation and creation is the process that generates growth whether we look within industries or between industries.” This effect is investigated next and the results are shown in Table 26.

Effects of employment specialisation and of structural change

Table 26 reports the effects on sectoral productivity growth when the complementarities between change in the employment structure and employment specialisation by level of education are taken into account. The last column of the table verifies the significance of the relative employment structure and of structural change in industries classified on the basis of their technological intensity. First

³⁶ See Hatzichronoglou T. (1997) Revision of the high-technology sector and product classification, OECD - STI working paper no.2. Ideally, it would be more appropriate to classify the different activities in ICT-using, ICT-producing and non-ICT. However, this classification would require a high level of detail available in the standard database used here.

Table 23 – Regressions results for the effect of specialisation on productivity growth SURE estimates on a cross section of 13 Member States

Dependent variable productivity growth 95-99	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5	Equation 6	Equation 7
Productivity level 95	-0.23 (-1.07)	-0.49 (-3.42)	-1.11 (-7.9)	-0.03 (-0.13)	-0.14 (-0.56)	-0.75 (-3.92)	-0.89 (-5.00)
Change in the EU share of sectoral value added	0.15 (5.8)	0.13 (7.95)	0.11 (5.15)	0.12 (4.72)	0.13 (5.08)	0.08 (4.02)	0.10 (4.90)
Specialisation – low-skilled	-0.002 (-0.45)	-0.009 (-4.10)	-0.025 (-7.21)	-0.001 (-0.35)	0.00 (0.00)	-0.017 (-3.71)	-0.016 -3.86
Specialisation – medium-skilled	-0.02 (-2.60)	-0.015 (3.9)	-0.02 (-4.10)	-0.024 (-3.33)	-0.02 (-3.38)	-0.019 (-3.07)	-0.021 (-3.64)
Specialisation – high-skilled	0.015 (5.2)	0.024 (16.27)	0.03 (8.48)	0.02 (4.52)	0.02 (5.86)	0.017 (7.02)	0.023 (5.07)
R&D intensity		0.32 (4.56)	0.50 (4.56)	-1.39 (7.25)	-0.07 (-0.23)	-1.37 (-7.02)	0.16 (0.48)
(R&D intensity) ²				0.27 (11.72)	-0.21 (-2.74)	0.29 (7.16)	-0.22 (-2.67)
(R&D intensity) ³					0.04 (7.32)		0.04 (6.97)
Log (share of investment in value added) ¹			1.43 (11.25)			1.32 (7.16)	1.25 (7.63)
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	0.12	0.16	0.18	0.26	0.26	0.29	0.29
Number of observations	234	208	180	208	208	180	180

Source: Eurostat and OECD

Note: 1 Spain excluded due to insufficient data on investment for the industries
t-statistic in parentheses

Table 24 – Regressions results for the effect of specialisation on productivity growth SURE estimates on a cross section of 13 Member States

Dependent variable productivity growth 95-99	Equation 8	Equation 9	Equation 10	Equation 11	Equation 12	Equation 13
Productivity level 95	-0.59 (-8.79)	-0.98 (-5.80)	-0.63 (-5.86)	-0.62 (-4.76)	-1.00 (-5.67)	-0.96 (-5.97)
Change in the EU share of sectoral value added	0.16 (15.07)	0.16 (8.98)	0.16 (8.55)	0.16 (8.01)	0.16 (8.52)	0.16 (8.74)
Specialisation – low-skilled	-0.007 (-7.23)	-0.017 (-5.46)	-0.007 (-4.52)	-0.008 (-3.93)	-0.017 (-5.26)	-0.02 (-5.70)
Specialisation – medium-skilled	-0.019 (-10.06)	-0.029 (-5.99)	-0.02 (-7.87)	-0.02 (-6.50)	-0.03 (-5.99)	-0.03 (-6.79)
Specialisation – high-skilled	0.02 (38.9)	0.028 (10.68)	0.02 (20.7)	0.03 (18.22)	0.03 (10.56)	0.03 (10.78)
Gap in R&D intensity	0.0001 (1.76)	0.005 (2.13)	0.016 (3.63)	-0.016 (-1.61)	0.015 (1.75)	-0.04 (-2.28)
(Gap in R&D intensity) ²			-0.015 (-4.05)	0.07 (3.89)	-0.001 (-1.36)	0.13 (3.23)
(Gap in R&D intensity) ³				-0.055 (-4.39)		-0.09 (-3.56)
Log (share of investment in value added) ¹		0.90 (6.94)			0.93 (6.71)	0.97 (7.99)
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
	0.13	0.13	0.13	0.13	0.13	0.13
Number of obs.	208	180	208	208	180	180

Source: Eurostat and OECD

Note: 1 Spain excluded due to insufficient data on investment for the industries.
t-statistics in parentheses;
In bold values significantly different from zero.

the effect on sectoral productivity growth of employment concentration for the low-skilled is discussed distinguishing its impact in countries experiencing high employment sectoral mobility for this educational level as well as for the medium- and the high-skilled.

- High sectoral concentration of low-skilled workers correlates with positive productivity growth in countries where there is high sectoral mobility of low-skilled employment. The same result applies in countries where the sectoral mobility

for the medium-skilled is high, but in this case the effect on productivity growth is stronger. These findings seem to confirm the hypothesis that high sectoral mobility of those with higher levels of education is the vehicle through which knowledge is

diffused to those with a lower educational level. The finding that sectoral mobility of the most educated does not represent an advantage for industries - both with a low or high - specialisation of employment in low-skilled, signals the importance of “cultural” proximity for people with different levels of education. To take advantage of the sectoral mobility of the high-skilled it is therefore important to upgrade the knowledge and the competencies of the least educated.

- High sectoral concentration of medium-skilled workers is positively correlated with sectoral productivity growth only in countries where there is a rapid transformation of the sectoral employment share for the high-skilled. In contrast, high sectoral concentration of medium-skilled workers is negatively correlated with sectoral mobility of the low- and the medium-skilled. This result confirms the hypothesis that those with an intermediate level of education may benefit from the dynamism of the most educated. The negative correlation between concentration of medium-skilled employment and sectoral productivity in countries with a certain degree of sectoral mobility for the low- and the medium-skilled may depend on the mobility for these two groups not being the key mechanism through which relevant knowledge is transferred to those with an intermediate level of education. Thus, their dynamism does not help the performance of industries with a relatively high share of medium-skilled employed.

- High sectoral concentration of high-skilled workers is positively correlated with sectoral productivity growth only in countries with a relatively high sectoral mobility of high-skilled employment - in particular in the case of “high-tech” industries. In contrast, an intense change in the sectoral structure of employment for the low- and the medium-skilled does not represent an advantage for industries specialised in high-skilled.

The results of the econometric estimates suggest that specialisation, but not any type of specialisation, matters for sectoral productivity growth. Sectoral concentration of high-

Table 25 – Regressions results for the effect of specialisation on productivity growth SURE estimates on a cross section of 13 Member States

Dependent variable productivity growth 95-99	Equation 14	Equation 15	Equation 16	Equation 17
Productivity level 95	-0.07 (-0.29)	-0.17 (-0.75)	0.36 (1.47)	0.21 (0.94)
Change in the EU share of sectoral value added	0.18 (6.50)	0.13 (6.12)	0.14 (6.15)	0.14 (6.81)
Low skilled * low-tech	0.005 (0.37)	-0.004 (-0.43)	-0.004 (-0.39)	-0.002 (-0.19)
Low skilled * medium-tech	0.009 (0.77)	0.02 (1.84)	0.02 (1.74)	0.02 (1.94)
Low skilled * high-tech	-0.04 (-4.68)	-0.00 (-0.03)	-0.019 (-1.38)	-0.003 (-0.24)
Low * agriculture	-0.011 (0.76)	-0.03 (1.83)	-0.012 (-0.94)	-0.02 (1.32)
Low * services	0.00 (0.07)	0.006 (0.90)	0.012 (1.93)	0.01 (2.11)
Medium skilled * low-tech	0.004 (0.30)	0.001 (0.14)	-0.002 (-0.30)	-0.003 (-0.37)
Medium skilled * medium-tech	-0.02 (-0.90)	-0.03 (-1.29)	-0.03 (-1.42)	-0.03 (-1.52)
Medium skilled * high-tech	-0.06 (-4.72)	-0.01 (-9.30)	-0.05 (-3.46)	-0.06 (-4.99)
Medium * agriculture	0.015 (1.21)	-0.002 (-0.10)	0.001 (0.083)	-0.004 (-0.18)
Medium * services	-0.035 (-3.19)	-0.025 (-2.84)	-0.05 (-4.58)	-0.40 (-4.47)
High skilled * low-tech	0.009 (1.40)	0.02 (3.10)	0.013 (2.12)	0.12 (2.39)
High skilled * medium-tech	0.03 (2.53)	0.03 (4.07)	0.035 (4.82)	0.33 (4.29)
High skilled * high-tech	0.07 (13.44)	0.03 (5.05)	0.026 (3.78)	0.034 (4.74)
High * agriculture	0.07 (3.99)	0.08 (5.97)	0.083 (5.68)	0.08 (6.26)
High * services	-0.006 (-0.95)	0.02 (2.34)	0.02 (2.03)	0.015 (1.99)
R&D intensity		0.77 (5.92)	-1.35 (-7.21)	0.03 (0.11)
(R&D intensity)²			0.28 (12.78)	-0.19 (-2.48)
(R&D intensity)³				0.04 (6.84)
Country dummies	yes	yes	yes	Yes
	0.15	0.18	0.26	0.26
Number of obs.	234	234	234	234

Source: Eurostat and OECD
Note: t-statistic in parentheses;
In bold values significantly different from zero.

skilled always promotes productivity growth. For any specific industry, in particular for the most technologically advanced sectors, the benefit of certain specialisation in high-skilled employment is strong in countries with a high dynamism of the employment share for the most educated workers. Nevertheless, the advantage of being specialised in high-skilled is reduced when changes in the sectoral composition of low- and medium-skilled are high. In contrast, the empirical evidence suggests that high specialisation for the lowest level of education contributes positively to productivity growth when the relative share

of low-skilled is high in medium-tech sectors only. Alternatively, productivity growth is high when the relative share of both low- and medium-skilled is high in countries with a changing sectoral structure for those with the higher level of education.

Conclusions

The recent slowdown in the EU's productivity growth occurred when the structure of employment by level of education was changing. More jobs were created for high-skilled people

Table 26 – Regressions results for the effect of specialisation on productivity growth SURE estimates on a cross-section of Member States

Dependent variable productivity growth 95-99	Equation 18	Equation 19	Equation 20
Productivity level 95	-0.44 (-1.66)	-0.58 (-2.67)	-0.41 (-2.01)
Change in the EU share of sectoral value added	0.11 (5.17)	0.12 (5.35)	0.09 (4.23)
Low skilled* mobility of low-skilled employment structure	1.00 (2.17)	1.18 (4.48)	0.94 (2.83)
Low skilled* mobility of medium-skilled employment structure	2.89 (5.12)	3.01 (6.08)	3.59 (7.58)
Low skilled* mobility of high-skilled employment structure	0.17 (0.64)	:	
Medium skilled* mobility of low-skilled employment structure	-1.70 (-1.96)	-2.10 (-4.25)	-1.85 (-3.09)
Medium skilled* mobility of medium-skilled employment structure	-2.45 (-3.76)	-2.43 (-4.32)	-2.02 (-4.20)
Medium skilled* mobility of high-skilled employment structure	0.94 (2.67)	1.09 (4.99)	0.77 (3.87)
High skilled* mobility of low-skilled employment structure	-0.25 (-0.75)	:	
High skilled* mobility of medium-skilled employment structure	-0.32 (-0.69)	-0.72 (-2.18)	
High skilled* mobility of high-skilled employment structure	0.33 (1.69)	0.28 (1.94)	
High skilled* mobility of high-skilled employment structure in all sectors but high-tech			-0.43 (-2.59)
High skilled * mobility of high-skilled employment structure in high-tech sectors			1.59 (8.51)
High skilled* mobility of medium-skilled employment structure in high-tech sectors			-2.88 (-7.33)
Low skilled	-0.22 (-6.17)	-0.23 (-8.43)	-0.24 (-7.76)
Medium skilled	0.15 (2.56)	0.17 (3.88)	0.15 (3.32)
High skilled	0.02 (0.78)	0.03 (1.79)	0.04 (3.34)
R&D intensity	0.50 (1.54)	0.45 (1.66)	0.62 (2.27)
(R&D intensity) ²	-0.29 (-3.37)	-0.27 (-3.62)	-0.24 (-3.27)
(R&D intensity) ³	0.04 (7.46)	0.04 (8.09)	0.04 (7.62)
Log(share of investment in value added) ¹	1.06 (6.47)	1.10 (8.88)	1.05 (8.41)
Country dummies	yes	Yes	yes
Number of obs.	180	180	180

Source: Eurostat and OECD

Note: 1 Spain excluded due to insufficient data on investment for the industries t-statistic in parentheses; In bold values significantly different from zero.

while the number of low-skilled in the workforce declined. While these dynamics could be a manifestation of skill-biased technological change, one would expect different contributions to production from heterogeneous workers, with the high-skilled being more productive than the low-skilled.³⁷

This chapter has shown that the overall productivity growth reflects different sectoral productivity dynamics and different contributions of the change in the sectoral mix of employment. The relevance of these different components of productivity growth tends to be more pronounced in some periods than

in others. For example, in the 1980s, changes in the composition of employment explained 20% of total labour productivity growth, while the contribution of productivity growth within sectors accounted for the remaining 80%. In the 1990s the proportion explained by the former declined while that due to the latter increased. Nevertheless, a closer look at the data reveals that these patterns occurred essentially in the first half of the 1990s; after 1995 the component of productivity growth due to change in the sectoral composition of employment accounted for about 30% of total productivity growth. When looking over a longer period the sectoral composition of the workforce explains a relatively low proportion of total productivity growth. Moreover, compared to the US, Europe had higher productivity growth in the ICT producing services while the rate of productivity growth was lower in the ICT-using industries, which suggest the limited diffusion in Europe of new technologies in using services.

These findings have two major consequences. Firstly, the total productivity growth is limited without “pure” gains of productivity within sectors, in particular in those activities with production processes likely to be affected by the introduction of technologies with universal and far-reaching applications (general purpose technologies). Secondly, it shifts the attention from the quantitative effects of structural change to its qualitative nature. New technologies expand the role of knowledge in the production process, and, more importantly, make its diffusion a key component of growth. A high-skilled workforce, not only contributes to reducing the implementation costs of new methods of production but also accelerates their adoption by the less educated.

Productivity growth not only depends on the level of human capital, as pointed out by the studies on human capital and growth³⁸, but, as shown by this chapter, also on the distribution of skills in the entire economy. The findings of this chapter suggest that there are clearly advantages from concentration of high-skilled people in industries characterised by intense patterns of innovation. In this con-

³⁷ This view might be too simplistic as high levels of education are necessary but not sufficient for sustained productivity growth, as when complementarities between human capital and technological progress limit potential growth when their impact is constrained by the level of the each other.

³⁸ See for example Angel de la Fuente and Antonio Ciccone (2003), op. cit., and OECD (2003), The sources of economic growth in the OECD countries.

text, industries with strong growth opportunities, such as high-tech industries, which have a significant concentration of high-skilled people should perform better than others. However, important knowledge spillovers may also occur for those activities with less specialised applications where the scope of the application of knowledge is broad, in particular in the services sector. This chapter showed that both technologically advanced and less technologically intensive sectors may benefit from both an increasing number and high mobility of high skilled people.

Thus, employment specialisation matters for productivity growth, but not every kind of specialisation is always good for growth. For the low-skilled there are clear advantages from “climbing up the ladder”, which means that their share rises in sectors with a higher technological intensity (the medium-tech sector). This result may be related to the complexity of the production processes in high-technology sectors, which limit the diffusion of knowledge spill-overs to those with the lowest level of education employed in these sectors. Furthermore, both low- and medium-skilled people might benefit from an intense process of relocation across sectors for those with higher level of education. Continuous transformation and adaptation occurring for those with the higher levels of education might facilitate the diffusion of knowledge among those with lower levels of education.

The policy implications are threefold.

Firstly, adaptability does not imply only higher real wage flexibility and or flexible contractual arrangements but also the development of new capabilities and new knowledge. Technological progress is basically a process of structural change. It opens windows of opportunities, which if exploited can favour growth. Nevertheless, this change also makes old knowledge obsolete and requires the development of new capabilities and new knowledge. According to B.A. Lundvall: “The

learning economy indicates an economy where the success of individuals, firms, regions and national economies reflect their capability to learn (and to forget which is often a pre-requisite for learning new skills). The learning economy is an economy where change is rapid and where the rate at which old skills get obsolete and new ones become in demand is high”.³⁹

The characteristics of new technologies have accentuated the importance of “intangible capital deepening”⁴⁰ but also modified the relationships between inputs of production and increased the need for flexible production processes. As far as the first element is concerned investment in knowledge (education, training, life-long-learning, R&D) and measures improving quality in work are fundamental to develop both formal and informal (i.e. firm-specific) skills and to promote social inclusion. Life-long learning, not only confined to the high-skilled, becomes a central element of a strategy for productivity growth. Flexibility reflects the need to respond to new technologies with new forms of work organisations, reduced division of labour within firms, the development of entrepreneurial skills.⁴¹ As highlighted by the new employment guidelines the design and dissemination of innovative and sustainable forms of work organisation, which support productivity and quality at work, is a key element of employment policies.

Secondly, educational and training policies that promote a wide diffusion of knowledge are important. In the context of the process of European integration and globalisation, this issue is related to that of international competitiveness. International competitiveness, observable in trade dynamics, is shaped by the ability of a country to compete in the global market, which reflects its innovative capacity and the quality of its institutions and workforce. Changes in the employment structure of the economy might modify its ability to compete and, thus, its growth oppor-

tunities. A general upgrading of the skills and competencies of people is necessary to avoid a situation where the existing structure of the economy hampers growth opportunities. The existence of complementarities between the employment structure for different levels of education may or may not have positive effects depending on the intensity and the quality of the links between people with different levels of education. In other words, in a given sector the presence of different people with different skills levels may benefit productivity growth when the interaction between heterogeneous workers generates knowledge spillovers.⁴² Some characteristics of the interaction between specialisation and change in the employment structure may favour productivity growth more than others do. With this respect, an important role can be played by institutions bridging the knowledge gap between different type of industries and, within them, between different levels of skills.⁴³

Thirdly, sectoral mobility may facilitate growth. The chapter has demonstrated that a sectoral relocation (sectoral mobility) of employment might promote growth when it occurs for the most educated or when it is associated with an upgrading of the knowledge base of the less educated. In an expanding economy this relocation does not necessarily require a physical shift of workers across sectors. When employment grows, people entering in the workforce contribute to a modification of the structure. With a stagnating working age population resulting from ageing, a sectoral relocation of employment may require an increase in the mobility between sectors of workers as there are no huge pool of cohorts of young, better educated people replacing older workers. Moreover, it would also imply mobilisation and training of the domestic potential labour supply as well a contribution of skilled people from third countries.

³⁹ Lundvall B.A. (1996) *The Social Dimension of the Learning Economy*, DRUID (Danish research Unit of Industrial Dynamics) Working Paper No. 1

⁴⁰ Abramovitz M. and David P. A. (1995), *Technological change and the Rise of Intangible Investments: The US Economy's Growth-Path in the Twentieth Century* in Foray D. and Lundvall B.A. (eds.) *Employment and Growth in the knowledge-based economy*.

⁴¹ Lindbeck A. and Snower D. (2000) *The division of labour and the Market of Organisations*.

⁴² The importance for the growth generating process of the interaction between heterogeneous workers is developed also by L.C. Keely (2003), but only in the case of skilled workers. L.C. Kelly (2003) *Exchanging good ideas in Journal of Economic Theory*.

⁴³ On the links between education and growth see Zilibotti, F. and Storesletten, K. (2000), *Education, educational policy and growth in Swedish Economic Policy Review* vol. 7 pp-39-70.

Competitiveness and structural change have been at the top of the European policy debate since Delors' White Book on Growth and Competitiveness. The run up to EMU not only spurred the process of European integration, but also made it clear that nominal convergence, while necessary, was not sufficient to achieve both higher potential output growth and convergence in real variables. Against this background, the Lisbon agenda aimed to change the economic policy regime. The strategy aimed at bridging the gap between nominal and real convergence by creating the conditions for long lasting and sustainable growth and by accelerating the transition to a knowledge-based economy, while preserving the European Social model.

Clearly investing in human capital is a central requirement to attain the Lisbon objective of becoming the most competitive knowledge-based economy. The increasing share of services in the economy, the pace of technological change, the increase in the knowledge/information share of the value of production, and the scale of economic and social restructuring all strengthen the case for such investment. The pervasiveness of knowledge is crucial to enhance and spread the use of new technologies over the whole economy and to prevent segmentation of the labour market between workers with different types of education.

Annexes to chapter 2

Annex 2.1 – Shift-share analysis

Aggregate productivity is the weighted average of sectoral productivity levels, with weights equal to each sector's employment share. Over time aggregate productivity growth reflects both the rate of growth of productivity at the sectoral level and the change in the sectoral composition of employment. Shift-share analysis allows decomposing algebraically labour productivity growth between two periods into a between- and a within-sector component and in a residual. The first effect is the contribution to total labour productivity growth of relocation of employment from low- to high productivity industries. This effect tends to be positive when the economy is expanding and contributes to an increasing total productivity growth when the expanding industries are those with a high level of productivity. It represents the productivity growth attributable to changes in the employment structure assuming that productivity is the same in the two periods. The second component represents the contribution to labour productivity growth of within-sectors productivity growth weighted by the share of employment in these industries on the total employment. This effect represents the growth of labour productivity had the structure remained the same between the two periods. Finally, the residual measures the importance of the interaction of positive/negative productivity growth in expanding/contracting sectors.

In formal terms, the decomposition applies the following expression

$$\frac{\pi_t - \pi_0}{\pi_0} = \sum_i \left(\frac{q_{it} - q_{i0}}{\pi_0} \pi_{i0} + \frac{\pi_{it} - \pi_{i0}}{\pi_0} q_{i0} + \frac{(\pi_{it} - \pi_{i0})(q_{it} - q_{i0})}{\pi_0} \right)$$

productivity growth = structural change effect + productivity growth effect + interaction effect

with π_t productivity level at time t ; π_i productivity level of industry i at time t ; q_{it} share of employment in industry i at time t . Productivity is calculated as value added at constant prices divided by total employment. The total productivity growth calculated in

this way might differ with the more common measure based on the rate of growth of GDP per person employed as GDP and value added for the all economy differs for the net taxes on products.

Data description

Data are respectively for the period 1970-1979 and 1980-2001 from the OECD ISDB and the new STAN database for Industrial Analysis. The industry classification used in the ISDB database corresponds to that of ISIC classification Rev. 2. To avoid problems of comparability, due to possible differences in the classification of detailed activities, the comparison over the three decades is limited only to one digit level (See OECD, STAN database 2002).

The new version of STAN is based on the ISIC classification Rev. 3. In STAN, value added at constant prices is expressed, for all countries except the United States, as index number with 1995 base year. For the US the base year is 1996. Since value added data are presented as index numbers, employment data have been transformed in index number with the same base as the value added index. The formula above has been adapted to the case of data being in index form. Basically, this amounts to multiplying the term in the square brackets by the ratio between the productivity index in each industry and the productivity index for the total economy.

In the case of the EU, the decomposition required to construct EU wide aggregates for the value added at current and constant prices from national series available in STAN. In STAN data are expressed in the national currency, which corresponds to "national euro" for euro-zone countries. For these countries,

meaningful after national series are converted in "euro/ECU"¹. Therefore STAN national series are converted in "euro/ECU" using the conversion table available in the NewCronos database. For non EMU-countries conversion rates are respectively in ECU for pre-EMU and in euro for the EMU years. After conversion, the EU value added at constant prices at the sectoral and aggregate level is calculated as a weighted average of the respective national series. Since data for Ireland and Luxembourg are not available the EU aggregates exclude these countries. The EU employment is the sum of the countries' figures. In the case of the Netherlands the value added at constant prices for respectively "Finance, insurance, real estate" and "Community social and personal services" is not available for the years up to 1985. For these years, the value added at constant prices for these sectors is calculated from the sectoral value added at current prices using the implicit price deflator of total gross value added.

Results

Charts 45 and 46 show that for the EU and the US the total labour productivity growth (the solid lines) the overall contribution of the structural, the productivity and the interaction effects (the dotted lines). The charts also highlight the part of each effect attributable to sectors.

For both the EU and the US the productivity growth effect explains the largest fraction of total labour productivity growth. As concerns the structural change effect, its contribution to total EU productivity growth was in all periods almost constant and small. However it should be noted that since productivity growth declined in the EU after 1995, the fraction of total productivity growth accounted by the structural change effect increased. In the US the relocation of employment across sectors was high in the 1980s and fell to zero during the 1990s. Finally, the interaction is significant and negative only for the 1980s and in the case of the US.

In the case of Europe in the 1980s and in the first half of the 1990s, it is the pick-up in the contribution of "Manufacturing" and the Social services that drives the increase in total labour productivity growth (see panel productivity effect). By contrast in the second

half of the 1990s a widespread decline in productivity growth in all sectors except “Agriculture” and “Electricity” led to the decline in total productivity growth. In particular, one also notices that between the first and the second half of the 1990s the contribution to total productivity growth of manufacturing almost halved while that of the “Business sector services” and social services was around zero. The respectively increasing and declining share of employment in the “Business sector services” and in “Manufacturing” led to a positive contribution of the former and a negative of the latter to total labour productivity growth. The substantial job losses occurred in “Manufacturing” in the first half of the 1990s constrained productivity growth but were slightly compensated for by the increase in employment in business and Social services.

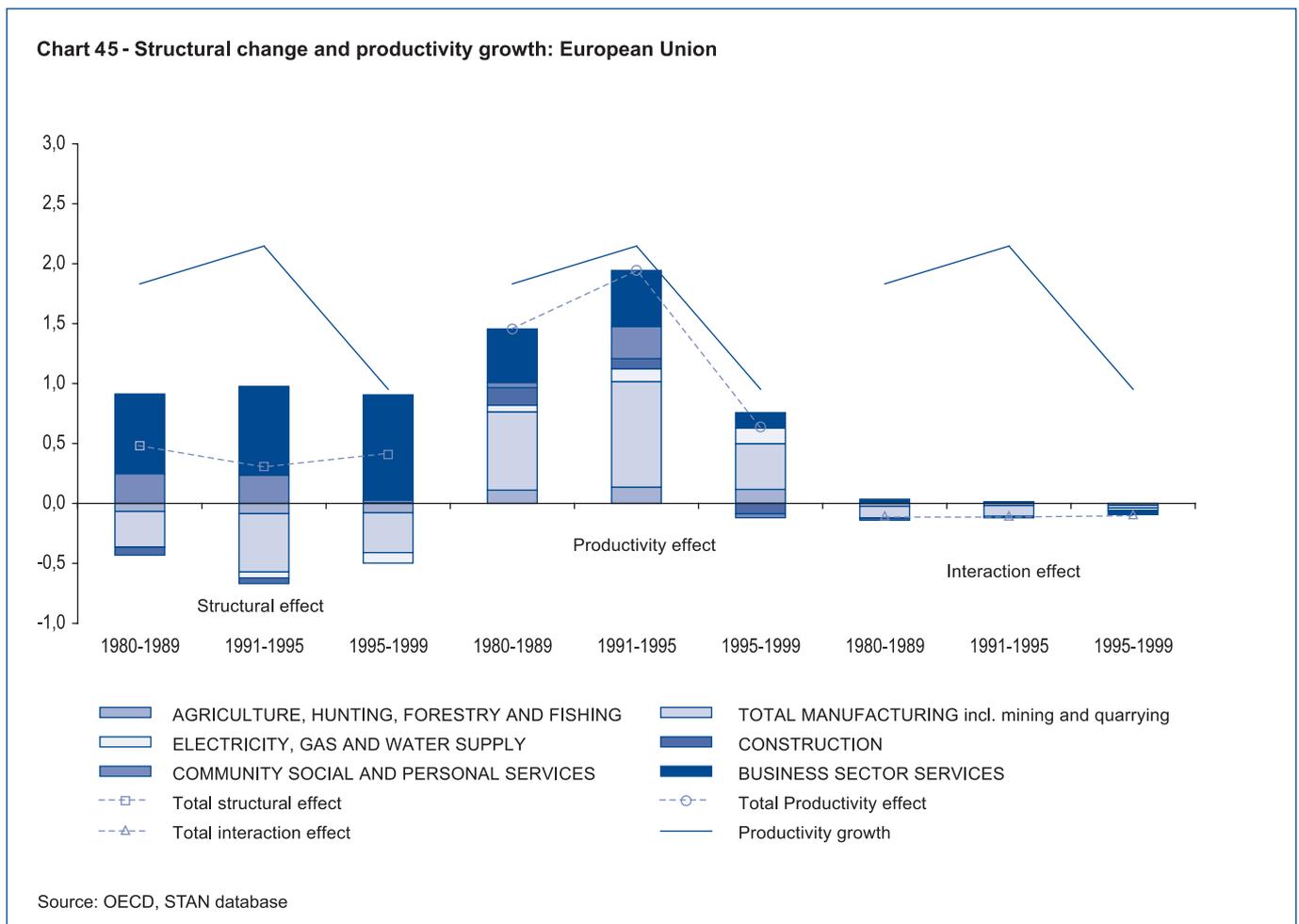
Annex 2.2 – Decomposing the EU-US productivity growth differential

The expression in annex 1 shows that the contribution to total labour productivity growth of one sector can be higher than that of another sector because: a) its productivity growth is higher; b) its employment share is high; c) its productivity level is high; d) its employment share is expanding. Because of the existing differences in the sectoral productivity growth rates and levels and in the employment shares (levels and changes), it is not possible to identify the source of these changes by simply taking the differences of the effects in which total labour productivity growth can be decomposed. Thus, cross-coun-

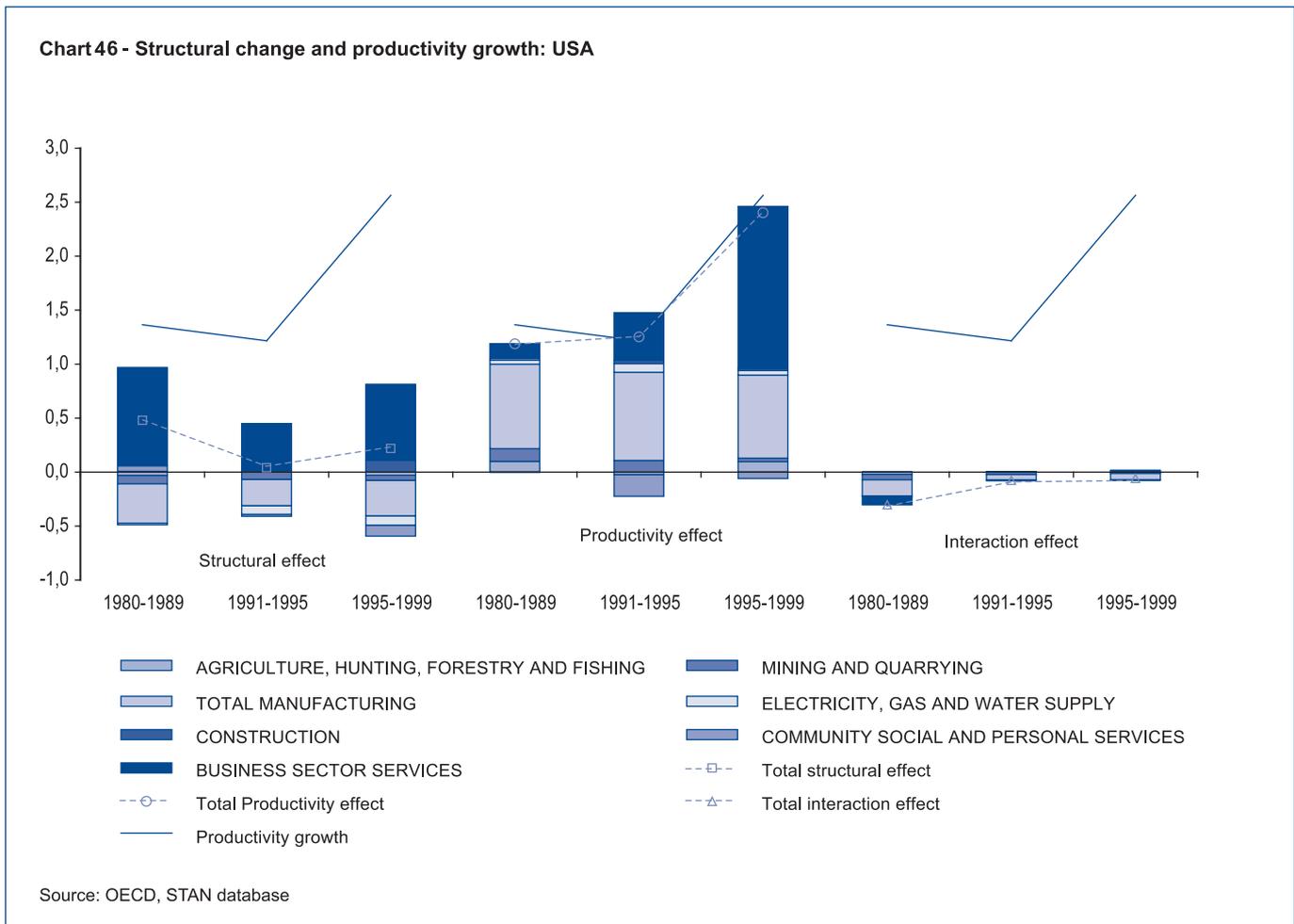
try comparisons of each of the four effects can be made after controlling for the different values of the remaining effects.

The methodology elaborated by Van Ark et al.⁴⁴ (2002) identifies the components and the contribution attributable to either differences in each industry’s productivity growth or to differences in their levels relative to the average productivity of each country. The procedure, based on a counterfactual shift-share analysis, decomposes the EU-US growth differential in four effects.

Firstly, the employment share of the EU is imposed on the US and vice versa. Secondly, the effect of differences in sectoral productivity growth is identified comparing for the two countries the productivity growth effect (within component of productivity growth)



⁴⁴ Bart van Ark, Robert Inklaar, Robert McGuckin and Marcel Trimmer (2002) “Changing gear” Productivity, ICT and Services Industries: Europe and the United States, Research Memorandum GD-60, Groningen Growth and Development Centre.



using sectors of comparable employment structure (i.e. the same employment shares for both the EU and the US). The gap between the effective difference in the productivity growth effect and the counterfactual one represents the component of total productivity growth differential attributable to different employment shares. Analogously, by comparing the structural change effect with the same employment shares isolates the contribution of different productivity levels to the total productivity growth gap. The gap between the effective difference in the structural change effect and the counterfactual one represents the component of total productivity growth differential attributable to different changes in the employment share.

The counterfactual shift-share analysis gives for each country two “virtual” economies: the EU with the EU employment structure; the EU with the US employment structure; the US with the US employment structure; the US

with the EU employment structure. The total effects displayed in the charts are the average of each effect under EU and the US employment structure.

The analysis thus identifies the following components of the EU-US labour productivity growth differential:

1. The first component represents the contribution to the EU-US gap due to differences in productivity growth (i.e. it answers the question: “Is the US growing more than the EU because its industries are growing faster in terms of productivity, independently of the levels and changes of the employment structure?”).
2. The second component represents the contribution to the growth differential due to the specific characteristics of the structure. In this case the relevant question is: “Is the US growing more than the

EU because of a certain sectoral composition of employment whatever the rate of productivity growth?”

3. The third component defines the contribution to the differential productivity growth explained by the existence of a gap between industries’ productivity levels relative to the average productivity level of each country - “Is the US growing more than the EU because the sectoral productivity levels are higher than in the EU?”
4. The fourth component identifies the difference in the EU-US productivity growth due to the change in the economic structure. It answers the question: “Is the US growing more than the EU because of faster increase of the employment share of any given industry?”

Results

Charts 47-49 show the outcome of the decomposition for the 1980s, the 1990s and the second half of the 1990s. Also shown in brackets is the total EU-US productivity growth gap for each industry. The charts do not consider the interaction effect. Therefore the figures in bracket do not sum up to the total differential in the productivity growth but only to the sum of the structural change effect and the productivity growth effect

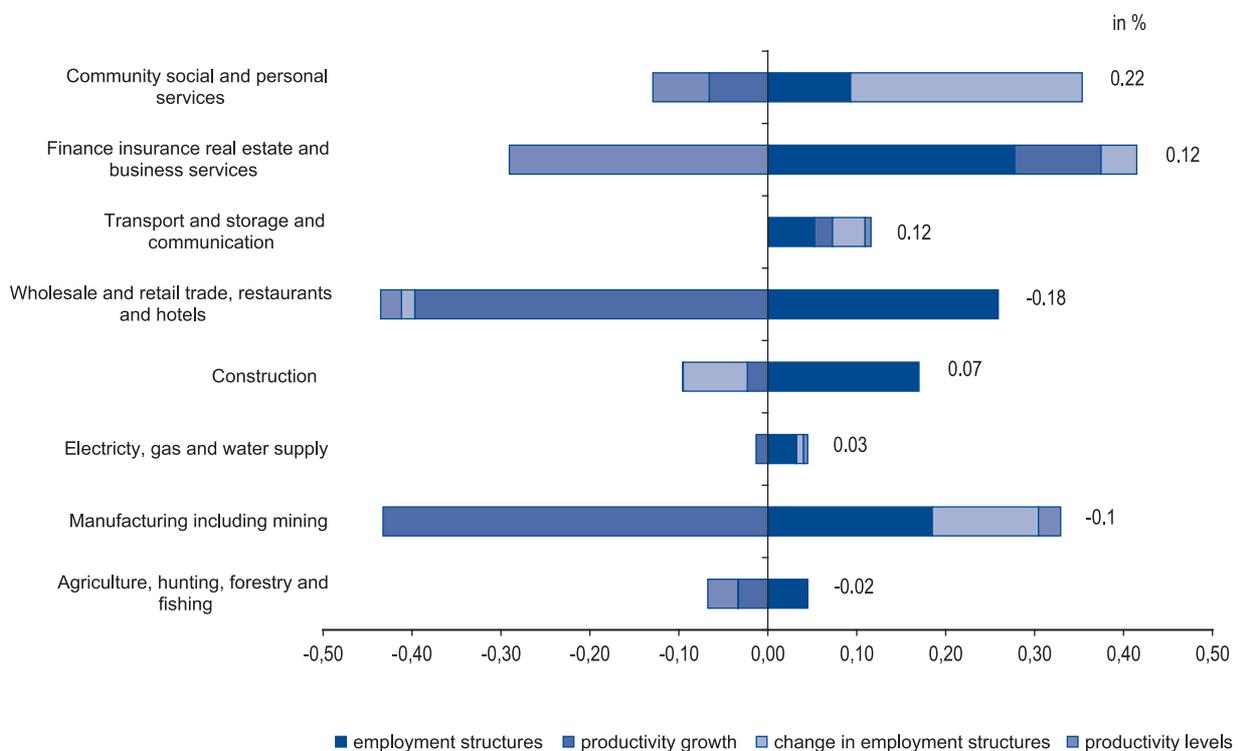
In the 1980s the component of the total productivity growth gap due to differences in the employment structure always played a role in favour of the EU in particular in "Finance insurance and real estate", "Retail trade" and "Manufacturing". Europe also had an advantage in terms of changes of this structure in

"Social and personal services", "Manufacturing", "Finance", and "Transport and Communication". In the US, the faster productivity growth in "Retail trade" and "Manufacturing" contributed negatively to the EU-US productivity growth differential, while the contribution of "Finance" was positive but not enough to compensate for the negative effects coming from these two industries. When the decomposition for the 1990s (chart 48) is examined, the structural components, both in levels and changes, continued to have a positive contribution, increasing, therefore, the EU advantage in the productivity differential with the US.⁴⁵ However, this effect was counterbalanced by the negative contribution due to the differences in the levels and in the growth rate of sectoral productivity. The only relevant exception is that of the Social services with a positive contribution.⁴⁶ While for the years after 1995 the results of the decomposition are

qualitatively analogous to those observed for the previous periods, the order of magnitude is very different. Indeed, the positive contribution stemming from the structure is smaller (0.58% against 1.5% for the 1980s and 1.6% for the 1990s) while the negative contribution deriving from productivity is higher (-2.16%, against, -1.22% and 2.01% respectively for the 1980s and 1990s), in particular for "Trade", "Finance" and "Manufacturing".

As far as the contribution of "Business services" to total productivity growth is concerned, the difference between the EU and the US might be representative of an effective divergent performance of the industries classified in this sector but also reflect different treatment of quality improvements in services. Many experts have recognised that unmeasured quality improvements are applied unevenly across countries, with perhaps

Chart 47- Decomposition of the difference in the contribution to the productivity growth gap between the EU and the US: 1980-1989

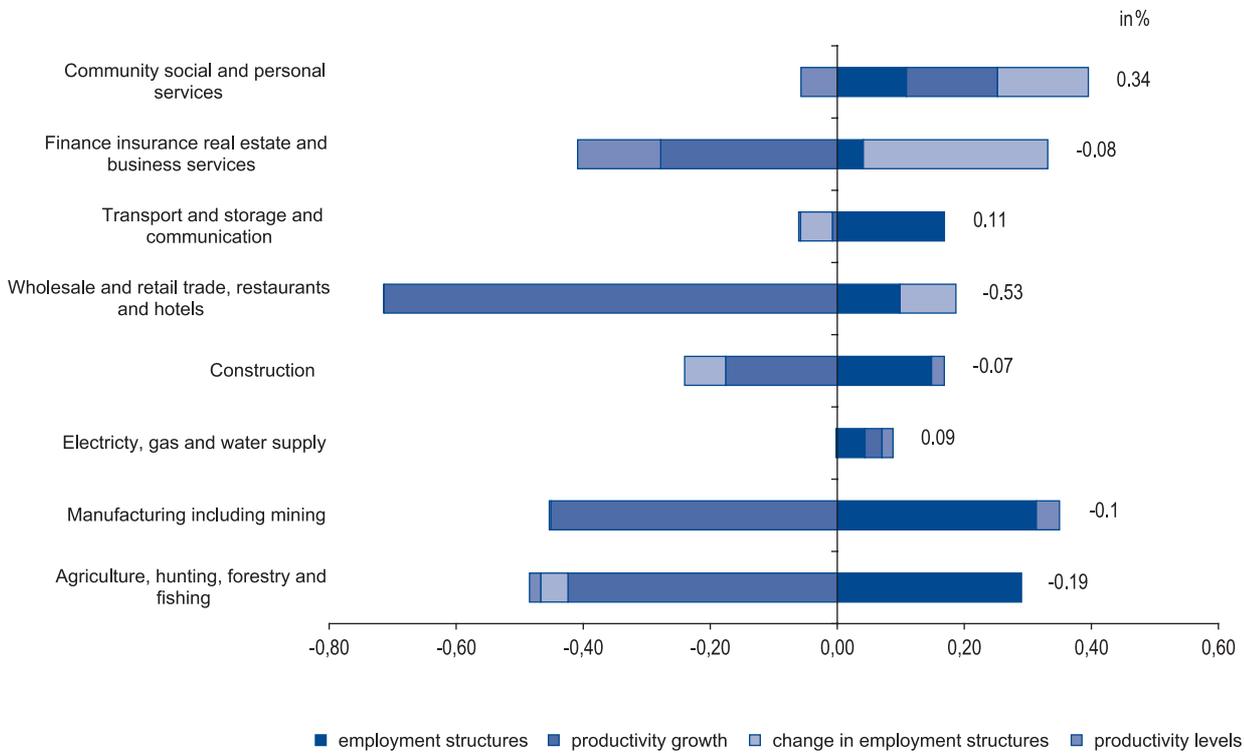


Source: OECD, STAN database

⁴⁵ For Construction and, to a less extent, Transport and Communication and Agriculture changes in the employment shares contributed negatively to the gap as employment shares declined in the EU while they increased in the US. Since the rate of US increase was higher than that of the EU decline the average effect was negative.

⁴⁶ The well known difficulties in the measurement of output in these services (i.e. based on input and the compensation of employees) should make one cautious in interpreting this result as an indication of a greater efficiency in the EU rather than in the US.

Chart 48- Decomposition of the difference in the contribution to the productivity growth gap between the EU and the US: 1991-1999



Source: OECD, STAN database

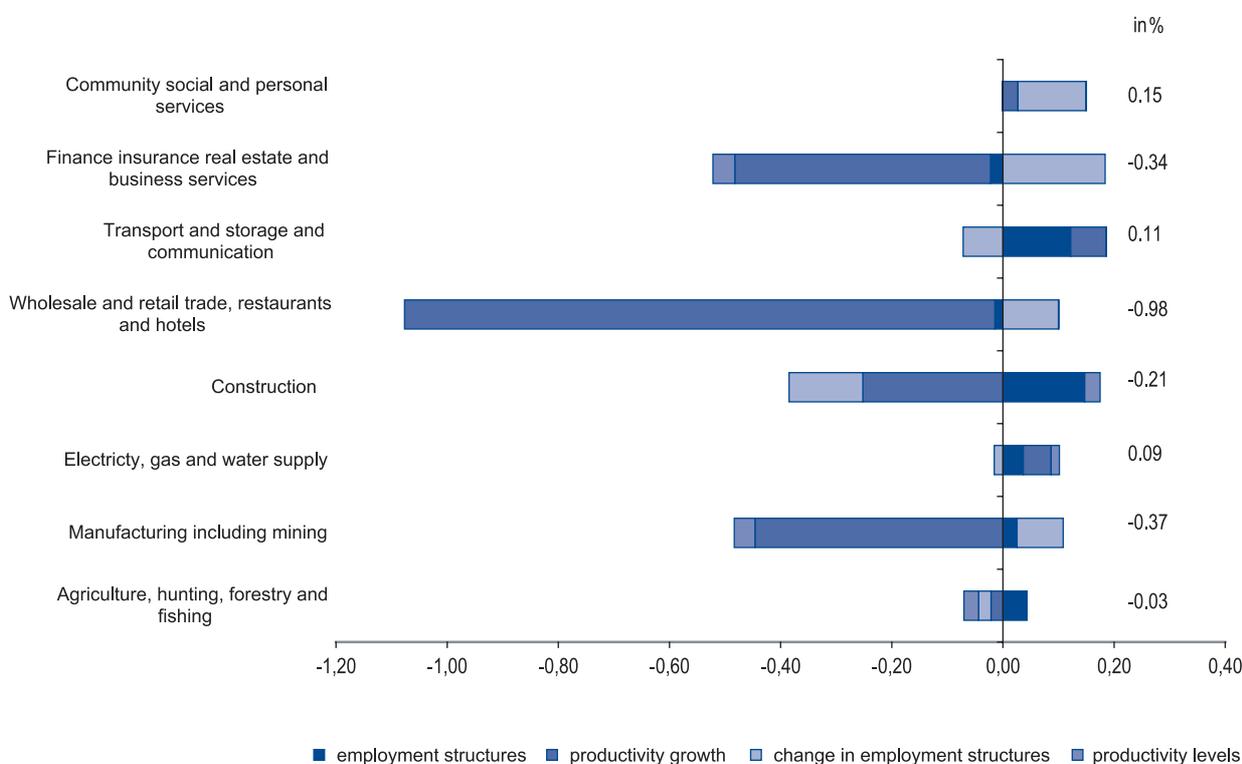
more adjusting by US than by the European statistical institutes. Nevertheless, the underestimation of productivity growth when quality improvements are not considered is likely to be small (see Schreyer P. (2001) Computer prices indices and international growth comparisons, Growth project background papers OECD). Thus, these results clearly point towards the importance of productivity gains within each of the industry.

Annex 2.3 – Classification of industries used in the analysis of the specialisation patterns (NACE Rev. 1)

Statistical Classification of economic activities in the Community Labour Force Survey

- | | | | |
|-------|---|----|--|
| 01 | Agriculture, hunting and related service activities | 22 | Publishing, printing and reproduction of recorded media |
| 02 | Forestry, logging and related service activities | 23 | Manufacture of coke, refined petroleum products and nuclear fuel |
| 05 | Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing | 24 | Manufacture of chemicals and chemical products |
| 10-14 | Mining and Quarrying | 25 | Manufacture of rubber and plastic products |
| 15 | Manufacture of food products and beverages | 26 | Manufacture of other non-metallic mineral products |
| 16 | Manufacture of tobacco products | 27 | Manufacture of basic metals |
| 17 | Manufacture of textiles | 28 | Manufacture of fabricated metal products, except machinery and equipment |
| 18 | Manufacture of wearing apparel; dressing and dyeing of fur | 29 | Manufacture of machinery and equipment n.e.c. |
| 19 | Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear | 30 | Manufacture of office machinery and computers |
| 20 | Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials | 31 | Manufacture of electrical machinery and apparatus n.e.c. |
| 21 | Manufacture of pulp, paper and paper products | 32 | Manufacture of radio, television and communication equipment and apparatus |

Chart 49- Decomposition of the difference in the contribution to the productivity growth gap between the EU and the US: 1995-1999



Source: OECD, STAN database

33	Manufacture of medical, precision and optical instruments, watches and clocks	55	Hotels and restaurants	85	Health and social work
34	Manufacture of motor vehicles, trailers and semi-trailers	60	Land transport; transport via pipelines	90	Sewage and refuse disposal, sanitation and similar activities
35	Manufacture of other transport equipment	61	Water transport	91	Activities of membership organization n.e.c.
36	Manufacture of furniture; manufacturing n.e.c.	62	Air transport	92	Recreational, cultural and sporting activities
37	Recycling	63	Supporting and auxiliary transport activities; activities of travel agencies	93	Other service activities
40	Electricity, gas, steam and hot water supply	64	Post and telecommunications	95	Private households with employed persons
41	Collection, purification and distribution of water	65	Financial intermediation, except insurance and pension funding	99	Extra-territorial organizations and bodies
45	Construction	66	Insurance and pension funding, except compulsory social security		
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	67	Activities auxiliary to financial intermediation		
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles	70	Real estate activities		
52	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	71	Renting of machinery and equipment without operator and of personal and household goods		
		72	Computer and related activities		
		73	Research and development		
		74	Other business activities		
		75	Public administration and defence; compulsory social security		
		80	Education		

Annex 2.4 – Classification of industries used in the econometric analysis

AGRICULTURE, HUNTING, FORESTRY AND
FISHING
MINING AND QUARRYING
FOOD PRODUCTS, BEVERAGES AND TO-
BACCO
TEXTILES, TEXTILE PRODUCTS, LEATHER
AND FOOTWEAR
WOOD AND PRODUCTS OF WOOD AND
CORK
PULP, PAPER, PAPER PRODUCTS, PRINTING
AND PUBLISHING
COKE, REFINED PETROLEUM PRODUCTS
AND NUCLEAR FUEL
CHEMICALS AND CHEMICAL PRODUCTS
RUBBER AND PLASTICS PRODUCTS
OTHER NON-METALLIC MINERAL PRODUCTS
BASIC METALS AND FABRICATED METAL
PRODUCTS
MACHINERY AND EQUIPMENT, N.E.C.
ELECTRICAL AND OPTICAL EQUIPMENT
TRANSPORT EQUIPMENT
MANUFACTURING NEC; RECYCLING
ELECTRICITY, GAS AND WATER SUPPLY
CONSTRUCTION
WHOLESALE AND RETAIL TRADE; RESTAU-
RANTS AND HOTELS
WHOLESALE AND RETAIL TRADE; REPAIRS
HOTELS AND RESTAURANTS
TRANSPORT AND STORAGE AND COMMUNI-
CATION
FINANCE, INSURANCE, REAL ESTATE AND
BUSINESS SERVICES
FINANCIAL INTERMEDIATION
REAL ESTATE, RENTING AND BUSINESS
ACTIVITIES
COMMUNITY Social AND PERSONAL SER-
VICES
PUBLIC ADMIN. AND DEFENCE; COMPUL-
SORY Social SECURITY
EDUCATION
HEALTH AND Social WORK
OTHER COMMUNITY, Social AND PERSONAL
SERVICES
PRIVATE HOUSEHOLDS WITH EMPLOYED
PERSONS

Chapter 3 Wage structures and determinants in an enlarged Europe

Introduction

The structure and evolution of labour costs and wages are important features of the labour market. They are closely linked to both firms' labour demand decisions and individuals' labour supply decisions. Through their link with productivity, profits and consumption they are key determinants of economic growth and overall employment performance.

The new generation of Broad Economic Policy Guidelines (BEPG) and Employment Guidelines (EGL) have accordingly highlighted the importance of wages and productivity by focussing on the following points (see box 5):

- the link between wages and productivity, their evolution over time and their impact on employment creation;
- the role of non-wage labour costs, mainly taxes and social contributions, for employment performance and social cohesion;
- the need for increased wage flexibility and differentiation (across skills, firms, industries and regions) and their role for employment performance and labour mobility;
- the impact of remaining pay gaps and other imbalances in work incentives, including direct discrimination, by gender or nationality on labour market participation and career progression; and
- the role of social partners, industrial relations collective agreements and wage setting mechanisms for quality in work and employment performance.

Box 5 – Wage-related policy guidelines 2003

In the 2003 versions of both, the Broad Economic Policy Guidelines (BEPG) and the Employment Guidelines (EGL), there has been a strengthening of guidelines related to wages, productivity, non-wage labour costs and work incentives.

While acknowledging that the “maintenance of sound macroeconomic conditions depends on the policies pursued by central banks and governments, and the wage developments resulting from settlements concluded by social partners” the BEPG 2003⁴⁷ request that “wage developments should contribute to stable macroeconomic conditions and to an employment-friendly policy mix”. To this end, “Member States should promote the right framework conditions for wage negotiations by social partners”, ensuring in particular that “nominal wage increases are consistent with price stability and productivity gains. In particular, wage developments should remain moderate in the context of a possible cyclical recovery in productivity or oil-price-hike-induced increases in inflation to allow for a restoration of profit margins so as to underpin job-creating investment growth”.

With a view to raising Europe's growth potential, the BEPG request in particular that “wage bargaining systems allow wages to reflect productivity, taking into account productivity differences across skills and local labour market conditions”. While recognising that wage growth in 2002 “has been slow to adapt to low productivity growth” they repeatedly call for changes in the wage bargaining and wage formation system both to ensure that wages reflect productivity and skill differentials and differences in local labour market conditions and to allow greater wage differentiation across firms and regions. In some instances, they explicitly encourage a move to more decentralised wage setting mechanisms.

With respect to the low-skilled, in particular, the BEPG recognise “the need both to improve the quality of education and training (...) and to allow wages to better reflect productivity”. In this context, they call for reductions in labour costs, especially for low wage earners. Action is called for to improve incentives to make work pay, to facilitate job creation and to improve the functioning of the labour market to tackle the root causes of high unemployment and low labour force participation in the EU. Member States are asked in particular, to “improve the combined incentive effects of taxes and benefits, reduce high marginal effective tax rates in order to eliminate unemployment and poverty traps, cut the tax burden on low-paid labour, improve the administration of eligibility criteria for benefits whilst preserving an adequate level of social protection, and ensure the efficiency of job search assistance for benefit recipients”.

⁴⁷ European Council (2003), Council recommendation of 26 June 2003 on the broad guidelines of the economic policies of the Member States and the Community (for the 2003-2005 period), 2003/555/EC, Official Journal of the European Union, 01.08.2003, L195/1-54

The EGL 2003⁴⁸, in addition, focus on two issues related to wages - the gender pay gap and “making work pay”. With respect to the former they state that “[gender gaps in the labour market need to be progressively eliminated, if the EU is to deliver full employment, increase quality in work and promote social inclusion and cohesion. This requires both a gender mainstreaming approach and specific policy actions to create the conditions for women and men to enter, re-enter, and remain in the labour market. (...) The underlying factors of the gender gaps in unemployment and in pay should be addressed and targets on the reduction of such gaps should be achieved as a result, without calling into question the principle of wage differentiation according to productivity and labour market situation”. Member States are requested, “through an integrated approach, combining gender mainstreaming and specific policy actions, [to] encourage female labour market participation and achieve a substantial reduction in gender gaps in employment rates, unemployment rates, and pay by 2010”.

With respect to “making work pay”, Member States are asked to “reform financial incentives with a view to making work attractive and encouraging men and women to seek, take up and remain in work. In this context, Member States should develop appropriate policies with a view to reducing the number of working poor. They will review and, where appropriate, reform tax and benefit systems and their interaction with a view to eliminating unemployment, poverty and inactivity traps, and encouraging the participation of women, low-skilled workers, older workers, people with disabilities and those furthest from the labour market in employment. Whilst preserving an adequate level of social protection, they will in particular review replacement rates and benefit duration; ensure effective benefit management, notably with respect to the link with effective job search, including access to activation measures to support employability, taking into account individual situations; consider the provision of in work benefits, where appropriate; and work with a view to eliminating inactivity traps. In particular, policies will aim at achieving by 2010 a significant reduction in high marginal effective tax rates and, where appropriate, in the tax burden on low paid workers, reflecting national circumstances”.

In this context, “social partners at national level should be invited to ensure the effective implementation of the guidelines and to report on their most significant contributions in all areas under their responsibility, in particular concerning the management of change and adaptability, synergy between flexibility and security, human capital development, gender equality, making work pay and active ageing as well as health and safety at work”.

Against the backdrop of these guidelines and policy recommendations, this chapter presents evidence on relative wage structures and the extent of wage differentiation across sectors, firms and regions in Europe. It explores, the link between wages and productivity, taking into account the various institutional settings in Member States and accession countries⁴⁹, and evidence on the main wage determinants, both at individual and sectoral level, is provided. A particular focus is given

to an analysis of wage effects of employment protection and employment risks.

As a starting point, section 2 briefly reviews some key features of the wage formation systems in the EU and the acceding and accession countries.⁴⁹ Section 3 provides a descriptive portrait of relative wage structures and wage differentiation across sectors, firms and regions in Europe.

Section 4 then turns to an analysis of the link between wages and productivity at the sectoral level. It also examines the relative importance for wages of institutional variables, and employment protection legislation in particular. Furthermore, recent wage and productivity developments are discussed.

After a brief review of wage distributions and the extent of low wage earners in the EU section 5 presents empirical results on the main wage determinants, based on individual-level wage regressions. It also examines variations in wage determinants across the wage distribution. The section compares wage determinants and wage profiles across EU Member States with particular attention to: returns to education and training; age-earnings profiles and seniority wages; wage effects of career interruptions; wage effects of working time arrangements and contract type; the compensation of earnings and employment risks; and wage effects of local labour market conditions.

Wage formation in Europe: key features and institutions

The key elements of national wage formation systems in the EU Member States and the accession countries include: co-ordination, coverage and extension of collective bargaining agreements regarding pay, working time and other working conditions; minimum wages and low pay regulation; firms’ compensation policies and variable pay schemes; tax/benefit systems and making work pay; and employment protection legislation.⁵⁰

Co-ordination and coverage of collective bargaining

Wage formation systems are to a large extent systems of collective bargaining, involving social partners and individual employers and employees. The design and functioning of such systems of collective bargaining vary

⁴⁸ European Council (2003), Council Decision on guidelines for the employment policies of the Member States, Common guidelines, 10567/03, 22.07.2003

⁴⁹ For the sake of simplicity these are referred to from now on as the „accession countries“.

⁵⁰ Although the latter are not directly part of wage formation, they will be reviewed in brief since their impact on labour supply decisions, wages and wage structures will be analysed in this chapter. Most of the listed elements are also treated in detail in other reports on which this section draws heavily, including the bi-annual Industrial Relations in Europe report and the various reports by the European Industrial Relations Observatory (EIRO).

considerably across countries, both within the current EU and between EU Member States and accession countries. Main differences concern the degree of centralisation and the co-ordination of bargaining at various levels, including the national (or inter-sectoral), sectoral and company level.⁵¹ There are also important differences across countries in the coverage rates of collective bargaining, not least because of differences in provisions for extending these agreements to other firms or sectors. The frequency of wage bargaining also varies, normally between annual and multi-annual bargaining. Finally, countries differ considerably in the evolution of bargaining structures over time (see table 27).

Most EU Member States have a mixed, multi-level wage bargaining structure, with centralised bargaining at the national, sectoral or regional level in the first stage and subsequent bargaining at the company level. In three EU Member States – Belgium, Ireland and Finland – wage formation is highly centralised, with the inter-sectoral level being the dominant bargaining level. In the majority of Member States – Austria, Germany, Greece, Italy, the Netherlands, Portugal, Spain and Sweden – wage bargaining takes place primarily at the sectoral level. In Denmark and Luxembourg, the sectoral level is one of the bargaining levels, but not the only one. In the UK, and to a lesser extent in France and Luxembourg, the company level is the dominant bargaining level. Single level wage bargaining is prevalent only in the UK.⁵²

Over the past decade the trend in most EU Member States has been towards more decentralisation of wage determination. This tendency has been observed, for example, in Belgium, Austria, Germany, the UK and the Nordic EU Member States.⁵³ Wages are increasingly set at local or company levels, and variable pay schemes – including performance related pay and bonuses – have recent-

ly become more important. Particular strong examples of this trend are Italy and Denmark. In the former, although national agreements on contractual earnings have only been allowed to negotiate within targeted inflation rates, negotiations at the company level have more than made up for this gap, giving rise to average earnings increases well above inflation. In Denmark there has been a move away from centralised wage negotiations to a decentralised and individualised system where collective bargaining only provides a minimum guaranteed earnings level.

In some other countries, however, a trend towards increasing degrees of centralisation could be observed, notably in Ireland. In others, the trend towards decentralisation has been halted by macroeconomic requirements. In Finland and Belgium, for example, in the 1990s there was a marked shift back towards more centralised and indeed national level wage negotiations related to the perceived need to control overall wage increases. This shift was to some extent the consequence of an increased focus on the effects of wage formation on competitiveness, taking into account country interdependencies notably within the euro zone. In this context, trade unions from several EU Member States (Germany, France, Belgium, the Netherlands and Luxembourg) launched the so-called “Doorn initiative” which – through information exchange and peer pressure – aims at avoiding competition between different national collective bargaining systems. To this aim, the initiative has launched a “wage co-ordination formula” which defines the room for nominal wage increases, the so-called “distributive margin”, as the sum of (expected) inflation and productivity growth.⁵⁴

Despite the general trend towards more decentralisation in wage bargaining in the EU Member States, the collective bargaining structure in the EU is, according to EIRO,

comparatively more centralised than in the accession countries. In all except Slovenia, Slovakia and Cyprus, the company level is the dominant level of wage bargaining. Multi-level, inter-sectoral bargaining does not exist in any country except Slovenia – the only accession country with a highly centralised bargaining structure – and, to a lesser extent, Hungary and Latvia. Sectoral bargaining dominates only in Slovakia and Cyprus and is also important in Slovenia, Hungary and the Czech Republic.

Coverage rates and provisions for extensions of collective agreements

Provisions for extending collectively agreed bargaining results to other firms, sectors or regions are quite common in most EU Member States as well as in the accession countries. With the exception of Sweden and the UK, all countries foresee an extension of collective bargaining agreements. In most countries, collective agreements are binding not just on the bargaining parties but also on all employees and employers within the particular sector or region concerned. In some countries, including Austria, Germany, Ireland, Italy and Slovenia, legal provisions on public procurement further require contractors to comply with the terms of any relevant collective agreements. In Italy, collectively agreed, minimum wages are also used by courts as a point of reference when assessing whether wages conform with constitutional requirements for fair pay. In Austria and Slovenia, membership of the bargaining organisation is compulsory for employers.

In contrast to most accession countries, the formal coverage of collective bargaining systems remains high in the majority of EU countries (chart 50). In the EU countries,

⁵¹ There are also recent examples of some ‘bargaining’ between social partners at EU-level in the form of agreements on issues such as parental leave, part-time work, fixed-term work and telework. The agreements on parental leave, part-time work and fixed-term work are implemented in the form of a EU directive, while that on telework is being implemented through collective agreements and other national practices. Since concrete pay and working conditions are not subject to collective agreement at European level, this chapter will not cover EU-level collective bargaining. See European Commission (2002), *Industrial Relations in Europe 2002*, DG Employment and Social Affairs, for more information on this issue.

⁵² Independent of the degree of centralisation of wage bargaining, however, issues other than pay, such as working time and working conditions, are negotiated at company level in many countries.

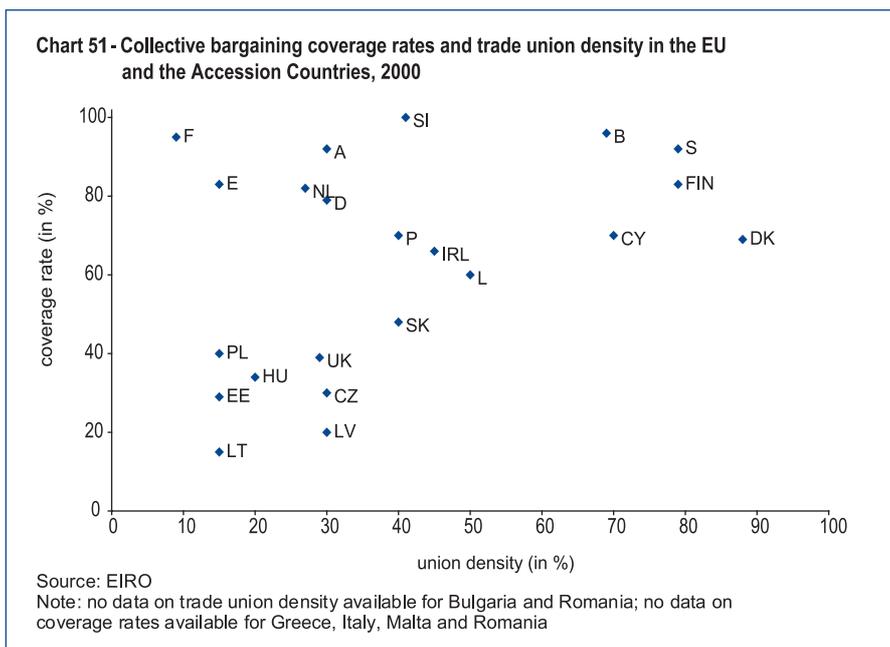
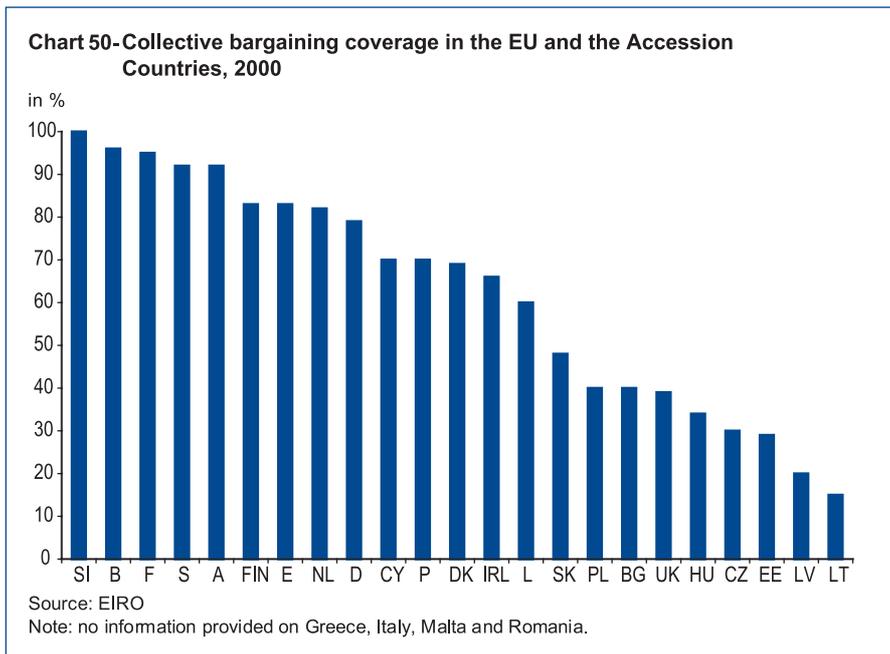
⁵³ See e.g. Boeri et al. (eds) (2001), *The role of trade unions in the twenty-first century*, Oxford University Press.

⁵⁴ See also European Commission (2003), *Wage formation and European integration*, by Torbern M. Andersen, DG Economic and Financial Affairs, Economic Paper No. 188, for an evaluation of these types of initiatives: „While the current status of these initiatives is open to discussion, they are interesting in the sense that they reflect the recognition of increased interdependencies in wage formation. While transnational wage bargaining at present is an unlikely response, the initiatives are a way of trying to minimise the possible externalities involved in wage setting.“

and employees that are not members of the relevant signatory organisations (France, Germany, Austria, Netherlands) or by means of inter-sectoral agreements (Slovenia, Belgium, Finland and Ireland).

Coverage rates are considerably lower, on the other hand, in Luxembourg and the UK as well as in most accession countries. In Luxembourg, the coverage rate amounts to 60%, and small firms in the service sectors particularly are not covered by collective bargaining. In the UK, coverage rates have fallen to levels below 40%. Similarly, collective bargaining coverage rates have been declining in all accession countries except Slovenia in the recent past. Many of the accession countries, including Poland, Hungary, the Czech Republic and the Baltic States, today have coverage rates similar to - or below - those of the UK.

In parallel to the decline in collective bargaining coverage rates, the trade union density – the share of unionised workers in total employment – has also been decreasing over the last decade. This is most noticeable in many of the accession countries since the practice of compulsory union membership was abolished. Current trade union density rates vary between around 80% or more in the three Nordic Member States to 20% or less in Hungary, Lithuania, Poland, Spain, Estonia and France. Despite the simultaneous decline in union density and coverage rates, however, there is not necessarily a clear relationship between the two (chart 51). Three groups of countries can be distinguished: first, countries with both comparatively high trade union density and high coverage rates (Belgium, Cyprus and the three Nordic EU Member States); second, countries with comparatively low trade union density rates, but high collective bargaining coverage (France, Spain, Austria, Germany, the Netherlands and Slovenia as well as, although with more intermediate trade union and coverage rates, Portugal, Ireland and Luxembourg); and third countries with both low trade union density and low bargaining coverage rates (the UK, Poland, Hungary, the Czech Republic, Slovakia and the three Baltic States).



systems of national and or sectoral / occupational bargaining, coupled with the extension of agreements to non-signatories, ensure that the overwhelming majority of employees are covered by collective bargaining agreements. Again, though, national systems differ widely in terms of levels, content and nature of bargaining.

Coverage rates of collective bargaining – i.e. the proportion of workers that have their pay

and working conditions set, at least to some extent, by collective agreements - are highest in Slovenia, Belgium, France, Sweden, Austria, Finland, Spain, the Netherlands, Germany, Cyprus, Portugal, Denmark and Ireland. In all these countries two thirds or more of the employed are covered by collective bargaining agreements. Most have a system of collective agreements at the sectoral or inter-sectoral level. In some cases, collective agreements at the sectoral level are extended to employers

Table 27 – Summary characteristics of national wage formation systems in EU Member States and accession countries

	Trade union density 2000	Collective bargaining coverage 2000	Predominant duration of agreements	Bargaining level	Bargaining co-ordination	Extension practice	Low pay regulation mechanism
B	69	96	2 years	national*** sectoral** company*	medium	high	National minimum wage
DK	88	69	4 years	national** sectoral** company*	strong	none	Collective agreements
D	30	79	2 years	sectoral*** company*	medium - strong	moderate	Collective agreements
EL	33		2 years	national* sectoral*** company*	medium - strong	high	National minimum wage
E	15	83	3 years	sectoral*** company*	medium - weak	high	National minimum wage
F	9	95	1 year	sectoral* company***	medium	high	National minimum wage
IRL	45	66	2 years	national*** sectoral* company*	medium - strong	high	National minimum wage
I	35		varying	sectoral*** company*	medium	high	Collective agreements
L	50	60	varying	sectoral** company**	medium	high	National minimum wage
NL	27	82	varying	sectoral*** company*	medium	moderate	National minimum wage
A	30	92	1 year	sectoral*** company*	medium	high	Collective agreements
P	40	70	1 year	sectoral** company*	strong	high	National minimum wage
FIN	79	83	2 years	national*** sectoral* company*	medium - strong	moderate	Collective agreements
S	79	92	3 years	sectoral*** company*	Strong	none	Collective agreements
UK	29	39	varying	sectoral* company***	weak	none	National minimum wage
BG		40					National minimum wage
CY	70	65-70		sectoral** company*			Collective agreements
CZ	30	25-30		sectoral* company***	weak	moderate	National minimum wage
EE	15	29		sectoral* company***			National minimum wage
HU	20	34		national* sectoral** company***			National minimum wage
LT	15	10-15		sectoral* company***			National minimum wage
LV	30	< 20		national* sectoral* company***			National minimum wage
MT	65			company***			National minimum wage
PL	15	40		sectoral* company***			National minimum wage
RO							National minimum wage
SI	41	100		sectoral** company*			National minimum wage
SK	40	48		sectoral*** company**			National minimum wage

Source: Commission Services, EIRO

Notes: Trade union density for Portugal refers to 1998, for Germany and Italy to 1999; collective bargaining coverage for Ireland and Luxembourg based on estimates from national experts; with respect to the bargaining level, *** indicates the dominant form, ** other important forms, and* present but not very important forms of bargaining.

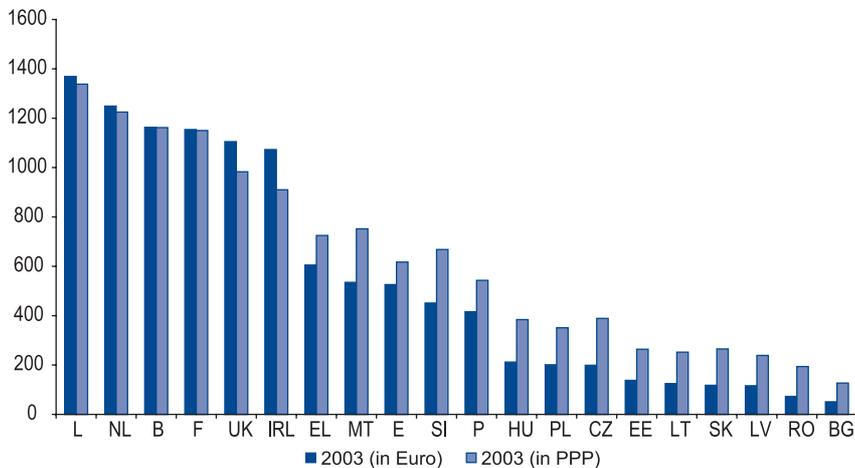
Minimum wages and low pay regulation

Nine EU Member States and almost all of the accession countries (except Cyprus) foresee a minimum wage. While France, the Benelux countries, Spain, Portugal and Greece have a long tradition of protecting pay at the bottom of the labour market, Ireland and the UK only introduced national minimum wage systems in the late 1990s. In the remaining six EU Member States – Germany, Austria, Italy and the three Nordic Member States – as well as in Cyprus, collective agreements are the main mechanism used for regulating low pay (table 27).

Minimum monthly wages are set at 1,000 euro or more in the Benelux countries, France, the UK and Ireland; between 400 and 600 euro in the three southern Member States as well as in Malta and Slovenia; and between 50 and 200 euro in the remaining accession countries. Corrected for purchasing power parities (see section 3 below), they are between 1,100 and 1,300 euro in the Benelux countries and France; between 900 and 1,000 euro in the UK and Ireland; between 550 and 750 in the current southern EU Member States, Malta and Slovenia; between 300 and 400 euro in Hungary, Poland and the Czech Republic; and around 200 euro in the remaining accession countries (chart 52).

Minimum wages range from 60% of the overall full-time median wage in France to 32% in Spain, equivalent to, between 47% and 33% of average wages. The countries appear to divide into three groups; those that set relatively low minima – at or below 40% of the median wage – namely Spain, Portugal and the UK; those that set minimum wages at around 50% of median earnings – the Netherlands, Belgium, Luxembourg and Greece – and those setting relatively high minimum earnings – up to 60%, namely Ireland and France. Minimum wages are between 40%-50% of average wages in France, the Benelux countries and Ireland, but only 30%-40% in the three southern Member States with minimum wages (Greece, Portugal and Spain) and the UK. In the accession countries, minimum wages vary between 25% and 40% of average wages.

Chart 52- Minimum wages in the European Union and the Accession Countries



Source: Eurostat, SES, based on National Statistical Institutes
 Note: the minimum monthly wages are calculated on an annual basis (thus including the 13th and 14th month payments where applicable).

The evolution of absolute and relative minimum wages has been different in the EU Member States and accession countries. In five out of the seven EU Member States that have minimum wages, the relative value of the minimum wage has declined throughout the 1990s, most notably in Spain and Greece. Spain in particular started the decade with the lowest relative value of the minimum wage and saw a decline in both real and relative values over the decade. Only France and Luxembourg maintained or improved the relative value of the minimum wage.

It is more difficult to establish what has been happening to the relative level of minimum wages set under collective bargaining systems. In the 1990s in Italy contractual minima set by national collective bargaining declined in real terms between 1993-96 and rose only slightly in real terms between 1996 and 2001. However, in both periods contractual earnings levels declined relative to actual earnings. In the three Nordic countries there has also been a move towards more wage dispersion but this has been from a position of relatively high minimum pay levels. In Finland there has even been a rise in the relative value of minimum pay levels due to 'equality supplements' paid at a

time of severe wage restraint imposed by the government in the early 1990s. In Germany and particularly in Austria, there has been no such commitment to a higher common floor to minimum pay levels and the minima set by the collective agreements vary markedly across sectors and occupations, with female dominated segments the least likely to have high minima. In Austria minimum pay levels rose in relative terms in the 1980s but fell in the 1990s, reflecting a change in trade union policy. Similarly, in Germany an emphasis on lower minimum pay levels has been driven by the agenda of job creation.

There are also clear differences in the extent to which either minimum wages or collective bargaining has established a common floor to the labour market. In France and Luxembourg, for example, the minimum wage affects the relatively high share of 13% of the employed (nearly 20% of women and 10% of men), and in Portugal some 6% of the employed (around 5% of men and 10% of women) are covered. In other countries such as Spain, the Netherlands and the UK, the minimum wage does not affect many workers at all. Among those Member States setting minimum wages by collective bargaining, the wage floor remains relatively high in the Nor-

dic countries while in Austria and Germany in particular there is a very wide range of minimum wage levels set by collective bargaining. In fact - along with Denmark, the UK and Ireland - Germany and Austria are among the EU Member States with the highest share of low wage earners among the low-skilled.⁵⁵

Compensation policies and variable pay

While wage bargaining and low pay regulation remain the central elements of collective bargaining, there are various other issues which are relevant in the context of wage formation and which are sometimes subject to collective bargaining. These include working hours, working conditions, training and apprenticeship issues and the overall level of employment. Collective bargaining also plays a role in determining compensation policies and variable pay schemes at sectoral or company level. This issue is reviewed in brief below, while issues related to working time, working conditions and quality in work are discussed in more detail in chapter 4.

In the context of the recent trend towards more decentralised bargaining structures, variable pay schemes, such as profit sharing or performance-related pay, are increasingly used to complement, or as an additional feature of, government pay policies and wage bargaining between social partners.⁵⁶

Bargaining over variable pay may occur at national, sectoral and company level. While covered by national pay agreements or collective agreements in Ireland, Austria and the Nordic EU Member States, in most countries it takes place predominantly at the company level. In the particular case of Germany, variable pay schemes are more often governed by works agreements (between management and works councils) than by collective agreements (signed by trade unions). In a substantial number of companies variable pay is determined neither by collective nor works agreement, but by other forms of accord such as individual or group agreements or unilateral management declarations.

⁵⁵ See section 4 on wage distributions and low wage earners below.

⁵⁶ For a definition and more evidence of variable pay schemes, see the report EIRO (2001), Variable pay in Europe, Dublin, on which this section draws substantially.

Across all countries, variable pay schemes have gained importance and, in line with various policy initiatives at the European level,⁵⁷ performance-related systems of wage determination have been increasingly promoted since the 1990s, providing more scope for managerial discretion, higher pay rises for the higher-skilled and for pay variations between companies and sectors for similar categories of labour. Both the extent to which such changes have taken place and the incidence of new variable pay schemes vary between Member States.

While some form of variable pay exists in a number of EU Member States, there are large

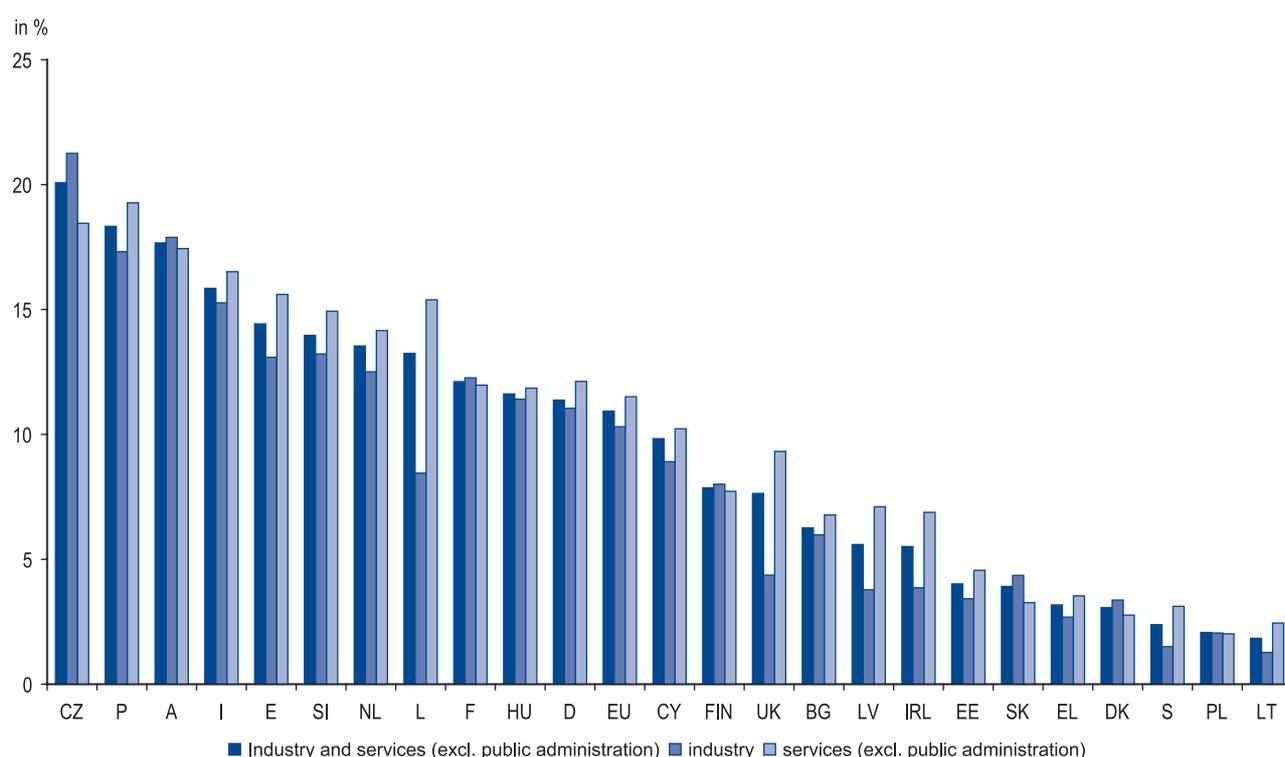
variations in the incidence and form of variable pay schemes across countries. While in Germany, for example, many sectoral agreements have opening clauses which allow downward pay variations under unfavourable economic conditions, some countries such as France and Austria foresee quasi-compulsory profit sharing components in pay.

In France, profit sharing (participation) is a statutory requirement for companies with a workforce of over 50 employees. Under this mechanism companies set aside at least a statutorily defined percentage of their profits for distribution to their employees. Voluntary profit sharing (intéressement), although not

a statutory requirement, further ties a percentage of workers' pay to company performance in the form of profits or productivity, for example.

In Austria, the so-called "distribution option" (Verteilungsoption) splits pay increases into two components: a general percentage increase in actual pay to be applied to all employees; and a percentage increase which can be distributed flexibly among a company's employees on the basis of an agreement between the management and the works council. The decision as to whether to apply a standard option of a flat-rate percentage pay increase, or to use the distribution option, is

Chart 53- Share of bonuses in total direct remuneration in the EU and the Accession Countries, 2000



Source: Eurostat, LCS

Notes: no data for Belgium, Malta and Romania available; bonuses include profit sharing and other incentive payments, but exclude payments relating to overtime hours (see annex 3.1 for a detailed definition of the underlying concepts such as "bonuses").

⁵⁷ In 1991, the European Commission published its so-called PEPPER I report on the Promotion of Participation by Employed Persons in Profits and Enterprise Results (PEPPER). The Council of Ministers subsequently adopted a recommendation on the subject in July 1992 (92/443/EEC), inviting Member States "to acknowledge the benefits of a wider use of schemes to increase the participation of employees in profits and enterprise results by means of profit-sharing, employee share-ownership and a combination of both". The European Commission's PEPPER II report (COM(96) 697 final), published in 1996, concluded that there was more diversity than unity in the use of financial participation schemes across the EU. Further empirical research on the application of the different schemes was presented in a report in 2001 by Erik Poutsma for the European Foundation for the Improvement of Living and Working Conditions on Recent trends in employee financial participation in the European Union. The Social Policy Agenda (2000-2005) identified financial participation as an important means of promoting social dialogue and employee involvement. As a response, the European Commission in 2002 published a Communication on a Framework for the promotion of employee financial participation (COM(2002) 364 final) which sets out a framework for action at Community level to promote a greater use of employee financial participation schemes across Europe and to address transitional obstacles which currently impede the introduction of European-wide financial participation schemes.

left to the individual company. Under the distribution option, the flexible component may be used to reward specific groups of staff. While it may be applied to low income groups, it could also be applied to high-performing groups, thus meeting the definition of variable pay.

Overall, bonuses alone - including profit-sharing and other incentive payments, but excluding payments relating to overtime hours - account for some 11% of total remuneration on average, ranging from more than 15% in the Czech Republic, Portugal, Austria and Italy, to less than 5% in Denmark, Greece, Poland and the Baltic States (chart 53). Bonuses are generally more common in certain sectors and occupations, notably in “new economy” sectors and financial intermediation, in larger firms and among professionals and employees in supervisory positions. In Germany and Italy in particular, there is also a strong regional discrepancy in the provision of variable pay schemes, with them being

more common in the west of Germany than in the east, and in northern Italy rather than in the south.

Non-wage labour costs, tax rates and employment protection

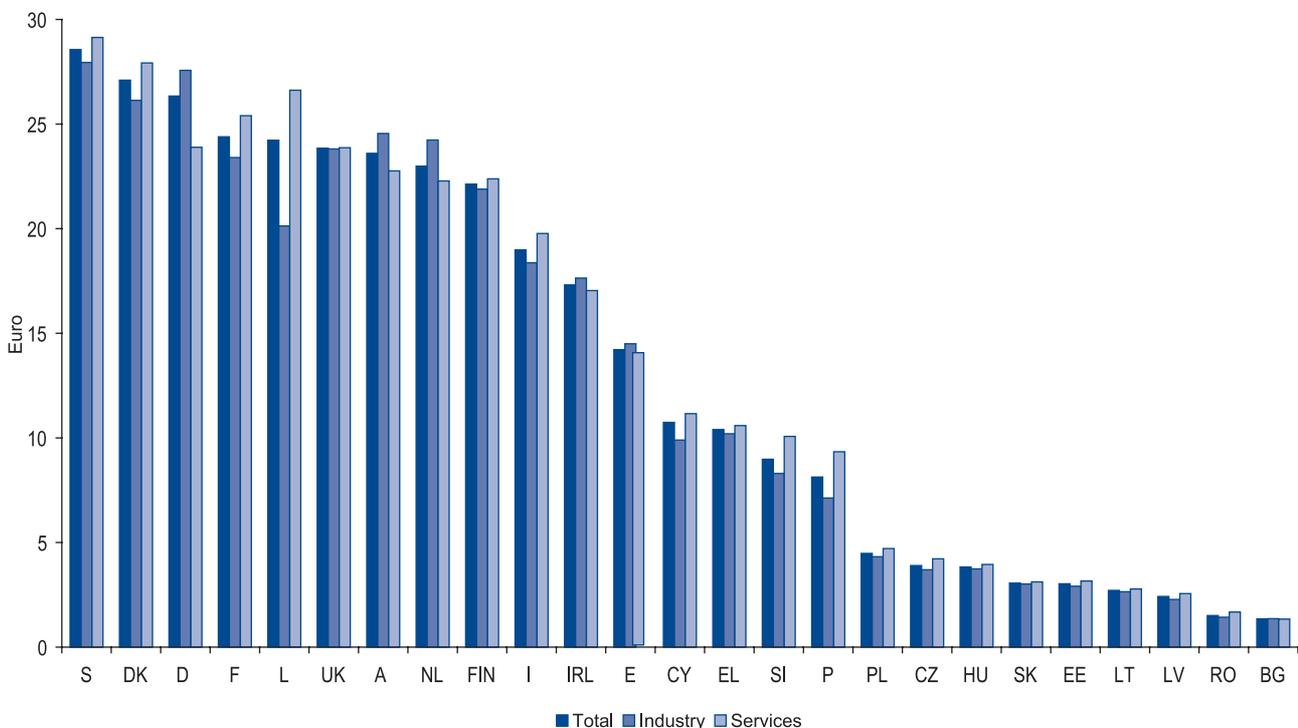
In combination with the above key elements of wage formation systems in Europe, various other institutional settings are important to understand wage formation processes. With a view to the empirical analysis on wage determinants presented later in this chapter, three of these institutional variables are briefly summarised here: non-wage labour costs; tax rates, in particular on labour; and provisions for employment protection. All are important determinants of both labour demand and supply decisions and wage formation in Europe.

Non-wage labour costs

Non-wage labour costs, including employers’ actual and imputed social contributions, so-called unfunded employee social benefits and any taxes payable by the employer on the wage and salary bill, are a crucial determinant of labour demand decisions by firms. While wages and salaries clearly make up for the biggest part, non-wage labour costs also contribute to explaining variations in total labour costs across countries and sectors (chart 54). Expressed as a share of total labour costs, non-wage labour costs exceed 30% of total labour costs in Sweden, Romania, Hungary, France and Italy, while constituting less than 15% of total labour costs in Ireland and Denmark, and between 15% and 20% in Cyprus, Luxembourg, the UK and Slovenia (chart 55).

In this context, it is interesting to note that the two countries with the highest gross

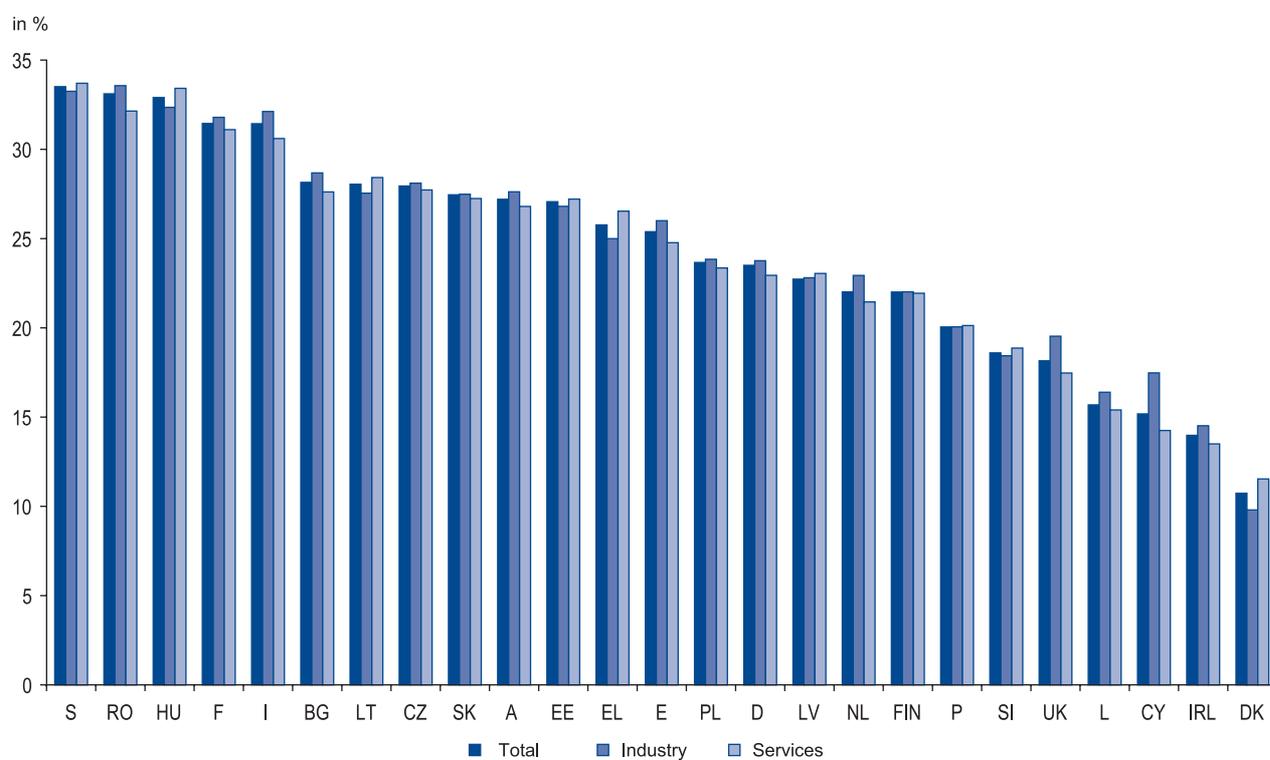
Chart 54- Total labour costs per employee per hour in industry and services, 2000



Source: Eurostat, LCS

Notes: Labour costs include wages and salaries and non-wage labour costs, i.e. employers’ actual and imputed social contributions, unfunded employee social benefits and any taxes payable by the employer on the wage and salary bill (see annex 3.1 for a detailed definition of the underlying concepts such as “wages and salaries” and “non-wage labour costs”).

Chart 55- Share of non-wage labour costs in industry and services, 2000



Source: Eurostat, LCS

Notes: non-wage labour costs include employers' actual and imputed social contributions, unfunded employee social benefits and any taxes payable by the employer on the wage and salary bill, while bonus payments, annual supplementary pay, holiday pay, payments made by employers to their employees under saving schemes and exceptional payments to employees who leave the enterprise are part of the wage (see annex 3.1 for a detailed definition of the underlying concepts such as "wages and salaries" and "non-wage labour costs").

hourly labour costs in Europe – Sweden and Denmark – are the countries with the highest and lowest share of non-wage labour costs, respectively. While this is related to the financing of the social security system, which in Denmark is mainly financed out of general taxation and not via social contributions, the differences in the share of non-wage labour costs in total labour costs, together with differences in the tax burden on labour, will have to be borne in mind when interpreting the results on differences in wages and salaries presented below.

Within countries, there is furthermore an important variation in the share of non-wage labour costs by sectors. The share of

non-wage labour costs in industry exceeds the average considerably, in the Netherlands, Luxembourg, the UK and Cyprus for example, while remaining notably below average in Denmark. In services, this share is found to be highest relative to the average in Denmark and Greece, while considerably below average in Italy, Spain, the Netherlands, Luxembourg, Ireland and, most notably, in the UK and Cyprus.

At a more disaggregate level, in Denmark sector-specific shares range from around 7% of total labour costs in predominantly low-skilled, low-productivity service sectors such as "Hotels and restaurants" and "Renting of machinery and equipment" to more than

20% in "Financial intermediation, insurance and pension funding". Similarly, in Cyprus non-wage labour costs vary from around 10% of total labour costs in "Education", "Land and water transport" and "Hotels and restaurants" to up to 30% in "Post and telecommunications" and "Electricity, gas and water supply".

Tax burden on labour

The implicit tax rate on labour has been steadily rising since the early 1970s in most Member States, while that on capital and business income has been decreasing.⁵⁸ Since the mid-1990s, however, a number of Member States have implemented measures to lower

⁵⁸ Implicit tax rates are defined for each economic function (labour, capital, consumption). They are computed as the ratio of total tax revenues of each of these categories to a proxy of the potential tax base defined using the production and income accounts of the national accounts. The implicit tax rate on labour, in particular, is defined as the ratio of direct and indirect taxes and actual social contributions on employed labour income to the compensation of employees plus payroll taxes. It is calculated for employed labour only, excluding the tax burden on social transfers and pensions. It measures the effective average tax burden on labour (incl. social contributions) with national account data. For further information and the relevant definitions, see European Commission (2005), "Structures of taxation systems in the European Union", DG TAXUD and Eurostat. See also *Employment in Europe (2000)*, chapter 5 "Taxes, benefits and employment", and the Joint Employment Report 2002.

the tax burden on labour income. It now appears that this general trend towards an increasing tax burden on labour has stabilised or reversed slightly for most Member States.

This notwithstanding, the average effective tax burden on labour in the EU still remains relatively high by international standards.⁵⁹ By the year 2001, labour income appears to be most heavily taxed in Sweden, Finland, Belgium, France, Italy and Denmark, with average implicit tax rates well above 40% of the total wage bill in the economy (social contributions included). On the other hand, Spain, Ireland and the United Kingdom stand out with average implicit tax rates below 30% of the total wage bill.

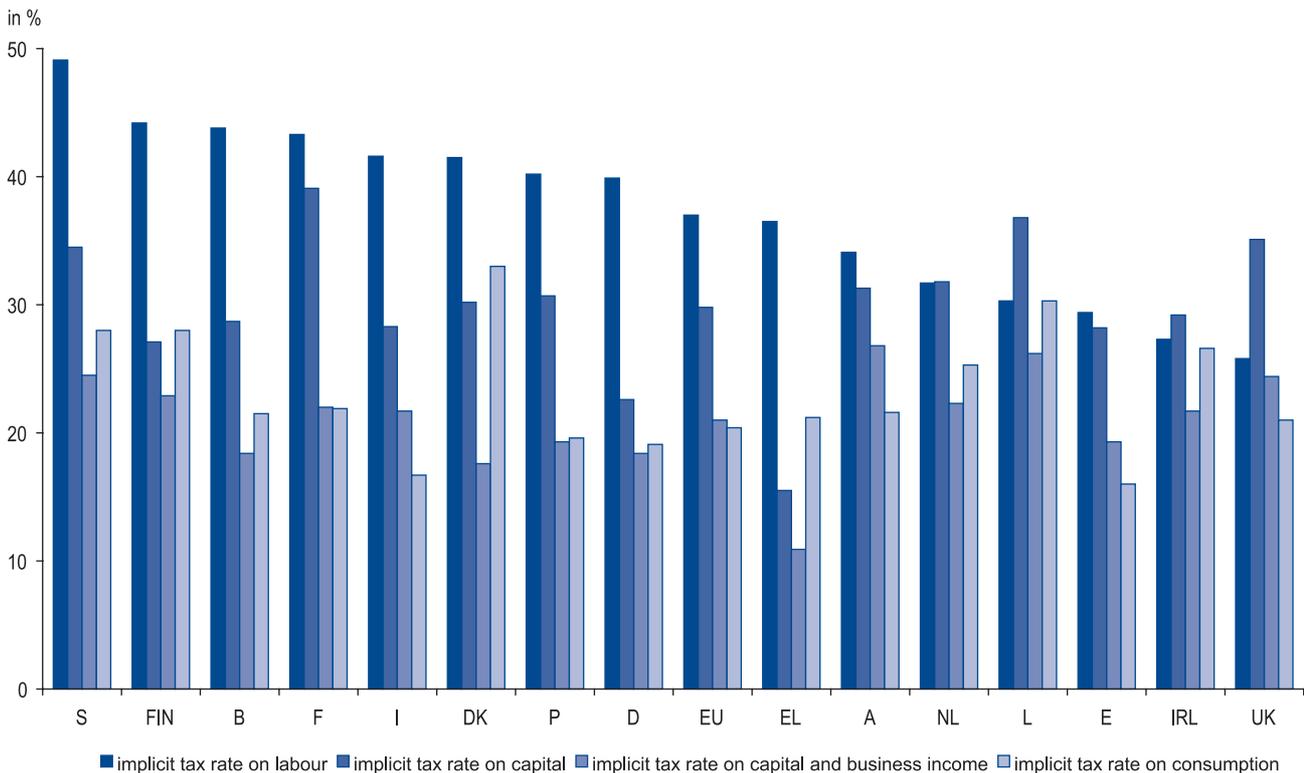
Important differences between countries remain in the relative taxation of labour, capital, capital income and consumption (chart 56). In Germany, Italy and Belgium, for example, above average (implicit) tax rates on labour contrast with below average (implicit) tax rates on capital and, in the case of Germany and Italy, also on consumption. On the other hand, in Ireland, Luxembourg, the Netherlands and the UK, the (implicit) tax rates on labour are below the EU average, while those on capital or consumption are above the EU average.

In the majority of the Member States, the implicit tax rate on labour largely reflects the important role played by wage-based contributions in financing the social security system (chart 57). On average, somewhat

more than 60% of the implicit tax rate on labour consists of social contributions paid by employees and employers. Only in Denmark, Ireland and the United Kingdom, do personal income taxes constitute more than half of the total charges paid on labour income.

The tax burden on labour is a crucial determinant of labour supply decisions, notably for low-income earners, people starting their working career and members of single earner households with children. The tax wedge – defined as the share of total income tax and employer and employee social security contributions in gross wage earnings – ranges from more than 45% in Belgium, Germany and Sweden to less than 20% in Malta, Cyprus and Ireland for low-income earners. Belgium and Sweden, together with France, also have the

Chart 56- Implicit tax rates on labour, capital, capital income and consumption in the EU, 2001



Source: Commission Services

Notes: implicit tax rates on capital refer to: 2000 for Sweden, 1999 for Portugal; for definition, see box 4.3 and explanatory notes in: European Commission (2003), Structures of taxation systems in the European Union, DG TAXUD and Eurostat.

⁵⁹ It should be recognised, however, that the evolution of the implicit tax rate on labour refers to an ex-post trend without disentangling cyclical, structural and policy elements. In some Member States, for example, the development of the implicit tax rate on labour seems to be clearly influenced by the economic upswing in the late 1990s. More generally, the relationship of the implicit tax rates to the respective European average also depends on the overall level of taxes and social contributions in the different Member States. The implicit tax rate on capital (and capital and business income) is furthermore sensitive to the business cycle and witnessed an increasing trend in the expansionary phase up to 2000. The comparability between countries is affected by the fact that 2001 was the turning point in economic performance in some (but not all) countries. For further information and the relevant methodological caveats, see European Commission (2003), "Structures of taxation systems in the European Union", DG TAXUD and Eurostat.

highest marginal tax rates in the EU on single earner families with children. At the other end, Luxembourg, the UK and Ireland have a relatively low tax wedge which, at under 20%, is below that of the US (chart 58).

Employment protection

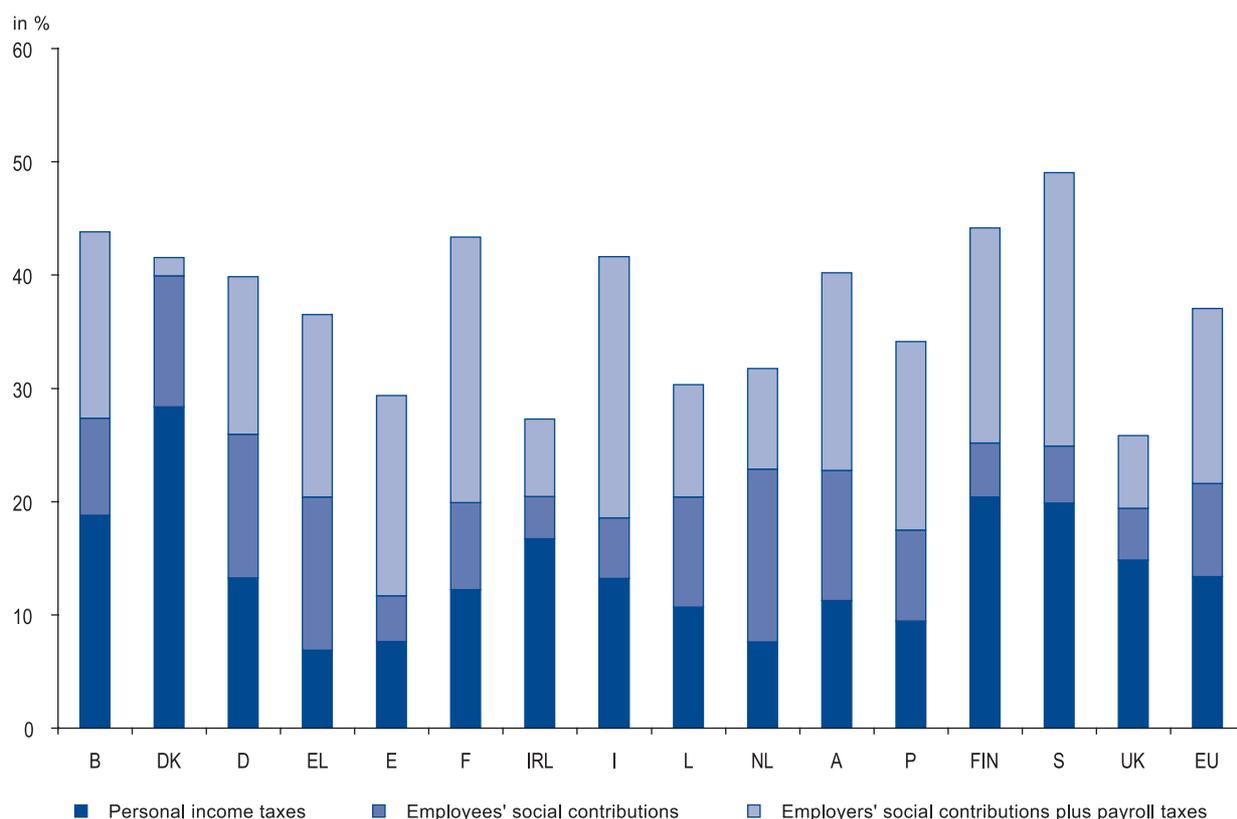
Provisions for employment protection also vary considerably across countries in Europe. Standard - but controversial - measures of the strictness of employment protection are the related OECD indicators, both of overall strictness of employment protection and of

particular provisions for regular employment, temporary employment and collective dismissals. These indicators translate into values ranging from 0 where there is no employment protection and 5 for strict employment protection.⁶⁰

According to these indicators, overall employment protection throughout the 1990s was comparatively strict in France and the southern EU Member States, but relaxed in Ireland, Denmark and most of the accession countries. In most countries, except Belgium, France and the southern EU Member States, employment protection is relatively less strict with regard

to temporary employment. This applies notably to Ireland, the UK and Denmark, all countries where temporary employment, according to the relevant OECD indicator, is less regulated than in the US. On the other hand, collective dismissals are in general considered more regulated than individual dismissals, with the notable exception of France. In the latter as well as in Ireland, Finland and the Netherlands, collective dismissals are less regulated than in the US, while in all other EU Member States as well as in most accession countries, it is relatively more difficult to achieve collective dismissals (table 28).

Chart 57- Decomposition of the implicit tax rate on labour, 2001



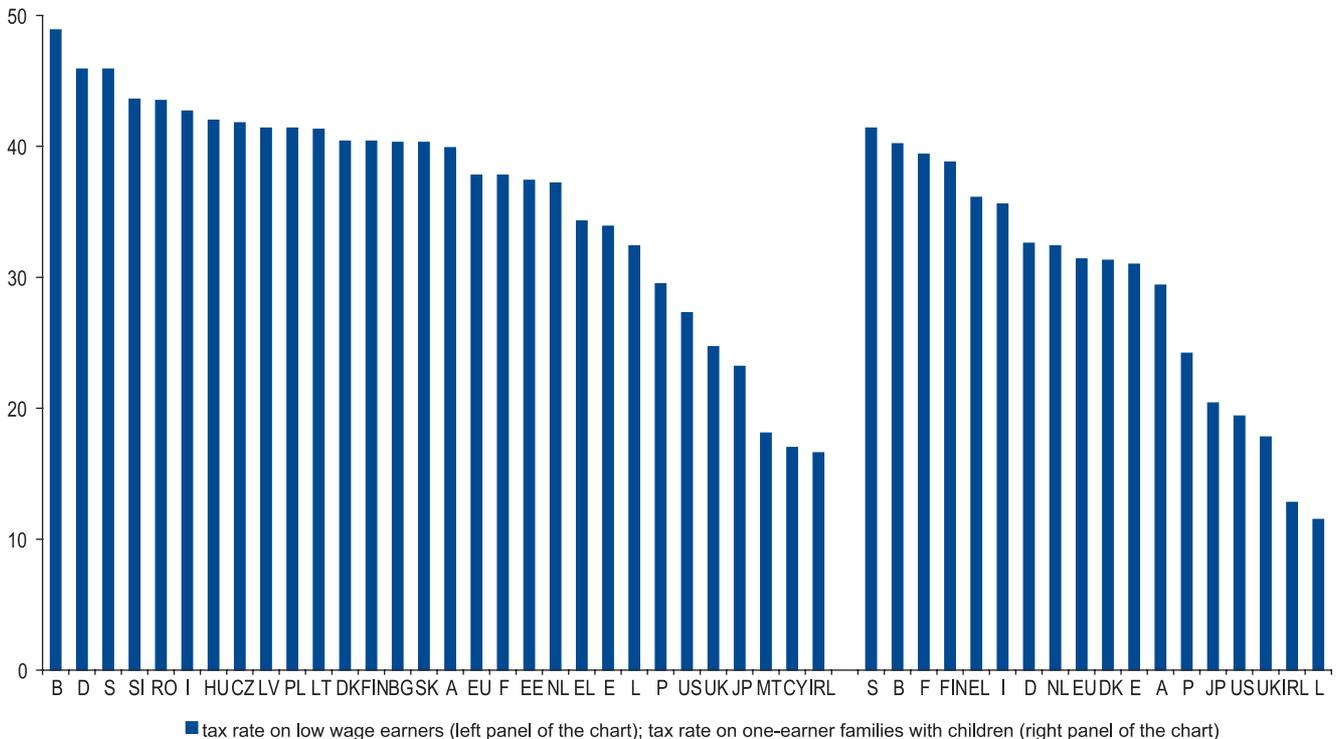
Source: Commission Services

Notes: implicit tax rates on capital refer to: 2000 for Sweden, 1999 for Portugal; for definition, see explanatory notes in: European Commission (2003), Structures of taxation systems in the European Union, DG TAXUD and Eurostat.

⁶⁰ For a definition of the OECD indicators, see OECD (1999), Employment Outlook 1999, chapter 2, Employment protection and labour market performance, Paris; and Nicoletti et al. (2000), Summary indicators of product market regulation with an extension to employment protection legislation, Economics Department Working Papers No. 226, OECD, Paris.

It should be noted, however, that alternative indicators and concepts for the measurement of labour market flexibility, security and adaptability have been developed. These include in particular the concepts of "flexicurity" and "adaptability". See e.g. Boeri et al. (2001), Adaptability of labour markets: a tentative definition and a synthetic indicator, Fondazione Rodolfo Benedetti, contribution to a study commissioned by the European Commission, DG Employment and Social Affairs, on the construction of an index of labour market adaptability for EU Member States: "To date, most of the theoretical and empirical efforts have been devoted to the analysis of flexibility, which in the international policy debate is often referred to in terms of a country's Employment Protection Legislation (EPL). Yet, (...) there are a number of reasons why the notion of adaptability can be more meaningful and useful than flexibility in assessing labour market performance." See also Bertola et al. (1999), Employment protection and labour market adjustment in some OECD countries: evolving institutions and variable enforcement, Employment and training papers No. 48, ILO.

Chart 58- Tax burden on labour in the EU and the Accession Countries, 2002



Source: Eurostat

Notes: total income tax on gross wage earnings, plus employer and employee social security contribution as % of labour costs for low wage earners and one earner families with children, respectively, with low wage earners being defined as single persons without children with a wage of 67% of the average production worker's wage (APL); tax rates on low wage earners for Cyprus, Estonia, Romania and Slovenia; tax rates on one earner families with children are available for EU Member States only and refer to 2001.

Non-wage labour costs and tax rates as well as employment protection are likely to affect labour demand by firms and labour supply by individuals - without necessarily having a direct effect on wage levels. The direction of these effects, however, is *a priori* unclear. With regard to employment protection one could, for example, expect wages to be higher on average in countries or sectors with lower degrees of employment protection, with wages compensating for actual employment risks. According to this argument, higher levels of employment protection induce risk-averse workers to accept relatively lower wages – as

some sort of premium for employment insurance – and hence lead to lower wages and labour costs. On the other hand, if employment protection ensures bargaining power of employed 'insiders' compared to unemployed 'outsiders', also the opposite effect could prevail.⁶¹ Whether higher wages need to account for employment risks will further depend on the provision of unemployment benefits and active labour market policies. Similar to the compensation of employment risks, moreover, wages might also compensate for the higher earnings risk in countries with more dispersed wage distributions. As shown in the

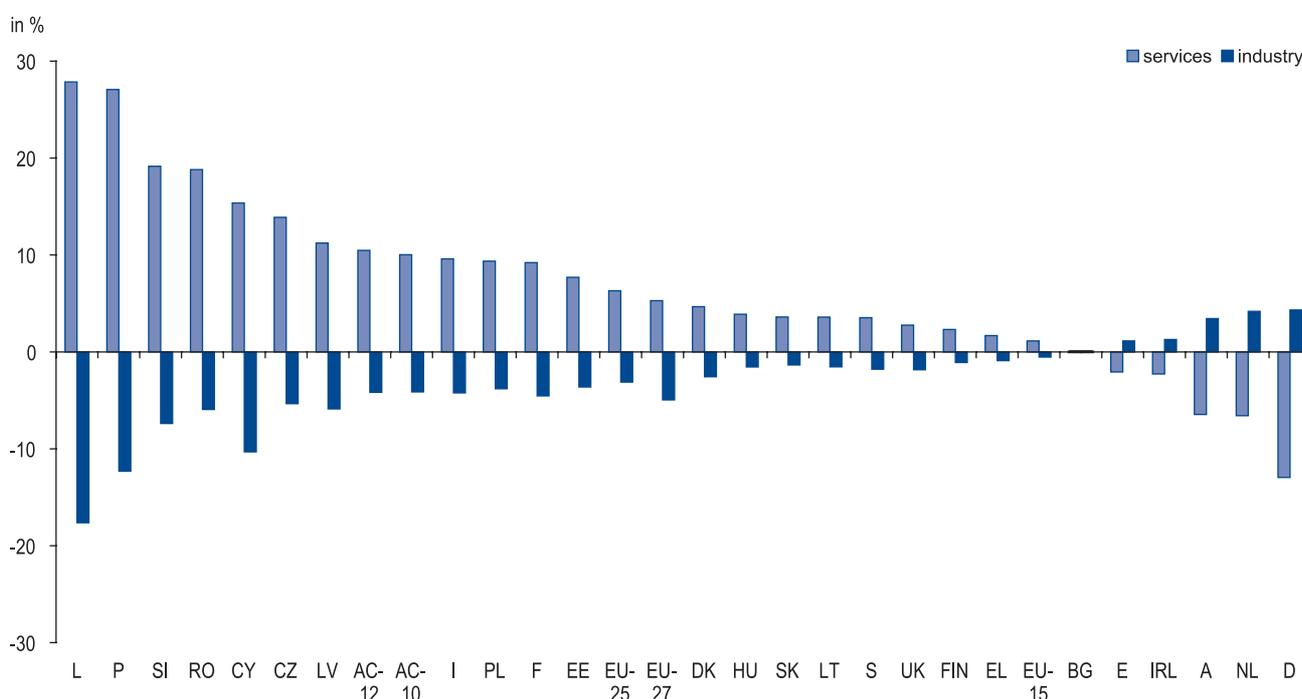
later empirical analysis, there is evidence that some types of risk compensation are at work in European labour markets.

Wage differentiation across sectors, firms and regions

This section provides a descriptive portrait of wage differentiation across sectors, firms and regions in Europe.⁶² There are important inter-industry wage differentials and, although

⁶¹ For a recent critical review of theoretical arguments and empirical evidence on the link between employment protection legislation and employment performance, see also European Commission (2003), Employment protection legislation: its economic impact and the case for reform, by David Young, DG Economic and Financial Affairs, Economic Paper No. 186. The paper concludes that "[t]here is a clear theoretical case for at least a limited degree of EPL, and there is little conclusive empirical evidence on negative side effects." While highlighting potential risks in case of stringent EPL, the paper also reports many fairly mainstream economists' reproaching policy-makers (e.g. the OECD Jobs Study) for undue concern.

⁶² The section is based on data from the 2000 Labour Cost Survey (LCS). See annex 3.2 for more detail on statistical information on earnings and labour costs in the EU and the accession countries. No data are available from this source for Belgium, Malta and Turkey. For Slovenia, only information at broad sectoral level (NACE-1) is available. For some EU Member States, notably Italy, as well as for the accession countries no regional information is provided. In this section, EU15 therefore refers to the current EU (excluding Belgium), and EU25 and EU27 to the enlarged Union including the accession countries (excluding Malta).

Chart 59 - Relative wages in industry and services 2002 (Deviation from country-specific average wages)

Source: Eurostat, LCS

Note: no data available for Belgium and Malta; EU15, AC10, AC12, EU25 and EU27 averages calculated as weighted averages, using average hours worked by the employees as weighting factor. Data on the services sector for Germany refer to available sub-sectors.

Table 28 - OECD indicators of employment protection

	Overall (version 1)	Overall (version 2)	Regular employment	Temporary employment	Collective dismissals
B	2.1	2.5	1.5	2.8	4.1
DK	1.2	1.5	1.6	0.9	3.1
D	2.5	2.6	2.8	2.3	3.1
EL	3.6	3.5	2.4	4.8	3.3
E	3.1	3.1	2.6	3.5	3.1
F	3	2.8	2.3	3.6	2.1
IRL	0.9	1.1	1.6	0.3	2.1
I	3.3	3.4	2.8	3.8	4.1
NL	2.1	2.2	3.1	1.2	2.8
P	3.7	3.7	4.3	3	3.6
A	2.2	2.3	2.6	1.8	3.3
FIN	2	2.1	2.1	1.9	2.4
S	2.2	2.6	2.8	1.6	4.5
UK	0.5	0.9	0.8	0.3	2.9
CZ	1.7	2.1	2.8	0.5	4.3
HU	1.4	1.7	2.1	0.6	3.4
PL	1.6	2	2.2	1	3.9
p.m.:					
JAP	2.4	2.3	2.7	Na	1.5
NZL	1	0.9	1.7	0.4	0.4
US	0.2	0.7	0.2	0.9	2.9

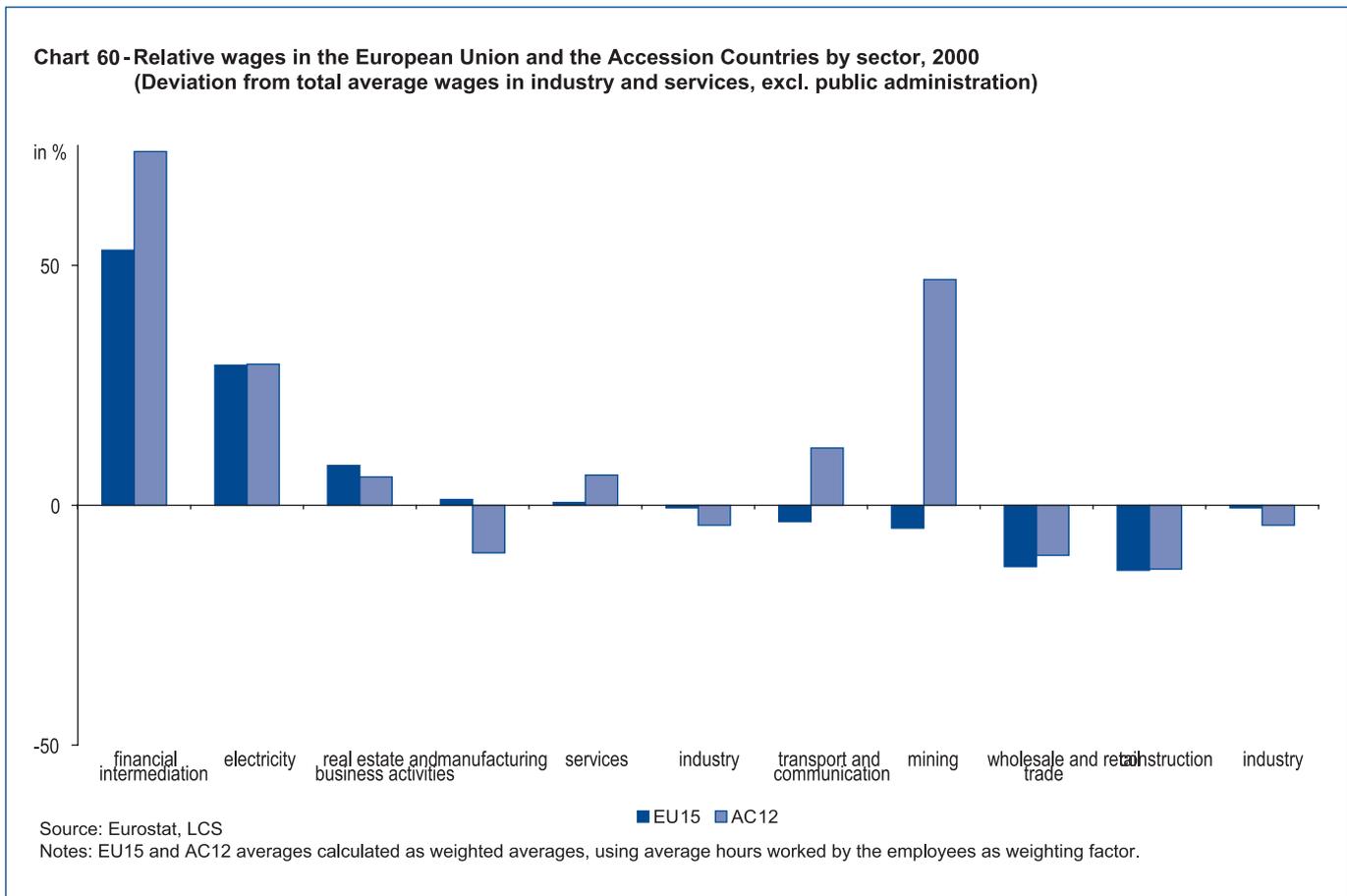
Source: OECD

Notes: data refer to 1990s; higher values indicate stricter employment protection according to the respective OECD indicator; version 1 of the 'overall indicator' is an average indicator for regular and temporary employment; version 2 of the 'overall indicator' is an average of the indicators for regular and temporary employment as well as collective dismissals; no data provided for the other accession countries.

to a lesser extent, firm-size wage differentials in European labour markets, while wage variation across regions is generally less pronounced.

Wage differentiation by sector

In both EU Member States and accession countries, average wages in the services sector generally exceed those in industry, although this wage premium is much more developed in the accession countries, with wages in services exceeding average wages on average by 10%. The only countries without a service sector wage premium are Spain, Ireland, Austria, the Netherlands and, in particular, Germany - in all these countries the average wages in the services sector (excluding public administration) are considerably lower than in industry. In Germany, wages in the services sector are, on average, 13% lower than in industry. This is in stark contrast with relative wages in most other EU Member States and in all accession countries. In France and Italy, gross hourly wages in services exceed average



wages by 10%, in Portugal and Luxembourg by up to 30% (chart 59).

There is further strong wage variation within both sectors. Wages are generally above average in “Financial intermediation” and “Real estate and business services”, but also in “Energy and electricity” and some selected manufacturing sectors (notably “Metals”, “Tobacco”, and “Fuel and petroleum”). On the other hand, wages tend to be lower than average in “Manufacturing of textiles and wood”, “Construction”, “Wholesale and retail trade” and “Hotels and restaurants”. The more comprehensive data which are available for the accession countries further indicate above average wages in “Public administration”, and below average wages in “Health and social services”. While these sectoral wage differences are common to both the current EU and the accession countries, there are differences in three sectors: while in “Manufacturing”, above average wages in the EU contrast with significantly lower wages in the accession countries, the opposite is found for “Trans-

port and communication” and, in particular, “Mining and quarrying” (chart 60).

Within both, industry and services, there is further a strong variation in wage structures across countries in general and in the relative earnings position of specific sectors in particular. Inter-sectoral wage variation seems somewhat larger in the accession countries, with average wages in low paying sectors standing at only 50% or less of the country average, and those in high paying sectors two to three times higher than the average. Among the EU Member States, the highest inter-sectoral wage variation is found in the UK, France and the southern EU Member States. The countries with the lowest inter-sectoral wage variation, on the other hand, are Denmark and Slovenia. In most countries, inter-sectoral wage variation is more pronounced in the service sector than in industry (table 29, charts 61-62 and annex 3.3).

There are, however, notable exceptions to the above relative wages in sectors between

the various countries. The positive wage premium in industry in Spain, Ireland, Austria, the Netherlands and, in particular, Germany are mainly due to higher than average wages in manufacturing. Wages in manufacturing are, by contrast, considerably below average in Portugal and in all the accession countries - with wage penalties of up to 15% in Romania and Cyprus.

In Germany, Ireland, Spain and the Netherlands the wage premia for working in “Financial intermediation” or “Transport and communication” are also lower than in the other EU Member States and notably the accession countries. In the latter, average wages in “Transport and communication” exceed the average by 10% or more, and those in financial intermediation by 50% or more. Among the EU Member States, similar wage premia for working in these sectors are only observed in the UK and the southern Member States. Despite these differences, “Financial intermediation” is among the sectors with the highest average wages in all countries.

Table 29 – Inter-industry wage differentials in industry and services (deviations from country-specific average in %) in the EU and the accession countries, 2000

	Industry				Services				
	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Construction	Wholesale and retail trade	Hotels and restaurants	Transport, storage and communication	Financial intermediation	Real estate, renting and business activities
DK	21	-3	14	-2	-5	-22	3	12	11
D	10	8	22	-19	-16	-45		26	
EL	14	-7	58	-21	-26	4	21	56	12
E	24	6	75	-17	-14	-29	19	88	-15
F	-23	-3	26	-13	-11	-15	-20	37	13
IRL	7	0	64	-7	-19	-36	6	39	24
I	11	-5	43	-15	-11	-32	10	70	-5
L	-20	-10	45	-33	-30	-45	4	71	-9
NL	69	4	39	-1	-13	-37	-5	42	1
P	-4	-15	67	-14	0	-29	32	141	1
A	17	3	40	-1	-10	-38	-8	40	8
FIN	-3	-1	15	-5	-1	-34	1	28	5
S	9	-1	9	-8	-6	-31	-1	46	7
UK	26	-3	31	-5	-18	-41	-5	72	15
BG	59	-10	82	-19	-27	-34	21	84	-13
CY	14	-15	48	-12	-6	-17	11	49	-1
CZ	20	-8	23	-7	1	-23	4	76	7
EE	30	-6	14	-10	-11	-39	16	113	-1
HU	30	-3	35	-23	-19	-40	12	94	6
LT	20	-4	28	-12	-15	-34	7	86	13
LV	-7	-10	48	-17	-26	-35	27	105	10
PL	68	-12	28	-12	-9	-32	10	54	6
RO	65	-16	54	-26	-26	-33	38	173	-11
SI	27	-9	22	-14	-2	-16	13	58	24
SK	26	-1	-10	-4	-14	-22	5	55	10

Source: Eurostat, LCS

Notes: no data available for Belgium, Malta and Turkey

In “Real estate and business activities”, the picture is less clear. Strong positive wage premia in Ireland, the UK and France as well as in Slovenia and Lithuania contrast with considerably lower than average wages in Luxembourg, Italy and Spain as well as in Bulgaria and Romania.

The relative wage position of “R&D” also varies considerably between countries: while being among the best paid sectors in France, Italy, the Netherlands, Portugal, Austria and the UK, it does not command particularly large wage premia in Germany, Spain, Greece and the Nordic countries. The same finding applies to the accession countries. In none of them does “R&D” figure among the high paying sectors. There is thus possibly an important lack of incentives to work in the “R&D” field, notably in countries with relatively dispersed wage distributions and much larger wage premia for other sectors such as “Finan-

cial intermediation”, “Business services” and “Telecommunications”.

Wage penalties in “Construction” are largest in Luxembourg, Greece and Germany and, among the accession countries, in Hungary and Romania. On the other hand, there is hardly any wage penalty in “Construction” in Austria, the Netherlands, the UK, Ireland, the Nordic Member States or in the Czech Republic and Slovakia where average wages in “Construction” broadly match overall average wage levels.

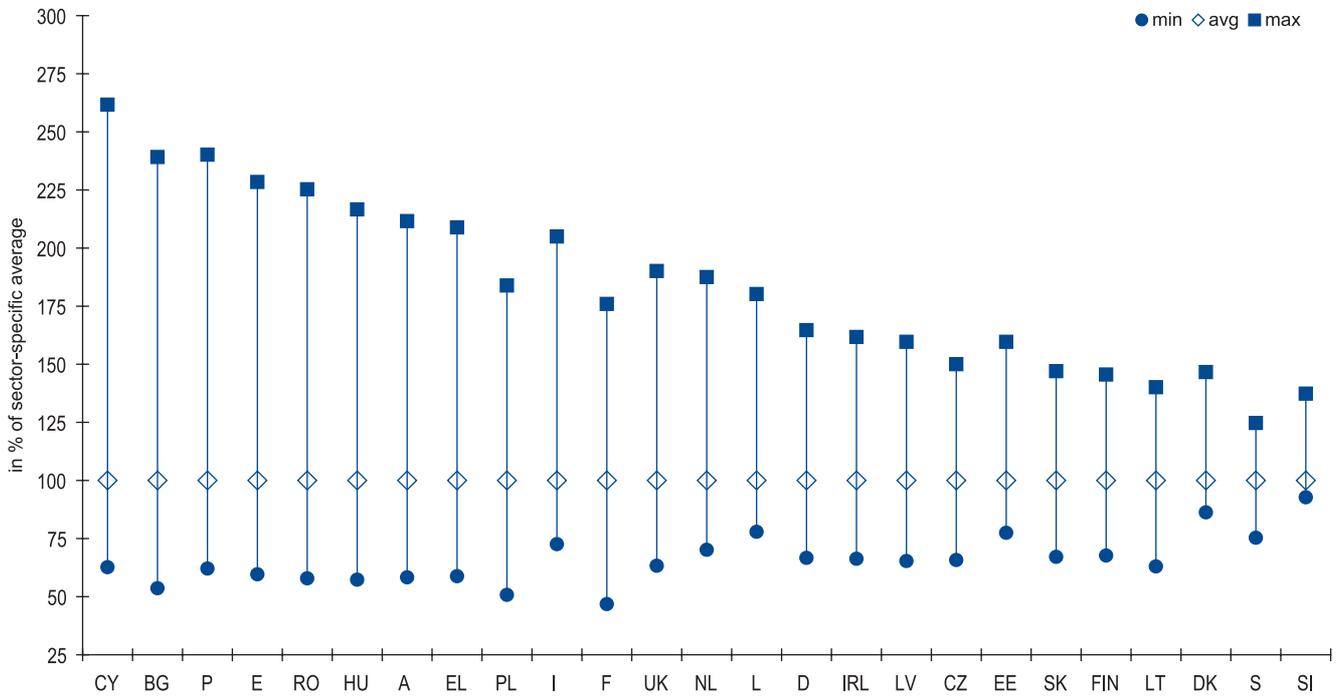
Finally, wage penalties in low-skilled, low productivity services such as “Wholesale and retail trade” and “Hotels and restaurants” are found to be largest in Luxembourg, the UK and Germany. Germany is found to offer the lowest relative earnings position for those employed in “Hotels and restaurants”. Greece and the Czech Republic are the only countries, on the other hand, in which “Hotels

and restaurants” and “Wholesale and retail trade”, respectively, pay wages above average. Wage penalties in these two sectors are generally found to be lowest in countries with more compressed wage distributions, notably Denmark, Slovenia and Cyprus, as well as in the Italy, Spain and Portugal.

Wage differentiation by firm size

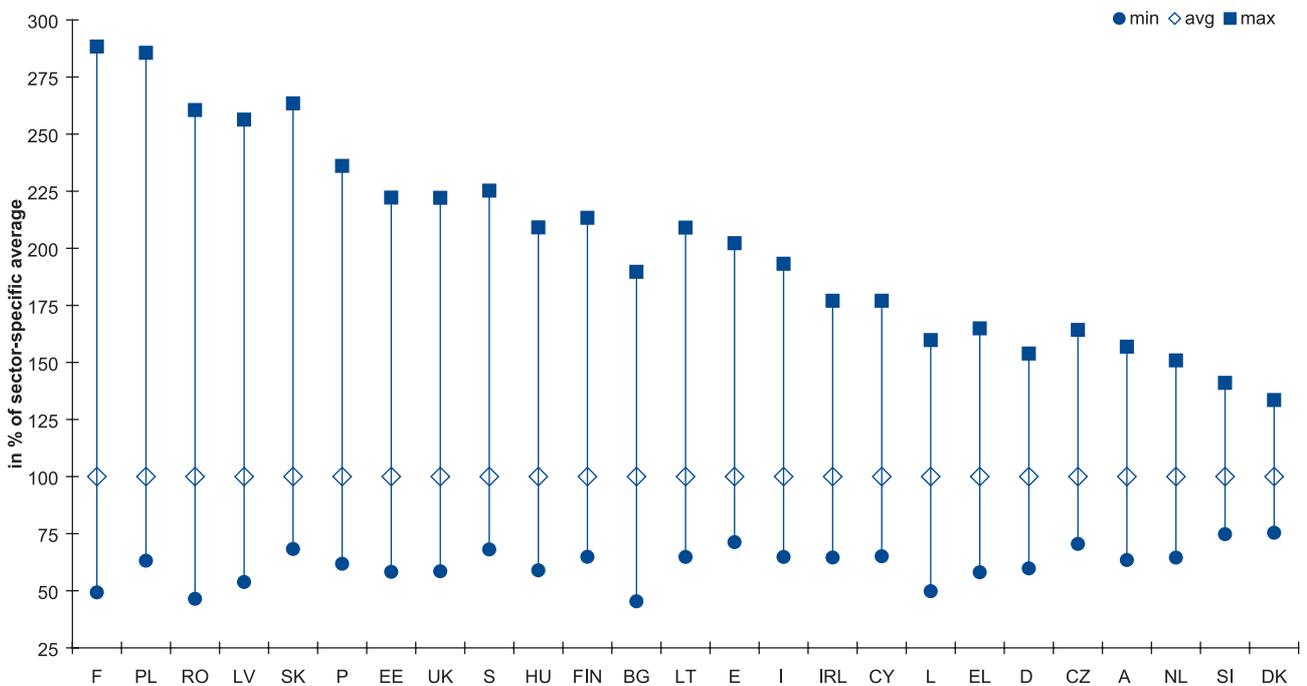
Both in the EU and the accession countries, wages in larger firms are, on average, higher than in smaller firms. Firm size wage differentials are more important – and up to three times higher – in the current EU Member States than in the accession countries. In the EU, average wages in companies with more than 1,000 employees exceed total average wages by almost 25%, while average wages in companies with 10-49 employees are 15%

Chart 61- Intersectoral wage differentials in industry, 2000

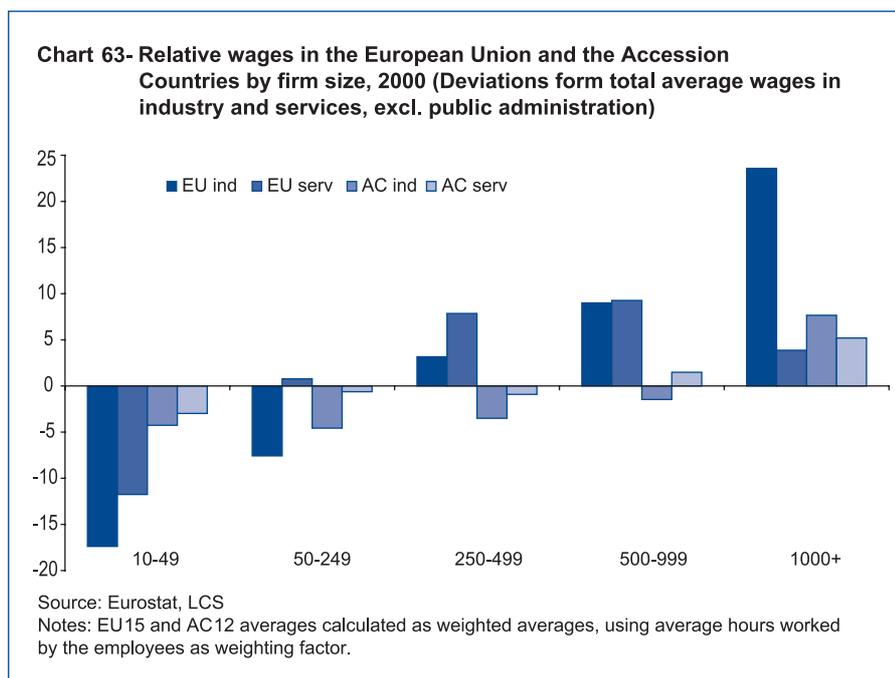


Source: Eurostat, LCS

Chart 62- Intersectoral wage differentials in services, 2000



Source: Eurostat, LCS



below the average. Firm-size wage differentials are also generally larger in industry than in services. In the latter, sizeable wage premia are found only in the case of large companies of 1,000 employees or more. Such wage differentials related to firm size, though, are in general much smaller than the inter-industry wage differentials discussed above (chart 63).

As for inter-industry wage differentials, there are important differences in the wage structures by firm size between the various countries. Wage penalties of working for small employers are larger in industry than in services in all countries except Luxembourg, Italy, Greece, Portugal, Cyprus, Latvia and Estonia. These wage penalties among the EU Member States reach up to 30% in Greece, Germany, Spain, Portugal and Ireland, and, among the accession countries, up to 50% in Bulgaria, Romania and Poland. Together with Cyprus, Bulgaria, Romania and Latvia, wage premia of up to 50% for working in large companies are found in Spain, Portugal and Greece. It is also these latter countries which show the highest firm-size differentials in both industry and services. Firm-size wage differentials are not only small in the Nordic Member States and the Czech Republic and Slovakia – countries with also low inter-industry differentials – but also in the UK, France, Austria, the Netherlands and, in the service sector, Poland (charts 64-65 and table 30).

Table 30 – Firm-size wage differentials (deviations from country-specific average) in the EU and the accession countries, 2000

	Industry					Services				
	10-49	50-249	250-499	500-999	1000+	10-49	50-249	250-499	500-999	1000+
DK	-6	-2	-1	6	5	-3	3	6	5	-2
D	-27	-14	-2	6	29	-19	-5	8	9	11
EL	-28	-18	-8	27	59	-28	-2	5	-12	29
E	-23	-3	21	36	51	-16	-2	2	8	16
F	-13	-11	3	7	15	-7	2	13	13	-5
IRL	-23	-5	8	8	24	-12	0	34	11	0
I	-15	-6	2	19	32	-17	-6	4	2	12
L	-18	-7		19		-18	-3	18	-5	23
NL	-15	-1	6	11	14	-9	3	1	13	4
A	-14	-6	3	4	20	-9	2	1	9	4
P	-23	-4	27	31	52	-25	4	-3	-24	33
FIN	-12	-3	2	1	6	-7	0	1	-2	4
S	-13	-3	0	4	9	-5	4	3	5	-1
UK	-11	-6	-1	1	15	-1	9	13	10	-6
BG	-51	-23	1	20	60	-34	-8	14	41	45
CY	-19	8	18	23	72	-17	0	6	-14	41
CZ	-11	-10	2	2	15	-2	7	-10	-9	2
EE	-15	3	4	12	7	-15	1	0	11	48
HU	-40	-10	4	13	30	-29	11	-4	10	17
LT	-27	-12	2	13	30	-13	-5	25	21	14
LV	-34	-10	7	27	55	-32	5	34	64	19
PL	-39	-22	-16	-10	15	3	-3	-5	0	2
RO	-42	-28	-19	-12	33	-41	-16	-11	4	48
SI										
SK	-2	-12	-3	-9	7	26	-2	7	-5	-7
EU	-17	-8	3	9	24	-12	1	8	9	4
AC	-4	-5	-4	-2	8	-3	-1	-1	2	5

Source: Eurostat, LCS

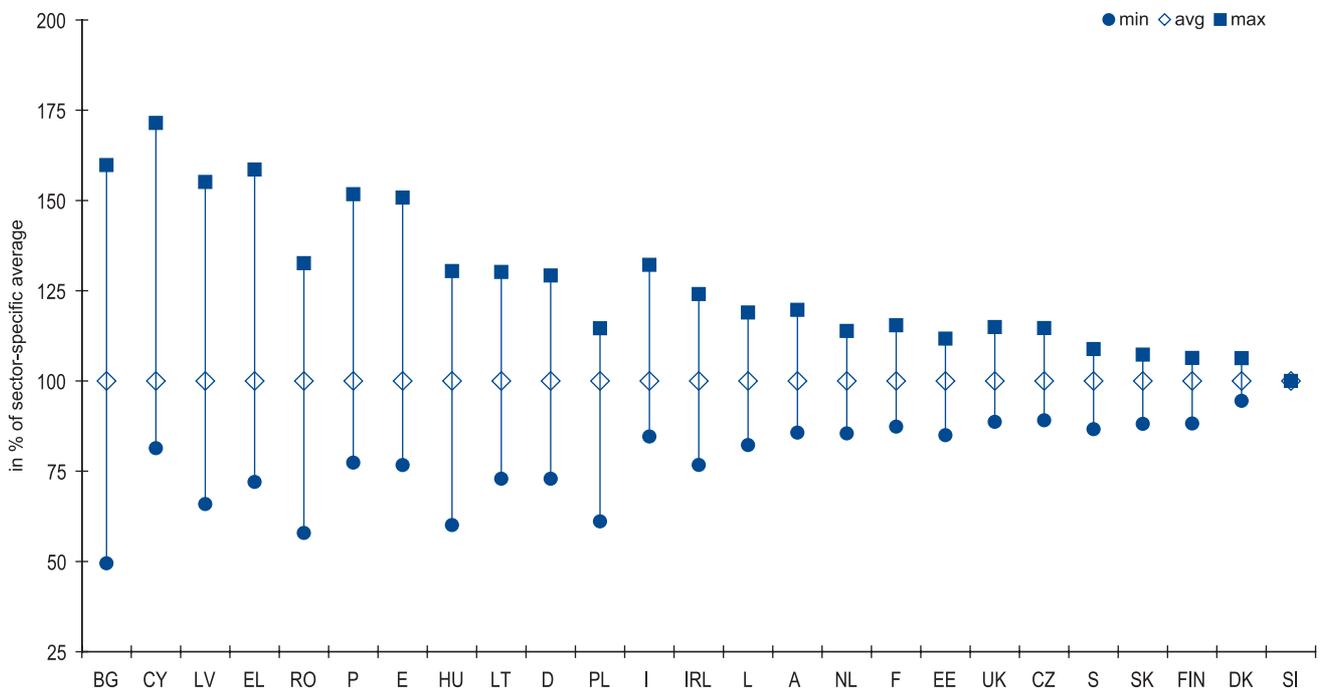
Notes: no data available for Belgium, Malta and Turkey

Wage differentiation across regions

Scarce data means it is not possible to do a full comparison of wage differentiation across regions as for inter-industry and firm-size wage differentials above. But there is evidence of relatively large regional differentiation of wages in industry in Germany, France, Spain, Greece, Portugal and the UK, as opposed to relative low variation in Austria. In Germany, the downward variation is mainly due to the wage levels in east Germany which remain significantly lower than in the west.

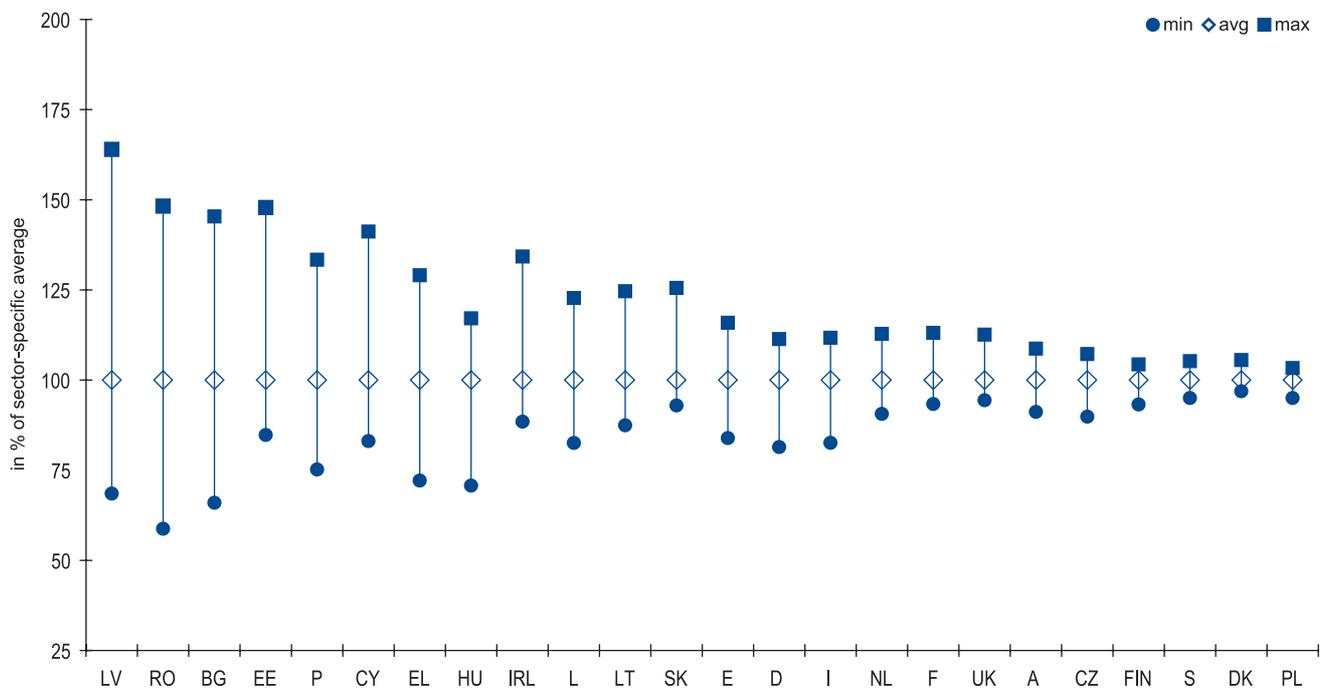
In services, a relatively large regional variation in wages can be found in the UK, Germany, France, Spain and Portugal – a contrast with low wage differentiation across regions in Greece, Austria and the Netherlands. In line with the findings on inter-industry wage dif-

Chart 64- Firm size wage differentials in industry, 2000



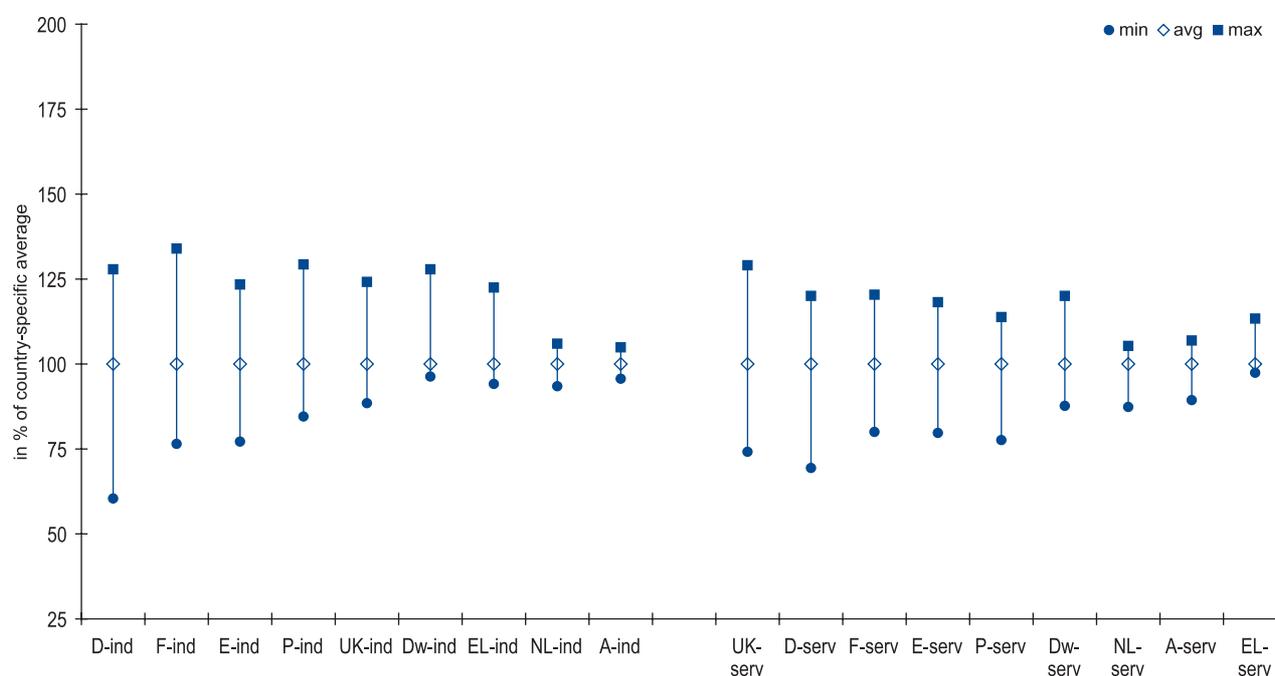
Source: Eurostat, LCS

Chart 65- Firm size wage differentials in services, 2000



Source: Eurostat, LCS

Chart 66 - Regional wage differentiation in industry and services, 2000



Source: Eurostat, LCS

Notes: "Dw" indicates west Germany only; no data available for other EU Member States, notably for Italy.

ferentials above, relative wages are found to be particularly low (around 70% of average wages) in the services sectors in east German regions. Furthermore, regional wage differentiation, too, is in most countries more pronounced in high paying services sectors such as "Financial intermediation" and "Business activities", while generally more restricted in low paying services sectors (chart 66).

The above wage differentials across regions notwithstanding, the question remains as to whether these wage differentials sufficiently reflect differences in labour market conditions, and notably unemployment, across regions. Results from a more detailed analysis of wage determinants at the individual level presented later in this chapter show that, in particular in the case of Germany and Greece, there is in fact little evidence that wage levels account for differences in regional unemployment rates.

Wages and productivity: structures and recent trends

Following on from the above descriptive differences in average wages across sectors, firms and regions, two important questions emerge: first, do these differentials just represent variations in labour productivity and workforce characteristics across sectors, firms or regions or do they, instead, still prevail when controlling for such variations? Second, what is the role of cross-country differences in labour market institutions, and employment protection in particular, on wages?⁶³ To answer these questions, the link between wages and productivity - measured as gross value added per hour worked - both overall and at the sectoral level has to be examined.

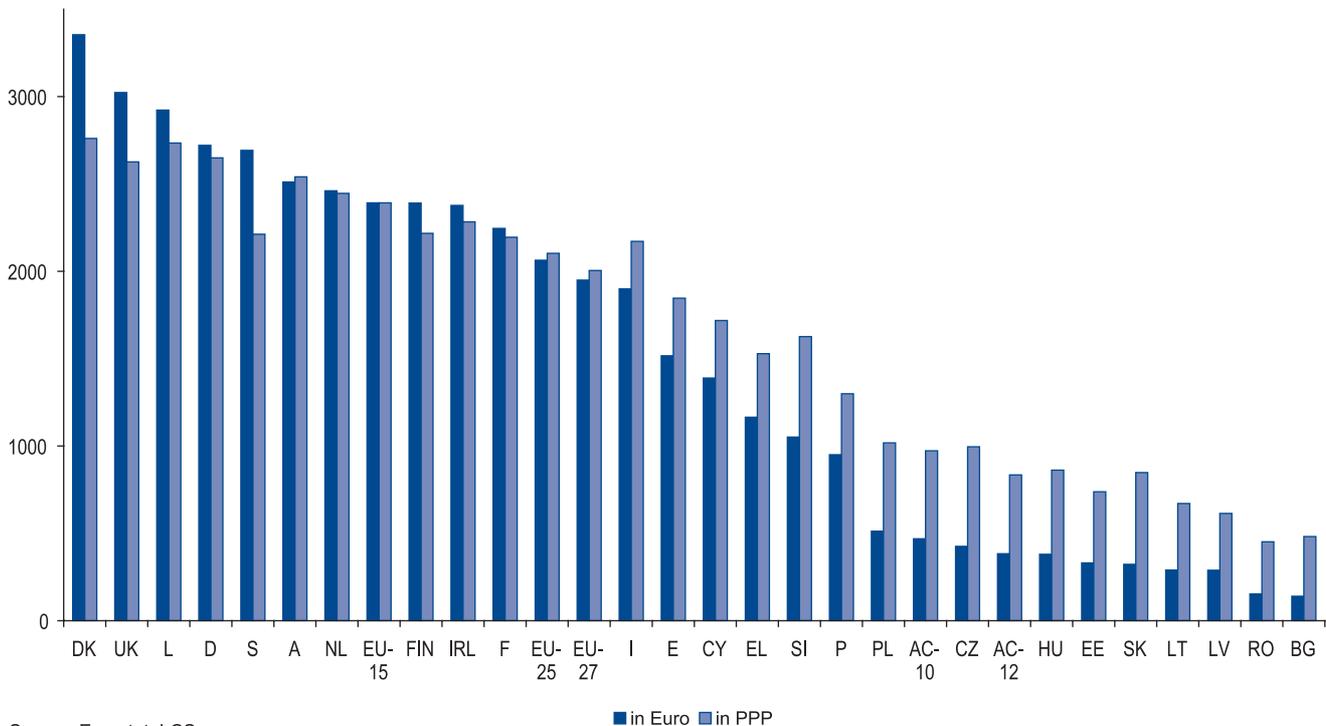
Wage and productivity levels

Within the EU, average monthly gross wages in industry and services in 2000 ranged between 950 euro in Portugal and 3,000 euro or more in the UK and Denmark. Average monthly wages also exceeded the EU average of 2,390 euro by more than 10% in Luxembourg, Germany and Sweden. On the other hand, wages lagged behind the EU average by 10% or more in Italy, Spain, Portugal and Greece. In the accession countries, wages ranged from around 150 euro in Bulgaria and Romania and around 300 euro in the Baltic States and Slovakia to 1,050 euro in Slovenia and 1,390 euro in Cyprus (chart 67).

Clearly, the above comparisons of gross monthly nominal wages need to be interpreted with great caution. In particular differences in working hours across countries,

⁶³ The section is based on data from the 2000 Labour Cost Survey (LCS) (see footnote 1619) and the 1995-2000 Structure of Earnings (SES) time-series data. It should be noted that this data is unlikely to include information on wages from undeclared work. In the sequel, the terms "wages", "pay" and "earnings" are used interchangeably to denote "wages and salaries". In the empirical analysis, in order to ensure comparability of the results, the focus will be on either gross hourly wages or relative wage structures more than on absolute wages, thus avoiding problems due to distortions caused by tax/benefit systems and differences in average working hours. See annex 3.1 for a detailed definition of the underlying statistical concepts.

Chart 67- Monthly gross earnings in industry and services, 2000



Source: Eurostat, LCS

Notes: EU25 and EU27 averages calculated as weighted averages, using average hours worked by the employees as weighting factor.

and differences in both productivity levels and relative price levels need to be taken into account to give an appropriate picture of variation in wage levels across countries. Furthermore, differences in non-wage labour costs and income taxes also need to be taken into account.

As discussed in detail in chapter 4, there are large variations in working hours across countries in Europe. Variations in hourly wages across countries, however, are similar to those in monthly wages (chart 68). Within the current EU, gross hourly wages in industry and services (excluding public administration) range between 6.50 euro in Portugal and 24.19 euro in Denmark. Gross hourly wages also exceeded the EU average of 16.74 euro by more than 10% in Luxembourg, Germany, the UK and Sweden. On the other hand, wages trailed the EU average by 10% or

more in Italy, Spain, Portugal and Greece, as well as in Ireland.

Denmark, Finland, the Netherlands, France and Germany – all countries with average working hours below EU average – show higher relative hourly wages compared to monthly wages. Countries with longer working hours, in particular Ireland and the UK, on the other hand, have a less favourable position in terms of hourly wages, with hourly wages in Ireland significantly below the EU average, while monthly wages are at EU level.

There are also important differences in the price levels across countries in Europe (chart 69), with price levels exceeding the EU average by 10% or more in the UK, Denmark and Sweden, and price levels of more than 10% below EU average in the four southern

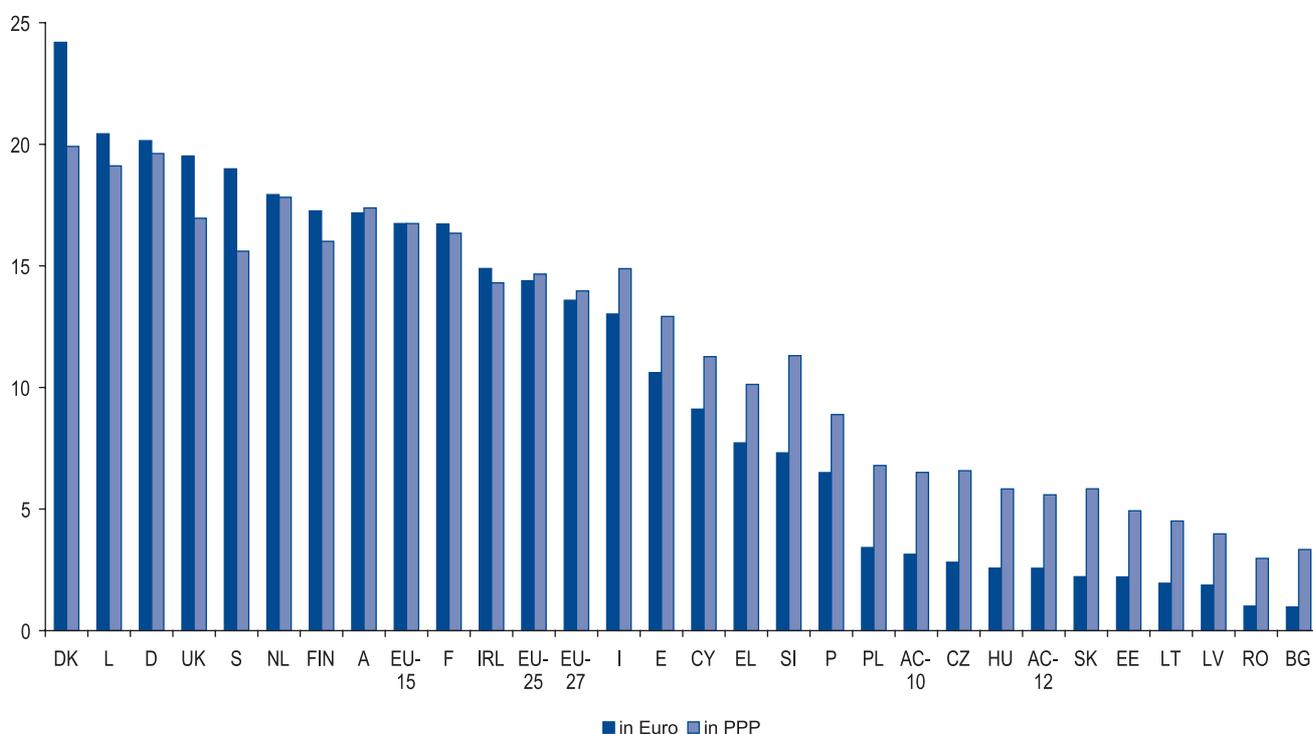
EU Member States, Spain, Italy, Greece and Portugal.⁶⁴

When correcting the above wage data for these differences in price levels – i.e. when expressing wages in purchasing power parities (PPP) – the gap in average gross wages, both monthly and hourly, within the EU is reduced by some 40 percentage points, with average gross monthly wages and gross hourly wages, respectively, in PPP ranging from 1,300 and 8.89 in Portugal (equivalent to 54% of the EU average) to 2,760 and 19.91 in Denmark (115%-120% of EU average).

Similarly, the gap in wages between the accession countries and the current EU Member States is reduced, on average, by some 20 percentage points when correcting for purchasing power parities. Average wages in PPP reach two thirds or more of the EU average

⁶⁴ Purchasing power parities (PPP) and relative price level indices are calculated for the ESA95 aggregates on the basis of final consumption expenditure (SNA approach). The PPP are calculated on the basis of average price levels for a large number of goods and services, taking into account differences in consumption behaviour across countries.

Chart 68- Gross hourly earnings in industry and services, 2000



Source: Eurostat, LCS

Notes: EU25 and EU27 averages calculated as weighted averages, using average hours worked by the employees as weighting factor.

in Cyprus and Slovenia, around 35%-42% in the Slovak and Czech Republics, Hungary and Poland, 25%-30% in the Baltic countries, and 20% in Romania and Bulgaria. As a whole, average wages in purchasing power parities in the accession countries reach around 40% of the average wage level in the current Union (charts 67 and 68).

Labour productivity, measured as GDP per person employed, also varies significantly within the EU and between the current EU and the future Member States (chart 70). Productivity levels in Finland, France, Belgium, Sweden, Denmark and, notably, Luxembourg exceed the EU average by 10% or more. On the other hand, productivity levels in Portugal, Greece and Spain remain at or below 75% of the EU average. In terms of PPP, the productivity levels are highest in Luxembourg, Ireland, Belgium, France and Italy, while those of Denmark, Sweden and the UK fall below EU average. Productivity levels in the accession countries vary between less than 20% of the EU average in the Baltic States, Romania and, notably, Bulgaria and around 50% or more

in Slovenia, Malta and Cyprus. Corrected for purchasing power parities, productivity levels in the accession countries reach, on average, almost 50% in the acceding countries, and around 30% in Bulgaria and Romania.

When comparing relative wages and labour costs with relative productivity levels, it can be seen that, unsurprisingly, wage differences across countries in Europe reflect productivity differences to a large extent (chart 71). In interpreting these differences, however, variations in non-wage labour costs, together with differences in the tax burden on labour and the financing of social security need to be taken into account. In the following section, the link between wages and productivity at the sectoral level will be explored in more detail.

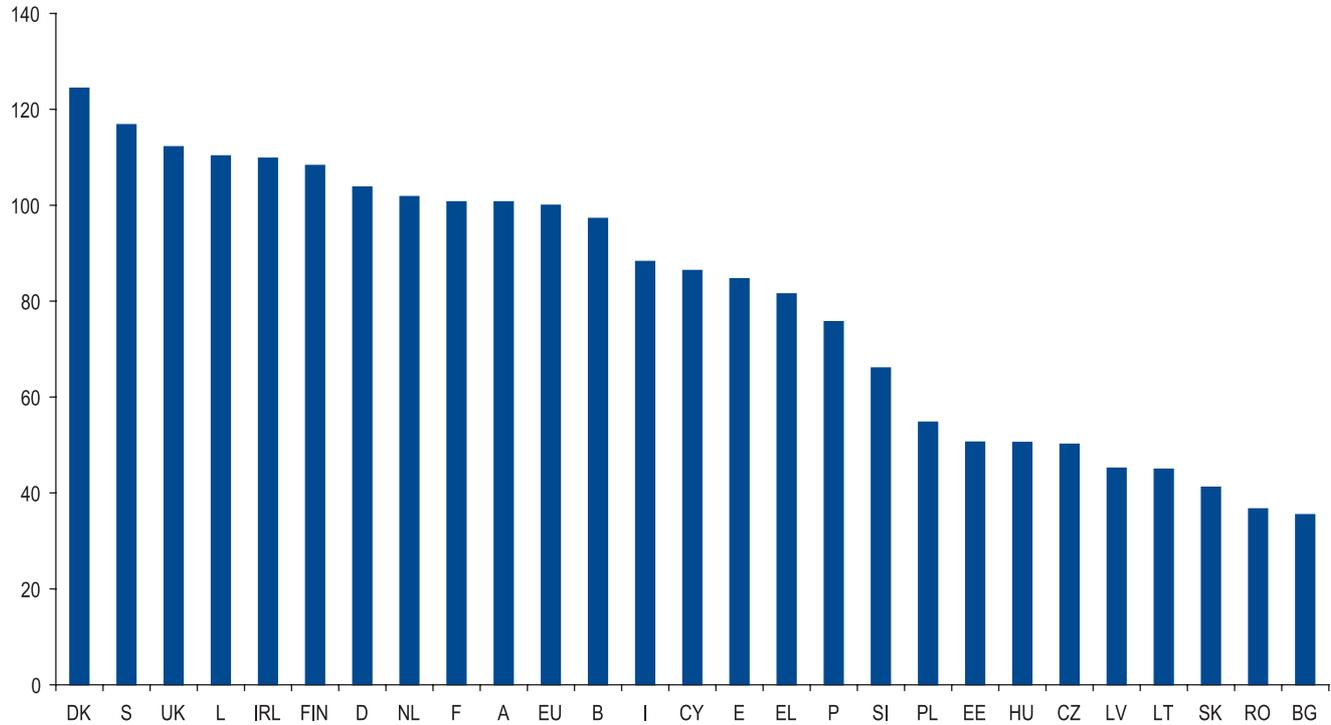
The link between wages and productivity

When comparing the relative distributions of both hourly wages and labour productiv-

ity across sectors, a relatively strong link between wages and productivity can also be found at the sectoral level. Despite some sectors with productivity well above the average - particularly in the UK, Germany, France, Ireland, the Netherlands, Spain, Finland, Italy and Luxembourg - there is generally a high concentration of hourly labour productivity around the mean, and the spread of wages across sectors roughly matches that of relative labour productivity. This link is less clear-cut, though, than the one at aggregate level. In particular in the Nordic EU Member States, Ireland, Hungary and Estonia, relative labour productivity is more spread across sectors than wages. Altogether, a significant match between wages and labour productivity can be observed in a number of countries, notably in the five big EU Member States: Germany, France, the UK, Italy and Spain (chart 72).

The looser relationship between wages and productivity at the sectoral level is in part due to the fact that there are many other potential factors, in addition to differences in labour productivity across firms, sectors and

Chart 69 - Relative price level indices (final consumption expenditures), 2000 (EU15 = 100)



Source: Eurostat

Note: purchasing power parities and relative price level indices are calculated for ESA95 aggregates based on final consumption expenditure (SNA approach).

regions that might impact on wage levels. These include: differences in the workforce composition, notably with respect to gender, age, nationality and education; differences in job characteristics such as contract type, overtime hours, working conditions and accident rates; differences in the use of variable pay schemes; as well as differences in

the institutional setting, including collective bargaining coverage and employment protection legislation.

There are in particular a number of theoretical reasons why these differences in the workforce composition may have a systematic impact on wages even when controlling

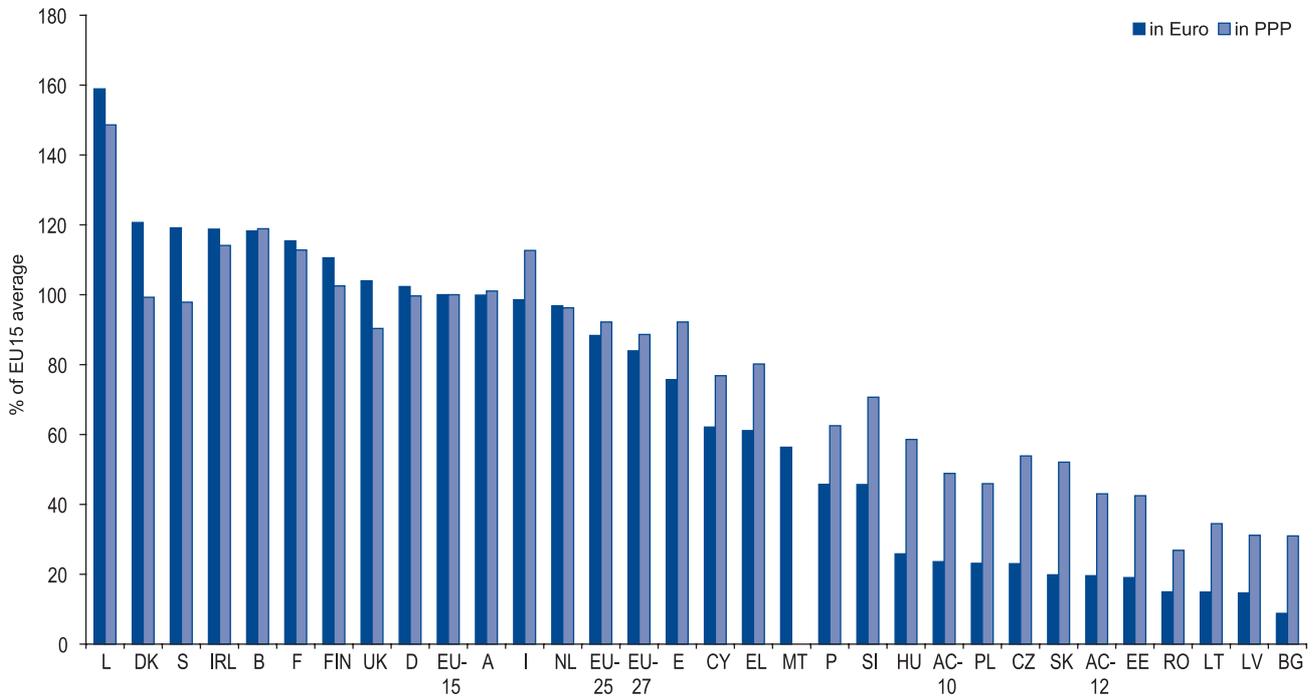
for labour productivity (box 6). In addition, despite similar levels of labour productivity, sectors may remunerate certain personal and job characteristics differently. In particular labour-intensive firms in research and development or in knowledge-intensive services sectors may offer significantly higher rewards for human capital and skills as compared to

Box 6 – Theories of wage determination and the link between wages and productivity

In the standard neo-classical model of the labour market firms equate, under perfect competition, the value of the marginal product of labour (productivity) with its marginal cost (wages). Standard theories predict that a worker's wage varies with his or her characteristics that affect/reflect productivity, such as for example age or experience and education (human capital theories). Age or labour market experience - i.e. the time an individual has been in

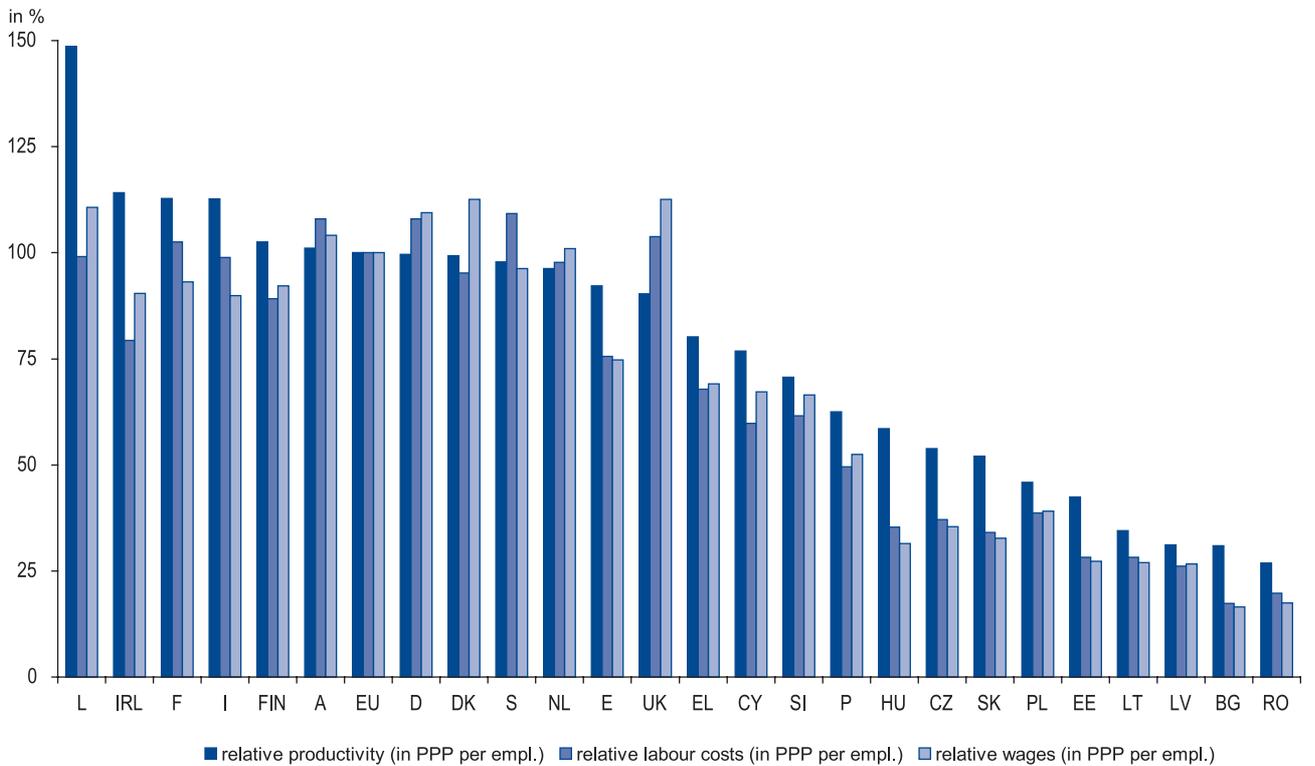
the labour market - are considered measures of general human capital acquired throughout the working career. Job tenure - the time the individual has been with a specific employer - is seen as a measure of firm-specific human capital. Since productivity can be assumed to increase with both general and firm-specific human capital, these models therefore predict a positive link between age, labour market experience and tenure, on the one hand, and wages on the other. In economic parlance, productivity increases due to general and specific human capital investments lead to upward sloping wage-seniority. Human capital models thus provide a productivity-based rationale for seniority-related pay schemes.

Chart 70 - Labour productivity in the EU and the Accession Countries, 2000



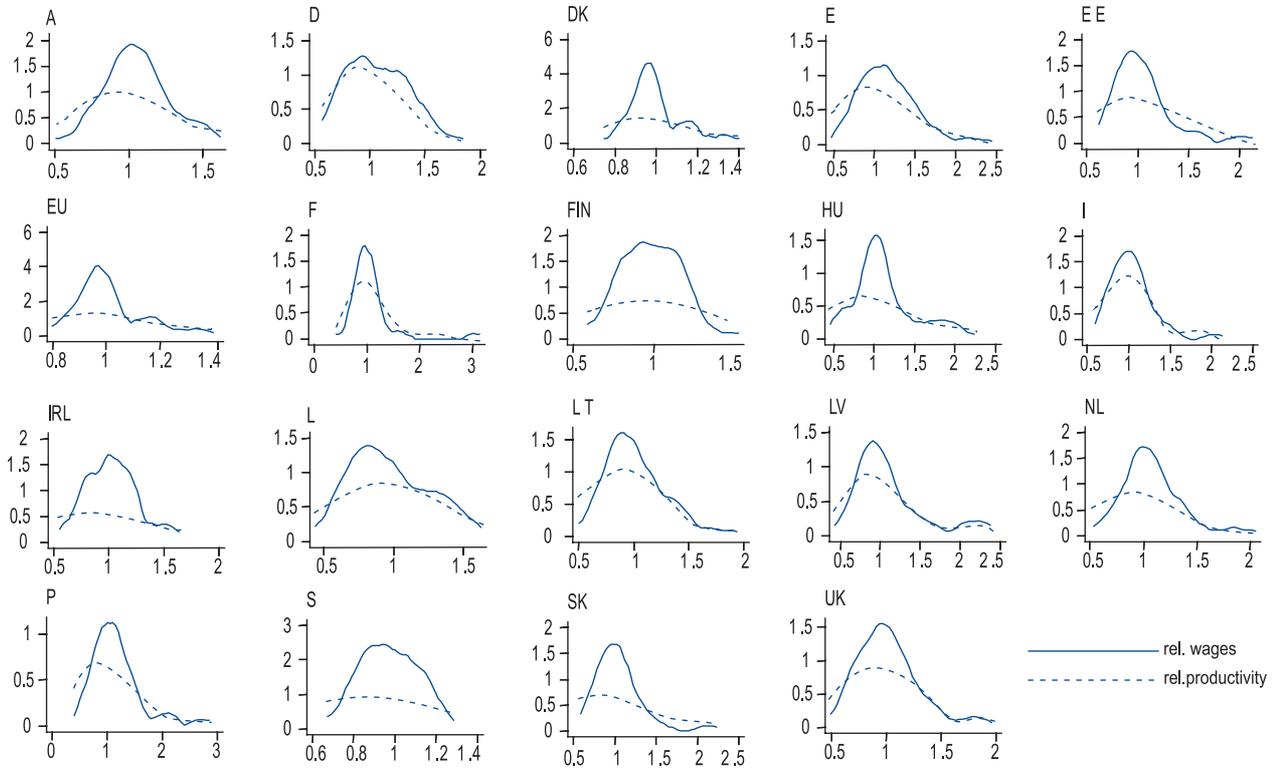
Source: Eurostat, SBS

Chart 71 - Relative labour costs, wages and productivity in the EU and the Accession Countries, 2000



Source: Eurostat, LCS, SBS

Chart 72- Distribution of relative wages and relative productivity across sectors, 2000



Source: Eurostat, LCS and SBS

Notes: the charts show the distribution of wages and productivity across sectors (NACE-2 level) relative to the country-specific mean (in the case of wages) and median (in the case of productivity), respectively. In the case of productivity, the median had to be chosen since no country-wide average of hourly labour productivity is provided in the LCS. It should be noted that the scale of the charts differs for the various countries.

There are, however, some problems with this interpretation. First, such competitive wage models are incompatible with persisting industry or firm-size wage premia, once worker and job characteristics have been taken into account. Second, there is not much empirical evidence that the positive link between seniority and pay is due to productivity. It has long been recognised in economics literature that “objective” measures of productivity do not dominate “subjective” performance rankings or ratings due to the inherent difficulties in finding objective measures that convincingly quantify “the true value of a worker to his or her firm”.⁶⁵ There is also more recent evidence that, “within hierarchical levels, productivity is not the driving force of the observed upward sloping wage-seniority profiles”.⁶⁶ Thirdly, there are numerous alternative theories that could explain seniority wages equally as well. The upward sloping wage-seniority profiles could, for example, be due to the selection

of more productive workers into longer employment relationships. Wage increases could also be deferred for incentive, insurance or institutional reasons, with wages of younger workers remaining below their productivity levels. While such a wage deferral for incentive, insurance or institutional reasons seems well placed in internal labour markets, providing long-term employment relationships between the employer and the employed, it is not necessarily sustainable in more flexible labour markets with higher job turnover and shorter employment relationships.

There is, finally, a whole range of more elaborate models than that discussed above that do not just focus on worker characteristics, but also take account of job and firm characteristics or institutional settings that are likely to influence wages. These alternative models attempt to provide theoretical arguments to explain why wages

⁶⁵ James L. Medoff and Katharine G. Abraham (1981), Are those paid more really more productive? The case of experience, *Journal of Human Resources*

⁶⁶ Luca Flabbi and Andrea Ichino (2001), Productivity, seniority and wages, *Labour Economics*

might exceed the so-called “equilibrium wage”, i.e. the wage which equals (marginal) productivity. One standard explanation refers to the fact that individual perceptions of job-related risks will entail supply reactions that lead to a “compensating” wage premium. Not only should wages compensate for unfavourable job characteristics such as accident and health risks, poor working conditions or the lack of regional amenities to attract and keep suitable workers (risk compensation theories) but also they must compensate for other job-related risks such as the variation in expected earnings at the time when individuals make educational and occupational choices and expected unemployment risks. This latter type of risk compensation clearly is of increasing importance in less regulated and more flexible labour markets. It fits with the observation that employees on temporary or fixed-term contracts, with low job security and shorter expected tenure on the job, have the highest probability of receiving performance-based pay.⁶⁷

It is also possible that it is in firms’ own interest to pay “higher-than-normal wages” in addition to the compensating wage differentials mentioned above. Reasons include: first, the difficulty to screen all relevant worker characteristics such as motivation and to

supervise their work effort (efficiency wage and incentive compensation theories); second, the firms’ bargaining position relative to workers and their joint rent-seeking behaviour (rent sharing and bargaining theories); and thirdly, the search for reciprocity and stable “gift exchange practices” as a basis of a long-term relationship between employer and employee (gift exchange and fair wage effort theories).

In all of these cases, non-compensating wage differentials can be seen as a devices to increase worker effort, performance and commitment and hence firm performance, productivity and profitability by reducing shirking, limiting employee turnover and attracting higher quality labour and more skilled workers. In turn the costs to the employer recruitment and training of new workers, applicant screening, worker supervision and performance measurement would be reduced. Following this logic, these theories – while acknowledging the basic link between worker productivity and wages – provide a rationale for why it might be in the firm’s own interest to pay wages above market-clearing or risk compensating wages.

more capital-intensive sectors. Certain characteristics such as firm size, moreover, may be related to productivity differences across firms within one sector. Finally, as in the case of gender, they may also reflect, to some extent, differences in the social valuation of economic activities.

Econometric analyses of wage determinants at the sectoral level make it possible to identify the role of the sectoral workforce composition and of institutional variables, while controlling for both sectoral differences in labour productivity and cross-country differences in price levels. Cross-section wage equation models at both EU and national level have been estimated, with regressors including: sector-specific hourly labour productivity; country-specific price levels; various variables on the workforce composition (employment shares by gender, age, nationality and educational attainment); major employment characteristics (employment shares of temporary employees and self-employed, as well as importance of overtime hours, atypical working arrangements and work-

related accidents); employer characteristics (sector, firm size, high-tech and knowledge intensity); and the key institutional variables presented in section 2 above, notably: an indicator of the dominant wage bargaining level, coverage rates, trade union density, minimum wage and the OECD measures of employment protection reviewed above. The models have been estimated on the samples of all sectors for which the respective variables are available.

EU-level estimation results are presented in table 31. Most importantly, inter-sectoral and firm-size wage differentials persist even after controlling for differences in labour productivity and workforce and employment characteristics. The estimation results further corroborate the significant link between wages and productivity. Labour productivity and price levels alone actually explain more than 80% of the wage variation across sectors and countries (table 31, column (1)).

Workforce and employment characteristics, when added to the respective estimation equa-

tion, contribute to wage levels in a significant way (column (2)). While higher sectoral employment shares of women, low-skilled, employees of small and medium-sized firms, self-employed and temporary employees are correlated with lower wage levels, the opposite holds true for higher sectoral employment shares of older workers, high-skilled and employees in larger establishments. This also highlights other important features of wage formation in Europe, notably the presence of skills differentials in wages, wage gaps by gender and seniority pay. Although no detailed sectoral information on work-related health risks and work accidents is available unfortunately, there is some evidence that the incidence rate of work accidents is positively correlated with wage levels, after controlling for other differences in the workforce composition, thus indicating the presence of compensating wage differentials.

When regressing, for each country, wages at the sectoral level on labour productivity and the main characteristics of the workforce, including gender, age, skills level and nation-

⁶⁷ See e.g. Mark Cowling (1998), Fixed wages or productivity pay: Evidence from 15 EU countries, based on the Second European Survey of Working Conditions 1996.

ality, while controlling for firm size, varying results are obtained (table 32). A significant positive link between hourly productivity and wages is found for all countries except the Nordic Member States, France, Luxembourg and Slovakia. Higher employment shares of women are negatively correlated with wages in most EU Member States, except Luxembourg, Sweden and some of the accession countries, confirming the persistence of important gender pay gaps in all EU Member States.

Significant age effects in the form of higher wages in sectors with higher employment shares of older workers can be found in France and, in the form of lower wages in sectors with higher shares of young employees, in Italy, the Netherlands, Austria and the UK. The employment share of non-EU nationals at the sectoral level is generally not correlated to wage levels. Only in Spain and Austria, significant negative effects can be found. In most countries, moreover, strong negative wage penalties are found for working in small firms. Wage premia in large firms, moreover, are found in particular in Germany, Italy, Spain and Portugal.

These results may be somewhat sensitive to the addition of further employment characteristics at the sectoral level such as the share of temporary employees, the share of employees with atypical work arrangements or the incidence rate of work-related accidents. Unfortunately, some of these variables are only available for a sub-set of countries, thus making meaningful comparisons impossible. There is some evidence, though, that higher shares of temporary employees are related to lower wage levels, notably in Spain, Portugal, Germany, the Netherlands and Ireland. A positive relation between accident rates and wage levels at the sectoral level could only be established for Germany and Ireland. In the particular cases of the Netherlands, Ireland and the UK, adding in these variables seems to show up an insignificant, though negative, effect of female employment shares on wages.

It should be noted, however, that higher sectoral employment shares of women in particular are found to be negatively, and strongly, correlated to lower wages at the sectoral level across all specifications, indicative of persisting large gender pay gaps in European labour markets and a potential under-valuation of the work in female-dominated sectors and occupations.⁶⁸

Finally, a significant correlation between institutional variables and wage levels can be found, based on various regression specifications which, in addition to labour productivity and price levels, include either only institutional variables (columns (3a) and (3b)) or variables on the sectoral workplace composition and on job and employment characteristics as well as institutional variables (columns (4a) and (4b) and (5a) and (5b), the latter also including sector dummies). Across all specifications, central bargaining levels and bargaining coverage rates correlate positively with wage levels, while trade union density is found to be negatively correlated with wages.

The effect of employment protection is less clear-cut. While wage levels are in general lower in countries with stricter employment protection - after controlling for differences in labour productivity and other sectoral employment characteristics - various types of employment protection are seen to have offsetting effects on wage levels. The regulation of collective dismissals is found to have a positive effect on wages, while the opposite holds true for employment protection of regular and temporary jobs at the level of the individual worker, with wage levels significantly lower in countries with stricter employment protection.⁶⁹ No clear-cut results on the effect of minimum wages on overall wage levels could be obtained.

Recent wage and productivity developments⁷⁰

As stated in the BEPG 2003 (see box 5) and as reflected in the “wage coordination formula“

discussed above, nominal wage increases should be consistent with price stability and productivity gains³⁰. While wage and productivity levels have been found to be closely related, the question therefore remains as to whether the recent evolution of wages has been in line with productivity developments.

In the EU as a whole as well as in most EU Member States, there has been a steady - but slow - acceleration in nominal pay increases since 1999. After average nominal wage increases of below 3% in the years 1997-1999, nominal wages in the EU increased by 3% in 2000 and 3.5% in 2001. This acceleration came to a halt since 2002, in part reflecting the recent downturn in economic activity, with average nominal wage increases of 3.6% in 2002. Real wage increases, on the other hand, fell from 2% at the end of 1999 and beginning of 2000 to levels of 1-1.5% throughout the 2000-2003 period (chart 73).

According to the Conventional Earnings Index (CEI), nominal pay increases in the period 2000-2002 were strongest in Ireland, the UK and the Netherlands, with average annual nominal wage increases of more than 5%. For Ireland they were up to more than 8% in 2001 alone. On the other hand, nominal pay increases in the euro zone as a whole, and in Germany, Austria, Italy and France in particular, remained at 3% or below. The outcomes of pay bargaining in 2002 and 2003 have continued the trend towards greater wage moderation. In fact, the most recent wage increases have remained below those in 2000/2001 in most EU Member States (chart 74).

Averaging the annual increases over the four-year period 2000-2003, the EU Member States can arguably be divided into three groups. The “low” nominal pay increase countries are those where pay increases have averaged 2-3% and include Germany, Austria, France and Italy. “Medium” nominal pay increase countries - Belgium, Luxembourg, Spain, Denmark, Finland, Sweden - have seen pay increases averaging 3-5%. Finally in “high” nominal pay increase countries

⁶⁸ For further information on the gender pay gap and factors related to it, see also: European Commission (2002), *Employment in Europe 2002*, section on „Analysing gender pay gaps in the European Union“; and European Commission (2003), *Gender pay gaps in European labour markets, Measurement, analysis and policy implications*, Working Paper of the Commission Services, DG Employment and Social Affairs, SEC(2003) 937.

⁶⁹ See also the next section for further empirical results on the link between employment risks and wages, based on an analysis of wage determinants at the individual level.

⁷⁰ See also the ECFIN Wage Monitor and EIRO (2003) report on “Pay developments 2002”.

⁷¹ Note that, since the BEPGs not only refer to prices and productivity, but also to the restoration of profit margins and to job-creating investment growth, this could imply that real wage increases should remain below productivity growth rates.

Table 31 – Wage determinants at sectoral level, summary of estimation results from joint regressions for all countries (EU and accession countries)

	(1)	(2)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)
Labour productivity	.0023441 (.0001712)	.0011154 (.0001113)	.0019547 (.0001289)	.0019608 (.0001274)	.0010016 (.000111)	.0009942 (.0001113)	.0006621 (.0002023)	.0006624 (.000202)
Price level	2.98107 (.0266282)	2.482939 (.0286362)	2.652345 (.1347619)	2.609219 (.1399533)	2.749006 (.0509229)	2.215251 (.1173728)	2.574896 (.1126995)	2.470123 (.1186527)
Workforce composition								
Women		-.3113674 (.0236032)			-.31791 (.0304663)	-.312372 (.0304418)	-.2496889 (.0739537)	-.1791995 (.0742072)
Young workers (15-24)		~				-.1816536 (.0899305)	~	~
Older workers (55-64)		-.1697173 (.0876092)					.2736 (.1467341)	.3400079 (.1507438)
Older workers (65+)		-.4115864 (.1287753)				-.5071889 (.2823898)	~	~
Low skilled		-.2315574 (.0441909)			-.2463987 (.0566632)	-.2974292 (.0565462)	~	~
High skilled		.5574296 (.0440954)			.5501871 (.0601941)	.5005414 (.0621167)	.223953 (.0716627)	.177372 (.0863878)
Job characteristics								
Self-employed		-.3480227 (.0531706)			-.3503781 (.0685068)	-.37359 (.0680234)	~	~
Temporary employees		-.4686471 (.0884163)			-.3405939 (.0878219)	-.3516855 (.0991976)	~	-.2164924 (.1012418)
Employer characteristics								
Firm size 10-49		-.150474 (.0125392)			-.1332159 (.0152851)	-.1369878 (.0151639)	-.1338129 (.0139584)	-.1343727 (.0138136)
Firm size 50-249		-.0355088 (.0124889)			~	-.0299747 (.0150584)	-.0280101 (.0138593)	-.0281657 (.0137155)
Firm size 250-499		.0268277 (.0137944)			~	~	~	~
Firm size 500-999		.0532445 (.0148605)			.0468458 (.0168083)	.0425785 (.0166763)	.0453166 (.0153827)	.0442065 (.0152411)
Firm size 1000+		.0844369 (.0153458)			.0897111 (.0170692)	.0854215 (.0169403)	.0895265 (.0156459)	.0889182 (.015509)
High-tech sector		.023548 (.0105389)			~	~	.1357852 (.0588928)	.1437727 (.0614435)
Knowledge intensive		.0927442 (.0134998)			.0612824 (.0154613)	.0569472 (.0157961)	.3279222 (.147595)	~
Sector dummies	no	no	no	no	no	no	yes	yes
Country dummies	no	yes	no	no	no	no	no	no
Institutional variables	no	no	yes	yes	yes	yes	yes	yes
National bargaining			.5513429 (.0426386)	.7057361 (.0953548)	.5873531 (.0329662)	.7333758 (.0420145)	.4862681 (.0348885)	.7842192 (.0804789)
Sectoral bargaining			.3588267 (.0279722)	.3955612 (.0471156)	.4183238 (.0194265)	.3087943 (.039112)	.3530628 (.0222686)	.3252051 (.047386)
EPL (overall, version 2)			-.0966511 (.0217445)		~		-.1114587 (.0205116)	
EPL (regular employment)				-.1372768 (.0205412)		-.0639515 (.0155825)		-.1307749 (.0164403)
EPL (temporary employment)				~		-.047718 (.0176143)		-.0772568 (.0236453)
EPL (collective dismissals)				~		.17548 (.0348516)		.2103423 (.0676767)
minimum wage			~	~	~	.0726652 (.0271378)	-.0505613 (.0266686)	.0990654 (.0411549)
coverage rate			.0034682 (.0007249)	.0069453 (.0024392)	-.0109423 (.0005703)	-.0139637 (.000904)	.0041875 (.0006694)	.011165 (.0022079)
trade union density			-.0117717 (.0007505)	-.0137164 (.0018916)	.0014862 (.0006524)	.0068053 (.0012857)	-.011146 (.0005915)	.0160053 (.0017125)
N	2,598	2,587	1,624	1,624	1,624	1,624	1,624	1,624
R ²	0.86	0.99	0.64	0.65	0.99	0.99	0.99	0.99

Source: Eurostat, LCS, SBS and LFS; EIRO and OECD for institutional variables

Note: Observations refer to the sectoral level. Most variables (labour productivity, price level, firm size and institutional variables) have been introduced in earlier sections of this chapter. Information on average gross hourly earnings and on the firm size is from the LCS. The variables related to the workforce composition and to job characteristics as well as information on whether a sector is a high-technology or knowledge intensive sector is based on the LFS. The variables related to the workforce composition and to job characteristics report the share of the respective category in the given sector, while the variables "high-tech sector" and "knowledge intensive" are dummy variables. Institutional variables are from EIRO and OECD. All data refer to the year 2000, with the exception of the OECD indicators of employment protection which refer to the 1990s.

Table 32 – Wage determinants at sectoral level, summary of estimation results from country-specific regressions

	Hourly labour productivity	Women	Young workers	Older workers	Low skilled	High skilled	N (adj. R ²)
DK	0	–	0	0	0	++	184 (0.39)
D	++	–	0	0	–	++	148 (0.80)
E	++	–	0	–	0	0	230 (0.66)
F	0	–	0	++	0	++	196 (0.38)
IRL	++	–	0	0	–	0	101 (0.67)
I	++	–	–	0	–	0	206 (0.57)
L	0	0	0	0	0	++	47 (0.54)
NL	++	–	–	0	–	0	132 (0.76)
P	++	–	0	0	0	++	112 (0.66)
A	++	–	–	0	–	0	144 (0.52)
FIN	0	–	0	0	0	++	167 (0.42)
S	0	0	–	0	–	0	72 (0.59)
UK	++	–	–	0	–	++	239 (0.72)
BG		–	–	0	–	0	203 (0.44)
CY		0	–	0	–	++	154 (0.41)
CZ		–	–	0	–	++	210 (0.34)
EE	++	–	+	–	0	++	83 (0.54)
HU	++	0	0	0	0	++	161 (0.60)
LT	++	0	0	0	–	++	106 (0.66)
LV	++	0	0	0	0	++	97 (0.69)
RO		–	–	0	–	++	226 (0.39)
SK	0	–	0	0	0	++	162 (0.26)

Source: Eurostat, LCS

Notes: ++: positive and significant at 5 level; +: positive and significant at 10 level; –: negative and significant at 5 level; -: negative and significant at 10 level; 0: insignificant; no data available for Belgium, Greece, Malta, Poland and Slovenia; for Bulgaria, Cyprus, the Czech Republic and Romania, no information was available on hourly labour productivity at NACE-2 level.

such as Ireland, the UK, the Netherlands and Luxembourg pay increases have averaged over 5%. In comparison with the four-year period 1996-1999, nominal wage increases in the period 2000-2003 were more than one percentage point higher on average in the Benelux countries and in Ireland, and more than half a percentage point higher in the UK, Germany and Finland. Nominal wage increases decelerated in Sweden and Italy. In most other Member States nominal wage increases remained stable between the two periods.

In all accession countries except Lithuania, nominal wage increases in the period 2000-2002 were considerably higher than in the EU Member States, by a factor of three on average. While wage increases in the Czech Republic, Bulgaria and Latvia reached 7%, on average, and thus were of the same order as in Ireland, they exceeded 10% in Slovenia, Estonia, Hungary and, notably, Romania. In some of the accession countries, notably Bulgaria and Poland, there has not been any clear trend in wage developments since 2000, with high growth rates of more than 10%

in 2001 being followed by very low or even negative nominal wage increases a year later. Lithuania – one of the countries with the lowest rates of both, trade union density and collective bargaining coverage – is the only accession country with nominal wage increases below those in the EU Member States, with wages actually stagnating over the period 2000-2002.

Clearly, changes in the price level have to be taken into account when interpreting the above differences in wage developments across countries, and between EU Member States and accession countries in particular. Although inflation rates – as measured by the harmonised index of consumer prices (HCPI) – declined between 2000 and 2002 in most countries, with the notable exceptions of Ireland, the Netherlands, Spain and Greece, sizeable differences do remain in particular between the current EU Member States and the accession countries (chart 76).

Despite the generally higher inflation rates, real wages also increased more strongly in the accession countries than in the EU,

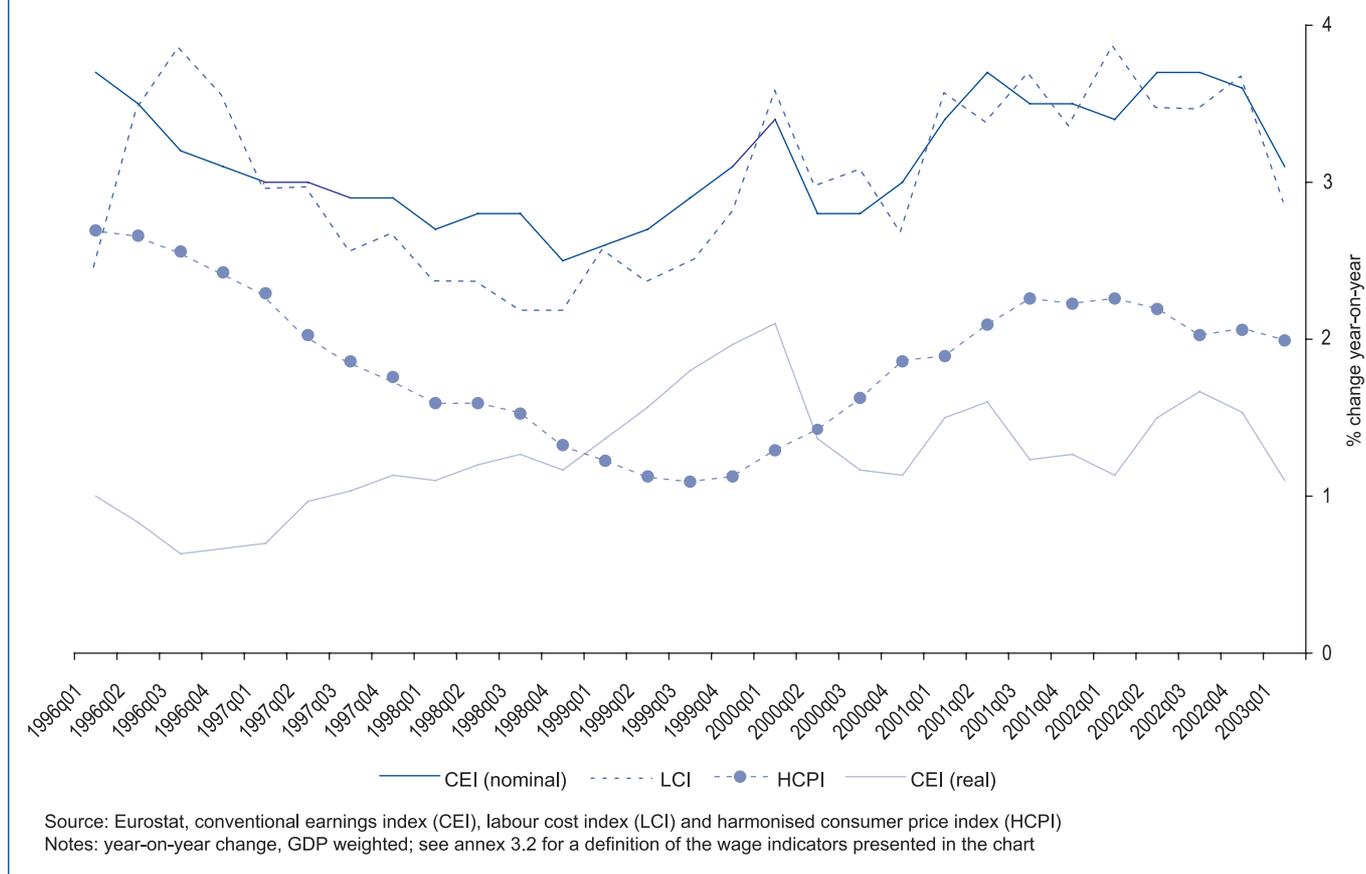
with growth rates nearly six times higher (chart 77). The increase was strongest in Estonia, Romania and Hungary where real wages grew, on average, by more than 6% per year over the period 2000-2002. Among the current EU Member States, the highest growth rates in real wages were observed in Ireland and France, with real wages increasing by more than 2% per year on average. At the other extreme, real wages have declined over the period 2000-2002 in Bulgaria, Lithuania and Spain.

Averaging the annual real pay increases over the period 2000-2002, both EU Member States and accession countries divide roughly into four groups. The “negative” real pay-increase countries, where pay increases have averaged below zero, are Bulgaria, Lithuania and Spain. The “low” real pay-increase group where pay increases have averaged less than 2% per year encompass the Benelux countries, Austria, Germany, Italy, Sweden, Finland and Slovakia; In “medium” real pay-increase countries – Slovenia, France, Ireland, Poland, the Czech Republic and Latvia – pay increases have averaged 2-4%. Finally Hungary, Romania and Estonia can be classified as “high” real pay-increase countries with pay increases averaging 4% or over.

While the average wage increases described above tend to be generally higher than those of collectively agreed wages – with the exception of Germany in 2001/2002 and the Netherlands in 2002 – wage developments are largely in line with productivity developments. There are also signs of a sensible reaction of wage developments to the recent economic downturn. This suggests that the EU's key broad economic guidelines on pay – that increases in nominal wages should be consistent with price stability and that increases in real wages should not exceed growth in labour productivity – are largely being observed in most Member States.

In fact, both wage bargaining outcomes and actual wage increases in most EU Member States remain very much within the limits described by the so-called “distributive margin formula” in most Member States. This formula foresees that nominal wage increases should not exceed the margin provided for by labour productivity growth and inflation. Many recent wage agreements clearly demonstrate such wage moderation, with a view

Chart 73-Evolution of wages and labour costs in the EU, 1996-2003



to preserve and enhance competitiveness (table 33).

In the EU as a whole, average annual nominal wage increases of 2.8% in the period 1997-1999 and 3.4% in the period 2000-2002 compare with average inflation rates of around 1.4% and 2.1%, respectively, and average labour productivity growth of 1.3% and 0.9% per employed and 1.6% and 1.3% per hour worked, respectively. Nominal wage increases are thus broadly in line with the above formula, although, in some Member States, they have recently slightly exceeded the margin as defined by the sum of inflation and labour productivity, and this despite the weakening of the labour market and the slight increase in unemployment in most EU Member States.

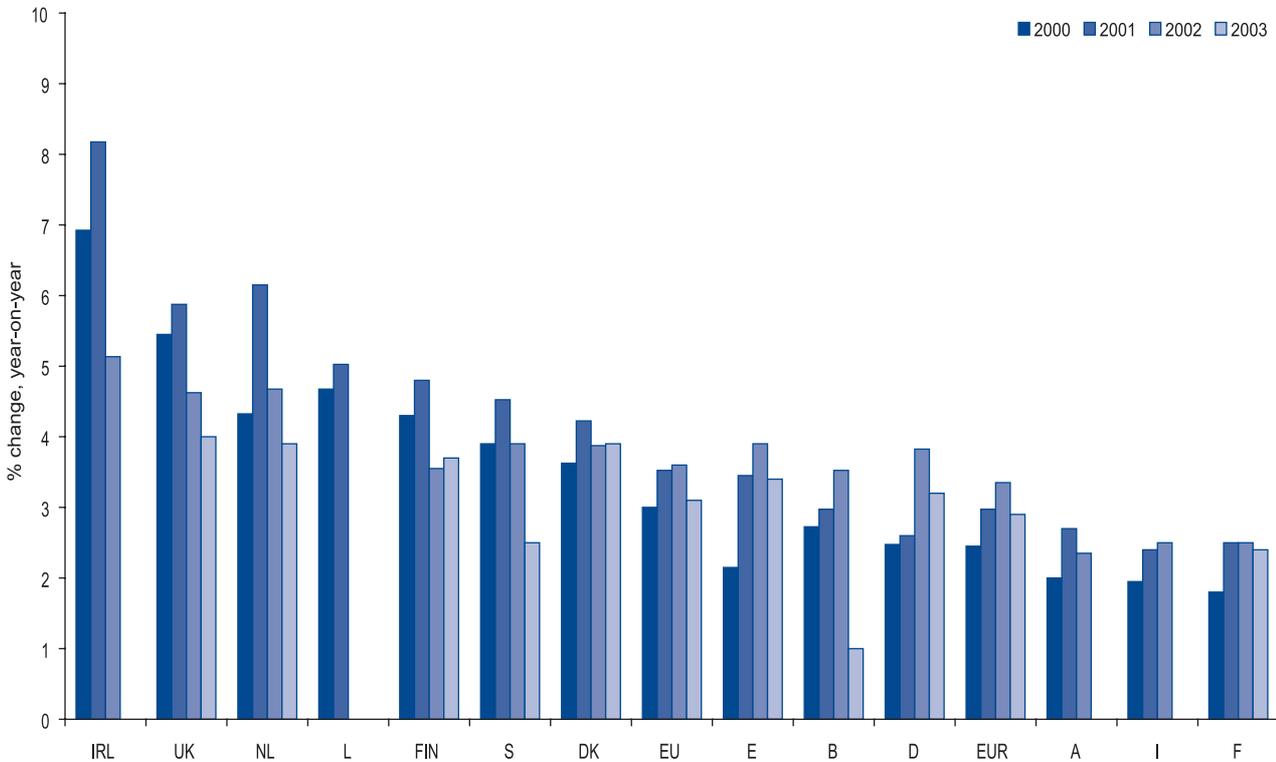
In particular in the Netherlands, Luxembourg and the UK, recent wage increases seem to have exceeded the distributive margin. In some Member States, the relative position of nominal wage increases with respect to the “distributive margin” turned unfavourable in the period 2000-2002. For Germany, France and Sweden, contradictory results are obtained depending on the choice of the indicator used as a measure for nominal wage increases. A tendency towards wage moderation can be observed in Denmark, Spain, Ireland, Italy and Austria. Among the accession countries, recent wage increases exceeded productivity increases and inflation in the Czech Republic, Estonia and Hungary. After a period of considerable excess between 1997-1999, Bulgaria, Lithuania and Poland stayed

largely within the “distributive margin” in 2000-2001. In Latvia, Slovenia and Slovakia, real wage increases continued to remain significantly below productivity growth.

According to the Commission Spring 2003 forecasts, this trend of moderate pay increases will prevail in the near future.⁷² The annual growth of average compensation per head in the EU is estimated at 3.25% in both 2003 and 2004, slightly up from 3% in 2002. At the same time, a modest recovery in labour productivity growth is expected in 2003. Indeed, evidence tentatively suggests that wage growth may be slightly weaker than the forecast projections for 2003, thereby continuing the recent negative real unit labour cost growth in the near future.

⁷² See the May 2003 issue of the DG ECFIN Wage Monitor.

Chart 74 - Nominal wage increases in the EU, 2000-2003 (source: conventional earnings index)



Source: Eurostat, LCI

Wage determinants and incentives

Given the multitude of theoretical arguments, there is scope for an empirical analysis of the main wage determinants⁷³ in the EU Member States identified by means of both, EU-level and country-specific augmented wage regressions (cross-sectional pooled regressions and panel data analysis).

Data and methodology

Given the focus on risk compensation and local labour market conditions, measures of earnings and employment risks as well as re-

gional unemployment rates have been added to the standard model specification.

The dependent variable is gross hourly wages in euro (in logarithmic form), where hourly wages are derived by dividing the current gross monthly earnings by four times the usual weekly working hours. Observations of employed individuals with zero earnings or with missing information on weekly working hours are deleted from the sample.

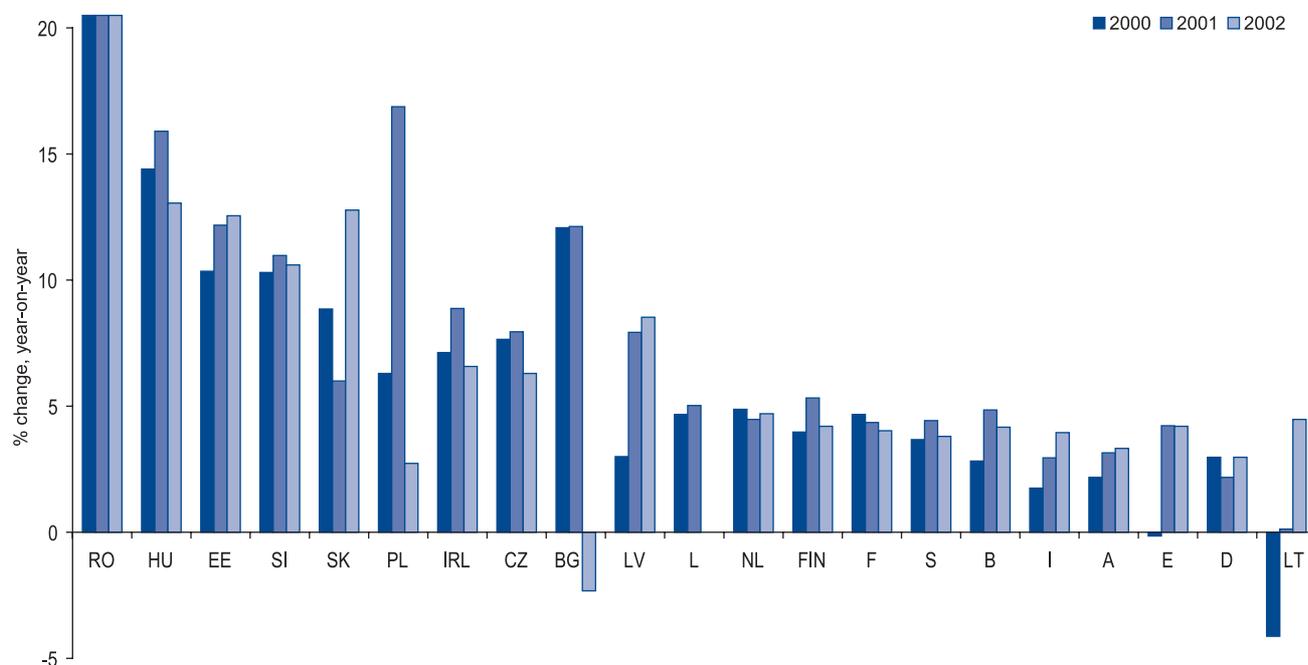
A broad range of variables have been included: personal and family characteristics; job characteristics; employer characteristics; and country- and region-dummies. Personal characteristics include gender, age, education, nationality (EU national or non-EU national), marital status and presence of children as

well as information on the individual's labour market history, notably the tenure in his or her current job and nature and duration of previous career interruptions. Job characteristics include the job status (not available for Germany), working time (part-time or full-time) and the contract type (temporary or permanent). Employer characteristics include the firm size, ownership (private or public sector), as well as detailed information on the occupation (ISCO-2) and the sector (NACE-2; not available for Germany).

Furthermore, for each combination of sector and occupation, the share of employees losing their job in the following years was calculated. This observed frequency of future job loss in sector-occupation cells is used as a proxy of employment risks. Earnings risks

⁷³ This section provides evidence on wage determinants on the basis of individual-level data. The focus is - as in the section above - on gross hourly wages. Evidence is based on individual-level data from the European Household Panel (ECHP) for the EU Member States for the years 1995-2000 (no comparable individual-level data are available for the accession countries), thus complementing the above findings on the basis of enterprise-based information at sectoral level.

Chart 75- Nominal wage increases in the EU Member States and the Accession Countries, 2000-2002 (source: Labour Cost Index - gross wages and salaries)



Source: Eurostat, LCI

Note: averages calculated on the basis of quarterly year-on-year percentage changes; countries sorted by average nominal wage increases 2000-2002; no data available for Denmark, Greece, Portugal and the UK.

and opportunities are proxied by measures of the variance and skewness of wages in education-occupation cells.⁷⁴ National or regional labour market conditions are considered through the regional unemployment rate and country- or region-dummies (see tables 34 and 35 for descriptive statistics).

The augmented wage regressions allow important earnings patterns to be identified such as age-earnings profiles, tenure-earnings profiles, returns to education, and industry and firm-size differentials. They also qualify the wage differentials across regions (see above), industries and firm sizes, correcting the above unadjusted wage differences for differences in personal, job and employer

characteristics. They, finally, make it possible to analyse whether wages account for differences in regional labour market conditions and to what extent they compensate for employment or earnings risks.

The analyses presented in this section add to a vast amount of published material on wage determinants in three ways. Firstly they provide cross-country comparisons based on harmonised individual-level panel data. Secondly they analyse variations in wage determinants across the earnings distribution; and thirdly – and most importantly – they test additionally for employment and earnings risk compensation.⁷⁵ As the results on wage differentiation by sector, region and firm size

set out above are corroborated by the analyses at the individual level, they are not further discussed in the sequel.

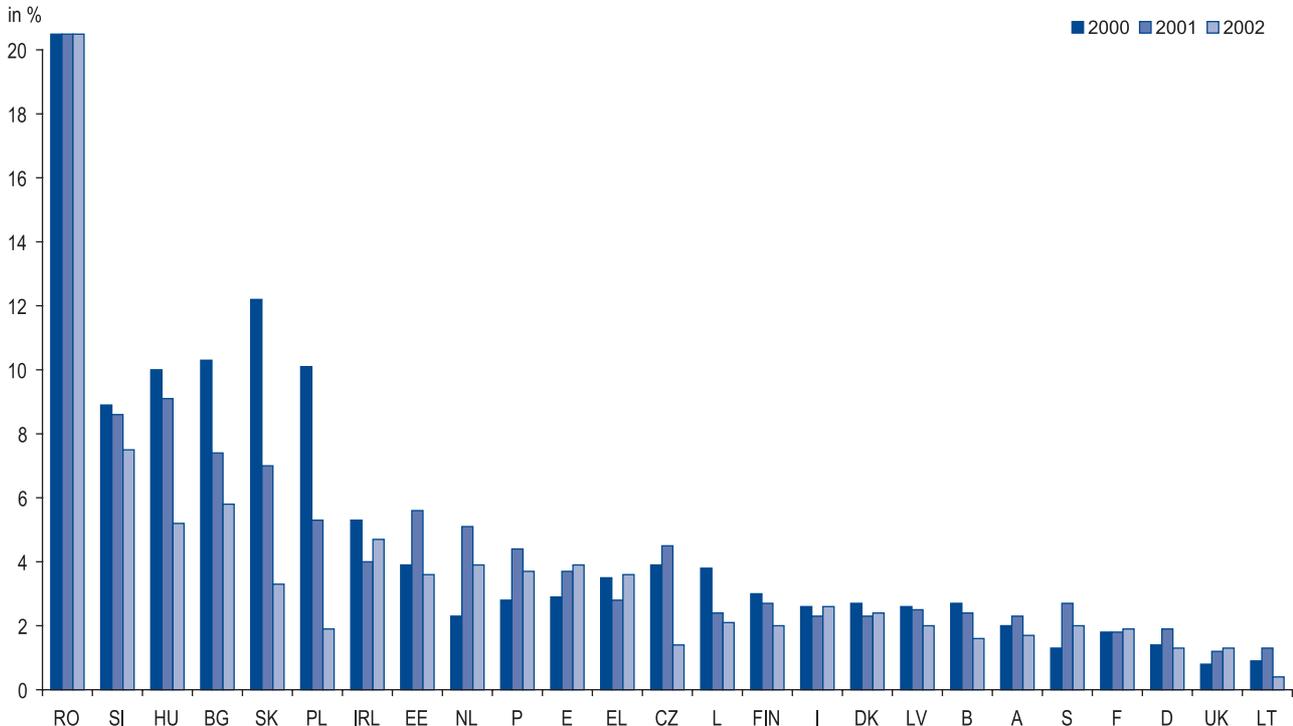
Wage distributions and low wage earners

With regard to both, wage distributions and the incidence of low wage employment, clear differences can be observed across the EU Member States. Relatively compressed wage distributions in Denmark, Finland, Belgium, Italy, and Austria contrast with a significantly larger wage dispersion in Greece, Spain, Portugal, the UK, Ireland and Germany. In

⁷⁴ As suggested in Hartog and Vijverberg (2002) this means it is possible to test simultaneously for both, 'risk aversion' and 'skewness affection' – the latter referring to individuals preference for education-occupation groups in which the earnings distribution is skewed to the right and hence, compared to more compressed wage distributions, offers a chance, albeit small, of very high earnings. Contrary to the work of Hartog and Vijverberg, the measures used in this analysis are calculated as average across education-occupation cells and are not themselves predicted on the basis of wage regressions.

⁷⁵ For related work on the relationship between earnings and employment risks, see also Luigi Guiso et al. (2001), 'An empirical analysis of earnings and employment risk', Università di Salerno, Centre for studies in economics and finance (CSEF), Working Paper no. 8, and Mario Padula and Luigi Pistaferri (2001), 'Education, employment and wage risk', Università di Salerno, Centre for studies in economics and finance (CSEF), Working Paper no. 67. The first paper studies the evolution of individual income and employment risk over the life-cycle, using individual-level information on perceived risks of unemployment and expected future income. The second paper estimates the returns to education, taking into account differences in wage and unemployment risks. In yet another paper, the above authors show that firms provide substantial insurance for their employees against shocks to the firm's performance, thus reducing the variation of employees' wages over time.

Chart 76 - Harmonised consumer price inflation in the EU and the Accession Countries, 2000-2002



Source: Eurostat, HCPI

Note: averages calculated on the basis of quarterly year-on-year percentage changes; countries sorted by average nominal wage increases 2000-2003; data for 2003 refer to 2003Q1; no data available for Portugal and Greece.

particular in Germany and the Netherlands, there is a large downward variation of hourly wages, with wages at the first decile in Germany amounting to only 44% of the median wage. On the other hand, the wage distribution is strongly skewed to the right in the UK, Ireland, Greece, Spain and, most notably, Portugal, with wages at the ninth decile up to 300% of the median wage (table 36). The share of low wage earners - employees with gross hourly earnings of more than 25% below the country-specific average - amounts to 24% in the EU as a whole, 18% of men and 32% of women. It is also generally higher among non-EU nationals (29%) and among low-skilled (34%) as opposed to high-skilled (13%). The share of low wage earners is highest in Ireland, the UK, Germany and the Netherlands, and notably among low-skilled in Germany, Austria, Denmark, Ireland and the UK (table 37).

Wage determinants at EU-level

The regression results (table 38) confirm some standard findings on wage determinants. Firstly, important wage gaps prevail by gender and nationality even after controlling for differences in personal, job and firm characteristics. Women's wages are 13-15% lower than those of men with otherwise similar characteristics. There is also evidence of wage gaps by nationality, with EU nationals working in a country other than their home country earning, on average, 3-5% more, while non-EU nationals earn 2% less. Wage gaps between nationals and non-EU nationals are considerably higher for high-skilled and for women as opposed to low-skilled and men.

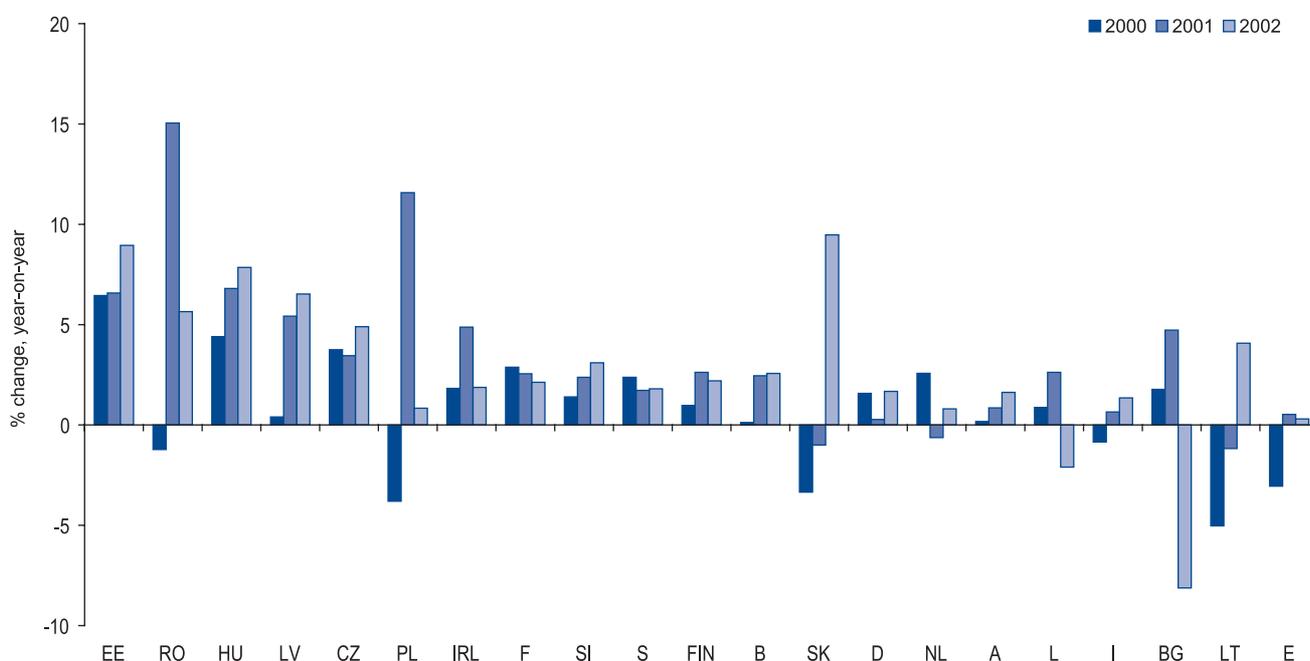
Secondly, higher levels of educational attainment and job-specific training tend to increase wages. High-skilled employees earn, on average, some 17-19% more than their

low-skilled counterparts, and medium-skilled employed still enjoy wage premia of up to 6-7%. Job-specific training in a given job further increases wages by up to an additional 4-8%. Furthermore, supervisory functions increase wages by up to 16%.

Thirdly, wages are strongly linked to both age (or labour market experience) and tenure. Age-earnings profiles are upward sloping until the late 40s. The subsequent decline is found to be stronger for low-skilled employed and for women. The only group for which the age-earnings profile seems to be upward sloping across all ages are the high-skilled. For them, the effects of age (or, equivalently, labour market experience) on wages are found to be strongest.

Similarly, wages increase with the accumulation of job-specific human capital as measured by the tenure in the job. Tenure-earnings profiles are particularly steep at the beginning of

Chart 77- Real wage increases in the EU Member States and the Accession Countries, 2000-2002
(source: Labour Cost Index - gross wages and salaries)



Source: Eurostat, LCI

Note: averages calculated on the basis of quarterly year-on-year percentage changes; countries sorted by average nominal wage increases 2000-2002; no data available for Denmark, Greece, Portugal or the UK.

the career and again after long careers of 15 years or more. The tenure effect on wages is strongest, too, for the high-skilled employed, and also stronger for men than for women.

Career interruptions, on the other hand, tend to have a negative effect on wages. The sheer fact of having been unemployed before can lower wages by some 3-4%. This effect is the more negative the longer is the duration in unemployment. Each additional month in unemployment lowers wages, on average, by up to an additional 1%. Estimates of the effect spells of inactivity, on the other hand, are generally inconclusive.

Fourthly, working time and contract type matter. Part-time work, on average, increases wages slightly, while temporary contract

work carries a considerable negative wage penalty of up to 12%.

Fifthly, there is strong evidence of the compensation of employment and earnings risks by means of higher wages. Risk of job loss in the intermediate probability range of 0.4 to 0.8 is compensated for through wage increases of up to 5%, while almost certain job loss seems to go hand-in-hand with significant wage reductions. This finding seems in line with the general finding of a so-called earnings dip just before dismissal, possibly indicative of unobservable characteristics related to wage reductions, such as low motivation or low productivity.

With regard to the education/occupation-specific wage distribution, the results also

indicate both “risk aversion” and “skewness affection”, i.e. wages are positively correlated to the relative variance of the earnings distribution and negatively correlated to its relative skewness.⁷⁶ This means that the risk inherent in the choice of education/occupation groups that are characterised by a large variation of earning is being compensated for by higher wages, while the prospect of very high wages in the future leads, on average, to lower wages at present.

Finally, the analysis shows that higher regional unemployment rates significantly reduce wages, demonstrating that wages reflect local or regional labour market conditions. Controlling for country differences in the overall unemployment rate, a 1% higher

⁷⁶ See also footnote 20.

Table 33 – Overview of average nominal wage increases relative to the so-called „distributive margin“ in the EU Member States and the Accession Countries, 1997-2002

	nominal wage increase (LCI)		nominal wage increase (CEI)		inflation (HCPI)		hourly labour productivity growth		labour productivity growth		wage increase (LCI) relative to "distributive margin"		wage increase (CEI) relative to "distributive margin"	
	1997-1999	2000-2002	1997-1999	2000-2002	1997-1999	2000-2002	1997-1999	2000-2002	1997-1999	2000-2002	1997-1999	2000-2002	1997-1999	2000-2002
B	2.3	3.8	1.6	3.1	1.2	2.2	2.5	1.2	1.6	0.7	-1.4	0.4	-1.2	0.2
DK	4.2	4.0	4.1	3.9	1.8	2.5	0.6	3.3	1.3	1.9	1.8	-1.8	1.0	-0.5
D	1.7	2.4	2.1	2.8	0.9	1.5	1.6	1.5	1.1	0.7	-0.8	-0.6	0.1	0.6
EL			8.3		4.0	3.5	2.3	4.7	2.4	4.3			1.9	
E	3.1	2.7	2.5	3.1	2.0	3.3	0.6	0.6	0.6	0.6	0.5	-1.2	-0.1	-0.8
F	2.5	4.4	1.8	2.3	0.9	1.8	1.7	2.0	1.7	0.6	-0.1	0.6	-0.8	-0.1
IRL	4.8	7.5	4.8	6.8	1.9	4.7	6.2	4.5	3.4	4.1	-3.3	-1.7	-0.5	-2.0
I	2.2	2.8	2.9	1.9	1.9	2.5	1.2	0.4	1.2	0.3	-0.9	-0.1	-0.2	-0.9
L	2.7	4.2	2.7	4.2	1.1	2.8	3.9	-1.0	3.6	-1.0	-2.3	2.4	-2.0	2.4
NL	1.6	4.8	4.0	5.1	1.9	3.8	2.2	0.0	1.2	0.2	-2.5	1.0	0.9	1.1
P	2.8	3.3	4.1		2.1	3.6	2.6	1.4	1.9	0.8	-1.9	-1.7	0.1	-4.4
A	2.5	2.9	2.2	2.4	0.8	2.0	2.7	1.9	1.7	1.4	-1.0	-1.0	-0.3	-1.0
FIN	3.3	4.8	3.1	4.2	1.3	2.6	2.4	1.7	2.3	1.3	-0.4	0.5	-0.5	0.3
S	3.8	4.0	4.2	4.2	1.1	2.0	2.5	2.3	2.8	0.9	0.2	-0.3	0.3	1.3
UK	4.7	3.8	4.9	5.3	1.6	1.1	1.7	1.8	1.4	1.5	1.4	0.9	1.9	2.7
EU	2.7	3.4	2.9	3.4	1.4	2.1	1.6	1.3	1.3	0.9	-0.3	0.0	0.2	0.4
BG	19.1	7.3			10.7	7.8			2.3	5.6	6.1	-6.1		
CY					2.2	3.2			3.0	2.2				
CZ	10.4	7.3			6.5	3.3			1.0	2.5	2.9	1.5		
EE	12.9	11.7			7.1	4.4			7.0	6.2	-1.2	1.1		
HU	15.2	14.5			14.2	8.1			2.8	3.6	-1.8	2.8		
LT	15.9	0.2			4.8	0.9			5.3	5.2	5.8	-5.9		
LV	5.2	6.5			4.8	2.4			4.6	6.1	-4.2	-2		
MT									4.1	1.1				
PL	21.0	8.6			11.3	5.8			4.4	4.2	5.3	-1.4		
RO	66.8	40.7			86.6	34.2			-0.5	7.0	-19.3	-0.5		
SI	10.4	10.6			7.4	8.3			4.6	3.8	-1.6	-1.5		
SK	10.5	9.2			7.7	7.5			4.4	2.7	-1.6	-1		

Source: Eurostat, LCI, CEI, HCPI, national accounts

Note: LCI data refer to gross hourly earnings, CEI data to monthly earnings; LCI data for Denmark, Portugal, the UK and the EU average refer to total labour costs; for accession countries, no data on nominal wage increases (CEI) and on hourly labour productivity growth are available; the wage increase (LCI) in relation to the 'distributive margin' is calculated by comparing real wage increases according to the Labour Cost Index with hourly labour productivity growth (in case of the EU Member States) and labour productivity growth (in case of the accession countries); the wage increase (CEI) in relation to the 'distributive margin' is calculated by comparing real wage increases according to the Conventional Earnings Index with labour productivity growth per employed; see annex 3.2 for the data sources and their limitations.

regional unemployment rate tends to reduce wages by up to half a percentage point.

All of the above results are robust with respect to varying model specifications, and most notably when taking account of unobserved heterogeneity (through panel data models) and selection into the labour market (through selection corrections in the form of standard Heckman selection models).

Variation in wage determinants across the wage distribution

The results described above apply to the average and hide in some cases important

differences in wage determinants across the wage distribution. To identify such differences, quantile wage regressions have been estimated at EU-level, using the same set of variables as above (see table 39 for an overview of the estimation results). Gender wage gaps are most prevalent in the upper part of the wage distribution, reaching 15% in the highest decile as opposed to 8% in the lowest one. Wage gaps for EU nationals working in another EU country with respect to that country's nationals are also highest in the upper part of the wage distribution, while the wage gap between nationals and non-EU nationals is found to be of equal size across all the wage distribution with the exception of the lowest decile where this wage gap is almost non-existent.

The wage effect of education, job-specific training and job status is generally similar across the whole wage distribution, with somewhat stronger wage premia at the higher end of the wage distribution.

With regard to age-earnings profiles, wages tend to increase in a similar way with age across the whole distribution. While the highest wages increase across all age groups, however, the effect of age on lower wages is found to decline at the end of the career. This decline is strongest in the lower part of the wage distribution. With respect to tenure in the job, the opposite finding seems to hold true. While tenure-earnings profiles are upward sloping across the whole wage distribution, the wage

Table 34 – EU-level descriptive statistics

Variable	Mean	St. Dev.	minimum	Maximum
Gross hourly wage (in Euro)	10.39	8.45	0.25	826.51
Personal characteristics				
Gender (women=1)	0.44	0.50	0	1
Non-national (EU national)	0.01	0.12	0	1
Non-national (non-EU national)	0.02	0.14	0	1
Age (in years)	37.91	11.47	13	90
Education and skills				
High-skilled	0.25	0.43	0	1
Medium-skilled	0.36	0.48	0	1
Low-skilled	0.39	0.49	0	1
Job-specific training	0.61	0.49	0	1
Family background				
Marital status (married=1)	0.61	0.49	0	1
Presence of children	0.34	0.47	0	1
Labour market history				
Tenure in the job (in years)	8.39	7.12	0	23
Previous unemployment	0.25	0.43	0	1
Previous inactivity	0.18	0.38	0	1
Duration of career previous career interruption (in months)	0.76	2.40	0	40
Job characteristics				
Supervisory job status	0.11	0.32	0	1
Intermediate job status	0.16	0.37	0	1
Non-supervisory job status	0.73	0.45	0	1
Part-time employed	0.12	0.33	0	1
Temporary contract	0.15	0.36	0	1
Employer characteristics				
Public sector	0.31	0.46	0	1
Small firm	0.01	0.09	0	1
Medium-sized firm	0.51	0.50	0	1
Large firm	0.37	0.48	0	1
Very large firm	0.12	0.33	0	1
Occupation (ISCO-1)				
Managers	0.06	0.23	0	1
Professionals	0.13	0.33	0	1
Technicians	0.15	0.36	0	1
Clerks	0.16	0.37	0	1
Service workers	0.14	0.34	0	1
Skilled agricultural workers	0.02	0.13	0	1
Craft and related trades workers	0.16	0.36	0	1
Plant and machine operators	0.09	0.29	0	1
Elementary occupations	0.11	0.31	0	1
Earnings and employment risk				
Risk of job loss	0.07	0.07	0	1
Variance	0.51	0.36	0.01	15.94
Skewness	3.05	3.51	-1.48	21.38
National or regional labour market conditions				
Regional unemployment rate	9.39	5.12	1.5	31.9

Source: Eurostat, ECHP, UDB version June 2003, waves 2-7 (1995-2000)

Notes: In all wage regressions also sector dummies (at NACE-2 level) were included. The respective descriptive statistics on sectoral employment shares, however, are not presented in the table above.

premia related to tenure are strongest among the lower deciles.

An interesting result concerns the varying wage effects of career interruptions and unemployment. While previous unemployment incidence has a stronger negative wage effect in the upper part of the wage distribution, the opposite holds true for the wage effects of the duration of career interruptions in general, and unemployment in particular. Wage penalties for a longer duration in unemployment in the lowest decile are three times as large as in the highest decile. A possible reason for these results might be that unemployment among those with relatively high wages has less of a negative signalling effect, although the loss of firm- and job-specific experience weighs more heavily on them than is the case for low wage earners.

Also the wage effects of part-time work and temporary contract work vary significantly across the wage distribution. In the lower part of the wage distribution, both part-time work and temporary contract work have strong negative wage effects, reducing wages by up to 5% and 19%, respectively. In the upper part of the wage distribution, temporary work carries a smaller, though still negative wage penalty of up to 10%. Part-time work, on the other hand, leads to considerable wage increases of more than 11% in the highest decile.

Furthermore, the wage premia for working in the public sector are much more pronounced among low wage earners, with wage premia reaching up to 12% in the lowest decile as opposed to 3% in the highest decile. Contrary to this, wage effects of working in small firms (negative) or in large firms (positive) are less favourable among low wage earners. In particular when working in small firms, wage reductions among low wage earners are three times as large as for high wage earners.

The patterns of compensation for employment risks seem similar across the wage distribution: insignificant for low risk of job loss, positive and increasing for intermediate probabilities of job loss, and decreasing for very high probabilities of job loss. Nevertheless, among low wage earners, a high risk of job loss effectively leads to wage reductions while, in the upper part of the wage distribution, there is some evidence that even a very high risk of job loss is still compensated

Table 35 – Number of observations and descriptive statistics by Member State

Country	Sample size	Gross hourly wage	Unemployment risk	Earnings variance	Earnings skewness	R ² pooled regression model
B	7,041	13.29 (5.71)	0.04 (0.20)	0.41 (0.21)	2.20 (3.07)	0.47
DK	8,791	18.71 (7.55)	0.06 (0.24)	0.32 (0.12)	1.13 (1.34)	0.43
D	18,262	13.01 (9.27)	0.08 (0.28)	0.63 (0.45)	4.33 (4.30)	0.48
EL	9,702	6.18 (3.66)	0.08 (0.27)	0.50 (0.37)	1.81 (1.81)	0.57
E	18,950	8.10 (5.64)	0.13 (0.33)	0.48 (0.24)	1.87 (1.44)	0.63
F	16,725	11.98 (8.09)	0.07 (0.25)	0.52 (0.41)	2.97 (3.16)	0.53
IRL	8,728	12.10 (8.68)	0.05 (0.22)	0.47 (0.30)	1.41 (1.07)	0.60
I	20,067	9.46 (4.74)	0.05 (0.22)	0.38 (0.25)	2.12 (2.47)	0.55
NL	16,581	15.13 (11.79)	0.04 (0.20)	0.75 (0.51)	7.19 (4.55)	0.36
P	16,273	4.59 (4.19)	0.07 (0.26)	0.55 (0.40)	3.15 (3.00)	0.63
A	11,540	11.00 (5.20)	0.06 (0.23)	0.41 (0.16)	1.47 (1.64)	0.37
FIN	10,640	12.43 (7.67)	0.07 (0.26)	0.41 (0.24)	2.28 (3.64)	0.48
UK	8,007	14.32 (8.91)	0.04 (0.19)	0.55 (0.35)	3.65 (3.79)	0.51
EU	155.416	12.05 (8.49)	0.07 (0.25)	0.54 (0.39)	3.36 (3.70)	0.74

Source: Eurostat, ECHP, UDB version June 2003, waves 2-7 (1995-2000)

Notes: gross hourly earnings refer to wave 7 (2000)

Table 36 – Wage distribution statistics, 2000

	mean	st. dev.	median	p10	p25	p75	p90	p75/p25	p90/p10	p90/p50	p50/p10
B	13.29	5.71	12.06	63	80	131	171	1.6	2.7	1.7	1.6
DK	18.71	7.55	18.13	59	80	120	150	1.5	2.5	1.5	1.7
D	13.01	9.27	12.06	44	70	133	177	1.9	4.0	1.8	2.3
EL	6.18	3.66	5.2	57	72	143	208	2.0	3.6	2.1	1.8
E	8.1	5.64	6.58	57	75	144	215	1.9	3.8	2.2	1.8
F	11.98	8.09	10.29	57	74	142	192	1.9	3.4	1.9	1.8
IRL	12.1	8.68	10.02	60	72	141	208	1.9	3.5	2.1	1.7
I	9.46	4.74	8.41	65	81	126	171	1.6	2.6	1.7	1.5
NL	15.13	11.79	13.68	53	75	130	170	1.7	3.2	1.7	1.9
P	4.59	4.19	3.12	64	77	156	292	2.0	4.6	2.9	1.6
A	11	5.2	10.04	61	78	130	172	1.7	2.8	1.7	1.6
FIN	12.43	7.67	11.21	64	81	128	167	1.6	2.6	1.7	1.6
UK	14.32	8.91	12.32	54	72	142	195	2.0	3.6	2.0	1.8

Source: Eurostat, ECHP, UDB version June 2003, wave 7 (2000)

Notes: mean, standard deviation and median are expressed in euro; quantiles are expressed as percentage of the country-specific median wage; no information available for Luxembourg and Sweden.

Table 37 – Share of low wage earners (in %), 2000

	Total	Men	Women	Non-EU nationals	High skilled	Low skilled
B	22	16	28	48	10	33
DK	21	18	24	22	4	50
D	26	18	36	27	12	54
EL	25	19	34	46	7	37
E	23	18	30	19	11	33
F	25	21	30	49	15	30
IRL	29	22	37		10	43
I	17	15	20	17	3	24
NL	27	20	35	62	19	27
P	22	14	31	35	3	28
A	21	13	30	45	5	41
FIN	18	12	23	31	8	29
UK	28	19	36	25	18	40
EU	24	18	32	29	13	34

Source: Eurostat, ECHP, UDB version June 2003, wave 7 (2000)

Note: no information available for Luxembourg and Sweden; low wage earners are defined as those employees with gross hourly earnings of more than 25% below the country-specific average.

for by wage increases. As a conclusion, the compensation of employment risks thus seem effective among the high-skilled and high wage earners, while the opposite applies to the generally low-skilled, low wage earners who see themselves confronted by lower wages and higher job insecurity at the same time (chart 78).

The difference between the various earnings groups is much more pronounced with regard to the compensation of earnings risks. A higher relative earnings variance leads to much higher wage increases for high wage earners (54%) as opposed to low wage earners (6%). At the same time, “skewness affection” is found to be significantly stronger in the higher wage groups. The wage effects of regional labour market conditions, finally, seem to be similar across the whole wage distribution.

Wage determinants in the Member States

In addition to the above differences in wage determinants across the wage distribution, important differences prevail between Member States. While no attempt is made here to

present all country-specific results, some common features of wage determination in the Member States are highlighted (table 40).

Wage gaps by gender (in unadjusted form) amount to 16% on average, ranging between less than 10% in Italy and Portugal to more than 20% in Germany and the UK (and, when using national data sources, the Netherlands). Even when adjusting for differences in the workforce composition, sizeable gender wage gaps continue to exist, reaching up to 15% in Germany, Austria, Finland and the UK.⁷⁷ In some Member States, moreover, important wage gaps exist between nationals and non-EU nationals.⁷⁸

In all countries, there is evidence of an upward sloping age-earnings profile until 40-50, with age effects strongest in the Netherlands, the UK, Denmark and Ireland. Wage increases at the beginning of the career are particularly pronounced in the UK and the Netherlands. While generally declining towards the end of the working career, age-earnings profiles continue to increase over the whole age range in Austria and France.

There is also evidence of increasing wages with longer tenure, most notably in France and Germany, but also in Austria, Finland,

Greece and the Netherlands. In other countries, tenure effects seem considerably smaller. Denmark and the UK have decreasing earnings profiles in older age groups and they are even estimated to become negative after very long careers of 25 years or more.

Returns to education are generally high in all countries, and especially so in Portugal. In Germany and Austria in particular, average wages of the high-skilled furthermore amount to around twice as much as those of the low-skilled. Controlling for different characteristics, wages of the high-skilled exceed those of the low-skilled by 20% or more in Portugal, but also in Ireland, Italy, France and Belgium, all else equal, and by 10% or more in all other Member States. In the Nordic Member States, Germany, Austria and the Netherlands, however, there do not seem to be any sizeable wage premia for the medium-skilled. The returns on job-specific training are most pronounced in Portugal, the UK and Germany.

Wage premia for supervisory functions are most pronounced in Portugal, but also above EU average in the other southern Member States, the UK and the Netherlands. On the other hand, they are much less pronounced in Finland, Denmark and Austria. (There are no data for Germany.) The wage premia for holding a supervisory job generally exceed those for an intermediate job by a factor of three to four. The only exception is the Netherlands, where wage premia for intermediate supervisory functions are basically non-existent, and contrast with relatively high wage premia in supervisory functions of around 18%.

With respect to the effect of the working time status on wages, the findings are mixed. While – with the exception of Greece – average (gross hourly) wages of part-time workers remain considerably below those of full-time employees in all Member States, notably in Ireland, Denmark and the Netherlands, the picture is somewhat changed after controlling for workforce characteristics. Wage penalties for part-time workers in Portugal, Ireland, Denmark, Germany and the Netherlands contrast with considerable wage premia of around 10% or more in France, Spain,

⁷⁷ See *Employment in Europe 2002*, chapter 1, section “Analysing factors related to the gender pay gap”.

⁷⁸ See also chapter 6 of this report.

Greece and Italy and, to some extent, Belgium and Austria.

The findings on the wage effects of temporary work are less ambiguous.⁷⁹ In all Member States, there are important wage penalties for temporary contract work, both in unadjusted and adjusted form. Average wages of temporary contract workers are more than one third below those of permanent contract employees in the Netherlands, Ireland, Greece, France and Spain. Corrected for workforce characteristics, the difference is still found to be negative in all Member States, ranging from around 5% in France, Austria, Germany, Belgium and Denmark to more than 10% in Greece, Spain and, most notably, the Netherlands.

In addition to the above personal and job characteristics, firm-related characteristics play an important role for wage determination. Firstly, in all Member States, there are important firm size effects, with wages in small firms, on average, 18% below those in medium-sized firms, and wages in large firms 6% above. Firm-size differentials are found to be smallest in Austria and Italy. On the other hand, there are particularly large wage penalties for working in small firms in Germany, the Netherlands and Ireland. Secondly, there are significant wage premia for working in the public sector in all Member States except Denmark, Finland, Germany and Austria. These public sector wage premia, which are most pronounced in the four southern Member States and Ireland, amount to up to 16%, all else equal. Thirdly, both sector and occupation have an important impact on wages, as discussed in section 3 above.

With regard to the compensation for earnings and employment risks, the results are mixed. There is evidence of both "risk aversion" in most countries, notably in Spain, Austria and France, and of small "skewness affection", notably in Austria, Ireland and Denmark – some of which are countries with relatively compressed wage distributions. The wage effects of expected sector-occupation specific job, on the other hand, is insignificant for many countries, including Spain in particular, possibly indicating the absence of any effective

Table 38 – EU-level estimation results – Effects on gross hourly wages (in %)

Variable	Pooled regression model, controlling for dependence	Random effects panel data model	Heckman selection model
Personal characteristics			
Gender (women=1)	-10.86	-13.50	-9.38
Non-national (EU national)	5.23	2.84	5.46
Non-national (non-EU national)	-1.78	-1.59	
Age (in years)	2.22	5.76	2.76
Age squared		-0.10	-0.02
Age cube			
Education and skills			
High-skilled	18.18	17.00	18.68
Medium-skilled	6.82	5.97	7.15
Job-specific training	7.90	4.08	8.31
Family background			
Marital status (married=1)	3.25	2.63	
Presence of children	1.51	0.20	
Labour market history			
Tenure in the job (in years)	1.71	1.41	1.65
Tenure in the job squared	-0.10	-0.10	-0.12
Tenure in the job cube			0.00
Previous unemployment	-3.05	-3.82	-3.22
Previous inactivity	-0.10	-0.20	0.00
Duration of career previous Career interruption (in months)	-0.70	-1.09	-0.66
Job characteristics			
Supervisory job status	16.42	9.97	16.11
Intermediate job status	4.92	3.77	4.86
Part-time employed	2.63	7.90	2.68
Temporary contract	-10.60	-6.57	-10.49
Employer characteristics			
Public sector	7.47	6.40	9.14
Small firm	-18.21	-9.70	-18.63
Large firm	5.87	2.53	5.98
Earnings and employment risk			
Unemployment risk	-25.10	-12.19	-8.18
Unemployment risk squared	297.89	95.62	21.96
Unemployment risk cube	-70.57	-44.68	-17.81
Variance	19.60	5.34	20.13
Skewness	-1.19	-0.30	-1.21
National or regional labour market conditions			
Regional unemployment rate	-0.40	-0.20	-0.37
Occupation dummies (ISCO-1)	Yes	Yes	Yes
Sector dummies (NACE-2)	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes
Wave dummies	Yes	–	–
Constant	Yes	Yes	Yes
N	155,416	155,416	472,438
R ²	0.7350	0.7228	–
F-test / Chi ² -test	0.0000	0.0000	0.000

Source: Eurostat, ECHP, UDB version June 2003, waves 2-7 (1995-2000)

Notes: all coefficient estimates reported in the table are significant at the 5% level; selection equation includes as additional variables gender, nationality, education, marital status, number of children, unearned personal income and tax rates on low wage earners, all of which are found to be significant predictors of individual labour market supply decisions.

⁷⁹ See also chart 84.

Table 39 – EU-level estimation results: quantile regressions – effects on gross hourly wages (in %)

Variable	1st decile	1st quartile	median	3rd quartile	9th decile
Personal characteristics					
Gender (women=1)	-8.06	-9.34	-10.68	-12.19	-13.24
Non-national (EU national)	3.36	2.22	0.90	5.44	8.33
Non-national (non-EU national)	-1.29	-4.02	-3.54	-3.34	-2.96
Age (in years)	4.08	3.25	3.15	3.15	2.74
Age squared	-0.10				
Age cube					
Education and skills					
High-skilled	15.72	15.72	16.53	17.35	18.06
Medium-skilled	6.82	6.40	6.50	6.40	6.61
Job-specific training	6.29	6.93	7.36	6.40	8.00
Family background					
Marital status (married=1)	4.29	3.67	2.43	1.31	1.31
Presence of children	1.31	1.51	1.51	1.92	1.31
Labour market history					
Tenure in the job (in years)	2.84	2.22	1.61	1.11	0.80
Tenure in the job squared	-0.20	-0.20	-0.10	-0.10	
Tenure in the job cube					
Previous unemployment	-1.98	-2.57	-3.34	-4.02	-4.59
Previous inactivity	0.70	-0.30	-0.40	-0.30	-0.50
Duration of career previous career interruption (in months)	-0.90	-0.70	-0.50	-0.40	-0.40
Job characteristics					
Supervisory job status	11.40	13.77	15.72	17.59	19.84
Intermediate job status	4.08	4.39	4.60	4.81	5.87
Part-time employed	-6.11	-1.09	2.53	7.25	12.98
Temporary contract	-15.46	-11.31	-8.97	-7.69	-7.13
Employer characteristics					
Public sector	10.96	7.90	6.08	4.81	3.36
Small firm	-27.96	-21.65	-16.47	-11.49	-8.79
Large firm	4.71	4.92	5.87	6.08	7.14
Earnings and employment risk					
Unemployment risk	-18.70	-24.19	-26.88	-20.23	-18.29
Unemployment risk squared	187.77	246.25	250.78	137.74	117.06
Unemployment risk cube	-64.16	-67.73	-64.08	-47.01	-45.77
Variance	6.61	9.86	18.41	34.85	53.73
Skewness	-0.40	-0.60	-1.09	-1.69	-2.08
National or regional labour market conditions					
Regional unemployment rate	-0.40	-0.40	-0.40	-0.30	-0.40
Occupation dummies (ISCO-1)	Yes	Yes	Yes	Yes	Yes
Sector dummies (NACE-2)	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes
N	155,416	155,416	155,416	155,416	155,416
Pseudo R ²	0.5440	0.5548	0.5302	0.4950	0.4542
F-test / Chi ² -test	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Eurostat, ECHP, UDB version June 2003, waves 2-7 (1995-2000)

compensation for employment risks. Among those countries for which significant results are obtained, two different patterns can be distinguished: first, an increasing employment risks/earnings profile, indicating that higher employment risk is effectively being compensated for by additional wage premia, and second, a decreasing profile, indicating that higher employment risk goes hand-in-hand with additional wage penalties. Evidence for an effective compensation of employment risks could only be observed in the case of the UK. By contrast, in France, Italy and, to some extent Germany, sizeable wage penalties linked to higher risk of job loss seem to exist (chart 79).

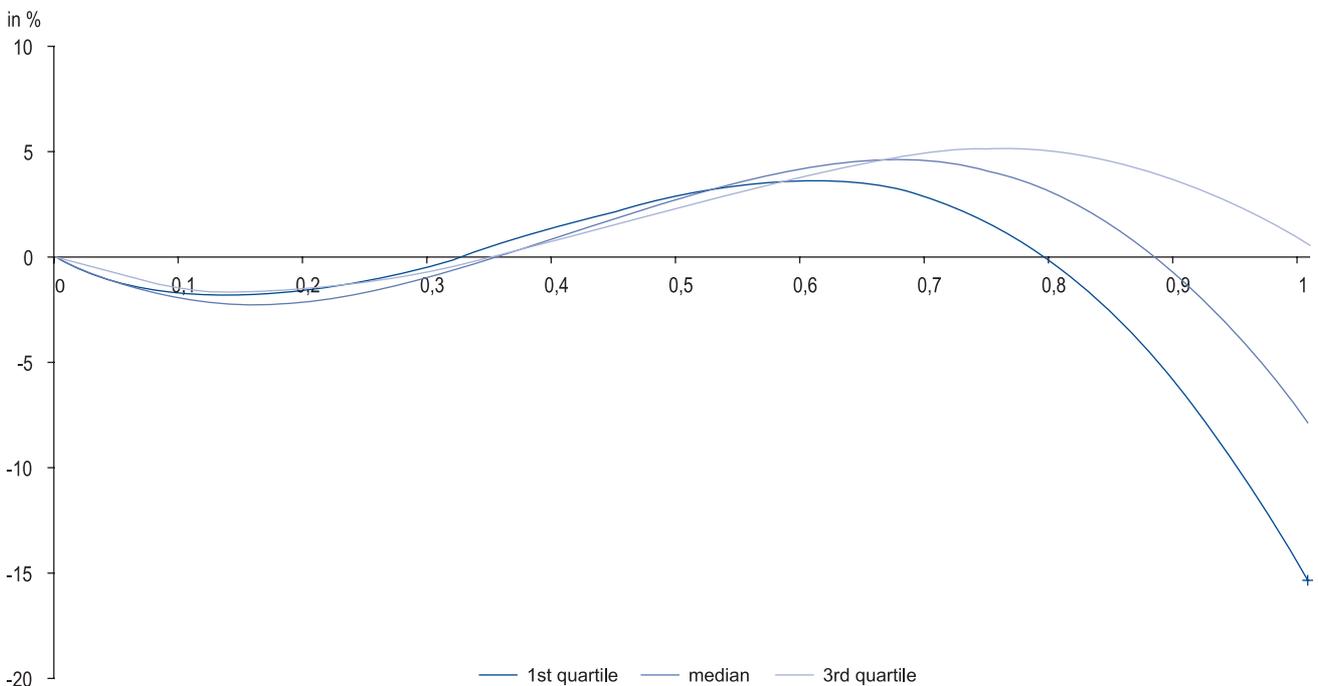
Finally, in all Member States except Greece and Germany, there is evidence of a negative, albeit small, effect of regional unemployment rates on wages. In most Member States, wages further differ considerably between the regions, with peripheral region often having lower wages than the capital region. This applies in particular to the UK, where employees in some regions receive up to 30% lower wages than their counterparts in London, after controlling for differences in personal, job and firm characteristics.

Conclusions

This chapter has highlighted both, the large variation in labour costs, wages and institutional settings across EU Member States and accession countries, and the common features in relative wage structures and wage determinants. The link between wages and productivity, both in levels and changes, has been analysed.

It has further provided empirical results on work incentives and disincentives as reflected by wage determinants at the individual level addressing in particular the question as to whether - and how - wage formation in the EU today compensates for labour market flexibility and employment risks at the individual level. This question is of particular interest since flexibility and security, and employment protection in particular, might relate directly to wages - not least because monetary union and increased product market integration are likely to put further demands on both, wage formation and labour market flexibility. As a recent study argues, under these circum-

Chart 78- Compensation of employment risks, by quartile
(effect of sector-occupation specific probability of job loss on wages in %)



Source: Eurostat, ECHP, UDB version June 2003, waves 2-7 (1995-2000)

stances the objectives of higher levels of employment and price stability may come “at the cost of greater volatility in employment”.⁸⁰

Five main conclusions emerge from the analysis:

Firstly, while non-wage labour costs are a crucial determinant of total labour costs, there is no simple relation between the two. In fact, the two countries with the highest gross hourly labour costs in Europe - Sweden and Denmark - are the countries with the highest and lowest share of non-wage labour costs, respectively. Moreover, the relative size of net wages, taxes and social security contributions

differs significantly across countries. Therefore, when interpreting the implied differences in wage levels, differences in tax rates and the financing of social security systems also have to be taken into account.

Second, there is evidence of significant wage differentiation across firms and industries. Wage differentiation across regions, however, is much less pronounced, notably in (west) Germany and Greece. While there are common features in the wage structures across Member States, with wages generally higher in high productivity industry and services, it remains questionable whether appropriate pecuniary incentives exist to attract people

into the labour market in the first place, and into economic activities that are key to productivity and economic growth, such as research and business services in particular. Notably in the case of Germany, labour market participation of the low-skilled seems to be counteracted to some extent by high effective marginal tax rates and very low relative wages, notably in low productivity service sectors such as “Wholesale and retail” and “Hotels and restaurants”.⁸¹

Third, although wage structures are certainly not based simply on workers' productivity, but also reflect historical influences, social norms and managerial strategies of organisational

⁸⁰ European Commission (2003), Wage formation and European integration, by Torbern M. Andersen, DG Economic and Financial Affairs, Economic Paper No. 188. This study argues that „inherent in the integration process are forces which tend to make wages less flexible which implies that more employment variability may follow, even though the average level of employment may increase. Stronger wage interdependencies and also nominal convergence may thus be beneficial for both the level of employment and the objective of price stability, but it may come at the cost of greater volatility in employment, that is, nominal convergence but real divergence.“

⁸¹ See also European Commission (2001), Differentials in service industry employment growth: Germany and the US in the comparable German American structural database, report by R.B. Freeman and R. Schettkat commissioned by DG Employment and Social Affairs, and Freeman and Schettkat (1999), The role of wages and skill differences in US-German employment differences, *Jahrbücher für Nationalökonomie und Statistik*. These papers do in particular not find any evidence for the so-called wage compression hypothesis, according to which the compression of wages on employment in low low-skilled industries could explain the lack of low low-skilled service sector jobs in Germany as compared to the US. The papers argue instead that non-wage labour costs affect prices more evenly across all skills groups in Germany, while falling disproportionately on higher wage employment in the US, thus causing significant differences in the relative costs of services from low low-skilled workers between Germany and the US.

Table 40 – Unadjusted and adjusted wage differentials (in %)

	Gender	Non EU	High-skilled	Medium-skilled	Job-specific training	Supervisory	Intermediate	Public	Part-time	Temporary	Small firm	Large firm
	Unadjusted											
B	-12%	-26%	38%	9%	0%	45%	21%	-12%	-17%	-21%	-13%	36%
DK	-13%	-2%	65%	29%	0%	32%	6%	-7%	-20%	-25%	-18%	26%
D	-21%	-13%	115%	45%	0%			12%	-12%	-20%	-37%	0%
EL	-15%	-2%	92%	15%	0%	72%	30%	59%	3%	-34%	-21%	39%
E	-14%	-28%	77%	25%	0%	121%	45%	42%	-7%	-40%	-8%	70%
F	-13%	-33%	52%	21%	0%	61%	23%	27%	-10%	-40%	-10%	26%
IRL	-15%		84%	15%	0%	61%	36%	54%	-19%	-31%	-30%	37%
I	-6%	-24%	89%	22%	0%	57%	25%	36%	-3%	-22%	-4%	27%
NL	-18%	-37%	22%	10%	0%	53%	11%	16%	-20%	-30%	5%	30%
P	-8%	-22%	234%	50%	0%	121%	67%	95%	-8%	-24%	-34%	85%
A	-19%	-25%	98%	41%	0%	56%	20%	13%	-13%	-24%	-18%	30%
FIN	-17%	-14%	48%	4%	0%	42%	10%	6%	-11%	-27%	-20%	32%
UK	-21%	0%	47%	15%	0%	70%	14%	12%	-11%	-23%	14%	35%
EU	-16%	-6%	63%	18%	0%	80%	25%	19%	-7%	-34%	-16%	39%
	Adjusted											
B	-6%	-3%	21%	6%	4%	14%	6%	4%	4%	-5%	-17%	7%
DK	-7%	-4%	12%	5%	5%	9%	2%	-7%	-4%	-5%	-13%	6%
D	-13%	-2%	13%	2%	8%			1%	-4%	-4%	-55%	
EL	-8%	-11%	15%	6%	7%	21%	7%	16%	12%	-12%	-10%	6%
E	-12%	-11%	11%	5%	3%	20%	6%	15%	8%	-11%	-15%	6%
F	-9%	-10%	23%	7%	6%	15%	5%	7%	8%	-4%	-10%	5%
IRL	-11%	19%	26%	9%	5%	16%	5%	16%	-6%	-8%	-26%	6%
I	-9%	-9%	24%	6%	5%	17%	4%	10%	17%	-9%	13%	4%
NL	-9%	0%	10%	-1%	0%	18%	2%	4%	-4%	-16%	-23%	5%
P	-13%	-14%	58%	12%	17%	27%	10%	16%	-8%	-9%	-18%	
A	-14%	1%	18%	5%	6%	9%	3%	1%	3%	-5%	-20%	5%
FIN	-14%	-15%	14%	3%	6%	11%	4%	1%	-1%	-8%	-20%	10%
UK	-14%	-4%	10%	6%	10%	20%	7%	6%	0%	-8%	0%	6%
EU	-11%	-2%	18%	7%	8%	16%	5%	7%	3%	-11%	-18%	6%

Source: Eurostat, ECHP, UDB version June 2003, waves 2-7 (1995-2000)

Notes: Unadjusted wage differentials report the difference in average gross hourly wages across the respective categories. Adjusted wage differentials report the wage effect of the respective variable on gross hourly wages (in %), calculated from country-specific wage regressions, using the variables listed in table 34.

restructuring, there is evidence that wage bargaining systems in Europe allow wages to reflect productivity effectively, taking into account differences in skills, but appear to do less so for local labour market conditions and in particular regional productivity and unemployment differences. While showing a general tendency towards decelerated wage growth as a reaction to the economic slowdown and to increased unemployment, in some Member States recent nominal wage growth has been slow to adapt to productivity growth.

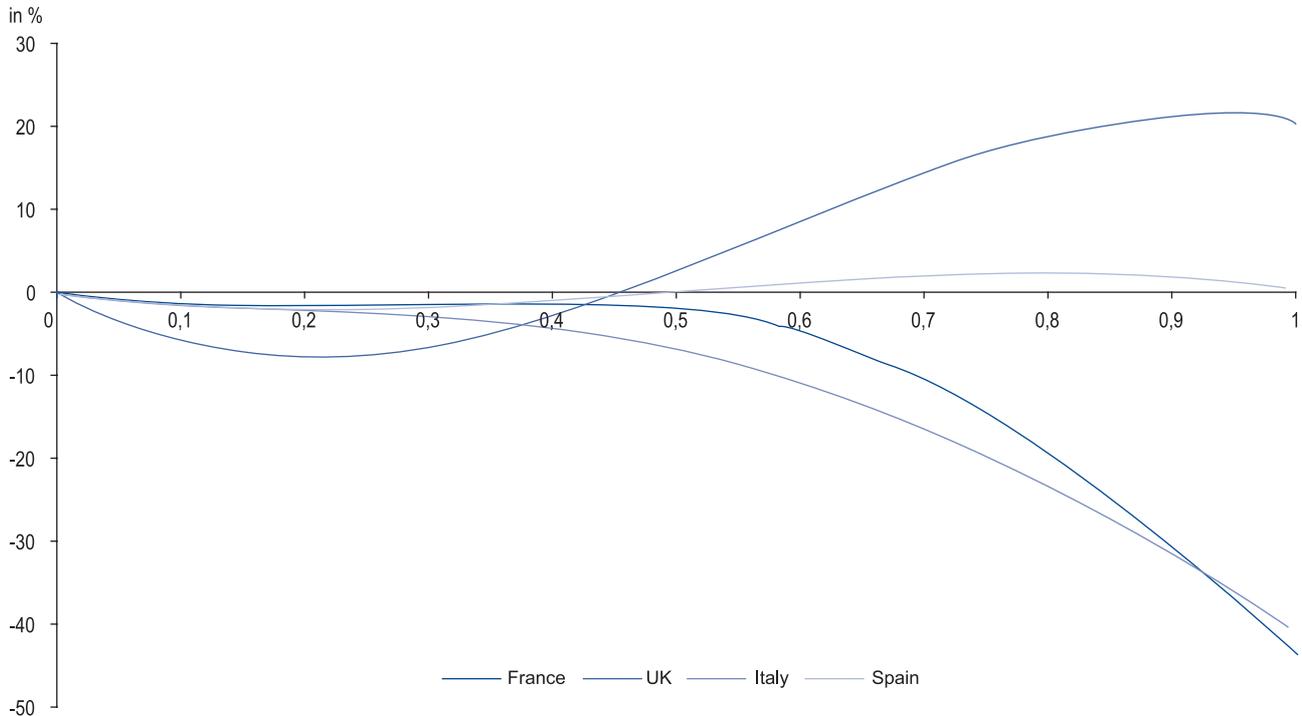
Fourth, there is, on the one hand, strong evidence for traditional seniority- and tenure-based pay schemes in the European labour markets, indicative of strong internal labour markets that tend to offer long-term employment relationships and provide effective insurance against wage variations and employment risks.⁸² On the other hand, there is a considerable degree of flexibility in the way how European wage formation systems reflect differences in skills, but also factors as diverse as contract status, firm size, career

interruptions, earnings risks and local labour market conditions. Given persistent large differences in regional unemployment rates there are some doubts, however, in particular as to whether regional wage differentiation sufficiently reflects local labour market conditions.

The extent to which these factors are rewarded differs considerably across the EU Member States. One example concerns the wages of employees in flexible employment relation-

⁸² For a critical discussion, however, see also Jérôme Gautié (2003), The destabilisation of internal labour markets and its consequences on employment and wages in some OECD countries, Centre d'Etudes de l'Emploi, Paris.

Chart 79 - Compensation of employment risks in selected MS
(effect of sector-occupation specific probability of job loss on wages in %)



Source: Eurostat, ECHP, UDB version June 2003, waves 2-7 (1995-2000)

ships such as part-time or temporary work. While both of them are related to strong wage reductions in the Netherlands, for instance, much lower, though still negative wage effects on temporary employment go hand in hand with positive wage premia to part-time work in some other countries, notably France, Belgium and Austria.

Another example is the compensation of earnings risks. There is in fact little evidence of any effective compensation for employment risks by means of additional wage premia. The UK actually seems to be the only country in the EU with such risk compensation in place. At the same time, according to a standard classification, it has comparatively low levels of both, employment protection and active

labour market policies.⁸³ In other countries such as Denmark or Spain, the absence of any employment risk compensation mechanism could be explained by either high levels of social protection (as in the case of Denmark) or high levels of employment protection (as in the case of Spain) or both. Furthermore, in some Member States - notably France, Italy and Germany - there is evidence of quite strongly segregated labour markets, where those with the highest employment risk also face lower wages.

These findings are of particular importance in light of the above mentioned expectation that monetary union and increased product market integration will lead to greater volatility in employment. Labour markets

will have to increase their capacity to adapt to such greater volatility in employment and to manage structural change. Given the absence of other forms of effective risk compensation, and in line with the Lisbon Strategy, the further development of unemployment insurance systems and active labour market policies could be an appropriate response to strengthen transitional labour markets in Europe.

An alternative response - as indicated by the results for the UK - could take the form of substantial changes in pay structures, notably in the way wages compensate for the increases in labour market flexibility and uncertainty. It should be noted, however, that - in the case of the UK - this solution is also related to com-

⁸³ See also Auer and Cazes (eds) (2003), *Employment stability in an age of flexibility*, Evidence from industrialised countries, International Labour Office, Geneva. Among the EU Member States, this classification shows up a contrast between the UK, which like the US, has both low employment protection and low social protection with France, Italy, Spain and Germany - all countries with relatively high employment protection and, in the case of France and Germany, also high social protection - or with Denmark - a country with comparatively low employment protection, but a very effective system of social protection.

paratively high levels of persistence in low quality employment and poverty.

Last but not least, this chapter has shown that there is a need to consider wage distributions and the variation of wage determinants across the wage distribution and not just differences in average wages. As shown in a recent study, it is clear that the factors behind the gender wage gap vary considerably across the wage distribution, with remuneration effects prevalent in the lower part of the earnings distribution compared to more important selection effects in the upper part of the distribution.⁸⁴ Similar effects might be at play between nationals and non-nationals, given the varying wage differentials between nationals and non-EU nationals by skills level.

While this chapter has provided some important insights into wage formation in Europe, further work is needed to acquire a better understanding of wage formation processes in Europe and their effects on employment performance. One issue for further research is the separation of employer and employee effects on wages, based on matched employer-employee data. Another one is the analysis of wage adjustments over the business cycle and to external shocks. The wage effects of increased product market integration and globalisation also need to be analysed in more detail.

⁸⁴ European Commission (2003), Methodological issues related to the analysis of gender gaps in employment, earnings and career progression, by Miriam Beblo, Denis Beninger, Anja Kunze and François Laisney, Zentrum für Europäische Wirtschaftsforschung, Mannheim.

Annexes to chapter 3

Annex 3.1 – Definition of labour costs and wages and salaries

Labour costs are defined as the total remuneration, in cash or in kind, payable by an employer in return for work done, including wages and salaries and non-wage labour costs, i.e. the values of social contributions, actual or imputed, and taxes payable by the employer.

Wages and salaries are defined as the total remuneration, in cash or in kind, payable by an employer to an employee in return for work done, including the values of any social contributions, income taxes, etc. payable by the employee even if they are actually withheld by the employer and paid directly to social insurance schemes or tax authorities, on behalf of the employee, but excluding social contributions and taxes by the employer.

Wages and salaries in cash include the following kinds of remuneration:

- basic wages and salaries payable at regular intervals;
- enhanced rates of pay for overtime, night work, weekend work, disagreeable or hazardous circumstances;
- cost of living allowances, local allowances and expatriation allowances;
- allowances for transport to and from work;
- holiday pay for official holidays or annual holidays;
- commissions, tips, attendance and directors' fees paid to employees;
- payments made by employers to their employees under saving schemes;
- exceptional payments to employees who leave the enterprise; and
- housing allowances paid in cash by employers to their employees.

Bonuses include:

- bonuses based on productivity or profits;
- Christmas and New Year bonuses excluding employee social benefits;
- '13th and 14th month' pay (annual supplementary pay); and

- ad-hoc bonuses or other exceptional payments linked to the overall performance of the enterprise made under incentive schemes.

Wages and salaries in kind consist of goods and services, or other benefits, provided free or at reduced prices by employers, that can be used by employees in their own time and at their own discretion, for the satisfaction of their own needs or wants or those of other members of their households. Those goods and services, or other benefits, are not necessary for the employers' production process. For the employees, those wages and salaries in kind represent an additional income: they would have paid a market price if they had bought these goods or services by themselves. The most common are:

- price reductions obtained in free or subsidised canteens or luncheon vouchers;
- own account and purchased housing or accommodation services;
- the services of vehicles or other durables provided for the personal use of employees;
- goods and services produced as outputs from the employer's own processes of production, such as free travel for the employees of railways or airlines;
- the provision of sports, recreation or holiday facilities for employees and their families;
- transportation to and from work;
- crèches for the children of employees;
- bonus shares distributed to employees; and
- the value of the interest foregone by employers when they provide loans to employees at reduced rates of interest.

Wages and salaries do not include:

- expenditure by employers which is to their own benefit as well as to that of their employees, because it is necessary for the employers' production process;
- allowances or reimbursement of employees for travelling, separation, removal and entertainment expenses incurred in the course of their duties;
- expenditure on providing amenities at the place of work, medical examinations required because of the nature of the work, supplying working clothes which are worn exclusively, or mainly, at work;

- accommodation services at the place of work of a kind which cannot be used by the households to which the employees belong – cabins, dormitories, huts and so on;
- special meals or drinks necessitated by exceptional working conditions;
- allowances paid to employees for the purchase of tools, equipment or special clothing needed exclusively, or primarily, for their work, or that part of their wages or salaries which, under their contracts of employment, employees are required to devote to such purchases;
- the amounts of wages and salaries which employers continue to pay to their employees temporarily in the case of sickness, maternity, industrial injury, disability, redundancy, etc. (these payments are treated as unfunded employee social benefits, with the same amounts being shown under employers' imputed social contributions);
- other unfunded employee social benefits, in the form of children's, spouse's, family, education or other allowances in respect of dependants, and in the form of the provision of free medical services (other than those necessitated by the nature of the work) to employees or their families;
- employers' social contributions; and
- any taxes payable by the employer on the wage and salary bill.

Source: Eurostat, ESA95

Annex 3.2 – Statistical information on earnings and labour costs

Differing national systems of pay formation, industrial relations, taxation and social security, and the divergent ways in which pay-related statistics are collected and presented, mean that comparisons between countries are sometimes hard to draw. General indications of recent developments, however, can be provided on a broad range of data, including both harmonised EU-level surveys and non-harmonised national data, although comparisons based on varying national data sources can be difficult. In any case, the statistics provided should be treated with some caution, and the limitations of the underlying databases should be taken into account.

Among the various sources containing harmonised information on the structure and evolution of wages, earnings and labour costs in the EU and, in some cases also the accession countries, are:

- the Structure of Earnings Survey (SES). This survey has so far been an irregular structural enterprise survey, covering industry and services and excluding agriculture, public administration and enterprises with less than 10 employees in most EU Member States. In the future, it will have to be carried out every four years. The coverage of a number of sectors is therefore either weak or missing, notably for Education, health and social services, Public administration and Defence, and Social and personal services. No information is provided on the self-employed. Latest structural data from the Labour Cost Survey are available for the year 1995. The results of the latest survey, which was conducted in 2002, will be released in 2004. Some EU Member States additionally provide, on a voluntary basis, time-series data with annual average earnings, broken down by gender, working time status as well as broad sector and occupation,
- the Labour Cost Survey (LCS). This survey is another, so far irregular structural enterprise survey, covering industry and services, and excluding in most EU Member States agriculture, public administration and enterprises with less than 10 employees. In the future, it will have to be carried out every four years. The coverage of a number of sectors is therefore again either weak or missing, notably of Education, health and Social services, Public administration and defence, and social and personal services. No information is provided on the self-employed. The survey contains detailed information on the level and structure of labour costs, wages and salaries, working hours and employment at the national, regional and sectoral (NACE-2) level and by establishment size. Latest structural data from the Labour Cost Survey (LCS) are available for the year 2000. In that survey, no data are provided for Belgium, Malta and Turkey. For Slovenia, data are only available for broad sectors (NACE-1),
- the European Community Household Panel (ECHP) and its successor, the EU-

database for Statistics on Income and Living Conditions (EU-SILC). The ECHP is based on harmonised EU-wide surveys for the years 1994-2001. Despite relatively small sample sizes, people employed in establishments with less than 10 employees are included, and all sectors of the economy are covered, notably the public sector. It contains particularly detailed information on earnings and income and allows that information to be linked to the personal characteristics of the jobholders and to some important job and firm characteristics. It also allows individual earnings mobility to be examined over time. Data collection for the ECHP stopped in 2001, and the survey will be replaced in all EU Member States and accession countries with a new instrument, EU-SILC

By 2004, EU-SILC will be in place in 12 of the current EU Member States, excluding Germany, the Netherlands and the UK. Seven Member States will already start the survey in 2003. By 2005, all of the current EU Member States and most accession countries will have EU-SILC in place,

- some countries also provide, on an optional basis, earnings information in the Community Labour Force Survey (LFS). In addition to the relatively large sample sizes, this has the advantage - as in the case of the ECHP - that earnings information can be linked to personal, job and firm characteristics. Contrary to the ECHP, however, the LFS does not contain information on longer term labour market transitions and earnings mobility in particular.

Information based on non-harmonised national data, including register data and matched employer/employee data, includes:

- the Commission Services' quarterly Conventional Earnings Index (CEI) (or, equivalently, wage development indicator): This index follows the short-term development of basic wages and salaries, including gross hourly earnings of manual workers in industry and gross monthly earnings of all employees in the whole economy. It is based on the most frequent earnings indices in the Member States. These indices are not harmonised and are based on national

sample surveys, on administrative files or a mixture of both sources, and, therefore, involve national differences in coverage and definitions. While the use of different national concepts for compiling the indices can complicate the interpretation of the evolution of earnings, the index gives an indication of developments occurring in the conventional part of earnings,

- the quarterly Labour Cost Index (LCI): This index measures trends in average labour costs by units of labour input, with labour costs including gross wages and salaries, employers' social contributions and taxes net of subsidies connected to employment, while not considering costs for occupational training or other costs such as those for canteens or recruitment. Three indices are calculated: an index of total labour costs, one for gross wages and salaries, and one for non-wage labour costs. They show the short-term development of the total labour costs, wages and non-wage labour costs for employers. All three indices are aggregations by Eurostat of indices compiled by the National Statistical Institutes based on national statistics or administrative data, covering all market economic activities except agriculture, fisheries, forestry, education, health, entertainment, information and personal services activities. Eurostat does not publish EU averages for the index of gross wages and salaries,
- regular information from the European Industrial Relations Observatory (EIRO) on various aspects of wage formation and industrial relations. This relies on a large range of non-harmonised national data and expertise from national expert networks in the respective countries.

To improve the overall quality and coverage of earnings and labour cost statistics in Europe, Eurostat has recently started an initiative to develop an integrated system of earnings and labour cost statistics due to be ready in 2007. Based on the above data bases, both harmonised and national, a system will be developed which combines regular structural information on earnings and labour costs with short-term indicators on wage and labour cost trends, and which improves the linkage of individual-level information with that from enterprises and national registers.

Annex 3.3 – Low and high paying sectors in the EU and the accession countries, 2000

	Sectors with wages below 75% of average wage	Rel. wage	Sectors with wages above 125% of average wage	Rel. wage
DK	none		air transport activities auxiliary to financial intermediation manufacture of coke, refined petroleum products and nuclear fuel computer and related activities extraction of crude petroleum and natural gas	129.6 129.7 136.1 136.3 142.9
D	hotels and restaurants tanning and dressing of leather recycling manufacture of food and beverages retail trade, repair of personal and household goods	54.6 69.6 73.7 74.5 74.5	electricity, gas, steam and hot water supply manufacture of other transport equipment manufacture of radio, television and communication equipment manufacture of chemicals and chemical products manufacture of tobacco products insurance and pension funding, except compulsory social security manufacture of office machinery and computers manufacture of motor vehicles activities auxiliary to financial intermediation manufacture of coke, refined petroleum products and nuclear fuel extraction of crude petroleum and natural gas	126.7 128.6 130.1 133.4 133.9 134.8 139.2 140.4 140.6 148.7 171.8
EL	manufacture of wearing apparel real estate activities retail trade, repair of personal and household goods manufacture of furniture tanning and dressing of leather manufacture of medical, precision and optical instruments extraction of crude petroleum and natural gas manufacture of fabricated metal products, except machinery and equipment manufacture of textiles	58.3 58.5 60.1 61.4 64.1 66.8 68.8 70.2 74.2	collection, purification and distribution of water mining of metal ores insurance and pension funding, except compulsory social security manufacture of other transport equipment manufacture of tobacco products post and telecommunications financial intermediation, except insurance and pension funding activities auxiliary to financial intermediation electricity, gas, steam and hot water supply air transport manufacture of coke, refined petroleum products and nuclear fuel	128.9 134.1 140.8 145.9 148.3 153.5 157.0 164.5 165.3 166.2 207.0
E	other service activities manufacture of wearing apparel tanning and dressing of leather hotels and restaurants retail trade, repair of personal and household goods	57.9 60.3 65.1 70.6 73.6	manufacture of motor vehicles manufacture of other transport equipment manufacture of radio, television and communication equipment manufacture of basic metals water transport mining of metal ores collection, purification and distribution of water manufacture of chemicals and chemical products insurance and pension funding, except compulsory social security post and telecommunications mining of coal and lignite; extraction of peat manufacture of office machinery and computers manufacture of medical, precision and optical instruments activities auxiliary to financial intermediation air transport financial intermediation, except insurance and pension funding electricity, gas, steam and hot water supply extraction of crude petroleum and natural gas manufacture of coke, refined petroleum products and nuclear fuel	127.6 127.7 127.7 135.2 135.7 135.7 138.3 144.0 150.1 153.0 154.8 162.3 165.6 169.4 170.9 200.3 201.3 211.9 231.0
F	mining of coal and lignite; extraction of peat retail trade, repair of personal and household goods	44.7 72.2	electricity, gas, steam and hot water supply financial intermediation, except insurance and pension funding insurance and pension funding, except compulsory social security computer and related activities extraction of crude petroleum and natural gas research and development	128.7 131.1 147.7 149.0 167.9 301.8
IRL	hotels and restaurants retail trade, repair of personal and household goods manufacture of wearing apparel tanning and dressing of leather manufacture of textiles	63.9 64.1 67.2 67.8 74.6	financial intermediation, except insurance and pension funding manufacture of tobacco products real estate activities computer and related activities insurance and pension funding, except compulsory social security activities auxiliary to financial intermediation	125.8 142.3 153.0 154.0 156.7 175.2

I	hotels and restaurants	68.3	activities auxiliary to financial intermediation	128.2
	manufacture of wearing apparel	69.5	research and development	134.3
	manufacture of wood, except furniture	71.4	manufacture of chemicals and chemical products	137.2
	tanning and dressing of leather	72.5	electricity, gas, steam and hot water supply	146.9
			manufacture of coke, refined petroleum products and nuclear fuel	153.2
L	hotels and restaurants	54.9	insurance and pension funding, except compulsory social security	162.7
	retail trade, repair of personal and household goods	57.5	financial intermediation, except insurance and pension funding	171.7
	manufacture of food and beverages	64.2	extraction of crude petroleum and natural gas	196.3
	manufacture of furniture	64.3	air transport	203.6
	manufacture of medical, precision and optical instruments	66.2		
NL	construction	66.6	collection, purification and distribution of water	131.3
	sale, maintenance and repair of motor vehicles; retail sale of automotive fuel	73.2	post and telecommunications	135.1
			insurance and pension funding, except compulsory social security	138.9
			research and development	145.9
			electricity, gas, steam and hot water supply	148.5
P	hotels and restaurants	63.0	activities auxiliary to financial intermediation	160.8
	retail trade, repair of personal and household goods	63.6	financial intermediation, except insurance and pension funding	176.1
	manufacture of furniture	73.1		
			computer and related activities	128.1
			collection, purification and distribution of water	130.4
A	manufacture of wearing apparel	60.3	manufacture of tobacco products	139.4
	hotels and restaurants	61.5	manufacture of chemicals and chemical products	139.7
	tanning and dressing of leather	63.6	insurance and pension funding, except compulsory social security	140.7
	retail trade, repair of personal and household goods	74.8	electricity, gas, steam and hot water supply	140.8
			research and development	145.6
FIN	manufacture of wearing apparel	60.3	financial intermediation, except insurance and pension funding	147.3
	hotels and restaurants	61.5	manufacture of coke, refined petroleum products and nuclear fuel	173.7
	tanning and dressing of leather	63.6	extraction of crude petroleum and natural gas	195.4
	retail trade, repair of personal and household goods	74.8		
			activities auxiliary to financial intermediation	131.1
S	manufacture of wearing apparel	60.3	manufacture of radio, television and communication equipment	137.6
	hotels and restaurants	61.5	electricity, gas, steam and hot water supply	140.7
	tanning and dressing of leather	63.6	research and development	144.1
	retail trade, repair of personal and household goods	74.8	financial intermediation, except insurance and pension funding	148.0
			computer and related activities	152.2
UK	manufacture of wearing apparel	60.3	manufacture of coke, refined petroleum products and nuclear fuel	218.9
	hotels and restaurants	61.5		
	tanning and dressing of leather	63.6	wholesale trade and commission trade, except motor vehicles	126.2
	retail trade, repair of personal and household goods	74.8	manufacture of other transport equipment	129.2
			publishing, printing and reproduction of recorded media	134.6
A	manufacture of wearing apparel	54.5	manufacture of pulp, paper and paper products	135.7
	tanning and dressing of leather	63.4	research and development	139.8
	manufacture of furniture	65.4	supporting and auxiliary transport activities; travel agencies	146.2
	hotels and restaurants	70.9	manufacture of chemicals and chemical products	152.2
	manufacture of wood, except furniture	72.5	activities auxiliary to financial intermediation	158.3
FIN	manufacture of textiles	72.8	water transport	159.4
	retail trade, repair of personal and household goods	74.3	computer and related activities	205.4
			mining of metal ores	205.5
			electricity, gas, steam and hot water supply	210.6
			insurance and pension funding, except compulsory social security	237.5
S	hotels and restaurants	65.6	financial intermediation, except insurance and pension funding	244.9
	manufacture of textiles	67.0	air transport	270.9
	manufacture of wearing apparel	67.4		
	tanning and dressing of leather	68.0	insurance and pension funding, except compulsory social security	128.5
			manufacture of coke, refined petroleum products and nuclear fuel	144.0
UK	hotels and restaurants	65.6	activities auxiliary to financial intermediation	215.9
	manufacture of wearing apparel	67.4		
	retail trade, repair of personal and household goods	69.3	insurance and pension funding, except compulsory social security	127.9
	tanning and dressing of leather	68.0	computer and related activities	138.3
			financial intermediation, except insurance and pension funding	139.1
FIN	hotels and restaurants	69.3	activities auxiliary to financial intermediation	229.1
	manufacture of wearing apparel	74.0		
	retail trade, repair of personal and household goods	59.1	manufacture of chemicals and chemical products	130.9
	tanning and dressing of leather	62.1	manufacture of coke, refined petroleum products and nuclear fuel	134.0
	manufacture of textiles	65.1	electricity, gas, steam and hot water supply	135.2
UK	other service activities	65.4	research and development	137.9
	land transport; transport via pipelines	73.1	insurance and pension funding, except compulsory social security	141.2
		73.9	air transport	147.5
		74.3	manufacture of tobacco products	159.8
			financial intermediation, except insurance and pension funding	166.5
S	hotels and restaurants	59.1	computer and related activities	173.8
	manufacture of wearing apparel	62.1	extraction of crude petroleum and natural gas	186.6
	retail trade, repair of personal and household goods	65.1	activities auxiliary to financial intermediation	224.1
	tanning and dressing of leather	65.4		
	manufacture of textiles	73.1		

BG	renting of machinery and equipment	45.4	collection, purification and distribution of water	126.8
	sewage and refuse disposal	52.6	manufacture of chemicals and chemical products	132.0
	manufacture of wearing apparel	53.6	post and telecommunications	135.1
	retail trade, repair of personal and household goods	54.6	supporting and auxiliary transport activities; travel agencies	137.1
	tanning and dressing of leather	55.7	water transport	137.1
	manufacture of furniture	60.8	manufacture of basic metals	152.6
	other service activities	61.9	computer and related activities	164.9
	manufacture of wood, except furniture	61.9	mining of metal ores	168.0
	hotels and restaurants	66.0	air transport	174.2
	manufacture of textiles	68.0	mining of coal and lignite; extraction of peat	175.3
	recycling	71.1	insurance and pension funding, except compulsory social security	180.4
	health and social work	73.2	financial intermediation, except insurance and pension funding	189.7
			manufacture of tobacco products	193.8
			electricity, gas, steam and hot water supply	213.4
			manufacture of coke, refined petroleum products and nuclear fuel	239.2
	CY	manufacture of wearing apparel	56.2	manufacture of tobacco products	131.9
manufacture of textiles		61.9	activities of membership organisations	132.7
other service activities		63.6	post and telecommunications	133.0
health and social work		66.1	sewage and refuse disposal	138.9
land transport; transport via pipelines		68.4	electricity, gas, steam and hot water supply	153.8
manufacture of furniture		68.9	education	154.4
manufacture of motor vehicles		69.5	computer and related activities	156.2
tanning and dressing of leather		73.3	financial intermediation, except insurance and pension funding	163.0
			manufacture of other transport equipment	166.0
			air transport	185.9
		manufacture of coke, refined petroleum products and nuclear fuel	234.7	
CZ	other service activities	60.9	electricity, gas, steam and hot water supply	131.7
	manufacture of wearing apparel	62.3	wholesale trade and commission trade, except motor vehicles	134.5
	tanning and dressing of leather	67.6	manufacture of coke, refined petroleum products and nuclear fuel	142.0
	manufacture of textiles	72.6	air transport	149.8
			insurance and pension funding, except compulsory social security	167.3
			computer and related activities	168.0
EE	other service activities	45.7	activities auxiliary to financial intermediation	177.6
	hotels and restaurants	60.6	financial intermediation, except insurance and pension funding	178.3
	retail trade, repair of personal and household goods	71.9	mining of coal and lignite; extraction of peat	132.1
	manufacture of wearing apparel	74.7	supporting and auxiliary transport activities; travel agencies	152.5
			publishing, printing and reproduction of recorded media	153.8
			insurance and pension funding, except compulsory social security	153.8
HU	manufacture of wearing apparel	56.4	water transport	198.6
	other service activities	57.2	computer and related activities	201.8
	tanning and dressing of leather	59.1	air transport	213.6
	manufacture of wood, except furniture	59.5	activities auxiliary to financial intermediation	222.6
	hotels and restaurants	60.3	financial intermediation, except insurance and pension funding	231.2
	manufacture of furniture	62.3	manufacture of pulp, paper and paper products	127.6
	retail trade, repair of personal and household goods	64.6	manufacture of basic metals	130.0
	manufacture of textiles	68.9	insurance and pension funding, except compulsory social security	133.9
			post and telecommunications	138.9
			electricity, gas, steam and hot water supply	153.3
			manufacture of chemicals and chemical products	158.0
			air transport	170.4
			computer and related activities	182.5
		manufacture of coke, refined petroleum products and nuclear fuel	190.3	
		extraction of crude petroleum and natural gas	194.6	
		activities auxiliary to financial intermediation	195.3	
		manufacture of tobacco products	213.2	
		financial intermediation, except insurance and pension funding	214.0	
LT	manufacture of motor vehicles	62.1	post and telecommunications	128.7
	hotels and restaurants	66.2	publishing, printing and reproduction of recorded media	131.3
	other service activities	67.2	other business activities	132.8
	manufacture of wood, except furniture	68.2	electricity, gas, steam and hot water supply	134.9
	manufacture of wearing apparel	69.7	manufacture of chemicals and chemical products	137.9
	retail trade, repair of personal and household goods	69.7	supporting and auxiliary transport activities; travel agencies	153.8
	tanning and dressing of leather	73.3	activities of membership organisations	160.0
			insurance and pension funding, except compulsory social security	168.2
			computer and related activities	182.1
		financial intermediation, except insurance and pension funding	189.7	
		activities auxiliary to financial intermediation	213.3	

LV	retail trade, repair of personal and household goods	56.6	water transport	126.7
	tanning and dressing of leather	61.5	manufacture of basic metals	131.0
	recycling	63.6	publishing, printing and reproduction of recorded media	139.6
	hotels and restaurants	64.7	electricity, gas, steam and hot water supply	150.3
	manufacture of rubber and plastic products	65.2	post and telecommunications	151.3
	manufacture of wearing apparel	70.6	supporting and auxiliary transport activities; travel agencies	183.4
	manufacture of furniture	73.3	activities auxiliary to financial intermediation	203.2
			air transport	217.6
			renting of machinery and equipment	222.5
			computer and related activities	224.6
			financial intermediation, except insurance and pension funding	270.1
PL	tanning and dressing of leather	48.8	post and telecommunications	135.4
	manufacture of wearing apparel	52.0	electricity, gas, steam and hot water supply	137.4
	other service activities	61.1	renting of machinery and equipment	140.1
	manufacture of wood, except furniture	66.4	financial intermediation, except insurance and pension funding	147.7
	retail trade, repair of personal and household goods	66.7	extraction of crude petroleum and natural gas	147.7
	hotels and restaurants	68.4	manufacture of office machinery and computers	149.1
	manufacture of textiles	68.4	manufacture of tobacco products	165.2
	manufacture of furniture	69.0	mining of coal and lignite; extraction of peat	171.9
			insurance and pension funding, except compulsory social security	173.4
			manufacture of coke, refined petroleum products and nuclear fuel	176.9
			activities auxiliary to financial intermediation	194.4
		computer and related activities	200.3	
		air transport	301.5	
RO	other service activities	33.7	activities of membership organisations	130.7
	retail trade, repair of personal and household goods	52.5	manufacture of basic metals	131.7
	tanning and dressing of leather	54.5	mining of metal ores	149.5
	manufacture of wood, except furniture	55.4	manufacture of radio, television and communication equipment	154.5
	manufacture of wearing apparel	59.4	extraction of crude petroleum and natural gas	154.5
	manufacture of furniture	63.4	post and telecommunications	161.4
	manufacture of textiles	63.4	manufacture of coke, refined petroleum products and nuclear fuel	174.3
	hotels and restaurants	67.3	activities auxiliary to financial intermediation	174.3
	sewage and refuse disposal	67.3	electricity, gas, steam and hot water supply	181.2
	manufacture of food and beverages	71.3	supporting and auxiliary transport activities; travel agencies	189.1
	construction	74.3	insurance and pension funding, except compulsory social security	191.1
			computer and related activities	191.1
			manufacture of tobacco products	194.1
		mining of coal and lignite; extraction of peat	211.9	
		air transport	262.4	
		financial intermediation, except insurance and pension funding	294.1	
SK	activities of membership organisations	58.1	wholesale trade and commission trade, except motor vehicles	131.1
	tanning and dressing of leather	66.2	manufacture of basic metals	132.4
	manufacture of wearing apparel	68.9	extraction of crude petroleum and natural gas	140.5
	retail trade, repair of personal and household goods	69.8	supporting and auxiliary transport activities; travel agencies	143.2
	manufacture of wood, except furniture	71.6	manufacture of coke, refined petroleum products and nuclear fuel	145.0
	manufacture of textiles	71.6	financial intermediation, except insurance and pension funding	147.7
			insurance and pension funding, except compulsory social security	148.2
			renting of machinery and equipment	156.8
			water transport	188.3
			computer and related activities	213.1
			activities auxiliary to financial intermediation	269.4

Source: Eurostat, LCS

Notes: no data available for Belgium, Malta and Slovenia, sector-specific average wage in percent of country-specific total average wage in industry and services.

Chapter 4 Flexibility, security and quality in work

Introduction

The overarching objectives of the European Employment Strategy stressed in both the 2003 Employment Guidelines and the Broad Economic Policy Guidelines⁸⁵, are to create the conditions for full employment, improve quality in work and productivity and foster social cohesion and inclusive labour markets. These aims are fundamental to the Lisbon strategy. To achieve these goals it is widely recognised that the quality of education and training in Europe must be improved and that life-long learning must be encouraged. But effort to promote more flexible work organisations and facilitate labour mobility, both geographical and occupational, while taking into account the need for job security, is also crucial.

This is reflected in the strong focus in the Employment Guidelines 2003 (EGL 2003) on addressing change and promoting adaptability and mobility in the labour market. In particular the provision of an appropriate balance between flexibility and security is seen as vital to support the competitiveness of firms, increase quality and productivity at work and facilitate the adaptation of firms and workers to economic change. In this context, access of workers to training is considered an essential element of the balance between flexibility and security. In order to facilitate the adaptability of firms and workers to change, the EGL 2003 foresee a whole package of measures, related to working time arrangements, work organisation, access to training and career progression:

“Member States will review and, where appropriate, reform overly restrictive elements in employment legislation that affect labour market dynamics and the employment of those groups facing difficult access to the

labour market, develop social dialogue, foster corporate social responsibility, and undertake other appropriate measures to promote:

- diversity of contractual and working arrangements, including arrangements on working time, favouring career progression, a better balance between work and private life and between flexibility and security;
- access for workers, in particular for low skill workers, to training;
- better working conditions, including health and safety (...);
- the design and dissemination of innovative and sustainable forms of work organisation, which support labour productivity and quality at work;
- the anticipation and the positive management of economic change and restructuring.”

Looking at labour market integration and career development as discussed in detail in previous *Employment in Europe* reports⁸⁶ - low-skilled people in particular change between long-term unemployment or inactivity and intermittent temporary jobs and are at high risk of leaving the labour market in the long term. At the aggregate level, their fluctuation between generally low paid, low productivity employment and non-employment contributes only to a limited extent to a sustainable employment increase. It is therefore of particular importance to integrate or reintegrate those on the margins of the labour market into stable employment relationships - notably the young and low-skilled and people with care responsibilities.

This requires the availability of attractive work, offering suitable working time arrangements, possibilities to reconcile work and family life, and opportunities for skills up-

grading and career advancement. In addition to financial incentives, career advancement and other quality elements working time flexibility and job security are for many people key inducements to take up work and to stay in the labour market. While low wage employment, less regulation and more flexible work organisation - greater opportunities for part-time work and flexible working hours - can make it easier both for people to join the labour force and for firms to take them on, such increases in labour market flexibility need to be in line with the strong demand for high quality employment. Furthermore, they also need to be properly balanced by legitimate demands for job security.

Having discussed wages and their relation to productivity in the previous chapter, this chapter considers some other dimensions of quality in work - job satisfaction, education and training, labour market transitions, and working time arrangements - and assesses the extent of current labour market flexibility and security. Section 2 provides a short update on the evolution of job satisfaction and quality in work over the second half in the 1990s in the EU, with a particular focus on temporary employment. It also includes a short discussion of the role of industrial relations and social dialogue in relation to education, training and productivity. Section 3 further re-examines the role of quality in work for longer term labour market transitions in the period 1995-2000 and provides evidence on employment stability and labour market flexibility in European labour markets. Section 4 discusses working hours and working time arrangements in the EU and the accession countries, based on a specific ad hoc module on these issues to the 2001 Labour Force Survey (LFS).

⁸⁵ See references in chapter 3.

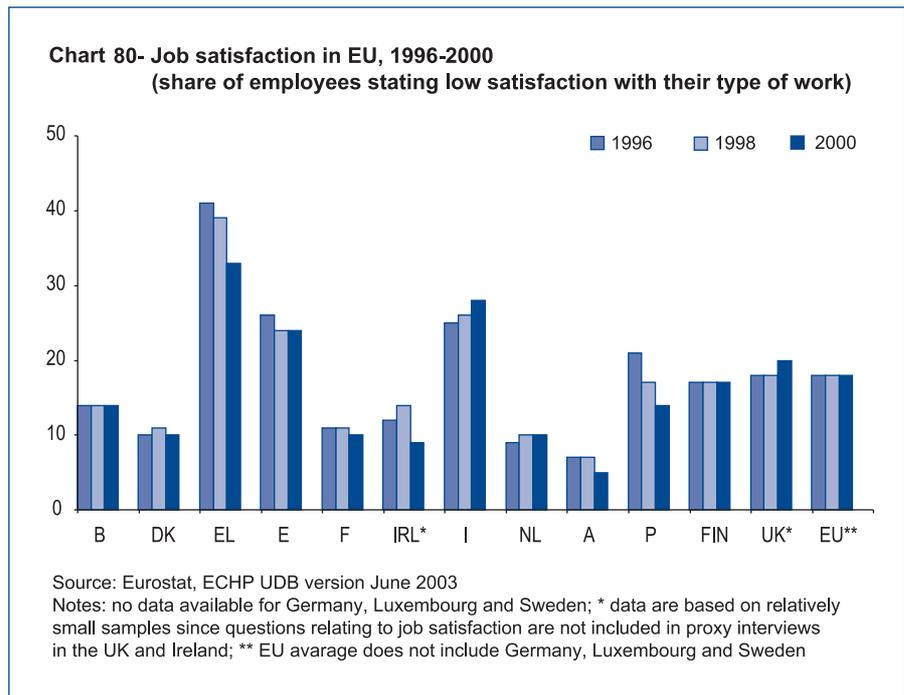
⁸⁶ See e.g. *Employment in Europe 2001*, chapter 4 „Quality in work and social inclusion“, and *Employment in Europe 2002*, chapter 3 „Synergies between quality and quantity in work“.

Quality in work in European labour markets: an update

The concept of quality jobs rose to prominence at the Lisbon Summit in March 2000 which developed employment policy beyond the social protection, health and safety and equality agenda which had influenced it over the four decades since the Social Chapter came into being in 1961. Improving job quality is seen as important not just for the well being of workers but also to promote social inclusion and drive up employment levels. The European Commission identified 10 'dimensions' of job quality in a Communication in 2001.⁸⁷ For each of these, one or more indicators have been proposed – and adopted at the Laeken summit in December 2001 – as a means of assessing the quality of work in Europe and of monitoring its evolution over time.⁸⁸

While stating that there has been real progress on employment and confirming that the objectives of increasing employment rates and improving productivity and quality in work were interrelated and mutually supportive, the 2003 Spring European Council recognised that “reaching the 70% employment rate Lisbon target by 2010 will require far-reaching structural reform aimed at full employment, higher productivity and quality in work”. It asked the European Commission to prepare a report on quality in work, reviewing ongoing efforts to improve the quality of work, by the end of 2003.⁸⁹

Previous *Employment in Europe* reports have analysed quality in work in the European labour markets in detail. In these reports, it has been shown that not only wages, but also job security, access to training and career development are crucial determinants of both, subjective job satisfaction and objective job quality. While according to these criteria, the majority of jobs in the EU are of relatively high quality, up to a quarter of Europeans remain in jobs of relatively low quality, having



either low pay, and/or a lack of job security, access to training or career development.

It was also shown that there are important cross-country differences in the persistence of low quality employment and in short- to mid-term transitions between employment states, notably from low to high quality employment and from temporary to permanent employment. Relatively favourable transitions to higher quality employment in Denmark, Belgium, Austria, the Netherlands and Ireland contrast with much less favourable transition patterns in other Member States, most notably France, Germany, Italy, Greece and Spain. In all of the latter, a quarter or more of all those employed in low quality jobs in a given year were no longer in employment two to three years later, a majority of them having moved into unemployment.

Evolution of job satisfaction and job quality

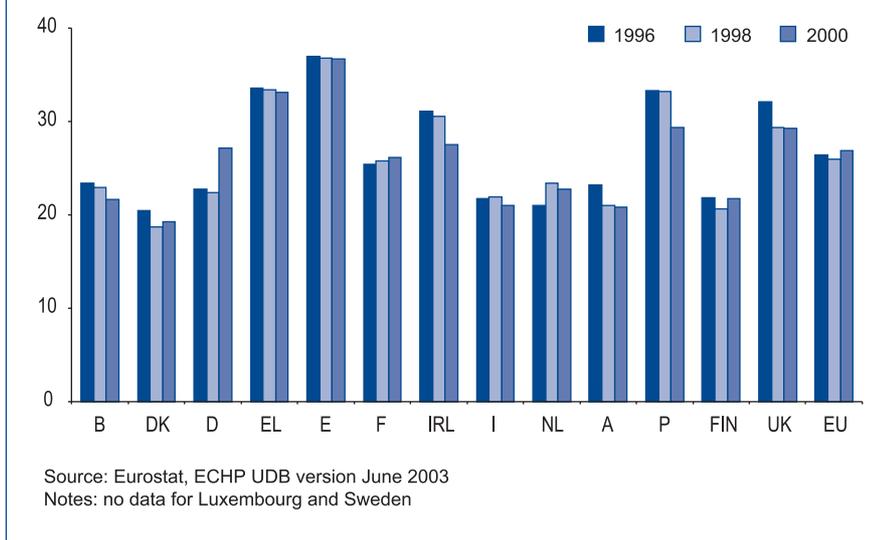
Despite the strong employment performance observed in European labour markets in the second half of the 1990s, recent data on the evolution of job satisfaction and job quality – as defined in previous *Employment in Europe* reports – over this period do not indicate significant changes in quality in work. Only in Greece and Portugal, was there a significant decrease in the share of employees expressing low satisfaction with their type of work. On the other hand, job satisfaction seems to have deteriorated somewhat in Italy in the 1996-2000 period. In the year 2000 in the EU overall, around 20% of all employees still declared themselves dissatisfied with their job. Relatively high degrees of dissatisfaction in Greece, Italy, Spain and the UK contrast with very high shares (90% or more) of employees who are satisfied with their job in Denmark, France, Ireland, the Netherlands and, most notably, Austria (chart 80).

⁸⁷ European Commission (2001), Employment and social policies: A framework for investing in quality, Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, COM(2001) 313 final, 20.06.2001

⁸⁸ European Council (2001), Indicators of Quality in Work, Report by the Employment Committee to the European Council, 14263/01, 23.11.2001

⁸⁹ European Council (2003), 2003 Spring European Council, Presidency Conclusions, Brussels, 20-21.03.2003

Chart 81- Evolution of job quality in the EU, 1996-2000
(share of employees in low quality employment)



Similar conclusions are obtained when assessing objective job quality, using the classification of jobs suggested in *Employment in Europe 2001*. According to this classification, three main job types were distinguished: “high-quality jobs”, i.e. jobs which, in addition to reasonable pay, also offer either job security or access to training and career development; low pay/low productivity jobs, i.e. jobs with gross hourly wages of less than 75% of the country-specific median; and “dead-end jobs”, i.e. jobs which, independently of their pay level, offer neither job security nor access to training or career development. The share of “low-quality jobs” in the EU remained virtually constant in the second half of the 1990s. Although it is difficult to depict clear trends from the data, there are signs of improvements in a few Member States, notably Ireland, Austria and Belgium. It is probably more sensible, however, to compare the differences in the levels across countries. Over the period 1995-2000, a quarter or more of all employees on average were in jobs of low

quality in Spain, Portugal, Greece, the UK and Ireland, compared to less than 20% in Denmark (chart 81).

The role of temporary employment

In this context, temporary employment⁹⁰ - i.e. employment on fixed- or short-term contracts - is of particular relevance, not least because job security and employment stability are key determinants of both job satisfaction and job quality. In fact, in most countries, temporary employment is in general not so much an outcome of personal choice, but more of choice restrictions.⁹¹ In the EU as a whole, more than half of all employees on temporary contracts - equivalent to 7% of all employees - would have preferred a permanent job but could not find one. Roughly a further third are in temporary employment because of education, training or probationary periods

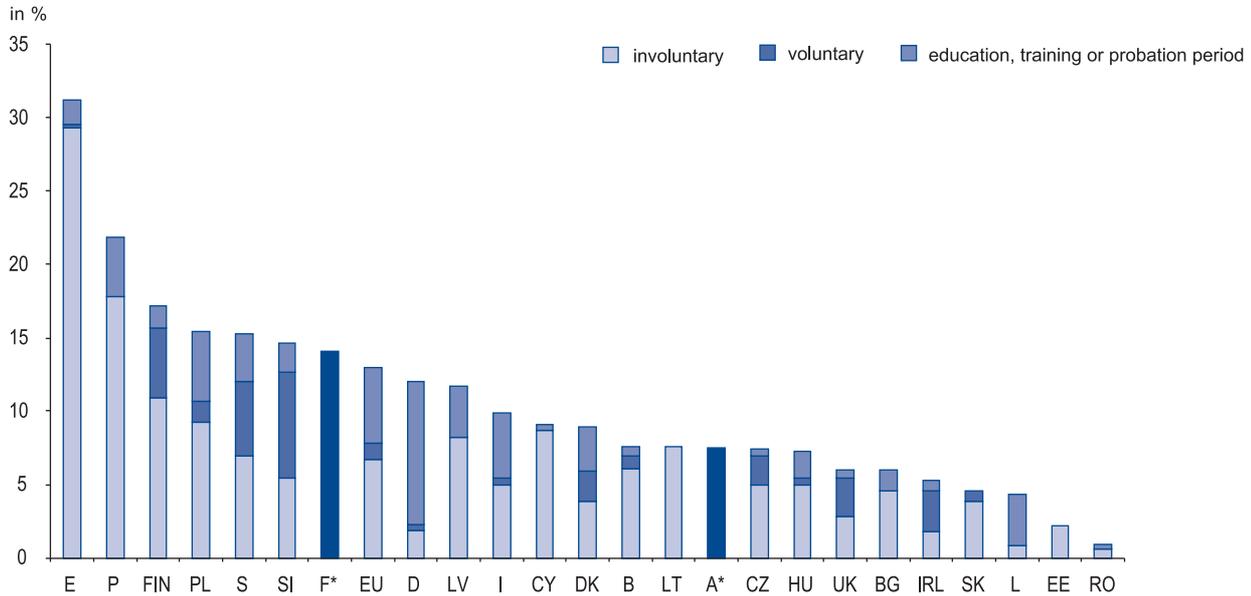
when starting a new job, while less than 10% of the temporarily employed declared that they want a temporary job, for the flexibility provided or as a means to fit with personal circumstances. In Spain and Cyprus, almost 95% of all temporary employees declare themselves as involuntarily in temporary contracts. On the other hand, only in the UK, Ireland and Slovenia, did almost half of all temporary employees declare themselves as voluntarily on temporary contracts. Other countries with a sizeable fraction of 10% or more of all temporary employees declaring themselves as voluntarily so are the Nordic countries, the Czech Republic and, to a lower extent, the Netherlands and Belgium. Germany and Luxembourg stand out because almost all temporary employment in these countries is due to education, training or probationary periods (chart 82).

Temporary employment can potentially be a stepping-stone into longer employment relationships of higher quality, but often it has important and combined disadvantages in terms of job security, remuneration and training. In several countries, more than half of all temporary employees are on contracts of six months or less and are thus exposed to considerable employment risks. In the remarkable case of Spain, more than 60% of all temporary employees - equivalent to around 20% of all employees - work on the basis of temporary contracts with a length of six months or less. Also in Sweden and in several accession countries (Slovenia, Hungary, Lithuania, Bulgaria, Slovakia) more than half of all employees have temporary contracts with short duration of six months or less. Contract length for temporary employment is, on average, much longer in Germany, Austria, Italy, Ireland, Portugal, Cyprus and Latvia. In all of these, more than half of temporary employees have contracts of at least two years, possibly - as in the case of Austria and Germany - mainly related to education and training (chart 83).

⁹⁰ Neither the LFS nor the ECHP provide information on temporary agency work. It should therefore be noted that temporary employment in this chapter generally refers to employment on the basis of contracts with fixed duration (fixed-term or short-term contracts). When using data from the ECHP, it also includes a small sample of people on casual work or work without any formal arrangement. For a comparative analysis on temporary agency work in the EU and its link to pay, working conditions and labour market integration, see e.g. Donald Storrie (2002), *Temporary agency work in the European Union*, European Foundation for the Improvement of Living and Working Conditions, Dublin.

⁹¹ In the Labour Force Survey, employees on temporary contracts are asked to state the main reason for being in temporary employment. The response categories include: “I could not find a permanent job”; “I did not want a permanent job”; “I am in education or training”; and “I am in a probationary period”. The first of these categories is generally referred to as ‘involuntary in temporary employment’, the second as ‘voluntary in temporary employment’.

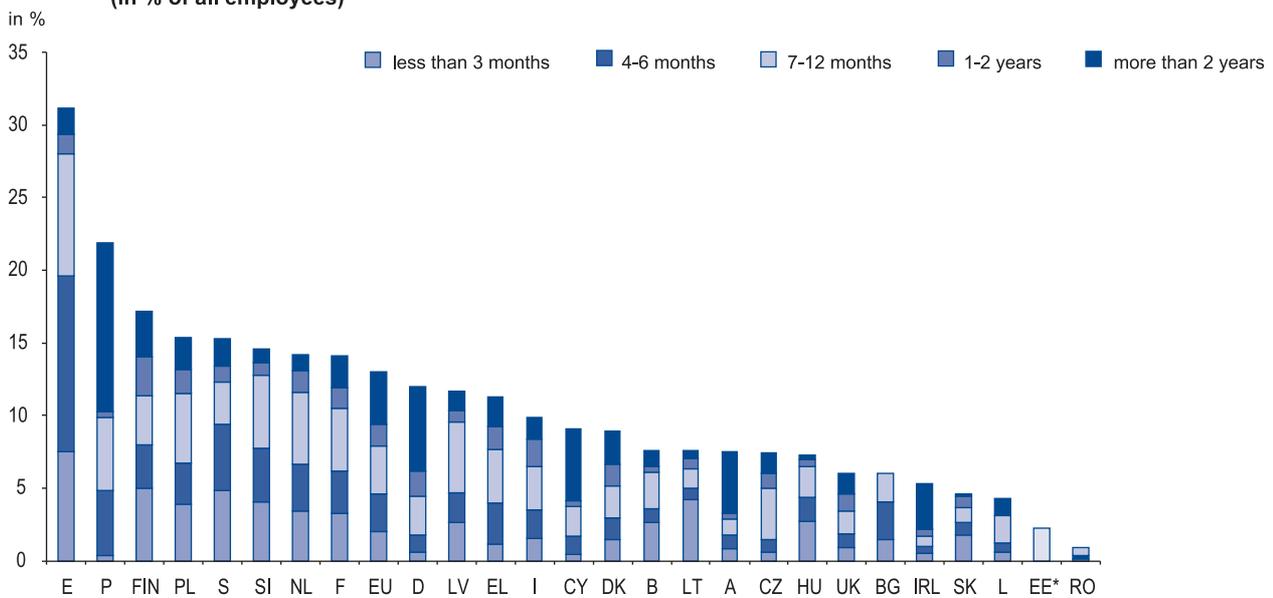
Chart 82- Temporary employment in the EU and the Accession Countries by reason, 2002
(in % of all employees)



Source: Eurostat, LFS, 2002Q2

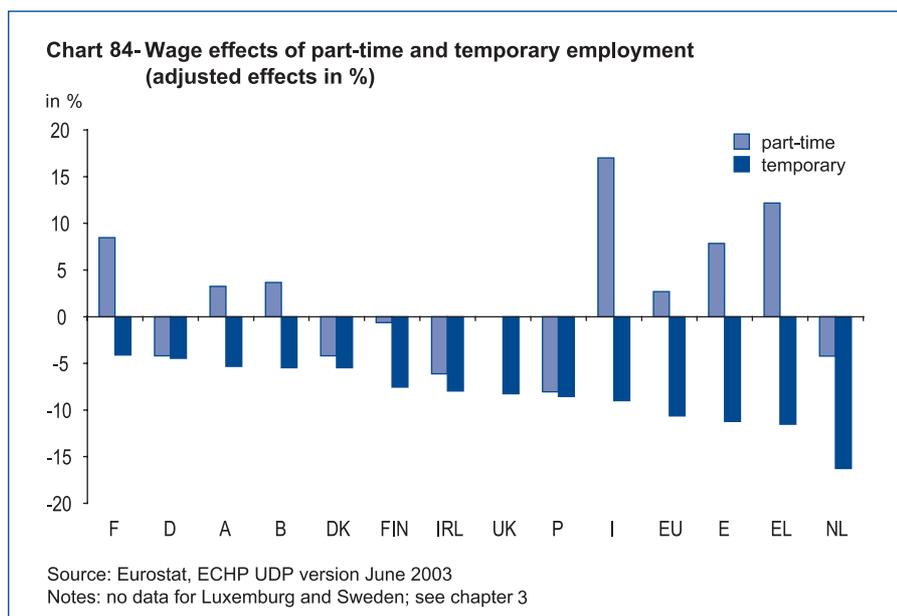
Notes: for France and Austria, only the total employment share of temporary employment is given since no information on the reasons of temporary contract work is provided; for France and Austria, data refer to 2002Q1

Chart 83- Temporary employment in the EU and the Accession Countries by contract duration, 2002
(in % of all employees)



Source: Eurostat, LFS, 2002Q2

Notes: for Estonia, only the total employment share of temporary employment is given since no information on the duration of temporary contract work is provided; for France and Austria, data refer to 2002Q1



Employees on temporary contracts are not only at considerably higher risk of job loss and labour market exclusion⁹² they also, as demonstrated in the previous chapter, receive lower wages than permanent employees with the same qualifications who are doing the same job. Such wage penalties on temporary contract work exist in all EU Member States, ranging from around 5% in France, Belgium, Austria, Germany and Denmark to more than 10% in Spain and Greece, and to more than 15% in the Netherlands. However, while in the southern EU Member States as well as in Belgium, Austria and France wage penalties for temporary work contrast with positive wage premia for part-time work, there are negative wage effects related to both types of flexibility – contractual and working time flexibility – for both men and women in Denmark, Germany, Ireland, Portugal and, most notably, the Netherlands, as well as for women in the UK (chart 84).

Finally, given the temporary nature of their employment relationship, temporary employees also receive less training in some cases, thus possibly compromising their employability in the longer run.

Quality of industrial relations and quality in work

As exemplified by both the strong difference in the provision of training in firms with and without negotiated agreements and by the important link between workplace organisation, quality in work and productivity, social dialogue in particular and industrial relations generally can play an important role in improving both, quality in work and productivity.

The role of education and training - including lifelong learning and adult (25-64) participation in education and training - for quality in work and productivity is well recognised. Nevertheless, as discussed in previous *Employment in Europe* reports, the incidence of adult learning and continuing vocational training remains rather low in many EU Member States, notably in the southern EU Member States and Germany. Continuing vocational training, on the other hand is much more prominent in some of the countries with a strong employment performance in recent years, notably the Nordic Member States,

the UK and the Netherlands. There is, furthermore, a strong variation in the access to training across age groups and skill levels in all countries, with training provision biased towards younger and high-skilled employees in larger firms.⁹³

Negotiated agreements between the social partners are an important means to correct for this bias.⁹⁴ Firms with negotiated training agreements not only provide training to more of their employees but also provide, on average, more intensive training to those participating in continuing vocational training (CVT) courses. In the EU overall, in enterprises with agreements more than half of all employees participated in CVT courses in 1999, compared to only about a third in firms without agreements. Average hours spent in CVT courses by the participants throughout the year were nearly twice as high in firms with agreements (19 hours) as in firms without agreements (10 hours). At the Member State level, a notable exception is Denmark, where both, incidence and average time spent in continuing vocational training are virtually the same in firms with and without negotiated agreements. In the UK, while the shares of employees participating in CVT courses are also quite similar independently of the presence of an agreement between the social partners, average hours spent on continuing vocational training are significantly lower in firms without agreement (charts 85, 86).

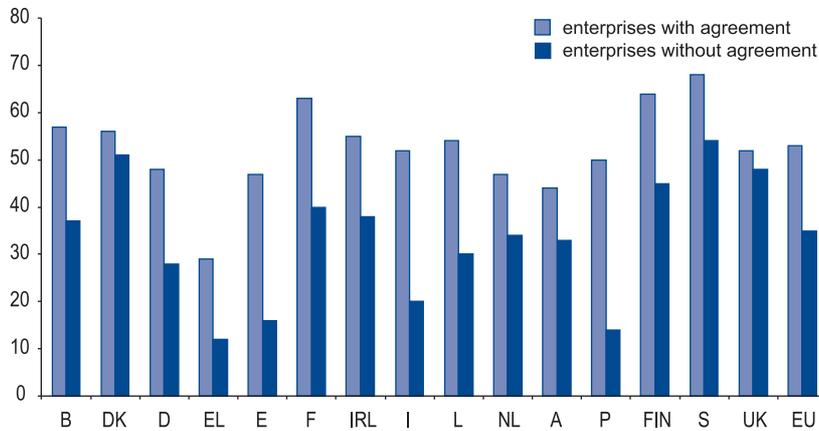
Agreements on the provision of continuing vocational training contribute to reducing the strong discrepancies in the provision of training by firm size in all Member States, both with regard to training incidence and the average time spent in training (chart 87). At the EU level, in small firms without agreements, only 20% of employees receive continuing vocational training, with employees spending on average six hours in it. This contrasts with 45% of employees in large firms who spend, on average, 11 hours a year on CVT courses. With agreements, 48% of the employees in small firms and 54% of employees in large firms benefitted from continuing vocational

⁹² See *Employment in Europe 2002*, chapter 3 „Synergies between quality and quantity in work“ and additional evidence in the following section of this chapter.

⁹³ While this bias might reflect differences in private returns to education and training, it is likely to result in suboptimal human capital investments from an economy-wide point of view. The main reason is that social - or macroeconomic - returns to such investments generally exceed private - or microeconomic - ones, not least because of the close link between human capital investments and aggregate productivity increases. For further detail and related empirical estimates, see European Commission (2003), “Human capital in a global and knowledge-based economy”, study report by A. de la Fuente and A. Ciccone, Universitat Autònoma and Universitat Pompeu Fabra, Barcelona.

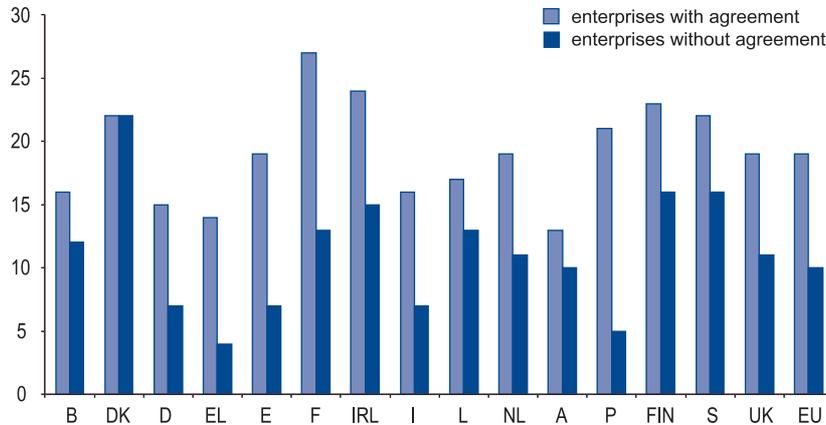
⁹⁴ It is interesting to note that the European social partners agreed in 2002 a joint framework for action for the lifelong development of competencies and qualifications, thus underlining the importance of training agreements.

Chart 85 - Share of employees participating in CVT courses provided by enterprises, 1999



Source: Eurostat, CVTS2

Chart 86 - Average number of hours of CVT courses per employee provided by enterprises, 1999



Source: Eurostat, CVTS2

training with virtually the same average time spend in training of 19 and 20 hours, respectively in 1999.

Discrepancies in the provision of training by firm size exist in all Member States, notably in Belgium, Ireland, France, Italy, Greece, Spain

and Portugal. In the latter four, less than 10% of employees in small firms without agreements, and less than 40% of employees in small firms with agreements receive continuing vocational training. In the three Nordic Member States, on the other hand, around 40% or more of all employees in small firms

without agreements, and less than 40% of employees in small firms with agreements do receive training. The differences in the provision of training between firms with and without agreement were smallest in the Nordic Member States, the Netherlands and Germany, and largest in Belgium, France and the southern EU Member States. In the particular case of Germany, while - compared to firms without agreements - firms of all sizes with agreements had generally higher training incidence in 1999, the relative differences with regard to both, training incidence and average time spent in training, by firm size persisted.

The above findings are in line with recent research. In particular in the case of the UK, it has been shown that unionised workers are more likely to receive training and also receive more days of training than non-unionised workers. In addition, workers covered by union agreements also tend to experience greater returns from training and faster wage growth.⁹⁵

These findings are important, not least because training is known to increase both, employability and productivity. The effects of training on productivity have been shown to be economically large. Again in the particular case of the UK, the effect of raising the proportion of workers trained in a sector by 5 percentage points has been estimated at 4% with respect to the value added per worker, and at 1.6% for wages.⁹⁶

Another important factor contributing to productivity - and at the same time an important element of industrial relations - is workplace organisation. A number of case studies have been undertaken which show that new forms of work organisation, including new organisational structures, more flexible and less hierarchical working methods, stronger involvement of employees as well as new reward and performance measurement systems, tend to increase productivity and employer performance.⁹⁷ More recent econometric research based on matched employer-employee data for Germany confirms these

⁹⁵ Alison L. Booth, Marco Francesconi and Gylfi Zoega (2003), Unions, work-related training, and wages: Evidence for British men, IZA Working Paper No. 737, Bonn

⁹⁶ Lorraine Dearden, Howard Reed and John Van Reenen (2000), Who gains when workers train? Training and corporate productivity in a panel of British industries, Institute for Fiscal Studies, Working Paper No. 00/04, London.

⁹⁷ See e.g. European Commission (1999), New forms of work organisation and productivity, study prepared by Business Decisions Ltd., DG Employment and Social Affairs, and European Commission (2002), New forms of work organisation, The benefits and impact on performance, CE-V/6-02-001-EN-C.

findings. Flexible workplace practices are found to have economically important positive effects on labour productivity which are similar to those obtained for the US. These effects are, furthermore, rising over time.⁹⁸

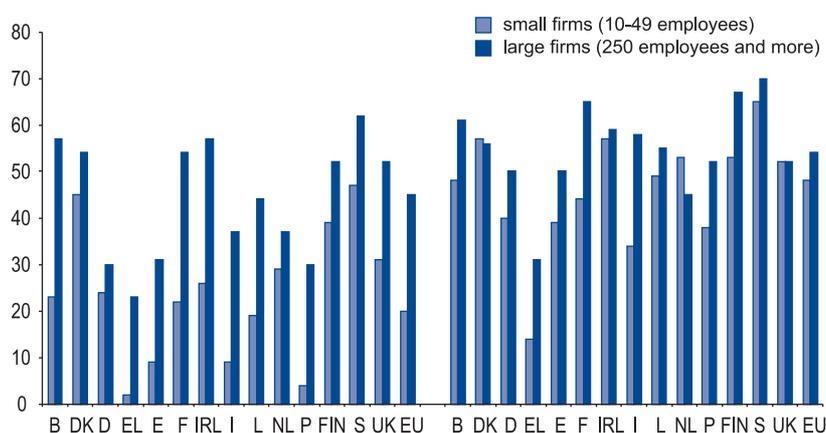
Labour market transitions and quality dynamics

To assess the extent to which low-quality jobs and temporary employment can integrate people into stable employment relationships, longer term transition rates from these job types have to be analysed. This section provides evidence on longer term labour market transitions over the 1995-2000 period, and on changes in transition rates over time, notably in transition rates between low and high quality employment.⁹⁹ The section further provides results on longer term labour market dynamics by type of employment, based on cluster analysis.

Persistence in permanent employment is high in all EU Member States, with 90% or more staying in a permanent job between 1999 and 2000. On the other hand, as discussed in more detail in *Employment in Europe 2002*, transitions out of temporary employment vary strongly across the EU. While more than half of all temporary employees in 1999 were in a permanent job a year later in Austria, the Netherlands and Ireland, less than a third of temporary employees in Italy, Greece, Spain, France, Finland and Portugal managed the same.¹⁰⁰ In all of these countries persistence in temporary employment over the two years was relatively high, with around half or more of all temporary employees in 1999 still in temporary employment a year later.

Transitions in 1999/2000 from temporary employment into non-employment were highest in Finland and the UK, where more than a quarter of all temporary employees were not employed a year later. While the majority of temporary employees who were not employed had moved into inactivity in

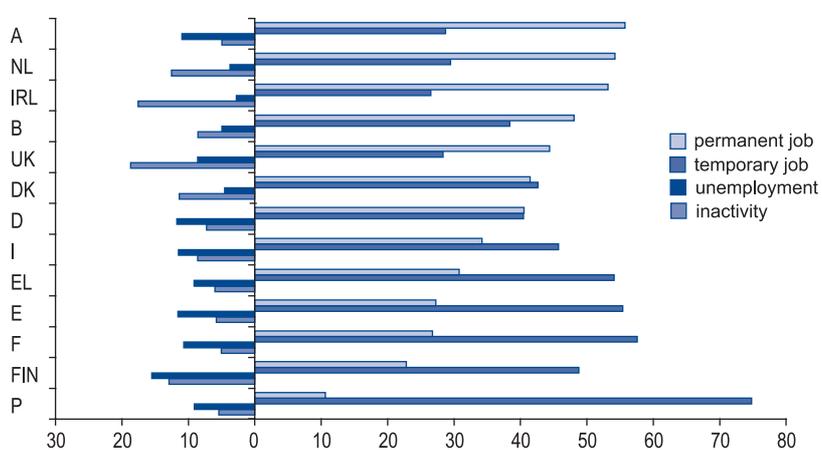
Chart 87- Shares of employees participating in CVT courses provided by the employer by firm size, 1999
(left panel of the chart: firms without agreement; right panel of the chart: firms with agreement)



Source: Eurostat, CVTS2

Notes: no information for small firms for Austria available

Chart 88- Transitions 1999-2000 out of temporary employment into ...
(transition rates in % of temporary employees 1999)



Source: Eurostat, ECHP UDB version June 2003

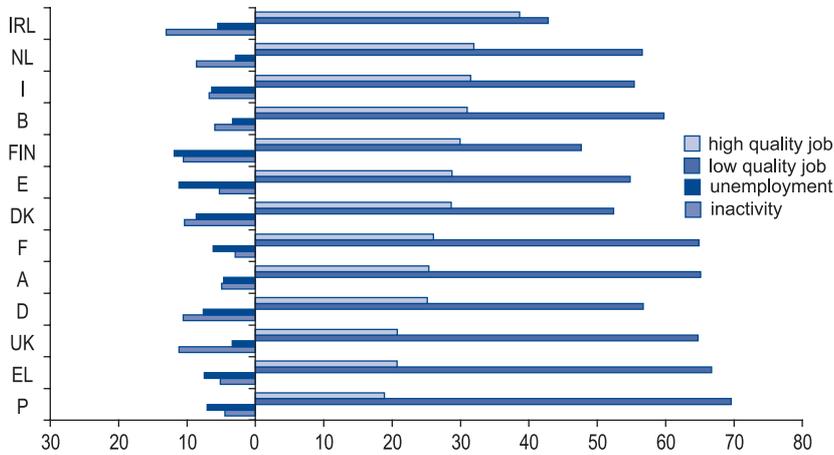
Notes: no data for Luxembourg and Sweden; Member States sorted by decreasing transition rates from temporary into permanent employment

⁹⁸ See Thomas K. Bauer (2003), Flexible workplace practices and labour productivity, IZA Working Paper No. 700, Bonn.

⁹⁹ Results refer to the age group 15-64 unless stated otherwise.

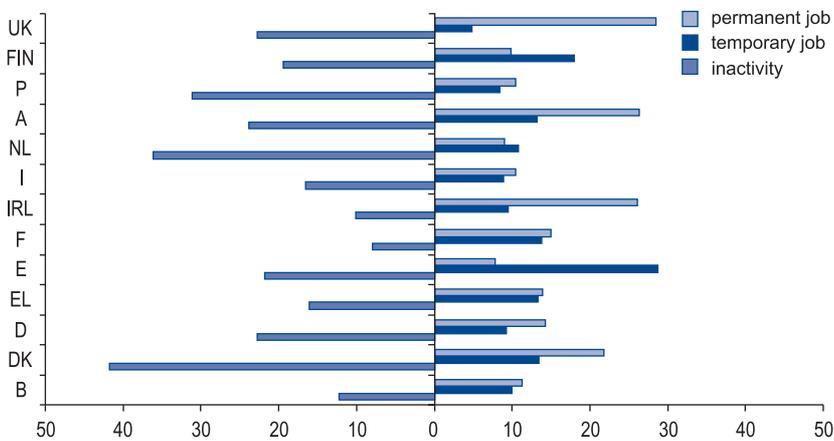
¹⁰⁰ For further analyses of the employment prospects of temporary employees, see also A.L. Booth et al (eds) (2002), „Temporary jobs: Stepping stones or dead ends?“, and related articles in: The Economic Journal, Symposium on temporary work, vol. 112 (480).

Chart 89- Transitions 1999-2000 out of low-quality employment into ...
(transition rates in % of employees in low quality jobs 1999)



Source: Eurostat, ECHP UDB version June 2003
Notes: no data for Luxembourg and Sweden; Member States sorted by decreasing transition rates from low-quality into high-quality employment

Chart 90- Transitions 1999-2000 out of unemployment into ...
(transition rates in % of non-employment 1999)



Source: Eurostat, ECHP UDB version June 2003
Notes: no data for Luxembourg and Sweden; Member States sorted by decreasing persistence in unemployment

the UK and also in Ireland, the Netherlands and Denmark, the picture was very different for Germany, Austria, France, Finland and the southern EU Member States, where transitions from temporary employment into unemployment predominated (chart 88).

Similar observations can be made for transitions out of low-quality employment. Year-to-

year transition rates from low to high quality employment were highest in Ireland, where almost 40% of all those employees in low quality jobs in 1999 had improved job quality one year later because of higher pay, a permanent contract status or access to training. Such improvements in job quality were much less common in Portugal, Greece and the UK, but also in France, Austria and Germany,

where at most only one out of four employees in a low quality job in 1999 managed to gain access to a higher quality job in 2000. These differences notwithstanding, persistence in low quality employment was generally high. In fact, in all Member States, a majority of employees in low quality jobs – and around two thirds or more in Portugal, Greece, the UK, France and Austria – stayed in them between two consecutive years. Transition rates from low quality employment into non-employment exceeded 15% in Finland, Denmark, Germany, Spain, the UK and Ireland. In the case of the latter two countries, however, these transitions were predominantly into inactivity, not unemployment (chart 89).

Longer term labour market transitions

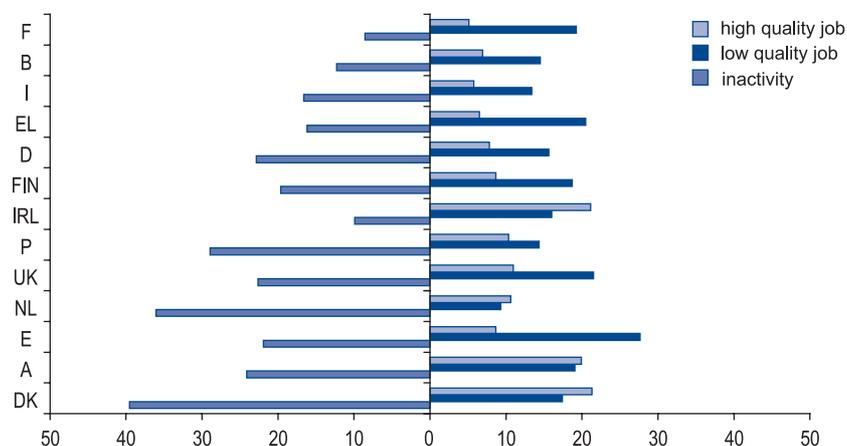
Longer term transitions over several years are the result not only of the above transitions out of temporary or low quality employment. They also reflect the transitions back from unemployment or inactivity into employment, and the stability of permanent and high quality jobs. Important differences in the extent and patterns of transitions back into employment exist: less than a quarter of the unemployed was unemployed for two subsequent years in Denmark, while more than 60% of all unemployed in Belgium, France and Italy were. And while a third or more of all unemployed in 1999 had found an employment by 2000 in Denmark, Austria, Spain, the UK and Ireland, less than one quarter did in France, Belgium, Portugal, Italy, Germany and the Netherlands. Transitions back from inactivity into employment, moreover, were generally highest in those countries in which there is an important inflow from employment or unemployment into inactivity, most notably Denmark, the Netherlands, the UK and Ireland. In countries with relatively more important transitions into unemployment, and with higher persistence in unemployment – notably Germany, France, Belgium and Spain – on the other hand, transitions back from inactivity into employment were much less common. Finally, there is strong variation in the type of employment into which those previously unemployed or inactive move: in Ireland, Austria and Denmark, a majority of people taking up a job move into permanent, high quality jobs. This is very

different in the other Member States, most notably France, Germany, Spain and the UK, where transitions out of unemployment or inactivity into employment predominantly translate into the take-up of low quality jobs (charts 90, 91).

As a result, over the six-year period 1995-2000, transition patterns vary considerably across EU Member States. More than half of all temporary employees in all EU Member States, with the exception of the southern EU Member States, succeeded in moving to more stable contractual employment arrangements. The most favourable longer-term transition patterns are observed for Austria, the UK and Ireland. On the other hand, important shares of temporary employees in 1995 were not in employment anymore five years later. In particular in Spain, Germany, France and Belgium, more than 10% of those in temporary employment in 1995 were unemployed five years later. In some of the Member States in which such long-term transitions into unemployment were much less significant, however, there were important transitions into inactivity instead, most notably in the UK, Ireland, the Netherlands, Denmark and the southern EU Member States. Germany and Spain are, the only EU Member States in which, transitions from temporary employment into both, unemployment and inactivity, each affected more than 10% of those in temporary employment in 1995 (chart 92).

Likewise, longer term transitions out of low quality or temporary employment over the period 1995-2000 were in general more favourable in Austria and Ireland as well as in the Nordic and Benelux Member States, while less favourable in France, Germany and the southern EU Member States. The only country where marked improvements in contract status - i.e. movement from temporary to permanent jobs - is not matched by before improvements in job quality is the UK. Indeed, in the UK, favourable transitions from temporary to permanent employment contrast starkly with comparatively low rates of quality improvements: between 1995 and 2000, only one third of those in low quality jobs improved the quality of their job, while more than 40% stayed in a job of low quality. It has to be noted, however, that transition rates of low quality employment into unemployment are very low in the UK, in particular when compared to other Member States with

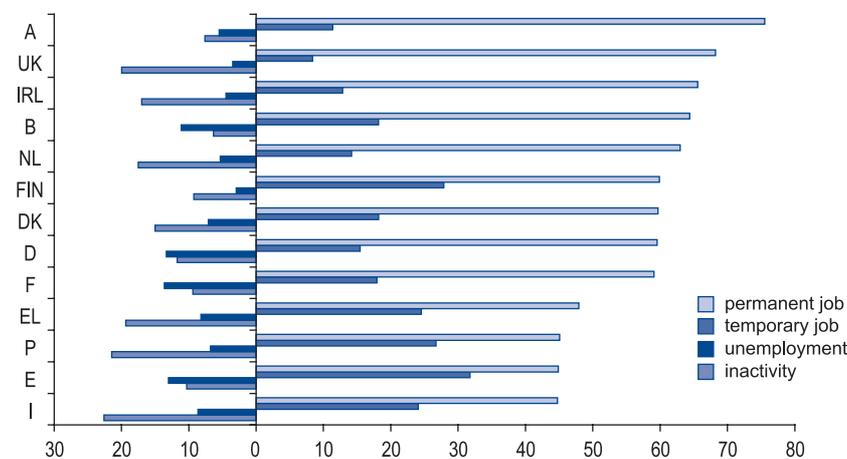
Chart 91 - Transitions 1999-2000 out of unemployment into ...
(transition rates in % of non-employment 1999)



Source: Eurostat, ECHP UDB version June 2003

Notes: no data for Luxembourg and Sweden; Member States sorted by decreasing persistence in unemployment (due to varying samples, the order of countries in the above chart might differ slightly from that in chart 5.20)

Chart 92 - Transitions 1995-2000 out of temporary employment into ...
(transition rates in % of temporary employees 1995)



Source: Eurostat, ECHP UDB version June 2003

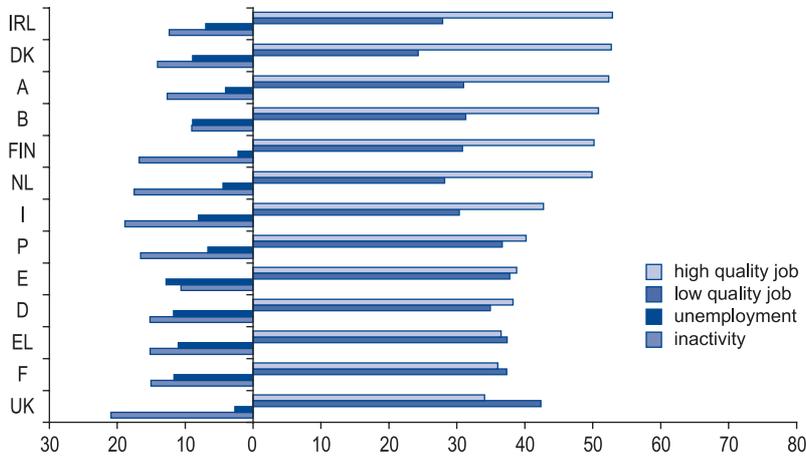
Notes: no data for Luxembourg and Sweden; Member States sorted by decreasing transition rates from temporary employment into unemployment

similarly unfavourable rates of longer term quality improvements are Greece, Spain, France and Germany (chart 93).

One of the main reasons why, as in the case of the UK, the transitions from low to high quality could be less favourable than those from temporary to permanent employment,

are differences in employment transitions by pay level. Actually, in most countries, persistence in the lowest earnings decile is relatively important, with 50% or more staying in the lowest earnings decile for two years in all Member States except Finland, Spain, Denmark, Ireland and Portugal. In the latter countries, more than 30% of employees in the

Chart 93- Transitions 1995-2000 out of low quality employment into ... (transition rates in % of employees in low quality jobs 1995)



Source: Eurostat, ECHP UDB version June 2003
 Notes: no data for Luxembourg and Sweden; Member States sorted by decreasing transition rates from low-quality employment into unemployment

lowest earnings decile in 1999 improved their relative earnings position in 2000. By contrast pay improvements are much less common in Germany, Italy and Belgium. In these countries, less than 20% of the employees in the lowest earnings decile in 1999 succeeded in improving their relative earnings position in 2000. In 1999/2000, in these countries - as well as in Finland and Spain - transitions of low wage earners into unemployment were more important than transitions into higher earnings deciles. These transition patterns are in general confirmed when looking at longer term transitions over the second half of the 1990s (table 41).

These cross-country differences in labour market transitions are also reflected in measures of employment stability and labour market flexibility over the whole period 1995-2000 (see box 7).

Evolution of transition rates over time

Table 41 – Labour market transitions by pay level, 1999–2000

		B	DK	D	EL	E	F	IRL	I	NL	A	P	FIN	UK	EU
From 1 st decile to ...	1 st decile	59	46	55	60	34	54	38	59	52	63	48	44	56	53
	2 nd decile	9	25	12	13	12	19	20	11	18	13	12	12	13	14
	3 rd decile	4	3	5	4	8	4	7	4	3	8	7	6	6	5
	4 th -10 th decile	4	4	4	6	7	4	8	4	6	2	13	6	5	5
	Non-employment	24	21	24	16	39	19	26	21	20	13	21	31	20	23
From 2 nd decile to ...	1 st decile	9	3	11	12	15	10	10	11	7	5	18	12	10	11
	2 nd decile	53	45	55	45	36	44	32	44	52	60	46	36	54	48
	3 rd decile	15	23	11	20	15	20	19	16	21	17	15	15	15	16
	4 th -10 th decile	18	12	13	11	19	14	16	19	11	12	16	18	10	14
	Non-employment	5	17	9	13	15	12	24	11	10	6	4	20	11	11
From 3 rd decile to ...	1 st decile	2	4	2	1	2	2	3	3	1	1	1	3	3	2
	2 nd decile	17	6	11	16	10	11	9	13	6	11	24	16	16	12
	3 rd decile	49	49	55	45	25	42	32	38	57	61	42	47	47	45
	4 th -10 th decile	24	31	23	32	50	39	43	37	31	19	30	28	27	32
	Non-employment	8	10	9	6	14	6	12	8	5	8	3	6	7	8
From 4 th -10 th decile to ...	1 st decile	0	1	0	0	0	0	0	1	0	0	1	0	1	0
	2 nd decile	1	1	1	1	1	1	1	2	1	1	1	1	1	1
	3 rd decile	3	2	2	3	5	3	3	5	2	1	4	4	3	3
	4 th -10 th decile	92	92	92	92	88	91	90	89	95	93	89	90	92	91
	Non-employment	3	4	4	4	5	5	5	3	3	5	5	4	4	4
From non-employment to ...	1 st decile	5	9	6	3	5	5	5	3	6	6	5	7	4	5
	2 nd decile	3	6	4	3	4	4	7	2	6	3	3	7	3	4
	3 rd decile	2	5	3	2	2	2	4	1	3	2	2	3	3	3
	4 th -10 th decile	4	10	5	3	5	5	7	3	7	6	9	7	6	5
	Non-employment	87	71	82	89	84	83	77	91	79	83	81	76	84	84

Source: Eurostat, ECHP UDB version June 2003
 Notes: no information available for Luxembourg and Sweden

There are, therefore, as demonstrated significant differences across EU Member States with respect to all three types of transitions discussed above - transitions by contract type, job quality and pay level. Average year-to-year transition rates out of temporary employment over the period 1995-2000 were most favourable in Austria, the UK, the Netherlands, Belgium, Ireland and Denmark - all countries with above average transitions into permanent employment and below average transitions into unemployment. Much less favourable transition patterns for employees on temporary contracts were observed in Finland, Spain and France (chart 94).

With the notable exception of the UK, the transition patterns out of low quality jobs were relatively similar. The chances of quality improvements for those in low quality jobs were highest in Denmark, Belgium, Austria, Ireland and the Netherlands, while the risk of unemployment was also comparatively low. In the case of the UK, a low risk of unemployment goes hand-in-hand with very low chances of quality improvements. France and Spain, together with Greece, are among the countries with the least favourable career opportunities for people in low quality employment. (chart 95).

Box 7 – Employment stability, labour market flexibility and overall employment performance

There is strong evidence that differences across countries in the employment performance¹⁰¹, and the employment rate in particular, are linked to differences in quality in work and labour market dynamics. To illustrate this point, this box presents evidence on the patterns of labour market attachment, labour market flexibility and employment in the Member States over time. It compares employment, unemployment and activity rates over several years and within a calendar year, based on monthly calendar information¹⁰² on the employment status within that year. Such comparisons are important since the standard measure of employment performance – the employment rate – can hide very different labour market transition patterns over time.

When examining employment performance and labour market dynamics over the six-year period 1994-99, high shares of 90% or more of all men were employed in some year in the UK, Germany, Denmark and Portugal. On the other hand, in Finland, Belgium, Luxembourg, France and Italy, around 20% of all men had never been employed in the period 1994-99. Continuous employment over the whole period was most common in Austria, Denmark, Luxembourg and Portugal, where more than 60% of the men were in employment in all years. Persistence in employment was lowest in Germany, Finland, France, Italy and, most notably Spain, where only half or less of all men were in employment in all years, or, in other words, where half or more of all men were in unemployment or inactivity at least once. The countries in which at least 70% of all women were employed in some year include Germany, the UK, Portugal, Austria, Denmark and Finland. Only in the latter three, were more than 40% continuously employed throughout the period 1994-99. Persistence in inactivity was highest in Spain, Italy, Ireland, Belgium and Luxembourg (table 42).

Important parts of these differences in employment patterns can be explained by differences in the longer term transitions out of temporary or low quality employment. More than half of all men in temporary employment in 1995 in France, Germany, Ireland, the UK, Italy and Spain were in unemployment in some year in the following four years. The share of women in temporary employment in 1995 who were unemployed in one of the following years,

moreover, was much higher in all countries, reaching up to 70% in France and the Netherlands. This high incidence of unemployment notwithstanding, at EU average almost half of all men and more than 40% of all women in temporary employment in 1995 were in permanent employment five years later. Such transitions into permanent employment, however, remained below average for men and women in France, Italy, Greece and Spain, and for men also in Ireland, Denmark and Germany.

Similar evidence on important fluctuations between the various labour market states are obtained when analysing monthly information from the ECHP. The UK is the EU Member State with the highest share of people who were in employment at least some time in 1998, 77% of men and 65% of women. On the other hand, countries such as Greece, Italy and Spain – as well as Belgium for men and Ireland for women – involved far fewer people in the labour market, with less than two thirds of men and 40% of women at most employed some time in 1998. Together with Portugal, the UK is also the country with the highest share of people – both men and women – continuously employed throughout the whole year 1998. Continuous employment rates were, on the other hand, particularly low for men in Finland and Spain – with half or less of all men continuously employed in 1998 – and for women in Ireland, Italy, Greece and Spain, where less than 40% of women were continuously employed. In fact, only in Denmark, Finland, France, Portugal and the UK did the share of women in continuous employment exceed that of women in continuous inactivity over the year 1998. In Belgium, Luxembourg, Ireland, Italy, Greece and Spain, more than half of all women remained outside the labour force throughout the whole year (table 43).

Similar shares of people in employment at some point in time throughout a given year might well hide important differences in employment patterns within a year. In countries such as Germany, Austria and Denmark, for example, similar shares of men (around 71%) were actually in employment at some point in 1998. In contrast to Denmark and Austria, however, in Germany there was significantly more fluctuation between labour market states. The share of men varying their labour market status at least once

¹⁰¹ The findings in this section are based on the interim results of a study on the “Determinants of employment stability, career progression and labour market transitions” by Tor Eriksson, Michael Rosholm and Anna D’Addio from the Aarhus School of Business, Aarhus University and the Higher Institute of Labour Studies (HIVA) at the Catholic University Leuven.

¹⁰² “Monthly information” on the labour market status is based on retrospective calendar data from the ECHP, while the “yearly information” refers to information at the time of the survey. Monthly information is therefore possibly less reliable than the yearly one, notably due to potential problems of non-random attrition (people disappear systematically from the survey for one or more waves) – which can be accounted for through longitudinal weights – and recall errors. As to the latter, they can be present under many forms. Data can be biased by the “memory bias” of respondents. This effect can entail as a consequence that a very high share of spells begin or ends in the months preceding the survey. In addition, recall errors are thought to be the source of the “seam phenomenon”. This effect derives from the respondents’ tendency to project current circumstances backwards. Another potential source of bias is the so-called “time in sample” effect which implies that the higher the number of times individuals respond to a survey, the higher the probability that they know the questionnaire and try to minimise the time required to answer to questions. There is also considerable non-response regarding the retrospective calendar information. Non-response reduces the sample size and introduce a potential bias in the data. It should, finally, be noted that the relevant questions on the labour market status in the ECHP differ from those in the LFS. Empirical results on the basis of these two data sets are therefore not strictly comparable.

Table 42 – Long-term employment stability and flexibility, 1995–1999

	Employed in some years	Continuously employed	Employed in more than half the period	Employed one or two years only	Never employed	Unemployed or inactive in some years	Unemployed in some years	Inactive in some years
Men								
B	80.5	53.3	65.9	10.5	19.5	46.7	12.7	39.2
DK	92.6	61.5	75.9	8.8	7.4	38.5	16.7	29.7
D	89.6	50.0	70.2	11.6	10.4	50.0	22.8	38.4
EL	90.8	55.6	72.2	11.9	9.2	44.4	22.0	33.4
E	83.4	43.3	61.6	14.4	16.6	56.7	32.7	37.8
F	81.9	48.8	64.1	11.4	18.1	51.2	18.5	38.4
IRL	86.5	52.7	69.2	11.7	13.5	47.3	25.3	29.6
I	81.4	49.0	63.6	12.4	18.6	51.0	25.9	37.9
L	80.9	61.1	66.6	9.0	19.1	38.9	6.0	18.8
P	89.8	61.6	76.6	8.2	10.2	38.4	16.7	27.8
A	87.0	63.6	74.8	7.4	13.0	36.4	9.3	29.7
FIN	78.4	49.7	58.7	19.7	21.6	50.3	21.1	38.1
UK	90.8	57.8	77.5	8.8	9.2	42.2	17.1	32.1
EU	85.7	53.4	72.0	11.2	14.3	46.6	19.0	33.1
Women								
B	60.1	31.8	42.1	13.1	39.9	68.2	19.8	59.2
DK	89.0	42.5	62.8	16.9	11.0	57.5	25.1	48.7
D	72.9	31.7	50.5	14.9	27.1	68.3	21.6	58.4
EL	60.3	21.7	35.6	18.2	39.7	78.3	28.3	71.4
E	50.3	16.2	25.1	19.1	49.7	83.8	30.5	76.8
F	68.2	31.8	46.1	14.8	31.8	68.2	23.9	54.6
IRL	59.7	20.6	36.6	15.4	40.3	79.4	12.2	74.7
I	51.7	24.5	33.3	13.6	48.3	75.5	24.2	69.7
L	55.6	30.6	37.1	12.7	44.4	69.4	4.8	50.7
P	75.4	38.0	55.6	13.5	24.6	62.0	19.4	54.5
A	71.1	41.6	50.1	14.0	28.9	58.4	10.1	53.7
FIN	77.5	42.9	52.0	25.5	22.5	57.1	21.6	45.3
UK	78.7	37.9	56.5	15.2	21.3	62.1	11.1	58.6
EU	67.0	29.7	52.0	15.9	33.0	70.3	19.4	59.7

Source: Eurostat, ECHP UDB version December 2002

throughout the year was 14% in Germany compared to 10% in Austria and Denmark. Furthermore, the share of those continuously in inactivity was significantly smaller in Germany (24%) than in Denmark and Austria (28%). As a consequence, the share of continuously employed men was much smaller, and that of men unemployed at some time – or even throughout the whole year – was much higher in Germany. Other countries with relatively large shares of men affected by unemployment at some time throughout the year include Spain, Finland and France, and also the UK. The share of continuously unemployed men was highest in Spain and Italy. It was notably much smaller in Austria, Luxembourg, Denmark, Ireland and the UK and this – in the case of the latter three – despite relatively high shares of men in unemployment at some time throughout the year.

The highest shares of 10% or more of people with varying labour market states over the year is found in Germany, France, Spain, Finland, Ireland and the UK for men, and in Germany, Denmark, France, Finland, Spain, Ireland and the UK for women. These labour market fluctuations were generally higher among women than among men – with the exception of Germany, Austria, Ireland, Italy and Spain, notably due to transitions into and out of inactivity. In Ireland, Finland and the UK, more than 10% of all women fluctuated between inactivity and employment, compared to 5% or less in Belgium and the southern EU Member States.

Differences in employment rates across countries are thus not only due to differences in labour supply and labour force attachment. They also reflect differences in employment stability and labour market flexibility over time. The impact of higher fluctuations on the overall employment rate is unclear, though, as labour market

Table 43 – Within-year employment stability and flexibility, 1998

	Employed in some months	Continuously employed	Unemployed in some months	Continuously unemployed	Inactive in some months	Continuously inactive	Varying employment states
Men							
B	60.2	54.7	3.3	3.9	3.4	35.5	5.8
DK	71.1	62.1	5.0	0.6	6.1	27.5	9.8
D	71.6	59.2	8.9	3.1	7.5	23.5	14.1
EL	63.7	58.2	4.1	3.6	2.2	32.4	5.9
E	62.7	50.7	9.6	5.2	4.4	31.4	12.8
F	65.6	55.9	7.7	2.5	6.2	30.8	10.9
IRL	64.4	53.6	6.0	0.6	6.7	28.8	11.4
I	62.2	55.2	5.4	7.4	4.7	29.1	8.3
L	65.7	60.0	2.8	0.5	3.8	33.6	5.9
P	73.5	67.3	3.8	3.3	3.1	22.9	6.5
A	70.4	61.0	5.6	1.4	4.7	27.9	9.7
FIN	64.3	49.5	8.1	3.8	10.1	30.7	16.0
UK	76.8	66.2	7.1	1.6	7.5	20.0	12.2
EU	67.1	58.0	6.0	3.3	5.4	28.8	9.9
Women							
B	42.7	36.1	3.3	6.4	5.2	50.2	7.2
DK	61.6	51.8	6.4	2.9	8.1	34.0	11.3
D	52.7	42.1	7.0	2.8	8.6	42.2	12.9
EL	34.9	29.0	4.3	4.1	2.6	60.5	6.3
E	34.1	24.9	7.2	4.6	3.7	60.7	9.8
F	53.1	42.9	7.4	3.7	8.0	41.5	11.9
IRL	40.3	29.4	2.6	0.7	9.4	58.7	11.2
I	36.4	30.4	3.6	6.2	3.8	56.8	6.6
L	45.2	36.7	2.7	0.5	6.6	54.2	8.5
P	58.4	51.3	4.0	2.6	4.3	38.5	7.6
A	49.2	41.3	4.3	1.1	5.7	48.8	8.7
FIN	61.2	41.8	9.4	3.5	14.7	33.9	20.8
UK	64.8	51.6	5.4	0.2	11.9	33.6	14.6
EU	48.8	39.2	5.2	3.0	7.1	47.2	10.6

Source: Eurostat, ECHP UDB version December 2002

Note: no data available for Sweden; no information on monthly employment status available for the Netherlands; the column headed "varying employment states" reports the share of people who, over the year 1998, changed between various employment states (employment, unemployment and inactivity); the difference to 100% indicates the share of people who were continuously in one of the three employment states over the full year

transitions may have a different impact on employment performance in different countries and circumstances. In the case of the UK and Denmark, for instance, relatively high fluctuations go hand in hand with high overall employment rates and comparatively high employment stability. This seems to be different in the

case of Germany, France, Ireland, Finland and Spain, where large fluctuations are linked to comparatively lower employment rates. In Portugal and Austria, furthermore, high employment rates coincide with relatively low fluctuations between the various labour market states.

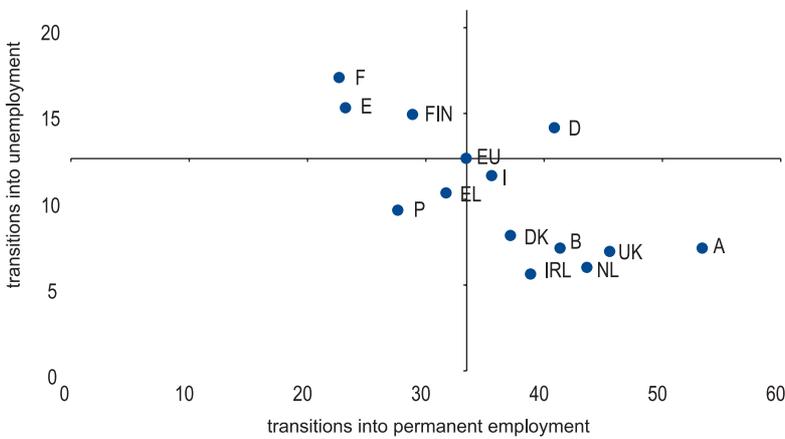
There is some evidence that transition rates at EU level slightly improved over the second half of the 1990s. When comparing average transition rates before and after 1997 (i.e. for the periods 1995-97 and 1998-2000),¹⁰³

EU level transition rates from low to high quality employment had increased slightly from 24.5% in the mid 1990s to 25.5% at the end of the decade. In parallel, transition rates from low quality employment into unemploy-

ment had decreased by almost one and a half percentage points, from 8.5% to 7.1%. Improvements along both dimensions were most pronounced in Ireland and the Netherlands - where the already above average

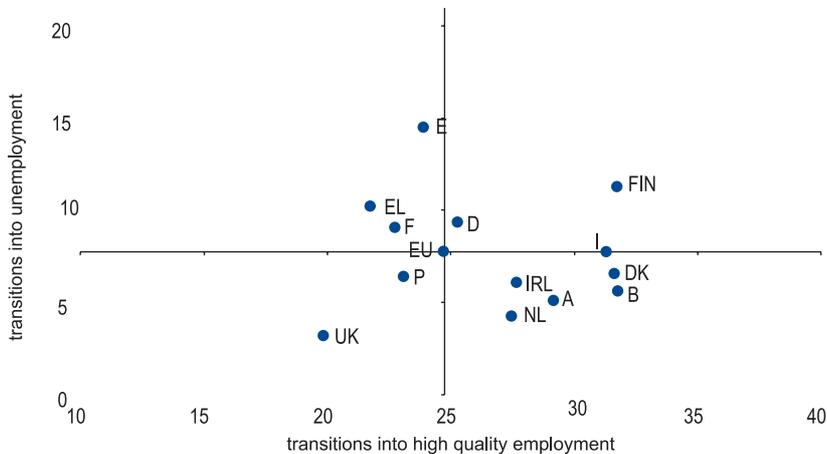
¹⁰³ Since it is difficult to compare year-on-year changes in transition rates based on the data from the ECHP, average rates for the two periods indicated above are calculated in order to reduce the influence of statistical uncertainty and to increase the robustness of the results.

Chart 94- Average transition rates out of temporary employment, 1995-2000



Source: Eurostat, ECHP UDB version June 2003
 Notes: no data for Luxembourg and Sweden; axes indicate EU level average transition rates 1995 - 2000

Chart 95- Average transition rates out of low quality employment, 1995-2000



Source: Eurostat, ECHP UDB version June 2003
 Notes: no data for Luxembourg and Sweden; axes indicate EU level average transition rates 1995-2000

Other countries with improved employment prospects of low quality jobs include Belgium, Germany, France and Italy. In the case of Portugal, slight improvements in employment stability of those in low quality employment were countered by reduced prospects of moving into higher quality jobs. In Denmark, Finland and Austria, transitions out of low quality employment deteriorated somewhat with regard to both, employment stability and career prospects, but in these countries, transition rates out of low into high quality employment remain significantly above average. In the UK, finally, average transition rates remained very much unchanged over the two periods, with comparatively low transitions out of low quality jobs into both, unemployment and high quality jobs (chart 96).

Differences in the evolution of employment stability for those in temporary employment are one of the reasons for these cross-country differences in quality improvements over time. Transition rates into permanent employment improved in most Member States and in particular in Ireland, the Netherlands, Denmark, Spain and Belgium. In Germany, Austria, Greece and Finland, transition rates from temporary to permanent employment did not improve over the second half of the 1990s. In some of these countries, as well as in Spain and France, there also continued to be a disproportional high risk of unemployment for those working on temporary contracts. While the southern EU Member States- with the exception of Greece - saw a strong decline in transitions from temporary employment into unemployment over the 1990s, the risk of unemployment in this group actually increased in Finland, Greece, Austria and the UK (chart 97).

Labour market transitions by employment type: results from cluster analysis¹⁰⁴

The above findings on transitions by job quality are confirmed when analysing longer term labour market transitions across similar groups by means of cluster analysis (see box 8 for a description of the method). The purpose

employment stability and career prospects of low quality jobs further improved over the second half of the 1990s - as well as in

Spain and Greece, albeit starting from a more unfavourable pattern of transitions out of low quality jobs.

¹⁰⁴ The findings in this section are based on the interim results of a study on the "Determinants of employment stability, career progression and labour market transitions" by the Aarhus School of Business, Aarhus University and the Higher Institute of Labour Studies (HIVA) at the Catholic University Leuven.

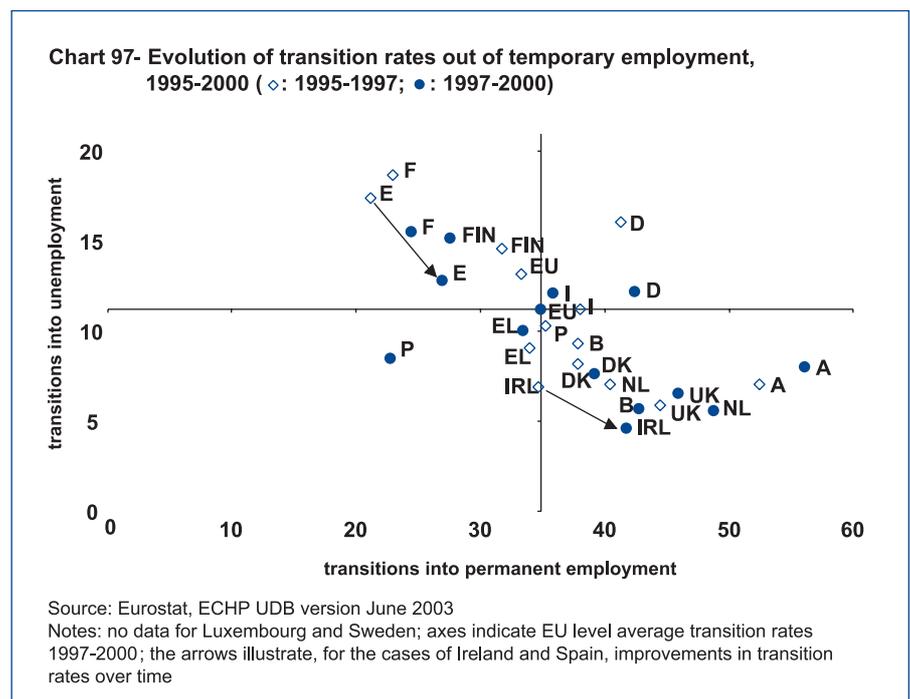
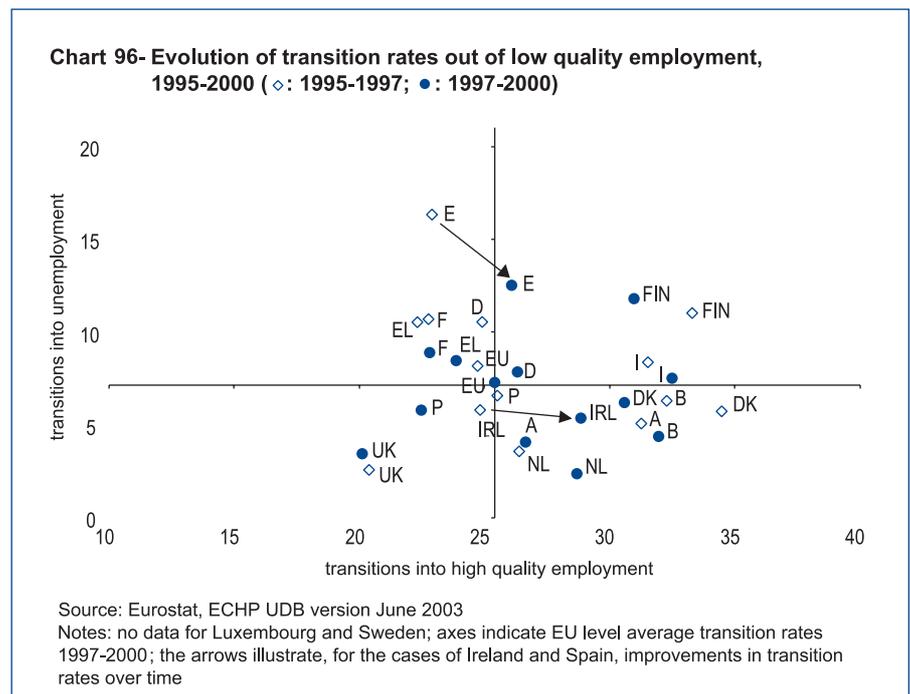
of this analysis was twofold: first, to characterise different job types and their main determining factors on the basis of a whole range of labour market related variables in 1995, including various dimensions of quality in work such as wages, working time, contract status and access to training; and second, to examine the performance of these distinct clusters over the period 1995-2000 in terms of employment stability and quality improvements. The analysis has been carried out separately for men and women.

When characterising different job types, one of the main questions is whether the above dimensions of job quality, and in particular contract type and access to training, are distinctive features of job types or not. Cluster analysis is an appropriate method to analyse this question for two reasons. First, it considers the full set of potentially relevant determinants without predetermining which variables are of relevance or not. Second, it allows an easy identification of the key variables determining the type of job: if the various clusters differ significantly with respect to some variable, then this variable is to be considered a crucial determinant of the respective job type; if, on the other hand, there is no significant difference in some variable across clusters, this variable cannot be considered a distinctive job type feature.

The results of the cluster analysis at EU level, allowing for three distinct job types for men and women separately, are presented in table 7. Results at Member State level are shown in table 51 in the annex. In fact, both of the above variables, contract type and access to training, appear to be distinctive job type features. Some further qualifications are in place, however, in particular since the results for men and women differ significantly.

For men, the three clusters obtained are the following:

1. a cluster of relatively highly paid and highly skilled full-time employees on permanent contracts - many of them in supervisory and intermediate positions - who are predominantly working in high-skilled, non-manual occupations or as clerks in larger firms in the public and service sectors. This cluster will be referred to as the "high quality employment cluster";



2. a cluster of, on average, younger and relatively low-skilled full-time employees, many of which are in low paid and temporary job arrangements (fixed-term, short-term or casual work contracts) in non-supervisory functions without access to training, working mainly in skilled

manual or unskilled occupations - and, in the case of Belgium, Denmark and Austria also as service workers - in small and medium-sized private sector firms in agriculture or industry. This cluster will be referred to as "low quality employment cluster"; and

3. a very small, heterogeneous cluster of, in general, younger temporary and part-time employees in manual, service or elementary occupations in small firms or self-employment, mostly in the public and service sectors. In contrast to the much larger cluster above, employees in this cluster have relatively high access to training and, notably in the case of Germany, Austria, Spain and Portugal, above average educational attainment. This cluster will be referred to as “part-time employment cluster”.

For women, the situation is somewhat different, with the following three clusters obtained:

1. a cluster of highly skilled women in supervisory or intermediate positions and high paid permanent employment with access to training, working in non-manual, skilled occupations in the private sector; except for the UK, Ireland, France, Spain and Portugal, this cluster comprises not only full-time employees, but also women in part-time employment with the above characteristics. This cluster will be referred to as “high quality private sector employment”;
2. a cluster of relatively younger, highly skilled, highly paid women in non-manual skilled occupations in the public sector with relatively high access to training; the common feature of this cluster across all Member States is work in the public sector, while the remaining job characteristics differ considerably: women in this cluster are somewhat more often in part-time employment (except in Belgium, the Netherlands, Austria and Portugal), in temporary employment and in non-supervisory positions (except in Portugal and the UK). This cluster will be referred to as “public sector employment”; and
3. a large cluster of low-skilled women in low paid, short-term or casual employment without access to training, in manual, low-skilled or unskilled occupations, mainly in small private sector firms in industry. This cluster will be referred to as “low quality private sector employment”.

As shown by the distinct job types for men and women described above, contract type and access to training are important criteria

of job types classifications among both, men and women. This is not the case for variables such as working time, firm size or work in the public sector. While men in part-time employment are a very different category from full-time employed men - independently of other personal or job characteristics - part-time work is a common feature across all of the clusters for women. Firm size is also more important for the classification of male employment. On the other hand, public sector employment - while being related to job classifications for both, men and women - is a much stronger determinant of job quality for women, defining one of the three clusters among women almost entirely.

The above identification of clusters is certainly of interest in its own respect. For the purpose of the analysis of quality in work and labour market transitions, however, it is further important to check whether the labour market transitions also differ across the various clusters or not. Such variation clearly is to be expected if the above dimensions of job quality, and in particular contract type and access to training, also impact on employment stability and career prospects in the longer run. As can be seen from the transition rates into unemployment and inactivity by cluster at Member State level for the period 1995-2000 there are in fact very significant differences in the longer term employment performance of the above clusters. In particular transition rates into unemployment were twice as high in the “low quality employment clusters” (cluster 2 for men and cluster 3 for women) compared with the “high quality employment clusters” (cluster 1 for men and clusters 1 and 2 for women). For men, the least employment stability was observed in the “part-time employment cluster” (cluster 3). Not only were transitions for this cluster into unemployment four times higher than for the “high quality employment cluster”, but also transitions into inactivity were much more frequent.

The strongest impact of low quality employment on labour force attachment, though, was found for women. Among the women in the “low quality private sector employment cluster” (cluster 3) in 1995, almost one in five had moved into inactivity by 2000, compared to only around 10% in the two other clusters for which transitions into unemployment and inactivity were actually similar. It should

be noted, however, that the “public sector employment cluster” includes a significantly higher share of fixed-term and temporary employees, which seems to offset the higher employment stability of permanent employment in the public sector, most notably in Belgium, France, Denmark, Germany, the Netherlands, Italy and Portugal - all countries with significantly higher transition rates into unemployment for women in cluster 2. In France, Italy and Spain, more than 20% of women in cluster 2 were not employed anymore five years later. Moreover, in all countries except the UK, 20% or more of all women in the “low quality private sector employment cluster” (cluster 3) in 1995 had lost or left their employment by 1999 - more than one third in Denmark, Germany and Spain (table 45).

Working hours and working time arrangements

This section provides evidence on another issue related to labour market flexibility and quality in work, working hours and working time arrangements. These are important elements on the flexibility agenda: flexible working hours and working time arrangements help firms to adjust effective employment to their production needs, while allowing employees to adjust work to their working time preferences, and in particular to other responsibilities such as care for children and other dependants. They are at the same time important elements of quality in work. In particular night work, overtime work and very long working hours may conflict with the aim to improve labour productivity and quality in work.

Against this background, the section reviews four issues: first, average usual working hours and overtime hours; second, the actual timing of work and the extent of work outside the core working hours; third, working time distributions; and fourth, the extent of flexible working hours and working time arrangements.

Box 8 – Cluster analysis – Method of the K-means

The purpose of statistical methods known as “clustering methods” is to group individuals in a restricted number of homogeneous classes. This classification is automatic in the sense that the homogeneous classes (or “clusters”) are obtained by means of a formalised algorithm, and not by subjective or visual methods. In general, two types of classification methods can be distinguished: first, hierarchical methods (i.e. methods which produce continuing partitions into increasingly finer classes until a certain stopping criterion is met), and second, non-hierarchical methods (i.e. methods which directly produce a partition into a fixed number of classes). For the purpose of the analysis presented in this chapter, the second method was used. This method consists in grouping N individuals into K classes so that the individuals of the same class are as similar as possible, while the classes are as distinct as possible – based on some appropriate criteria for measuring the ‘proximity’ of the individuals of the same class and the ‘distance’ between different clusters. The number K of clusters needs to be fixed in advance since, otherwise, the above problem can be solved easily by defining each individual as one separate cluster - obviously a solution which is completely useless from a practical point of view.

In mathematical parlance, the problem of “clustering” is one of partitioning a “cloud” of N data points into K disjoint subsets. A general algorithm for partitioning (or “clustering”) the data points into subsets is to minimise the variation of data points around some appropriate ‘gravity centre’ according to the so-called the

sum-of-squares criterion $J = \sum_{j=1}^K \sum_{n \in S_j} \|x_n - \mu_j\|^2$ where

x_n is a vector representing the n th data point and μ_j is the geometric ‘gravity centre’ of the data points in the subset S_j . When defining I_1, I_2, \dots, I_k the inertia (variance) within each class, calculated respect to the respective centre of gravity g_1, g_2, \dots, g_k , homogeneous clusters are obtained by minimising the sum of these variances, the so-called “within-variance” (or “intra-class inertia”) $I_w = \sum_{j=1}^k I_j$. Sufficiently distinct clusters are obtained by maximising the disper-

sion of the set of K gravity centres g_1, g_2, \dots, g_k around the point G , the centre of gravity of the total cloud of N individuals, called “inter-class inertia” $I_B = \sum_{j=1}^k P_j d^2(g_j; G)$, where P_j is the sum of the weights of the individuals belonging to the j th class. The larger the value of I_B , the better the separation of the clusters.

For some mathematical reason (theorem of Huygens), these two optimisation problems reduce to one, since the total inertia, I , of the cloud of N points around the gravity centre G is equal to the sum of the intra-class inertia and the inter-class inertia, i.e. $I = I_w + I_B$. Finding the maximum of I_B is thus equivalent to finding the minimum of I_w since their sum is a constant. It is thus sufficient to characterise the best possible partition into K classes by minimising the “within-variance” I_w .

The technique employed for solving this minimisation problem is the so-called “method of the k-means”, or “method of iterative reallocation around some mobile centres”. This method is a fast and powerful iterative method based on the following principle: 1. create randomly K clusters the centres of which are formed by K individuals drawn randomly among all N individuals; 2. assign each individual to the cluster of the closest “central individual”; 3. for each of the K clusters, recalculate the “gravity centre”, taking into account all allocated previously individuals; 4. then reallocate the individuals to another clusters with a closer “central individual” if necessary. These steps are repeated until a stopping criterion is met in the sense that there is no further change in the assignment of the individual data points to the clusters.

Since the results provided by this method depend on the clusters randomly defined at the beginning, software programmes foresee several automatic repetitions of the procedure for varying initial random draws, retaining for the table of results that repetition which maximises the between-inertia - i.e. ensuring that the clusters are as distant as possible, while ensuring an optimal homogeneity inside them.

Average usual working hours and overtime hours

All EU Member States and accession countries have a statutory maximum working week of 48 hours or less (on average over a reference period not exceeding four months) and set a minimum daily rest period of 11 hours per

day and a daily hours limit of eight hours for night workers - in line with the EU directive on certain aspects of the organisation of working time.¹⁰⁵ Statutory maximum working hours per week are set at 48 hours for the UK, Ireland, the Netherlands, France, Denmark, Germany and most accession countries. In Spain, Portugal, Austria, Finland and Sweden the limit is set at 40 hours and at 39 hours in

Belgium. Statutory maximum working hours per day stand at 10 hours or below in most EU Member States. In Denmark, Italy, Ireland and the UK, as well as in most accession countries, they are fixed higher at 13 hours.

Collectively agreed normal working hours for full-time workers across the whole economy ranged from 35.7 hours in France

¹⁰⁵ European Council (1993), Directive 93/104/CE concerning certain aspects of the organisation of working time

Table 44 – Results of cluster analysis at EU-level (employment shares in % if not indicated otherwise)

	Men				Women			
	Total	Cluster 1	Cluster 2	Cluster 3	Total	Cluster 1	Cluster 2	Cluster 3
Age and education								
Age (in years)	40.10	42.36	38.99	38.12	37.87	37.38	36.48	38.70
High skilled	19.2	48.5	4.3	19.4	19.6	32.3	38.2	2.2
Medium skilled	38.6	41.1	37.4	36.7	39.5	56.4	40.3	22.3
Low skilled	42.2	10.4	58.3	44.0	40.9	11.2	21.5	75.5
Job quality								
Wage								
Hourly wage (in euro)	11.08	16.65	8.16	9.64	8.96	11.32	11.28	5.79
Working time								
Part-time	1.2	0.5	0.7	54.7	16.6	17.7	16.6	15.3
Contract type								
Permanent	89.6	96.5	86.5	62.2	87.6	94.7	79.8	81.9
Fixed-term	6.2	2.4	7.9	21.2	7.6	3.8	15.8	9.5
Short-term	2.3	0.3	3.2	13.0	2.7	0.7	2.2	5.1
Casual	1.9	0.8	2.4	3.6	2.1	0.7	2.2	3.5
Job status								
Supervisory	16.1	35.6	6.2	5.5	8.4	13.8	10.3	2.5
Intermediate	17.5	22.3	15.0	12.1	12.7	16.3	16.3	8.1
Non-supervisory	66.4	42.1	78.8	82.4	78.9	69.9	73.4	89.4
Employer-provided training								
Training	17.1	29.7	10.8	22.4	20.2	25.3	42.6	9.7
Sector								
Public sector	6.4	11.3	3.7	16.5	12.5	4.3	88.9	2.5
Agriculture	3.8	0.8	5.3	7.0	2.2	0.6	1.2	4.0
Industry	50.5	36.5	58.0	30.4	25.7	20.2	2.5	36.8
Services	45.7	62.7	36.7	62.6	72.2	79.3	96.3	59.2
Occupation								
Manager	8.9	23.3	1.6	3.6	4.3	7.5	4.1	0.9
Professional	8.2	22.3	0.7	16.0	8.0	11.6	23.2	0.3
Technician	12.2	27.4	4.4	8.5	15.1	23.4	26.7	3.2
Clerk	9.4	14.1	6.9	8.0	27.2	41.0	19.4	14.2
Service worker	6.2	3.4	7.5	12.2	18.5	13.6	13.8	25.0
Skilled agricultural worker	2.0	0.2	2.9	4.7	1.0	0.2	0.6	2.0
Craft worker	28.7	6.4	40.5	19.7	7.3	1.0	1.2	15.6
Machine operator	15.7	2.2	22.7	12.7	6.0	0.9	0.8	12.8
Elementary occupation	8.7	0.6	12.8	14.5	12.6	0.7	10.3	25.9
Firm size								
Very small firm	36.1	18.6	44.9	52.5	40.9	36.9	29.5	47.8
Small firm	17.7	15.0	19.1	15.8	17.6	17.2	19.7	17.6
Medium-sized firm	13.0	13.9	12.7	10.1	12.6	12.4	13.7	12.6
Large firm	17.2	24.0	13.7	13.2	15.9	17.8	16.2	13.7
Very large firm	18.8	33.8	11.3	9.0	15.2	19.2	23.8	9.3
Employment shares 1995								
B		50.9	47.9	1.1		70.4	4.7	2.5
DK		55.7	42.7	1.7		59.0	21.8	19.2
D		34.7	64.8	0.5		55.3	10.1	34.6
EL		14.4	83.1	2.5		35.1	7.6	57.3
E		19.0	78.7	2.3		32.1	5.3	62.6
F		35.0	62.9	2.1		58.6	3.4	38.0
IRL		25.4	71.3	3.3		42.6	7.7	49.7
I		18.3	80.2	1.4		34.3	4.6	61.1
P		4.5	95.0	0.5		10.1	4.4	85.5
A		44.6	54.2	1.2		38.8	34.3	26.9
NL		60.7	37.1	2.2		71.5	6.8	21.6
UK		45.8	54.2	0		41.1	18.1	40.9
EU		33.2	65.4	1.4		44.5	11.1	44.3

Source: Eurostat, ECHP UDB version December 2002

Notes: clustering based on data for individuals employed in 1995; no data for Luxembourg, Finland and Sweden

Table 45 – Transitions into unemployment and inactivity by cluster, 1995-1999

	Men						Women					
	Unemployment 1999			Inactivity 1999			Unemployment 1999			Inactivity 1999		
	Cluster 1	Cluster 2	Cluster 3	Cluster 1	Cluster 2	Cluster 3	Cluster 1	Cluster 2	Cluster 3	Cluster 1	Cluster 2	Cluster 3
B	0.6	4.3		6.1	6.2	19.1	3.3	3.4	13.1	6.0		14.2
DK	2.1	3.4		7.3	5.2	32.4	2.6	6.6	12.2	6.3	6.1	24.3
D	5.2	7.9		7.7	10.0		4.7	11.1	13.5	10.8	7.0	23.3
EL	3.4	6.3	4.6	10.3	13.2	4.6	4.9	2.4	7.9	7.0	1.8	24.4
E	2.7	8.8	8.9	6.2	8.9	8.3	8.1	5.2	12.5	6.5	17.0	15.5
F	3.6	4.1	14.7	6.3	6.6	17.5	5.4	12.9	7.2	8.4	25.0	13.0
IRL	0.4	1.5	24.1	4.2	5.7		2.4		5.3	8.1	5.7	18.5
I	1.8	4.5	24.2	10.9	10.3	29.8	2.0	9.9	8.8	11.0	10.2	19.7
NL	1.0	1.6		5.4	5.2	6.6	2.9	6.9	9.1	10.2	2.1	21.4
P	3.3	6.0		6.5	6.0	9.9	3.5	15.7	7.4	2.8	3.5	10.7
A	2.3	3.8	10.2	10.6	6.2	11.8	3.8	0.0	6.7	15.2	12.8	19.3
UK	0.4	2.0	–	9.5	8.0	–	0.6		2.0	13.7	10.0	15.8
EU	2.2	5.2	10.2	7.6	8.0	12.7	3.7	4.6	8.4	9.6	10.4	17.0

Source: Eurostat, ECHP UDB version December 2002

Notes: clustering based on data for individuals employed in 1995; no data for Luxembourg, Finland and Sweden; for Germany, no information on job status and sector available

Table 46 – Statutory maximum, average collectively agreed and usual weekly working hours in the EU Member States and accession countries, 2002

	Statutory maximum working hours per working week, 2002	Average collectively agreed normal weekly hours, 2002	Average usual weekly working hours of employees, 2002	Average usual weekly working hours of full-time employees, 2002	Average usual weekly working hours of part-time employees, 2002
B	39	39.0	35.7	39.3	19.7
DK	48	37.0	34.8	39.1	22.7
D	48	37.7	35.2	39.9	18.5
EL	48	40.0	40.2	41	17.7
E	40	38.5	38.6	40.4	20.7
F	48	35.7	35.2	37.7	18.3
IRL	48	39.0	35.8	39.5	23
I	48	38.0	37.2	38.5	18.7
L	48	39.0	37.3	39.5	23.8
NL	48	37.0	30.1	38.9	20.9
P	40	39.0	39.3	40.3	21.8
A	40	38.5	36.6	40	19.2
FIN	40	39.3	36.9	39.2	20.6
S	40	38.8	36	39.9	20.6
UK	48	37.2	37.2	43.3	22.5
EU		38.5	36.1	40	18.8

Source: EIRO; Eurostat, LFS, 2002q2

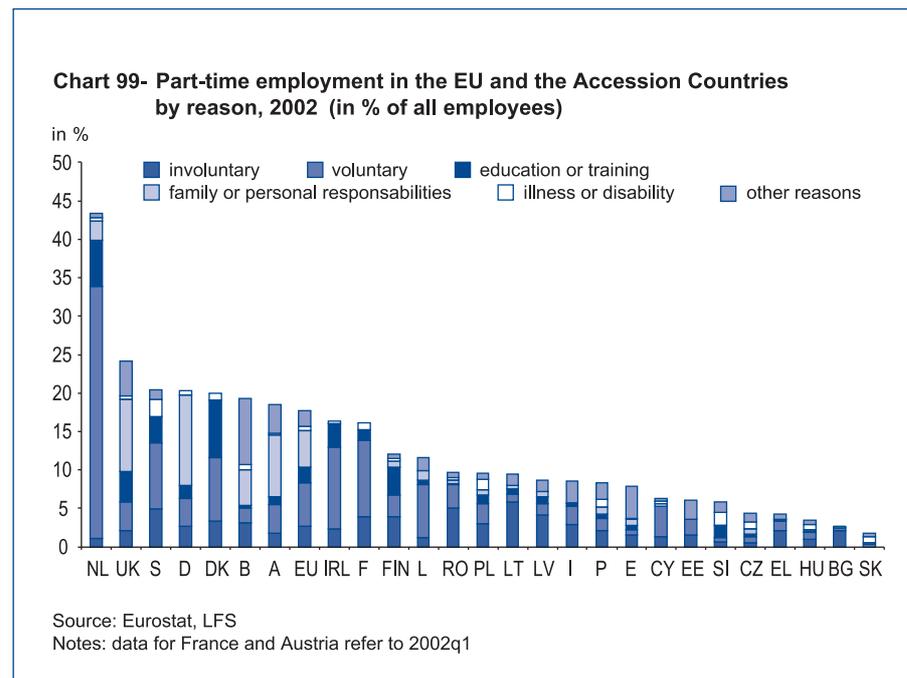
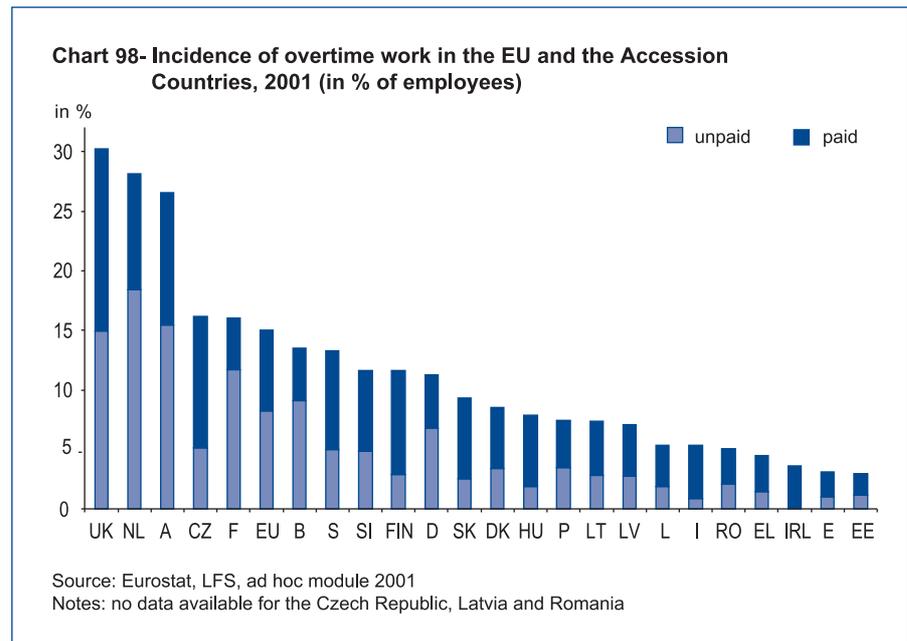
Notes: for France and Austria, data refer to 2002Q1; no complete information available for the accession countries

to 40 hours or more in Greece and most accession countries. Agreed normal working hours thus remained significantly below the statutory maximum in all countries except Belgium. The average number of hours¹⁰⁶ usually worked by the full-time employees in the EU was 40 hours in 2001, compared to the 38.5 hours negotiated by the average collective agreements. In all countries except Finland, Belgium and Italy, the average number of hours worked exceeded the collectively agreed working hours limit by at least half an hour and in Denmark, France and Germany the gap between the hours worked in practice exceeded the agreed hours limit by two hours or more. In the UK, however, this gap exceeded six hours.

Clearly, usual working hours vary more than collectively agreed hours, ranging from 30.1 hours in the Netherlands to 40.2 hours in Greece among all employees, and from below 39 hours in France, Italy and the Netherlands to 43.3 hours in the UK for full-time workers. In the accession countries, usual weekly working hours are one to four hours above the EU average, ranging from below 40 hours in Lithuania, Cyprus and Estonia to 42 hours or more in Romania and Latvia among all employees, and from 39.5 hours in Lithuania to 43.6 hours in Latvia for full-time employees.

Differences in the incidence of overtime work contribute strongly to the observed cross-country differences in average weekly working hours. More than 10% of employees in all EU Member States except in Denmark, Ireland and the southern EU Member States, work overtime hours. Among the accession countries overtime is far less prevalent due in part to the considerably longer normal working hours. Only the Czech Republic, Slovakia and Slovenia have similar levels of overtime work to those observed in most EU Member States.

The share of employees working overtime is highest in Austria, the Netherlands and the UK, where almost 30% of all employees work overtime, around 15-20% of all part-time workers, and 30-35% of all full-time workers. In all countries, part-time workers are less likely to work overtime. Finally, there is also

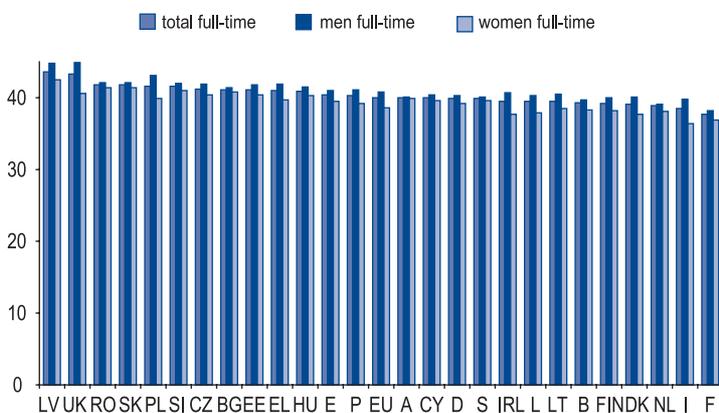


a varying degree of the incidence of unpaid overtime: around 10% or more of all employees in the three countries mentioned above and in France and Belgium work unpaid overtime. In all of these countries as well as in Germany, half or more of all employees work-

ing overtime are not paid for it – certainly an important dimension of labour market flexibility, competitiveness and employment (chart 98).

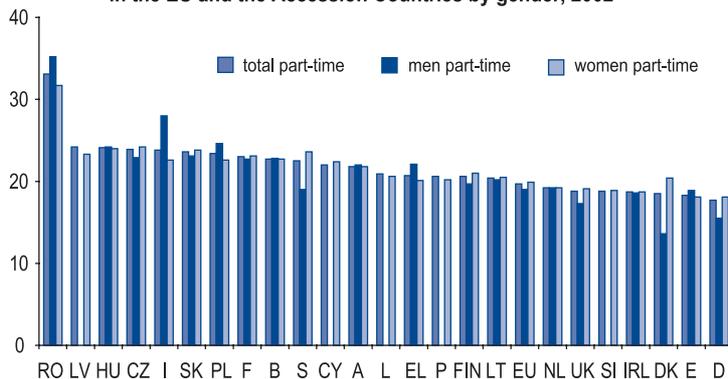
¹⁰⁶ Usual hours worked per week correspond to the number of hours the person normally works, including extra hours - paid or unpaid - normally worked (but excluding travel time to and from work and main meal breaks).

Chart 100- Average usual weekly working hours of full-time employees in the EU and the Accession Countries by gender, 2002



Source: Eurostat, LFS

Chart 101- Average usual weekly working hours of part-time employees in the EU and the Accession Countries by gender, 2002



Source: Eurostat, LFS

Notes: in the case of Luxembourg, Portugal, Latvia and Slovenia, average working hours for men in part-time work are unreliable and therefore not presented in the chart

The small difference between average usual working hours for all employed and for the full-time employed in the accession countries of up to one and a half hours is explained by two factors. Firstly, the average number of hours worked by part-time workers is considerably higher in the accession countries. While ranging from 18.8 hours in Slovenia to 33.1 hours in Romania, average working hours for part-timers ranged from below 20 hours in Belgium, France, Germany, Austria, Greece and Italy to more than 22 hours in Denmark, Luxembourg and the UK. Secondly, the employment shares of part-time workers remain below 10% in all accession countries,

compared with 18% in the EU. They were highest in Poland, Lithuania and Romania, where around 10% of all employees were working part-time – more therefore than in the southern EU Member States.

With the exception of Slovenia, the Czech Republic, Slovakia and Cyprus, a majority of the few employees in part-time work would actually prefer a full-time job. This is most marked in Lithuania, Latvia, Romania and Bulgaria, where more than half of all part-time employees describe themselves as involuntarily in part-time work. A similar situation applies in Greece, Portugal, Italy, Finland and

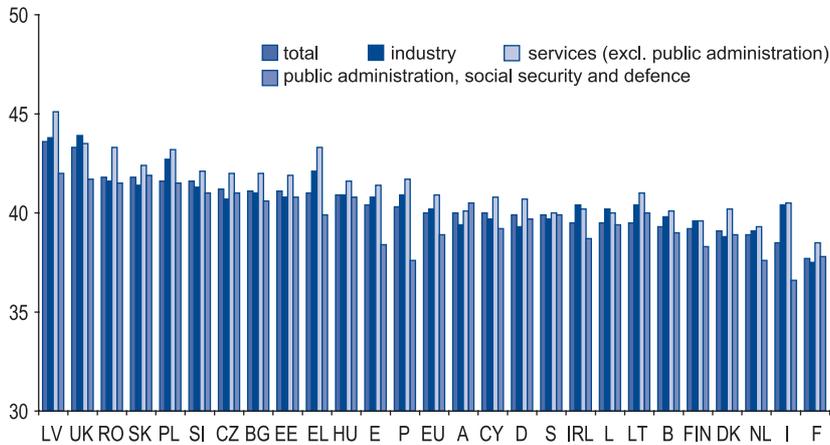
Sweden where more than 25% of all employees in part-time employment state that they would prefer a full-time job, but could not find any. But this is different from the other EU Member States where a large majority of those in part-time work are so through choice or because of ongoing education or training, own illness or disability or family or other personal responsibilities. Three out of four part-time workers in the Netherlands, more than 60% in France, Luxembourg, the UK and Cyprus, and more than 40% in Denmark and Sweden are in part-time work voluntarily (chart 99).

In all countries, part-time working remains predominantly the preserve of women. As a result, average usual weekly working hours of men exceed those of women in all countries and by more than 10 hours a week in the Netherlands and the UK, and by three to seven hours in most other EU Member States. The differences in average working times between men and women are smaller in the accession countries, with men working between one hour more in Slovakia, Romania and Bulgaria and four hours in Poland.

In some countries there are also gender differences in the working time of full-time employees. This applies in particular to Denmark, Luxembourg, Italy, Ireland and the UK as well as Poland, where full-time employed women work, on average, 5-10% fewer hours, equivalent to two to four hours less per week, than men (chart 100). Among part-time employees, on the other hand, women tend to work on average longer hours, notably in the Nordic EU Member States, Germany and the UK. Only in the southern EU Member States, Poland and Romania do men in part-time work longer hours than women on average (chart 101).

There is also substantial dispersion of average usual working hours across sectors and occupations, for both full- and part-time employees. Variation of working times across sectors is strongest in the UK and Ireland, the southern European Member States and among the accession countries in Latvia, Romania and Poland. There is, on the other hand, comparatively less variation in average working hours across sectors in the Nordic EU Member States, Germany, Austria, the Netherlands as well as in the Czech Republic, Slovakia, Hungary and Slovenia, mainly

Chart 102- Average usual weekly working hours of full-time employees in the EU and the Accession Countries by sector, 2002

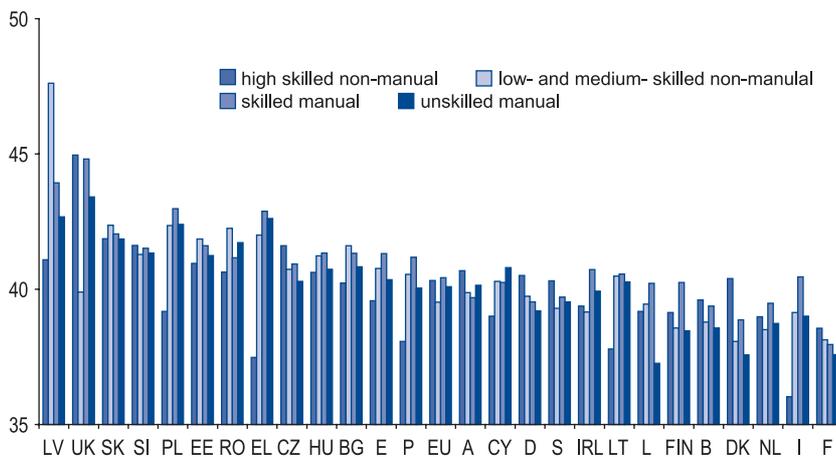


Source: Eurostat, LFS
Notes: data for France and Austria refer to 2002Q1

Romania, but also in the UK, Ireland, Italy and Greece (chart 102 and table 49 in the annex).

As regards working hours by occupation, there is no clear pattern: while generally longer among managers and legislators, service workers and skilled manual workers, they tend to be lower among professionals, technicians and elementary occupations. There are remarkable differences across countries, however. In the southern EU Member States and in most accession countries - particularly Poland, Lithuania and Latvia - working hours of employees in high-skilled non-manual occupations remain significantly below those in other occupations and contrast with relatively long working hours among skilled manual workers, including agricultural workers. On the contrary, there are generally relatively long working hours among high-skilled non-manual employees in Germany, Austria, the Benelux and Nordic Member States and, most notably, in the UK. The latter is an interesting case, as it is also the country with relatively the lowest working hours among low- and medium-skilled non-manual occupations, including service and sales workers (chart 103 and table 50 in the annex).

Chart 103- Average usual weekly working hours of full-time employees in the EU and the Accession Countries by occupation, 2002



Source: Eurostat, LFS
Notes: data for France and Austria refer to 2002q1

due to the relatively longer working hours in education in these countries. Variation in working hours is generally much higher in the services sector, except in the UK, Ireland, Luxembourg and Finland.

Working hours are generally longer in the services sector, compared to both industry and public administration, notably in the accession countries, but also in most EU Member States, including Germany and Austria.

In most countries, including the southern EU Member States, France, Luxembourg and Germany as well as in Latvia, Cyprus and Romania, working hours are, on average, actually longest in “Hotels and restaurants”, with working time in this sector exceeding the average by more than 5%. Other sectors with generally above average working hours are „Real estate, renting and business activities“, “Transport and communication” as well as “Construction”, particularly in Poland and

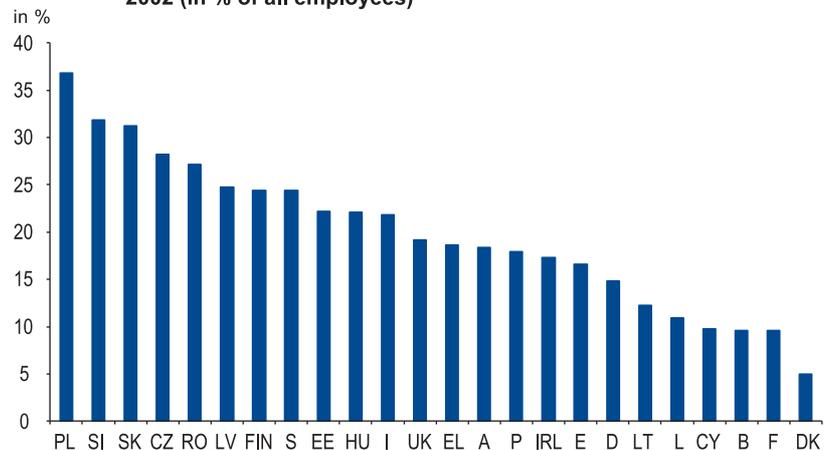
Among part-time workers, there is generally more variation in average working hours across sectors and occupations. Relatively shorter working hours can generally be observed in “Hotels and restaurants” and “Education”, while working hours are longer in “Public administration” and “Construction”. In the EU Member States, working hours of part-time workers in elementary occupations also tend to be much shorter than in other occupations, notably in the Netherlands, Denmark and Germany where average working hours in elementary occupations are less than 15 hours a week. Although the available data is quite scarce, in the accession countries part-time working hours also seem longer in general, exceeding those in the EU by five hours or more in some sectors and occupations. In fact, in the Czech Republic, Hungary and Poland – the only accession countries for which reasonably reliable and informative data on working hours of part-time workers exist – service workers and people in elementary occupations in part-time work have, on average, working hours of around 24-25 hours, compared to 17-19 hours in the EU.

Actual working times and work outside the core hours

As regards the actual timing of the work, large shares of European employees work shifts or work outside the core working hours, for example, in the evening or on weekends. Shift work is much more pronounced in the accession countries compared to the current EU Member States, with more than 25% of employees in Poland, Slovenia, Slovakia, the Czech Republic and Romania usually or sometimes on shift work. Among the EU Member States, it is most common in Finland and Sweden, where one quarter of all employees have to do shift work at least sometimes (chart 104). Shift work is generally more common among skilled manual occupations. While more common among men in the EU, in most accession countries the share of female employees doing shift work is similar to that of men.

Similarly, work outside the core hours¹⁰⁷ is not uncommon in Europe. It is most pronounced in the UK, the Netherlands, Italy and Spain where a third or more of all employees work outside core hours. It is, moreover, generally more common in manual or low-skilled services sector activities. In Spain in particular, more than half of all female services and sales workers work outside core hours. In the UK, Spain, the Netherlands and Estonia, furthermore, more than half of all male services and sales workers work outside core hours. Italy, the Netherlands and the UK are also the only countries in which more than 30% of all high-skilled non-manual workers work outside core hours (chart 105). There is not necessarily a clear gender dimension to work outside core hours, with women less likely to work outside core hours than men in Ireland, the UK, Hungary and the Slovak Republic, while being much more likely to do so in Luxembourg, France, Belgium and Sweden (chart 105).

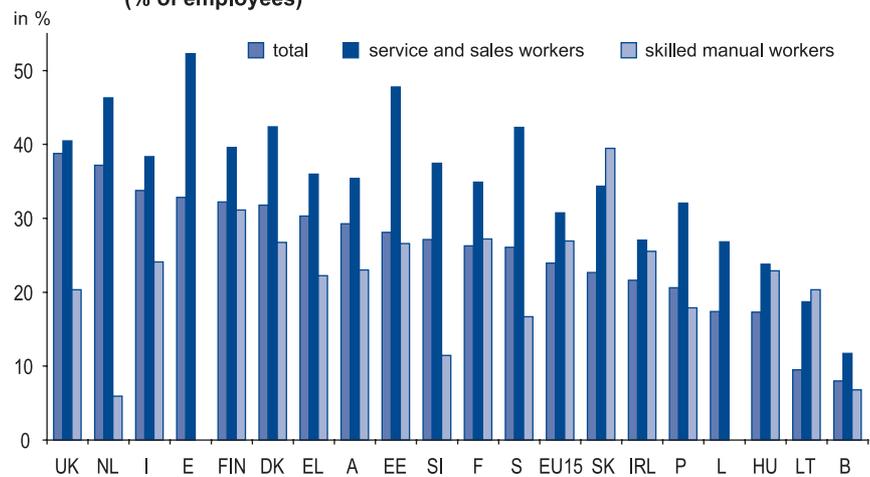
Chart 104 Incidence of shift work in the EU and the Accession Countries, 2002 (in % of all employees)



Source: Eurostat, LFS, 2002q2

Notes: no data available for the Netherlands, Bulgaria and Malta; data for Spain, France and Austria refer to 2002Q1

Chart 105- Work outside core working hours (% of employees)

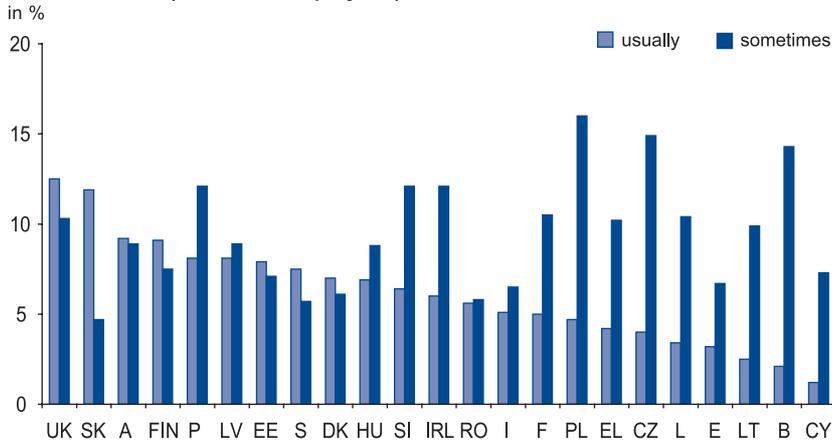


Source: Eurostat, LFS, ad hoc module 2001

Notes: no data available for Germany, Bulgaria, Cyprus, the Czech Republic, Latvia, Malta, Poland and Romania

¹⁰⁷ It should be noted that, while cross-country differences in core working hours and evening or night work may in part reflect cultural and climatic differences across countries, the statistics presented are based on harmonised survey questions in the LFS. The answer "usually" is meant to mean on at least half of the days worked (in the case of night and evening work) and on two or more Sundays (in the case of work on Sundays) in a reference period of four weeks preceding the interview. The answers should strictly refer to formal working arrangements. Thus employees who, on their own initiative, take some of their work home or who work at the place of business on Sundays are not included. In particular the definitions of evening and night vary considerably across surveys. Bearing this in mind, generally speaking, "evening work" can be considered to be work done after the usual hours of working time in the respective country, but before usual sleeping hours, while "night work" is work done during the usual sleeping hours.

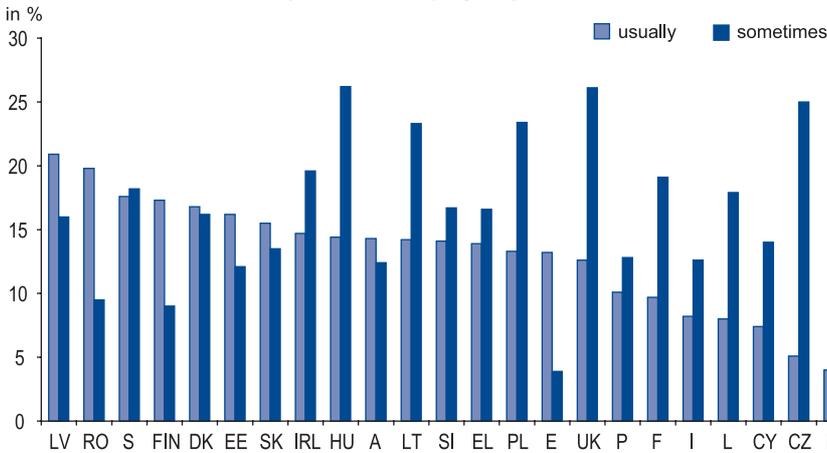
Chart 106-Incidence of night work in the EU and the Accession Countries, 2002 (in % of all employees)



Source: Eurostat, LFS, 2002Q2

Notes: shares of employed working - usually or sometimes - during the night; no data available for Germany, the Netherlands, Bulgaria and Malta; data for Spain, France and Austria refer to 2002Q1

Chart 107- Incidence of work on Sundays in the EU and the Accession Countries, 2002 (in % of all employees)



Source: Eurostat, LFS, 2002Q2

Notes: shares of employed working - usually or sometimes - on Sundays; no data available for Germany, the Netherlands, Bulgaria and Malta; data for Spain, France and Austria refer to 2002Q1

The most frequent way of working outside the core hours is by working in the evening or at weekends. In particular in the UK and the Nordic EU Member States, more than 20% of all employed declare that they work regularly in the evening. The share of those sometimes working in the evening is generally high across all countries, amounting to a third or more of all employed in Greece, Poland and the Czech Republic. In total, more than half of all employed claim to work in the evening

at least sometimes in the UK and Greece. Also night work is not uncommon, with 10-20% of all employed working at least sometimes during the night in all EU Member States and accession countries. It is most common in the UK, where more than 20% of all employed work at least sometimes during the night, more than half of them regularly. Also in Slovakia, more than 10% of all employed work regularly during the night.

Finally, regular work on Sundays is most common in Latvia and Romania, both countries with long working hours and a high share of agricultural workers, and in the Nordic Member States. In all accession countries, except Cyprus, and in Sweden, Denmark, the UK and Ireland more than 30% of all employed work at least sometimes on Sundays. These forms of work outside core working hours are much less common in Belgium, Luxembourg, France, the Czech Republic and Cyprus - all countries in which less than 10% of all employed work regularly on Sundays, and less than 5% work regularly during the night (charts 106 and 107).

Working time distributions

When looking at the distribution of working hours of full-time employees, important differences in working time patterns can be observed (table 47). Between the lowest and the highest quantiles, working hours vary from 35 to 45 hours or more in most EU Member States and Cyprus and from 40 to 45 hours or more in most accession countries. Countries with the least variation in working hours are Germany, the Netherlands and Finland - where working hours vary between 36 and 42 hours only - and, in particular, in Luxembourg, Austria and Sweden where average working hours are almost constant at 38-40 hours across the whole working time distribution. Among the accession countries, Lithuania is the only country with a similarly compressed working time distribution (36 to 40 hours).

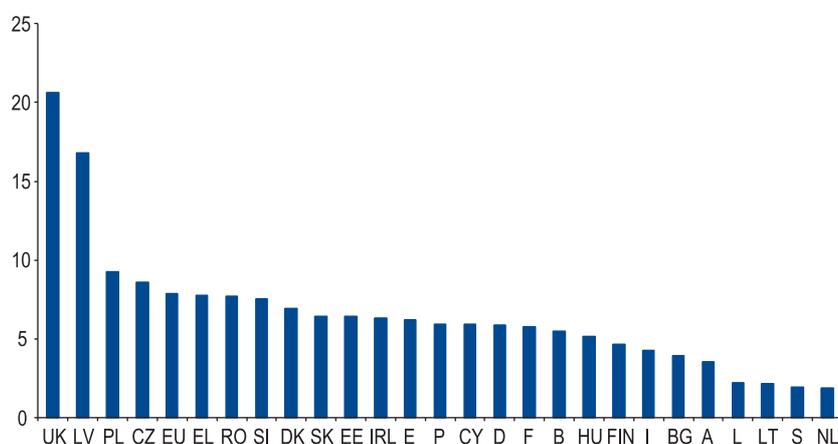
In the EU, the variation in working hours is highest in the UK, with average working hours in the upper quantiles exceeding those in the lower quantiles by up to a staggering 20 hours. More than half of all full-time employees in the UK work close to - or more than - 50 hours a week on average, and average weekly working hours in the upper quartile of the distribution reach almost 60 for men and 50 for women. Average working hours at the top of the distribution exceed 40 hours per week in all countries except Luxembourg, the Netherlands, Austria and Sweden, reaching 50 hours or more for men in Ireland, and for both men and women in the UK.

While working time distributions in the accession countries are similar to those in the EU

Member States - with working times in Latvia similar to those in the UK - two important differences remain. Firstly, there are generally no significant shares of full-time employees working less than 40 hours per week. Secondly, the share of employees working very long hours - i.e. 48 hours or more a week - is significantly higher. The UK, where more than 20% of all full-time employees are working regularly more than 48 hours a week, is the notable exception. The share amounts to 5-10% in most accession countries (except Cyprus and Hungary), compared to below 5% in most EU Member States. Greece, Spain, Portugal, Denmark and Ireland are the only EU Member States with shares of full-time employees working long hours similar to those in the accession countries (chart 108).

With regard to the distribution of working hours, in all accession countries except Cyprus, Lithuania and the Czech Republic,

Chart 108- Long working hours in the EU and the accession countries, 2002
(share of full-time employees usually working more than 48 hours a week)



Source: Eurostat, LFS, 2002Q2

Notes: no data available for Malta; data for France and Austria refer to 2002Q1

Table 47 - Average working hours of full-time employees by quantiles and gender, 2001

	Total					Men					Women				
	<10%	10-25%	25-50%	50-75%	75-90%	<10%	10-25%	25-50%	50-75%	75-90%	<10%	10-25%	25-50%	50-75%	75-90%
B	36	38	38	40	44	37	38	38	40	45	35	38	38	39	40
DK	37	37	37	40	45	37	37	37	41	48	35	37	37	37	43
D	36	38	39	40	42	36	38	40	40	45	35	38	39	40	40
EL	35	40	40	42	48	38	40	40	45	48	30	39	40	40	48
E	37	40	40	40	45	38	40	40	40	46	35	38	40	40	41
F	35	35	39	39	45	35	35	39	39	45	35	35	38	39	41
IRL	35	39	39	40	45	38	39	39	40	50	30	37	39	40	40
I	35	36	40	40	45	36	37	40	40	48	24	36	38	40	40
L	39	40	40	40	40	40	40	40	40	40	24	40	40	40	40
NL	36	36	40	40	40	36	38	40	40	40	36	36	38	40	40
A	38	38	40	40	40	38	38	40	40	40	38	38	40	40	40
P	35	40	40	40	45	35	40	40	40	45	35	35	40	40	42
FIN	36	38	38	40	42	37	38	40	40	45	35	38	38	40	40
S	37	40	40	40	40	38	40	40	40	40	37	38	40	40	40
UK	36	38	41	48	55	37	39	43	50	56	35	37	39	43	50
EU	38	39	40	41	44	39	40	40	41	45	36	37	39	39	41
BG	40	40	40	40	45	40	40	40	40	48	40	40	40	40	42
CY	35	38	38	40	45	38	38	38	40	48	35	38	38	40	45
CZ	38	40	40	40	45	38	40	40	40	50	38	40	40	40	43
EE	40	40	40	40	48	40	40	40	40	48	40	40	40	40	42
HU	40	40	40	40	44	40	40	40	40	48	40	40	40	40	42
LT	36	40	40	40	40	40	40	40	40	40	33	40	40	40	40
LV	40	40	40	45	55	40	40	40	48	60	40	40	40	42	50
PL	40	40	40	42	48	40	40	40	42	50	30	40	40	42	48
RO	40	40	40	40	48	40	40	40	40	48	40	40	40	40	48
SI	40	40	40	40	45	40	40	40	40	48	40	40	40	40	42
SK	40	40	42	42	42	40	40	42	42	48	40	40	42	42	42

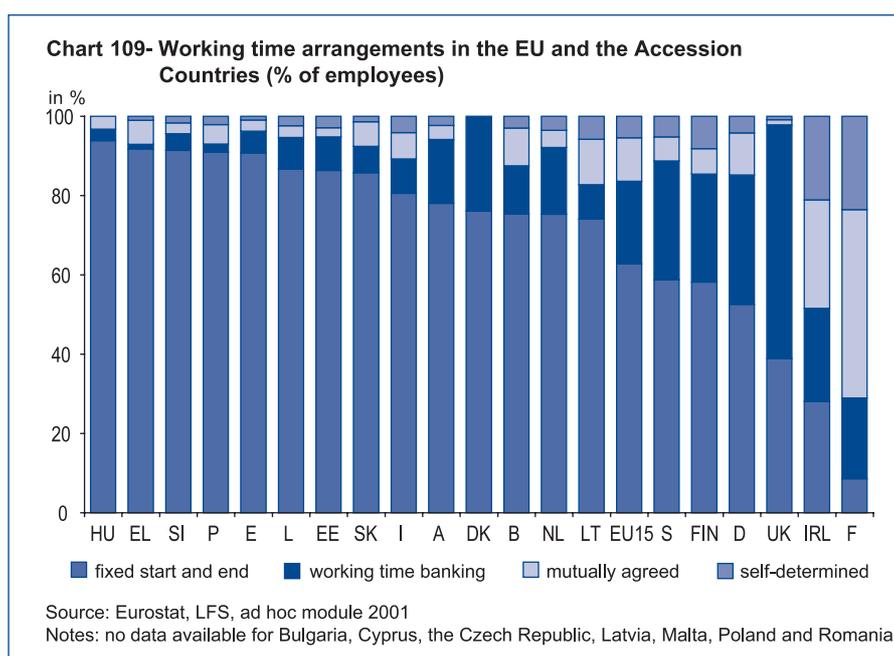
Source: Eurostat, LFS, ad hoc module 2001

Table 48 – Most frequent working time arrangements and working time flexibility by working time status and gender, 2001

	Full-time employees						Part-time employees					
	Men			Women			Men			Women		
	Most frequent working time	Second most frequent	Share	Most frequent working time	Second most frequent	Share	Most frequent working time	Second most frequent	Share	Most frequent working time	Second most frequent	Share
B	38h	40h	63.7	38h	40h	57.4	20h	32h	25.7	20h	19h	32.7
DK	37h	40h	67.7	37h	40h	66.0	10h	15h	25.5	30h	32h	25.7
D	40h	38h	60.0	40h	38h	62.8	20h	10h	29.9	20h	30h	34.1
EL	40h	48h	69.2	40h	48h	65.5	20h	30h	38.4	20h	30h	35.3
E	40h	38h	77.0	40h	38h	77.5	20h	25h	52.3	20h	25h	45.1
F	35h	39h	57.8	35h	39h	59.7	20h	30h	34.1	20h	30h	28.3
IRL	39h	40h	63.5	39h	40h	57.8	20h	8h	34.2	20h	24h	36.6
I	40h	36h	69.6	40h	36h	72.1	20h	40h	38.2	20h	24h	42.9
L	40h	37h	88.4	40h	20h	87.2	20h	40h	46.5	20h	30h	52.7
NL	40h	38h	70.8	36h	40h	83.0	32h	8h	29.7	32h	20h	25.4
A	40h	38h	84.9	40h	38h	84.8	20h	30h	47.1	20h	30h	52.8
P	40h	35h	76.7	40h	35h	83.9	30h	20h	39.0	20h	25h	40.9
FIN	40h	38h	72.8	38h	40h	56.8	20h	30h	32.3	30h	20h	34.0
S	40h	38h	82.3	40h	38h	80.8	20h	30h	39.2	30h	20h	38.8
UK	40h	38h	22.7	38h	40h	28.2	20h	16h	17.5	20h	16h	17.2
EU	40h	38h	48.1	40h	38h	48.7	20h	30h	24.1	20h	30h	27.6
BG	40h	48h	85.0	40h	48h	85.2	20h	25h	40.9	20h	25h	51.7
CY	38h	40h	74.4	38h	40h	69.1	25h	20h	38.0	25h	20h	47.6
CZ	40h	38h	75.6	40h	38h	78.5	30h	20h	50.2	30h	20h	48.2
EE	40h	48h	83.5	40h	48h	82.8	20h	25h	59.6	20h	30h	60.6
HU	40h	50h	85.4	40h	42h	87.1	20h	30h	65.9	20h	30h	71.7
LT	40h	48h	82.9	40h	36h	83.3	20h	30h	62.5	20h	30h	65.0
LV	40h	48h	71.1	40h	48h	69.4	20h	24h	36.2	20h	24h	34.9
PL	40h	42h	72.7	40h	42h	73.5	20h	30h	40.6	20h	30h	48.3
RO	40h	48h	87.8	40h	48h	90.0	40h	30h	45.4	40h	20h	51.8
SI	40h	50h	86.4	40h	42h	88.5	20h	30h	62.3	20h	30h	59.7
SK	42h	40h	84.1	42h	40h	84.6	20h	30h	71.5	20h	30h	57.2

Source: Eurostat, LFS, ad hoc module 2001

Notes: The shares in the table indicate the share of employees with working times according to one of the two most frequent working times



average working hours in the lowest decile reach 40 hours, compared to values of between 35 and 38 hours in most EU Member States. As a consequence, there are far less significant differences in the working time distribution between men and women. In particular, average working hours in the lowest quantiles are the same for men and women, while generally lower for women than for men in many EU Member States. The gender differences in the upper part of the working distributions are, however, similar to those in most EU Member States - except those with a strongly compressed working time distribution - where average working hours at the top of the distribution for men exceed those of women by around five hours a week. Two important exceptions are Poland and Romania, where men and women work similarly long hours. Finally average working hours at the top of the distribution, exceed 45 hours per week in all countries except Lithu-

ania and reach 50 hours or more in Latvia, the Czech Republic and Poland for men, and in Latvia for women also.

Flexible working hours and working time arrangements

Another way to look at working time flexibility is to assess the share of employees who are and are not covered by the most common working hours (table 48). In the EU, most full-time employees fall into one of two working hour categories - either 40 hours a week or less than 40 (35, 36, 37, 38 or 39, depending on the country). Across the accession countries, the two most frequent working times are either 40 hours or more than 40 (42, 48 or 50, depending on the country). The share of employees covered by the two respective categories above is generally high. Large shares of full-time employees generally work in one of the two most frequent arrangements, with shares ranging from 60-80% in the EU Member States and from 75-90% in the accession countries. There is thus generally a higher working time flexibility in the EU Member States, notably in the UK, where less than a quarter of all full-time employees are covered by one of the two most frequent working week arrangements.

As expected, among part-time employees, there is much more variation in working time arrangements. In most EU Member States and accession countries, the most frequent total of hours worked a week by part-timers is 20. The exceptions are Cyprus (25 hours), the Nordic Member States and the Czech Republic (30 hours), the Netherlands (32 hours) and Romania (40 hours). The shares of part-time employees working according to the two most frequent working time patterns is much lower than among full-time employees, indicating the higher working time flexibility among part-time workers. Only in Spain, Luxembourg and Austria, as well as in most accession countries do half or more of all part-time employees work in one of the two most frequent working time groupings. There is considerable higher working time flexibility in the other EU Member States. In Belgium,

the Netherlands, Denmark, Germany, France and the UK in particular, 30% or less of all part-time employees work according to the two most frequent working time patterns.

There do remain, finally, important differences in flexibility of working time arrangements, both across EU Member States and between the EU and the accession countries. In a large majority of countries, notably the southern EU Member States and the accession countries, fixed start and end times remain the predominant working time arrangement, covering more than three quarter of all employees. In Hungary, Greece, Slovenia, Portugal and Spain less than 10% of all employees have some form of working time flexibility from either working time banking or other mutual agreements with their employer. On the other hand, more than 20% of all employees in the Nordic EU Member States, Germany and the UK benefit from working time banking, or, as in the case of Ireland and France, from other types of mutual agreements between employees and employers. In Germany, the UK, Ireland and France, half or more of all employees benefit from flexible working time arrangements, and in Ireland and France, interestingly, more than 20% of all employees declare that they can determine their actual working times themselves (chart 109).

Clearly, working time flexibility varies across occupations. While, on average in the EU, only half of all high-skilled non-manual employees have fixed working times, 65% of low- and medium-skilled non-manual and 75% of skilled manual workers do. The highest shares of employees who have to work according to fixed start and end times are found among clerks, services workers, craft and related workers and machine operators. Flexible working arrangements are generally less common among low-skilled and manual occupations. They are also less common for women than for men. The only countries in which even among the low-skilled, manual occupations, a third of all employees or more have flexible working arrangements (working time banking, mutually agreed or self-determined) are Germany, France and the UK. In the accession countries, by contrast, there is generally much less working time flex-

ibility in all skills groups, with around 80% or more of all employees in high-skilled non-manual occupations covered by fixed working time arrangements, and 90% or more in other occupational groups.

On call work, finally, remains relatively uncommon, with less than 2% of all employees working on call. The highest shares of around 4% are observed in the Netherlands and Lithuania, and notably more than 10% of all Dutch women employed in skilled manual occupations are on call.

Conclusions

There is a wealth of flexible working arrangements in European labour markets. This applies not only to labour market transitions between various labour market states, but also to other issues such as contractual flexibility and working time arrangements. Considerable shares of European employees work on temporary contracts or in part-time work. Many also work (unpaid) overtime or outside the core hours. There is, furthermore, a considerable amount of fluctuations between labour market states over time, both within a given year as well as over longer time periods of several years. Although not discussed here, data on job tenure and on labour reallocation generally yield a similar picture of comparatively flexible European labour markets.¹⁰⁸

At the same time, based on the characteristics examined, there is only little evidence so far that quality in work, and employment stability in particular, improved over the second half of the 1990s. Despite the strong employment performance observed in European labour markets in the second half of the 1990s, recent data on the evolution of both, subjective job satisfaction and objective job quality, over this period do in many cases not indicate significant changes in quality in work. In some Member States, also transition rates into unemployment and persistence in low quality employment remained high.

Some improvements in transition rates out of low quality employment occurred in those Member States with quite favourable

¹⁰⁸ See e.g. Peter Auer and Sandrine Cazes (eds) (2003), *Employment stability in an age of flexibility, Evidence from industrialised countries*, ILO, Geneva

labour market transition patterns – notably Denmark, Ireland, Austria, Belgium and the Netherlands - contrast with less favourable developments in other Member States. While transition patterns also improved considerably in Spain and France, for example, the overall career opportunities of people in low quality jobs in these countries remained largely below average. Persistence in low quality employment further remained highest in the UK, while persistence in unemployment remained strong in several other EU Member States.

The balance between flexibility, on the one hand, and security, on the other - in combination with the need to improve the functioning of labour markets and quality in work - is a delicate one both for the existing and new Member States. Relatively high degrees of labour market flexibility seem to be consistent with major shares of employees in insecure employment relationships and thus at high risk of job loss, as well as employees in low paid, low productivity employment without access to training or further career development opportunities.

Higher flexibility can improve quality in work and contribute to a better employment performance. Training, career development opportunities and other quality elements such as working time flexibility and job security are for many people key inducements to take up work and to stay in the labour market. Low wage employment, less regulation and more flexible work organisation - such as greater opportunities for part-time work and flexible working hours - can make it easier both for people to join the labour force and for firms to take them on. On the other hand, long working hours, regular work during the night and continuous overtime work can in some cases also be related to less favourable working conditions and work-related health problems, which in turn might impact negatively on labour productivity and quality in work.

Temporary employment, too - while potentially a stepping stone into longer employment relationships of higher quality - in some cases has important and combined disadvantages in terms of job security, remuneration and training. Employees on temporary contracts are not only at considerably higher risk of job loss and labour market exclusion they also receive lower wages and less training than

permanent employees with the same qualifications who are doing the same job.

Active labour market policies with a view to strengthening transitional labour markets - unemployment insurance systems and human capital investments in particular - are important ways to compensate for increasing employment instability. Given the synergies between quality in work and overall employment performance further measures are needed to improve the quality in work at the company level, while retaining an appropriate balance between flexibility and security. This point is underlined by the fact that improvements in the career prospects of those in low quality employment were observed for those of the EU Member States in particular with the best employment performance in the recent past, notably Denmark, Ireland, Spain, the Netherlands and Austria. Social dialogue and worker involvement play an important role in this respect, notably for improving quality in work and productivity of low quality jobs.

Annexes to chapter 4

Table 49 – Average usual weekly working hours of full-time and part-time employees in the EU and the accession countries by sector, 2002

	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Construction	Wholesale and retail trade	Hotels and restaurants	Transport, storage and communication	Financial intermediation	Real estate, renting and business activities	Public administration, social security and defence	Education	Health and social work
Full-time												
B		39.6	38.9	40.5	39.7	40.3	40.5	39	40.7	39	33.6	39.3
DK		38.8		38.6	39.7	39.5	41.1	39.6	40.5	38.9	38.4	37.6
D	39.7	39.0	39.4	40.2	40.1	42.2	41.4	40.2	40.9	39.7	40.2	39.5
EL	41.5	42.1	40.2	42.6	43.2	45.9	43.9	40.4	41.6	39.9	29.8	39.6
E	40.5	40.8	40.4	40.9	41.6	43	41.3	40.3	40.5	38.4	35.8	39.0
F	38.2	37.4	36.3	38.1	38.1	41.1	37.9	38.3	38.8	37.8	33.9	37.7
IRL		40.1		41.0	40.0	40.5	41.0	39.8	40.0	38.7	32.2	38.7
I	40.5	40.3	39.3	40.9	41.4	42.5	39.9	38.8	39.5	36.6	28.4	37.4
L		40.3		40.2	40.0	42.5	40.0	39.9	39.2	39.4	35.4	38.8
NL		38.9	38.8	39.5	39.3	38.7	40.2	37.9	39.3	37.6	38.3	37.2
A	38.9	39.3	39.5	39.7	39.7	40.8	40.7	39.4	40.4	40.5	40.5	40.9
P		40.6	:	41.7	41.6	44.5	41.5	39.2	40.5	37.6	34.6	38.5
FIN		39.5	39.0	40.2	39.4	38.1	41.0	39.6	39.2	38.3	36.9	38.6
S	38.0	39.5	39.5	40.2	40.0	40.0	40.1	39.4	40.0	39.9	41.6	39.1
UK	52.7	43.4	42.3	45.1	43.2	42.8	45.6	41.5	43.4	41.7	44.1	41.4
EU	42.8	40.0	39.5	40.9	40.7	42.3	41.4	39.9	40.7	38.9	36.4	39.1
BG	40.3	40.9	40.4	41.8	42.3	43.0	41.5	40.6	41.2	40.6	38.9	40.2
CY		40.2		39.3	41.5	42.7	40.3	37.4	40.0	39.2	35.2	39.4
CZ	39.2	40.5	40.5	42.4	41.7	42.0	42.2	42.0	42.3	41.0	40.1	41.6
EE		40.6		41.9	41.8		42.0		42.5	40.8	37.2	40.7
HU	41.4	40.6	40.8	42.2	41.3	42.1	41.8	41.0	41.7	40.8	38.9	40.9
LT		40.3	40.0	41.0	41.1	40.4	41.6	40.0	40.0	40.0	33.4	38.5
LV		43.9	42.1	44.6	45.6	49.0	44.5		43.3	42.0	39.0	42.7
PL	41.0	42.5	40.8	45.0	43.5	43.4	43.4	41.4	42.8	41.5	31.5	40.3
RO	39.6	41.3	41.0	44.5	44.0	44.4	42.5	41.1	42.1	41.5	38.3	41.2
SI		41.1	40.4	43.1	41.7	42.4	43.0	41.6	41.9	41.0	40.4	42.0
SK	40.2	41.1	41.2	43.1	42.1	43.2	42.2	41.4	43.1	41.9	40.8	41.8
Part-time												
B		25.2			22.5	19.1	24.4	26.4	22.6	21.9	19.8	24.2
DK					13.0						18.5	24.2
D		17.0		16.9	17.6	15.5	18.1	18.9	16.0	20.5	18.7	19.3
E		20.6			20.8	17.8	18.7		18.4		17.4	19.3
F		24.4		23.4	24.5	23.3	25.6	25.6		25.4	20.7	24.0
IRL					18.0	17.6						19.3
I		25.7		29.7	23.8	22.8	25.7	25.3	22.5	23	18.8	23.6
NL		21.6		22.2	16.1	14.4	19.1	22.5	19.7	25	22.1	20.9
A		22.0		19.6	21.9	22.4	22.2	21.1	20.0	22.6	22.6	22.8
FIN					22.5	21.6			18.6	:		21.5
S		21.8			20.5	17.1	20.6		20.6	21.9	23.7	25.5
UK		20.0		18.4	17.8	15.9	21.1	20.3	18.6	20.5	18.1	21.5
EU		20.3		20.3	18.9	17.3	20.6	21.2	19.0	22.3	19.3	21.7
CZ		26.6			26.2	23.5	24.3		21.6	22.8	22.0	24.1
HU		25.6			24.4							
PL		24.6			24.8				25.6			

Source: Eurostat, LFS, 2002q2

Notes: in the case of most accession countries, data are not available or unreliable blanks in the table indicate either unreliable or missing information; data for France and Austria refer to 2002Q1

Table 50 – Average usual weekly working hours of full-time and part-time employees in the EU and the accession countries by occupation, 2002

	Legislators, senior officials and managers	Professionals	Technicians and associate professionals	Clerks	Service and sales workers	Skilled agricul- tural workers	Craft and related trades workers	Plant and ma- chine operators	Elementary occupations
Full-time									
B	43.4	37.6	39.6	38.9	39.3	39.4	39.2	40.2	38.8
DK	44.8	40.1	39.0	37.2	38.2	41.8	38.4	39.8	37.6
D	43.8	41.2	39.4	39.3	40.2	40.5	38.9	40.4	39.4
EL	42.4	34.4	41.0	40.6	43.9	44.2	42.2	43.5	42.1
E	43.1	38.1	40.5	39.7	41.4	44.5	40.7	41.5	40.3
F	43.6	38.4	37.0	36.4	38.7	37.8	37.2	37.2	36.8
IRL	42.0	37.4	39.8	38.3	39.5		40.5	40.8	39.4
I	41.9	31.3	38.4	38.3	40.3	39.8	40.5	40.4	39.1
L	42.6	38.5	39.3	39.4	39.9		40.1	40.5	38.4
NL	39.5	38.6	38.4	38.4	38.4	39.3	39.1	40.1	38.6
A	41.5	40.9	40.0	39.5	40.2	43.3	39.4	40.2	40.0
P	43.0	36.9	38.5	39.0	42.0	45.5	40.9	41.5	39.9
FIN	42.0	38.4	38.9	37.8	38.9	39.9	39.7	40.6	38.3
S	41.6	40.7	39.8	39.5	39.2	41.5	39.8	39.4	39.5
UK	46.3	45.2	42.0	39.0	40.8	44.1	44.1	45.2	43.2
EU	44.3	39.5	39.2	38.6	40.3	41.0	39.9	40.7	40.0
BG	41.3	39.8	40.4	40.7	42.2	42.6	41.2	41.4	41.2
CY	44.1	37.6	39.9	39.0	41.9		39.6	41.1	40.6
CZ	44.9	42.0	41.1	40.1	41.2	41.7	40.7	41.4	40.3
EE	41.9	39.3	40.6	40.9	42.0	:	40.8	41.6	41.6
HU	41.8	39.7	40.7	40.5	41.7	41.7	41.1	41.2	40.6
LT	40.1	35.3	39.4	40.7	40.4	39.9	40.6	41.0	40.5
LV	43.4	40.9	42.4	42.2	46.5		43.7	46.4	43.0
PL	43.0	35.5	41.5	41.2	43.7	43.1	42.9	43.9	42.2
RO	43.0	40.1	40.7	41.3	44.1	44.2	41.6	42.4	42.5
SI	43.4	41.9	41.3	40.6	41.7		41.9	41.6	40.9
SK	43.0	41.5	41.3	41.3	42.7	42.7	41.6	41.6	42.0
Part-time									
B		22.5	23.5	24.7	22.2		25.7		19.8
DK		19.1	23.4	21.7	18.6				13.7
D	21.3	19.5	20.1	18.5	17.8	17.8	17.5	15.9	14
EL									20.6
E		18.5	18.3	20.9	18.7		20.6	20.1	16.9
F	28.1	20.5	24.5	25.1	23.4	23.6	24.6	23.3	19.2
IRL		19.3		19.9	17.8				17.5
I		19.9	23.2	23.9	23.2		26.7	27.0	24.0
NL	25.8	23.5	22.1	19.0	16.4		22.9	22.1	12.4
A	22.5	24.0	22.5	22.2	22.3		22.2	21.7	19.3
P									20.0
FIN		18.3	19.4	21.1	22.7				18.2
S		23.2	23.6	21.5	23.6		21.4	21.6	18.7
UK	21.1	20.4	21.8	20.0	17.7		21.5	20.4	17.1
EU	23.1	20.9	21.7	20.8	19.1		21.8	20.7	16.7
CZ		20.0	24.3	23.6	26.3		26.3	25.8	22.9
HU					24.1				24.5
PL				25.1	25.5				24.1

Source: Eurostat, LFS, 2002q2

Notes: in the case of most accession countries, data are not available or unreliable; blanks in the table indicate either unreliable or missing information; data for France and Austria refer to 2002Q1

Table 51 – Results of cluster analysis at Member State level (employment shares in % if not indicated otherwise)

	Men					Women				
	Hourly wage (In euro)	Part-time	Temporary	Supervisory	Training	Hourly wage (In euro)	Part-time	Temporary	Supervisory	Training
Cluster 1										
D	17.45	0.0	3.0		9.5	11.90	13.5	3.1		9.2
DK	22.76	0.5	5.2	48.4	64.0	17.73	15.6	3.8	26.0	65.7
NL	19.26	1.1	3.2	50.8	11.6	13.77	44.5	4.9	19.3	11.9
B	16.36	0.3	4.9	57.6	34.6	12.54	23.2	5.3	28.3	28.4
F	15.80	0.6	1.5	60.8	18.9	10.64	14.8	3.1	28.6	15.4
UK	15.85	0.2	3.0	66.9	45.2	11.29	0.8	3.3	55.3	42.2
IRL	15.89	0.1	4.1	63.6	28.9	9.67	18.5	9.9	43.8	30.9
I	12.05	0.6	2.0	60.4	22.5	8.18	14.2	4.9	25.7	17.0
EL	8.41	1.1	12.3	47.2	19.2	5.03	6.8	16.5	12.3	14.2
E	13.28	0.4	6.9	62.9	41.0	7.95	10.7	15.8	25.9	41.2
P	9.70	1.0	5.6	51.9	20.7	5.03	2.4	4.4	23.3	13.4
A	15.22	0.5	2.3	59.8	42.8	10.26	20.6	4.9	33.8	35.8
EU	16.65	0.5	3.5	57.9	29.7	11.32	17.7	5.3	30.1	25.3
Cluster 2										
D	11.54	0.1	4.5		5.9	10.81	18.8	26.4		27.0
DK	15.70	0.8	16.2	21.0	38.9	15.58	16.3	22.8	25.3	69.5
NL	12.79	1.0	8.6	21.2	8.3	14.46	38.9	29.4	14.3	21.6
B	10.71	1.0	8.3	27.8	13.9	12.32	12.5	43.0	16.7	43.0
F	9.04	0.6	5.3	31.0	8.0	7.27	50.0	51.1	14.7	24.3
UK	9.13	0.3	3.9	27.7	27.5	11.82	1.8	10.4	51.3	61.5
IRL	8.63	1.2	9.6	21.6	11.3	11.46	25.2	38.3	23.6	36.8
I	7.17	1.0	11.8	22.3	6.7	7.52	14.6	34.1	4.4	20.8
EL	4.37	1.4	28.3	8.6	4.0	5.70	7.1	18.6	5.6	18.0
E	5.88	1.1	35.3	23.1	11.0	7.76	17.1	64.7	21.7	38.5
P	2.87	0.4	16.5	6.9	3.5	3.50	2.5	47.6	5.5	16.5
A	10.12	0.2	10.4	32.8	20.0	11.47	21.6	7.1	22.2	42.9
EU	8.16	0.7	13.5	21.2	10.8	0.00	16.6	20.2	26.6	0.0
Cluster 3										
D	12.97	48.9	32.5		69.2	8.46	13.9	8.4		4.6
DK	15.15	61.2	33.3	14.3	40.0	13.31	13.7	21.1	8.4	36.3
NL	14.36	64.4	10.7	16.9	17.1	10.15	47.7	19.2	11.0	8.7
B	12.53	58.6	4.0	50.0	17.1	8.57	28.5	16.5	14.5	7.7
F	7.49	65.9	32.5	16.0	7.6	6.93	22.8	7.3	12.9	5.5
UK	–	–	–	–	–	7.33	1.6	4.1	22.7	23.9
IRL	9.80	53.7	39.7	15.9	23.8	6.32	29.1	24.5	13.8	11.7
I	6.42	45.7	56.5	13.4	10.1	5.77	14.2	20.6	9.8	5.3
EL	4.32	43.3	69.5	1.5	1.2	3.16	4.4	29.3	3.6	4.9
E	5.85	49.3	63.2	13.2	31.6	4.48	18.1	41.9	12.2	14.9
P	4.12	47.1	48.1	5.9	2.5	2.17	8.2	17.7	3.1	4.1
A	14.55	55.4	8.9	54.5	47.6	7.13	28.6	17.0	14.8	14.2
EU	9.64	54.7	37.8	17.6	22.4	5.79	15.3	18.1	10.6	9.7
Total										
D	13.65	0.3	4.1		7.5	10.68	14.1	7.1		9.4
DK	19.66	1.4	10.3	36.2	52.9	16.54	15.4	10.7	22.9	61.0
NL	16.77	2.4	5.4	39.2	10.5	13.11	44.7	9.4	17.4	11.9
B	13.66	1.2	6.5	43.5	24.5	11.63	23.9	9.6	24.6	23.9
F	11.46	1.5	4.3	41.4	11.8	9.21	18.5	5.9	22.5	12.0
UK	12.25	0.3	3.5	45.9	35.6	9.80	1.3	5.0	41.4	38.2
IRL	10.59	2.5	9.0	32.6	16.2	8.21	24.0	19.1	28.1	21.9
I	8.07	1.4	10.4	29.4	9.6	6.72	14.2	15.4	15.3	10.1
EL	4.98	2.3	26.8	14.3	6.1	4.08	5.5	23.5	7.1	9.2
E	7.39	1.9	30.1	31.0	17.2	5.87	15.4	33.7	17.5	24.6
P	3.18	0.6	16.2	8.9	4.3	2.54	7.4	17.4	5.5	5.6
A	12.46	0.9	6.8	45.2	30.6	9.91	22.9	8.7	24.9	32.5
EU	11.08	1.2	10.4	33.6	17.1	8.96	16.6	12.4	21.1	20.2

Source: Eurostat, ECHP UDB version June 2003

Notes: clustering based on data for individuals employed in 1995; no data for Luxembourg, Finland and Sweden; for Germany, no information on job status and sector available

Chapter 5 Labour market trends and characteristics of older workers

Introduction

The population of the European Union is getting older. Employment among older people aged 55-64 is low and improvements in the employment rate have been modest to date. Also, many withdraw from the labour force at relatively early ages. These are common features of the EU labour market that, linked to low birth rates and increasing life expectancy, further exacerbate the burden on social protection systems. They also represent a considerable challenge for the current population in employment who need to become more productive to help maintain the increase in living standards for the whole population.

The EU has set itself two important objectives concerning the employment of older people¹. Firstly the Stockholm European Council of March 2001 agreed that at least half of the EU population in the 55-64 age group should be in employment by 2010. The Barcelona European Council of March 2002 then concluded that efforts should be stepped up to increase opportunities for older workers to remain in the labour market. To meet this objective it proposed that, a five-year delay in the average age at which people withdraw from the labour force should be sought by the end of the decade.

The aim of this chapter is to gain a deeper understanding of the labour market situation of older workers, in the EU and acceding countries, as well as of the challenges ahead to reach the Stockholm and Barcelona targets. Particular attention will be given to the rela-

tionship between the two targets, as a follow up to the Commission's working paper: *"The Stockholm and Barcelona targets: Increasing employment of older workers and delaying the exit from the labour market"*.¹⁰⁹

Exit from the labour force should be understood in purely labour market terms as the transition from active to inactive life at advance ages. Some of the main reasons behind low employment of older workers and their early exit from the labour force will be examined in the context of sectoral employment demand and educational attainment levels. This chapter will provide some evidence of the importance of three key elements which were recently highlighted in the new Employment Guidelines¹¹¹ related to health and safety at work, flexible forms of work and continuing training. While recognising the existence of many other determinants providing important incentives for people to exit the labour force, in particular financial considerations related to pension entitlement,¹¹² including early retirement, an analysis of these would go beyond objectives of this chapter.¹¹³

Demographic context

The total population of the EU15 is ageing fast because of low birth rates that are well below the level necessary for the replacement of generations - and increasing life expectancy (chart 110). The total population is expected to increase until the early 2020s, after which it should start falling. For those of working-age (15-64), both the actual number of people in the population as well as the median age

are increasing. From 2010, the ageing process in the working-age population should start slowing down, partly because of the important number of outflows of older people relative to inflows of young entrants. This will lead to a contraction in the working-age population and it will start shrinking from then on, thus reducing the potential labour supply.

An ageing population does not necessarily mean an ageing labour force. Currently, the ageing of both the total population and the active population moves in the same direction. However, since the late 1970s Europe has witnessed a stark reduction in participation of older workers leading to an artificial rejuvenation of the labour force despite an increase in the median age of the total population. In parallel, there was a reduction in participation of younger workers but because this group was numerically smaller it only partially offset that rejuvenation.

The number of workers (both employees and self-employed) leaving the labour force and going into retirement will increase markedly over the coming years as a result of the ageing of the EU population and the baby-boomer generation reaching retirement age. This will increase the costs of financing pension systems and of health care systems.

Already in the short-term, the population aged 55-64 is forecast to rise strongly at about 1.4% per year between 2002-2010. This implies that employment of older workers has to grow above that rate to keep their employment rate (the ratio of employment to population) in-

¹⁰⁹ <http://europa.eu.int/european_council/conclusions/index_en.htm>

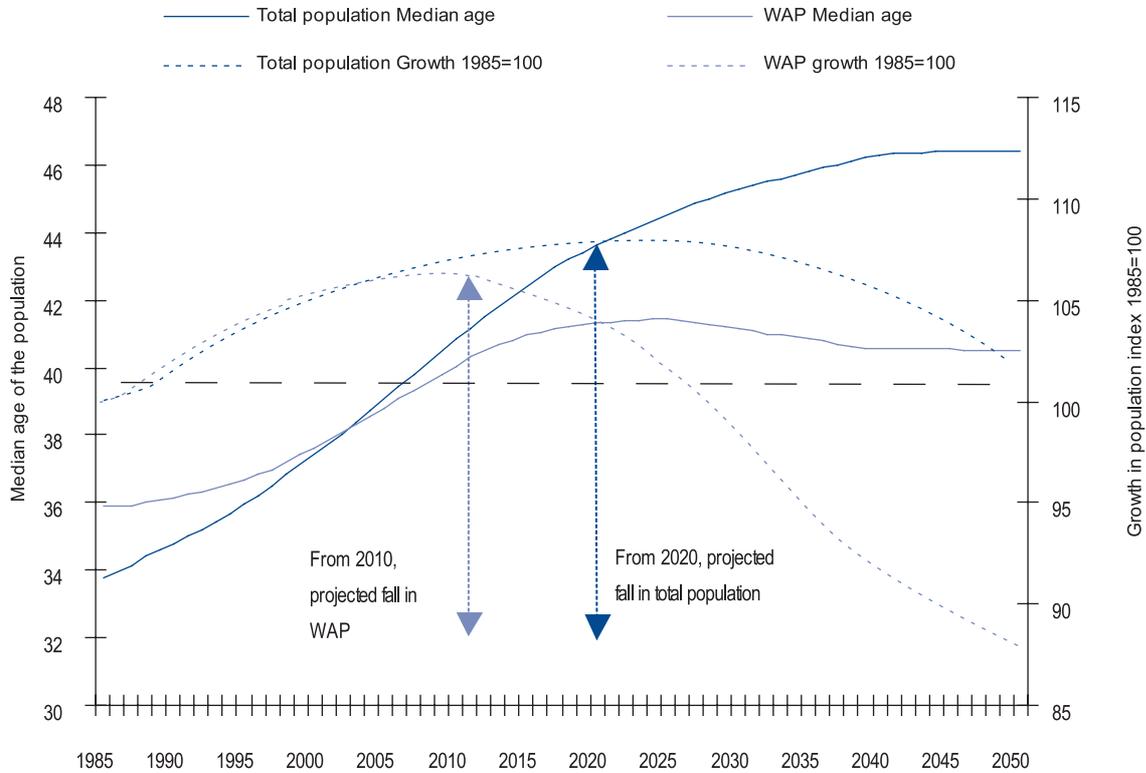
¹¹⁰ <http://europa.eu.int/comm/employment_social/employment_analysis/age_en.htm>

¹¹¹ <http://europa.eu.int/comm/employment_social/employment_strategy/guidelines_en.htm>

¹¹² In March 2003, the European Council enclosed the Joint Report by the Commission and the Council on adequate and sustainable pensions. One of the 11 common objectives that were fixed at the Laeken European Council of December 2001 within the context of the open method of co-ordination on pensions is about extending working lives in order to contribute to maintaining the financial sustainability of pensions. Based on the examination of the national strategy reports submitted by Member States, the Report concludes that working longer represents an important way of increasing employment rates in general and, thus, a major contribution to improving the financial sustainability of pension systems in a context of demographic ageing. The Report looks at the financial incentives to retire early and reviews incentive effects of tax/benefit systems with a view to making them more employment-friendly: <http://europa.eu.int/comm/employment_social/soc-prot/pensions/index_en.htm>

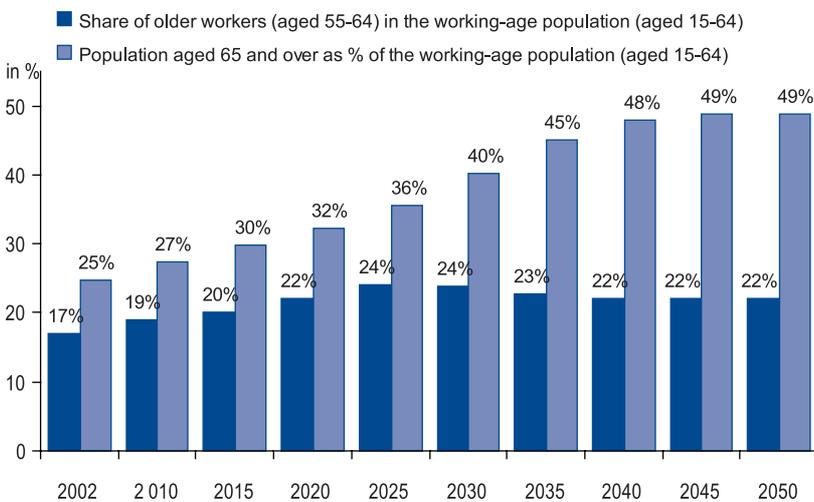
¹¹³ Factors that can affect the retirement decision include, for instance, the existence of special early retirement schemes, unemployment transfer schemes, disability pensions, occupational pensions, the existence of private pensions, the statutory age of entitlement to a full pension, the minimum age of entitlement to pension, the pension's accrual profile (accumulation rates), the actuarial adjustment factor, the pension's net replacement rate (the ratio of the pension to be received relative to the income from work before retirement) and the change in the pension's net wealth (change in the additional contributions from working an additional year plus the foregone pension from delaying retirement relative to the value of the pension to be received over the remaining retirement period).

Chart 110-Past developments and projections in the total and in the working-age population (WAP) in the EU15



Source: DG EMPL calculations based on historical demographic data and on population projections, revision 1999, baseline scenario, Eurostat.

Chart 111- Population projections for the EU15, 2002-2050



Source: Eurostat population projections, revision 1999, baseline scenario.

Note: in the chart, the share of older workers is used to refer to the share of older people.

creasing. Currently, the employment rate for older workers in the EU15 is just about 40% (compared to 58% and 62% in the US and Japan, respectively). More than 57% of older people are inactive (i.e. not seeking work) and the remaining 3% are actively looking for a job but remain unemployed.

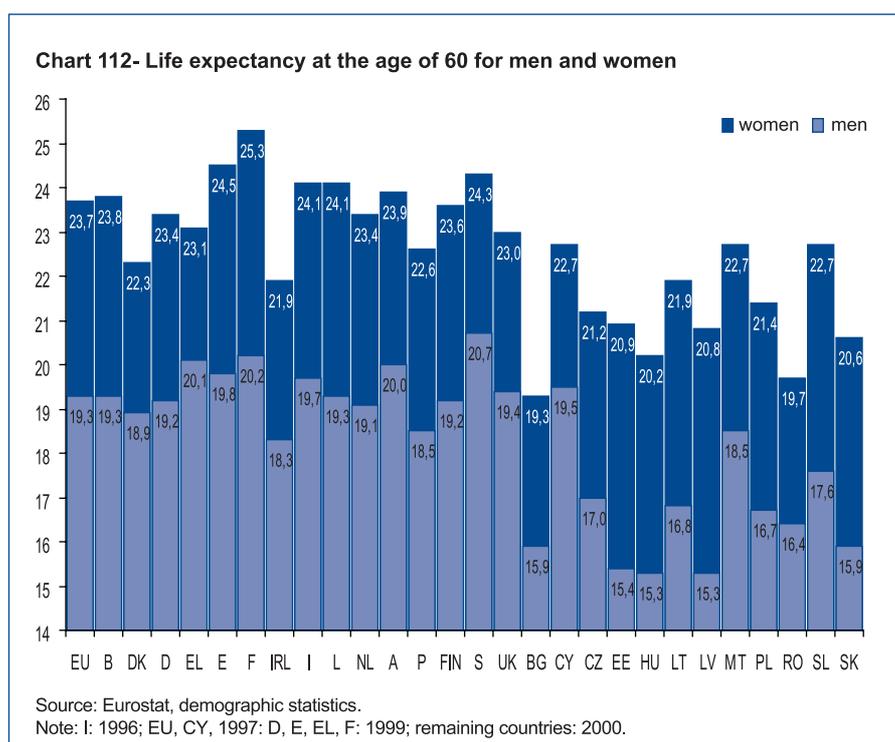
The population of people over 65 years of age will also increase sharply. Contrary to the 55-64 group (where employment increases can ease financial constraints resulting from demographic ageing) the vast majority (97%) of over 65-year olds are inactive. Indeed, the level of labour market participation of this latter group remains one of the main differences between the US and the EU, representing 3% in the latter compared to almost 12% in the former. It seems clear that the achievement of the Barcelona objective of increasing the average exit age from about 60 to 65 by 2010

will require an increase in participation for the group of 60-64 year-olds and, possibly lead to an increase in participation for 65-69 year-olds.

As participation and employment fall with age, demographic ageing increases the effort needed to raise the employment rate of older workers. Already today, those aged 55-64 in the 15-64 working-age population is about 17% and it is forecast to increase significantly in the coming years (chart 111). As a knock-on effect, this will lead to an increase in the old-age dependency ratio - the population aged 65+ as a percentage of the working-age population (15-64), which stood at about 25% in 2002- and in the total economic dependency ratio - the share of the non-employed to the employed population.¹¹⁴ In 2002, only 52% of the population over 15 years of age was in employment and this figure falls to 43% if the total population including those under 15 is considered.

Future developments in economic dependency will be driven by two main factors: population ageing, which will increase the ratio of the non-working to the working population, and the success or otherwise of economic and labour-market policies in raising the employment rate across all age groups. If these policies are successful they will help offset to some extent the automatic increase in dependency resulting from demographic change.

Meeting the Stockholm Objective is important from an economic point of view. About 60% of 55-64 year-olds are inactive but inactivity is as high as 97% for those above 65. Both groups are becoming more numerous, not least because of positive developments related to increased life expectancy. Yet, as discussed later in the chapter, on average people withdraw from the labour force at the age of 60. At EU level, life expectancy at the age of 60 is about 24 years for women and 19 years for men (chart 112). In a context where people live on average for 20 years after withdrawing from active life, increasing participation/employment as well as delaying exits from the labour force will become crucial to reduce the mounting pressure on social protection systems.



The EU's total population will continue to show positive growth for some years, mainly due to positive net migration and increasing life expectancy. In acceding countries, life expectancy is much lower than in the EU and both natural increase (births minus deaths) and net migration are currently negative. This should bring forward the point at which the total population will start declining in an EU with 25 members. Whereas the mean age of the population in acceding countries increases more rapidly (age faster) than in the EU, the average age of the population in acceding countries is currently lower. Thus, EU enlargement should slow the ageing of the population in the short and medium term but increase it in the long term. Moreover, because there are fewer births and people do not live as long as in the EU, the economic dependency ratio in acceding countries is below the EU's. Nevertheless, although dependency in the EU will be reduced following enlargement, it should start increasing from about 2010 as a result of declining working-age populations in both regions. Therefore, the need to increase participation and employment as well as keeping the labour force in

active life longer will also become crucial in an EU with 25 members.

The Stockholm target: recent employment trends and prospects for older workers

The 2001 Stockholm European Council agreed "to set an EU target for increasing the average EU employment rate among older women and men (55-64) to 50% by 2010".

In 2001 four countries - Denmark, Portugal, Sweden and the UK - were above the 50% threshold while in Belgium, France, Italy, Luxembourg and Austria less than a third of older people were at work. Since 1997 trends have diverged significantly among Member States. The employment rate for older workers increased significantly in Finland (10 percentage points), the Netherlands, Denmark, Ireland, Spain and Sweden. Of those Member States where the levels are very low, France

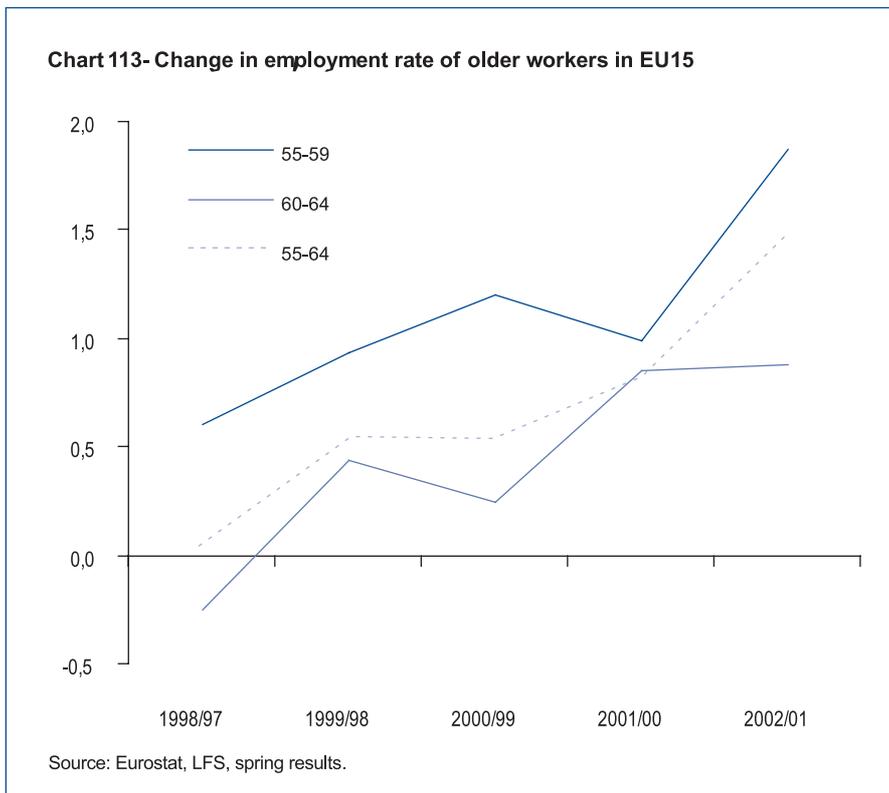
¹¹⁴ Also, the old-age economic dependency ratio, which may be defined here as the population aged 65+ as a percentage of the occupied population aged 15-64, stood at about 39% in 2002. In other words, for every person in employment aged 15-64 there are 0.4 persons over the age of 65, most of whom are inactive.

Table 52 – The Barcelona and Stockholm targets (2001)

	Stockholm target						Barcelona target		
	Employment rate of older workers in 2001			Change in employment rate of older workers 1997-2001			Average exit age from the labour force in 2001		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
B	25.1	35.1	15.5	3.0	3.5	2.5	57.0	57.8	55.9
DK	58.0	65.5	49.7	6.2	2.8	9.4	61.8	62.1	61.0
D	37.9	46.5	29.5	-0.2	-1.1	0.7	60.7	60.9	60.4
EL	38.0	55.0	22.5	-3.0	-4.1	-2.2	59.6	61.2	57.7
E	39.2	57.9	21.8	5.2	6.7	3.6	60.6	60.7	60.2
F	31.9	36.2	27.8	2.9	2.9	2.8	58.1	58.2	58.0
IRL	46.8	64.7	28.8	6.5	5.9	7.2	62.9	63.1	62.0
I	28.0	40.4	16.2	0.1	-1.6	1.4	59.4	59.6	59.2
L	25.6	35.9	15.2	1.7	0.5	2.4	56.8	57.5	55.3
NL	39.6	51.1	28.0	7.6	6.7	8.1	61.0	61.1	60.8
A	28.9	40.1	18.4	0.7	-0.3	1.5	59.5	59.9	58.5
P	50.1	61.3	40.2	1.8	-1.7	4.4	62.1	62.1	61.6
FIN	45.7	46.6	45.0	10.1	8.5	11.6	61.5	61.5	61.3
S	66.7	69.4	64.0	4.1	4.3	3.6	62.1	62.2	61.9
UK	52.3	61.7	43.1	4.0	3.4	4.6	62.0	63.0	61.0
EU	38.8	48.9	29.1	2.4	1.6	3.0	59.9	60.5	59.1

Source: Eurostat, LFS

Note: annual averages for employment rates.; see annex 1 for the methodology underlying the calculation of the average exit age from the labour force.



and Belgium showed some limited improvement and Italy, Luxembourg and Austria no improvement at all. In Greece and Germany there was a decline in the employment rate of older workers over this period. It will be

shown later in the chapter that Member States where employment among older workers is low also have a low average exit age from the labour force (table 53).

Employment rates for older workers increased modestly during 1997-2001 but went up strongly in 2002 (chart 113). During 1997-2001, the population in the 55-64 age class went up by an annual 0.4% and employment for this group rose by 1.8% per year. This led to a corresponding increase in the employment rate of about 0.5 percentage points every year. In 2002, the population increased strongly (by about 1.5%) and employment went up by a remarkable 5.4%, leading to an increase in the employment rate of 1.5 percentage points in just one year. In absolute terms, 10% of the total employment creation was accounted for by employment of older workers during 1997-2001 but their share represented as much as 80% in the year 2002.

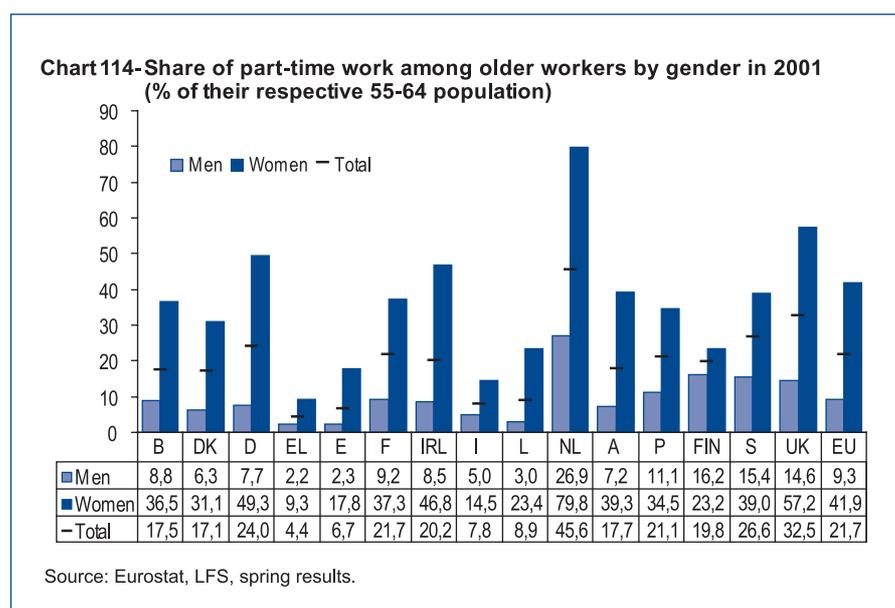
In no Member State did the employment rate for older workers decline in 2002. At the EU level it rose quite sharply, particularly due to very positive results in two large Member States (France and Italy) where employment for older workers was low and improvements were very modest until 2001. Germany, the EU's most populous Member State which accounts for 25% of all the older workers in the EU, did not show any clear sign of improvement in 2002. This appears also to be the case in Belgium and Austria.

Although the performance in 2002 is quite exceptional by EU standards, the period 1997-

2001 also showed some improvement in increasing employment for older workers. One of the possible explanations for the increase in participation of older workers in most Member States could be the growing number of people who opt to continue longer in employment but reduce the number of hours they work. At the EU level, part-time work among older workers has increased at an annual rate of over 4% compared to just 1% for full-time employment. Half the employment creation for older workers during 1997-2001 is accounted for by increases in part-time employment. This has also led to an increase in their share of part-time work in total employment. In 2001, 22% of older workers aged 55-64 had part-time work (more if one excludes the self-employed) – with the remaining 78% being in full-time employment (chart 114). Half the part-timers did not want a full-time job (i.e. voluntary part-time)¹¹⁵ and part-time employment among women (42%) remained well above that for men (9%).¹¹⁶

Overall, total net employment creation in the EU amounted to about 12.5 million between 1995-2002, 60% of which was accounted for by the increase in the labour force (7.7 million) and 40% by unemployment reduction (4.8 million). Net employment creation for older workers during the same period was about 2 million equivalent to 16% of the total employment creation.

Mainly because of the 2002 performance, the employment rate of older workers reached about 40% for the EU15 as a whole, 10 percentage points below the Stockholm target. To understand the implications in terms of employment creation, one needs to be aware that an increase of 10 percentage points in the employment rate depends on both employment growth and population growth. The employment effort needed to reach an employment rate of 50% by 2010 is magnified by the fact that the population in this age group



is projected to increase by 12% over the next eight years to more than 5 million. To take account of demographics, the EU15 would need to increase employment of older workers by almost 7 million between 2002 and 2010 with 2.6 of this total required purely to counteract the effect of ageing.

An increase in employment of those in the age group 55-64 by 7 million would correspond to an annual increase of about 900,000 a year. The Stockholm target could be met if the 2002 employment increase for older workers, achieved in the context of overall low employment growth, could be maintained until 2010. The contribution to the increase in employment of older workers in 2002 of the biggest economy in Europe – Germany – was as low as 1%. A change in trend in Germany would improve prospects of achieving the EU target.

For the EU15, the employment rate of older workers aged 55-64 stood at just below 39% in 2001, compared to a rate of 73% for the 46-55 year-olds. The latter will be aged 55-64 in 2010. Because of the projected growth in the population of the age-group 55-64 between 2001 and 2010¹¹⁷, about two thirds of the 46-55 age group who were in employment in 2001 need to remain at work at least until 2010 if the 50% employment rate target is to be reached. This would represent an important change relative to past performance, when only half of those aged 45-54 and in employment in 1991 were still at work 10 years later, at the age of 55-64.

One of the most visible differences between acceding and existing EU members relates to the formers' generally lower employment rates among older workers (table 53). In the EU15 only 40% of the population aged 55-64 were at work in 2002, yet this was still sig-

¹¹⁵ It should be noted that there are various reasons for a person to work part-time so the fact that half of them did not want a full-time job does not mean that the other half do. According to the EU Labour Force Survey (LFS), the distinction between full-time and part-time work is made on the basis of a spontaneous answer given by the respondent (in this context, country and industry specific differences in the number of hours worked are only used to detect implausible answers). The reasons for a part-time job being taken are: person is undergoing school education or training; own illness or disability; person could not find a full-time job (involuntary part-time); person did not want a full-time job (voluntary part-time); looking after children or incapacitated adults; person with a part-time job but giving no reason, and person with a part-time job because of other reasons.

¹¹⁶ For more detail, see chapter 4 "Flexibility, security and quality in work".

¹¹⁷ The population of 55-64 year-olds in 2001 was about 42 million. According to Eurostat's population projections the population of the group 55-64 in 2010 will be almost 14% larger than that of the same age-group of 2001. Because of the strong demographic component, the increase in employment to achieve 50% of older people at work by 2010 would need to be of over 7.5 million between 2001 and 2010. Thus, employment will need to rise from just above 16 million in 2001 to slightly below 24 million in 2010. Using 2002 spring LFS data, which shows an increase in employment for older workers of about 0.9 million, the level needed to reach the 50% employment rate target by 2010 would remain below 7 million.

Table 53 – Employment and participation rates of older workers in 2002 (preliminary results)

	Employment rates (% population aged 55-64)			Activity rates (% population aged 55-64)		
	Total	Male	Female	Total	Male	Female
EU15	40.1	50.1	30.5	42.8	53.4	32.5
B	26.7	36.1	17.6	27.8	37.6	18.4
DK	57.8	64.5	50.4	60.4	67.0	52.9
D	38.4	47.1	29.9	43.0	52.3	33.9
EL	39.7	56.0	24.4	41.4	58.1	25.5
E	39.7	58.6	22.0	42.7	62.2	24.4
F	34.8	39.3	30.6	36.7	41.8	31.9
IRL	48.1	65.1	30.8	49.3	66.7	31.6
I	28.9	41.3	17.3	30.2	43.0	18.1
L	28.3	37.9	18.6	28.3	37.9	18.6
NL	42.3	54.6	29.9	43.3	55.8	30.6
A	30.0	39.8	20.9	31.8	42.9	21.5
P	50.9	61.2	41.9	52.9	63.5	43.5
FIN	47.8	48.5	47.2	52.1	53.0	51.2
S	68.0	70.4	65.6	71.2	74.3	68.2
UK	53.5	62.6	44.7	55.4	65.4	45.7
AC10	30.5	41.2	21.4	33.1	45.0	23.0
AC12	31.6	41.1	23.5	34.0	44.6	25.0
EU25	38.7	48.9	29.1	41.4	52.3	31.1
EU27	38.5	48.5	29.0	41.1	51.8	31.0
CY	49.2	67.0	32.1	50.8	68.8	33.7
CZ	40.8	57.3	26.0	42.5	59.4	27.3
EE	51.6	58.4	46.5	55.7	63.7	49.8
HU	26.6	36.7	18.5	27.5	38.2	18.9
LT	41.6	51.5	34.1	46.9	59.8	37.2
LV	41.7	50.5	35.2	46.3	57.1	38.2
PL	26.1	34.5	18.9	29.1	38.7	20.9
SI	24.5	35.4	14.2	25.2	36.7	14.5
SK	22.8	39.1	9.5	26.9	46.3	11.1
BG	27.0	37.0	18.2	31.8	43.7	21.5
RO	37.3	42.7	32.6	37.9	43.9	32.8

Source: Annual averages based on LFS, Eurostat.

nificantly higher than for the group of the 10 acceding countries (about 30%). Given that their population of 55-64 year-olds will only represent 15% of the total enlarged EU population of older people, the overall employment rate for this age group in the EU25 should decline by between 1 to 2 percentage points.

The ranking of countries showing very low employment rates for older workers will also change in an EU with 25 members. If enlargement happened today, Slovakia, Hungary and Poland would share bottom positions with Luxembourg, Belgium, Italy, Austria and France.

Inactivity among the older population

The employment rate of older workers remains very low and raising it to 50% represents the most challenging Council objective for the EU in the coming years. In 2001, only 39% of the population aged 55-64 was in work, around 3% was unemployed and 59% was inactive.

Increasing labour participation is one of the conditions for reaching the employment rate targets set by the 2000 Lisbon and 2001 Stockholm European Councils. The necessary increases in labour supply needed for the accomplishment of these targets will necessarily come from pulling into the active population some of those who are currently inactive. An

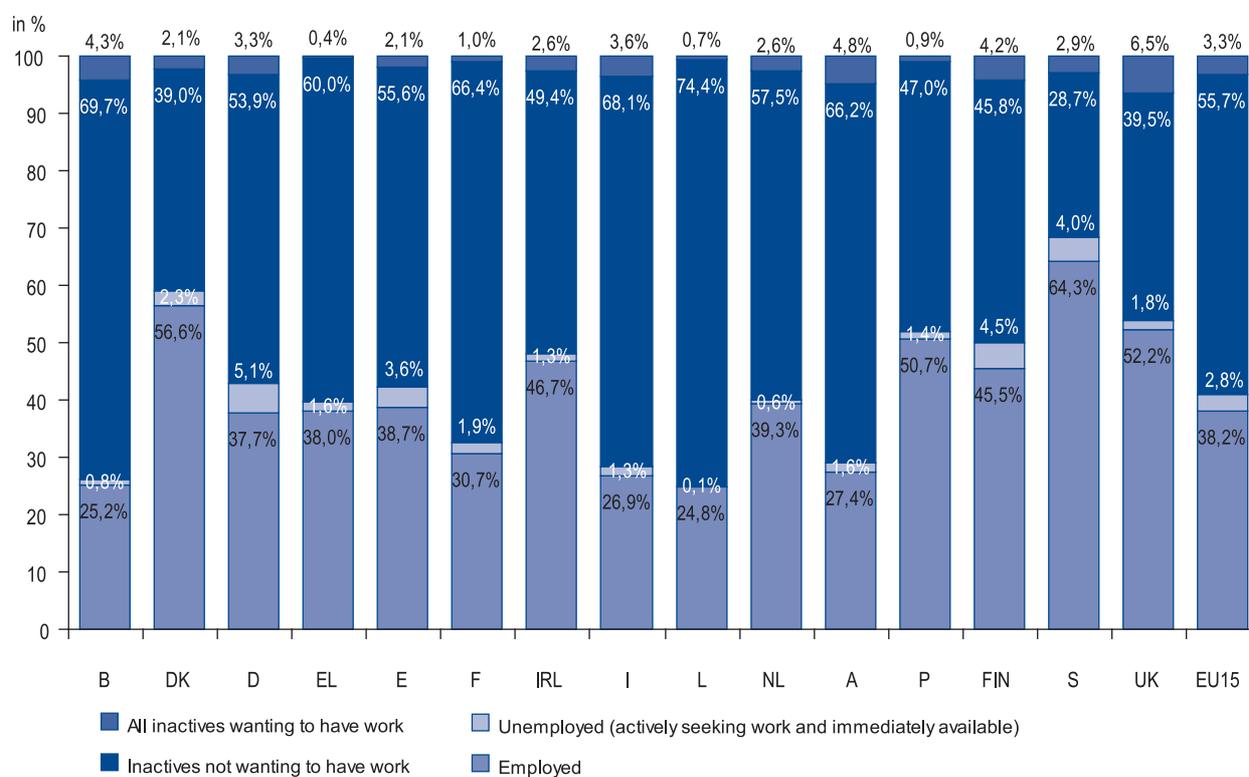
inactive person can be broadly defined as someone outside the labour force (neither employed nor unemployed) who is not actively seeking employment or is not immediately available for work. An understanding of some of the reasons why older people are predominantly inactive (i.e. not seeking work) is crucial for analysing the extent to which participation increases can be attained.

In 2001, there were 42 million people aged 55-64 in the EU15; about 16 million were in employment, just over 1 million were unemployed and 25 million were inactive. The inactivity rate (i.e. the mirror image of the activity/participation rate) represented as much as 59% of this population age group. Comparatively, older workers (55-64) represent only 10% of total employment (15-64) but older people (55-64) account for as much as a third of all inactive (15-64) in the EU15.

Among the inactive it is possible to distinguish different groups. Some of them are closer to the labour force than others. There are, for example, passive job seekers, who are seeking work but do not qualify as unemployed because they did not seek work in the previous four weeks of the survey using an active job search method, or are not immediately available for work in the next two weeks. There are also discouraged workers who do not seek work because of the belief that no work is available. Other groups of inactive include those who have retired, those declaring personal or family responsibilities, those who are ill or have a disability, those in education and training, or those who have other or no reasons for not seeking work.

Some of these inactive want to work. Although they may be limited by the extent of constrained choices, the willingness to work is lower for older people than for prime age people. Still, according to the LFS, almost 6% of the inactive (3% of the older worker population) within the 55-64 group would nevertheless like to have work (chart 115). If these were added to the labour force today the activity rate of older workers would increase by more than 3 percentage points. There are also the unemployed (already in the labour force) who are actively seeking work and immediately available. If both these groups were to be in work, 2.5 million additional people aged 55-64 would join the existing occupied population and the employment rate of older

Chart 115—People aged 55-64 by activity status in 2001
(% of the population aged 55-64)



Source: Eurostat, LFS, spring results

workers would go up by 6 percentage points. This would represent half of the increase needed between 2001 and 2010 to reach the 50% employment rate target by the end of the decade.

In recent years more than half, on average, of the EU older workers (aged 55-64) who had been in employment before but were no longer occupied, declared that retirement - both early and normal - was the main reason for not currently being at work. The next two most common reasons related to "own illness or disability" and "dismissed or made redundant".

Half of the total number of inactive aged 55-64 declared that they do not seek employment because of retirement reasons (chart 116)¹¹⁸. Also, about 15% of the total inactive aged 55-64 in the EU in 2001 have no previous work experience (a quarter in the case of women and only 2% in the case of men) and their educational attainment levels are low. About 90% of the inactive with no work experience have less than upper secondary education completed and are therefore classified as low-skilled, compared to those with work experience, where only half can be described as low-skilled.

Obviously, the increase needed in participation does not necessarily have to come from

bringing the older inactive into the labour force. Increasing activity rates for older people is likely to be more a question of keeping older workers in the labour force longer. Many still withdraw at relatively young ages.

The Barcelona target: delaying the average exit from the labour force

The 2002 Barcelona Council concluded that "a progressive increase of about five years in the effective average age at which people stop working¹¹⁹ in the European Union should be sought by 2010". In other words, it requires

¹¹⁸ It is worthwhile to recall here that "retirement" is an additional LFS reason for "not seeking employment". These old inactive people may receive a pension but this does not imply the opposite for others still in the labour force.

¹¹⁹ "Stop working" is interpreted as the act of withdrawing from the labour force (employment or unemployment) into inactivity - as many people are actively seeking employment and are available for work at these ages.

an increase of five years in the average age at which older workers withdraw from the labour force into inactivity. The withdrawal from the labour force mirrors the trend of the activity rate of older workers.

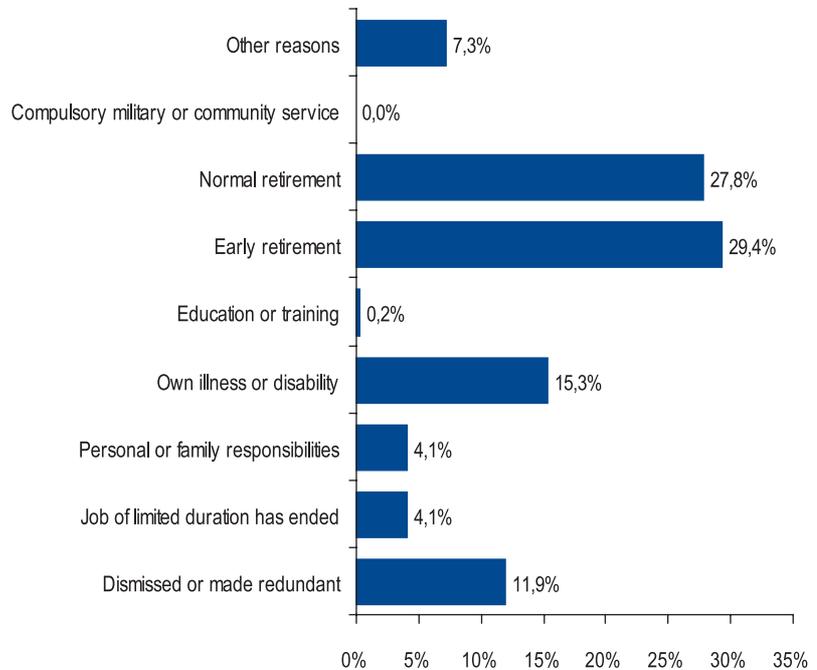
Based on activity rates by individual year quarterly LFS data, the model to calculate the average exit age from the labour force (see Annex 1) is built on probabilities for individuals in each same age cohort to stay active in period t (compared to period t-1). The probability distribution ranges between 50 (equal or above 50 years of age), below which the probability of staying active is 100%, and 70 (equal or higher than 70 years of age) where the probability of remaining active is assumed to be 0%.

Under these assumptions, the results show that the average exit age from the labour force for the EU was 59.9 years in 2001, the first year for which the necessary data to perform these calculations were available¹²⁰. Thus, to meet the Barcelona target the bulk of exits should be delayed until the age of 65 by 2010. A wide variety of exit ages are observable across Member States, ranging from the lowest in Belgium and Luxembourg to the highest in Ireland. However, no country has an average exit age above the required EU-wide average of 65. The 2001 results show that, in all countries, men exit the labour force on average about 1.5 years later than women (chart 117).

The results from this model do not refer to the effective retirement age. Instead, they provide an estimate of the average exit age from the labour force for an active person aged between 50 and 70, regardless of whether they are receiving a pension or not¹²¹. Therefore, the average exit age from the labour market may be higher than the average age of effective retirement into pension.

For the current EU15 members, a very simple simulation shows that to reach the Barcelona target about two thirds of those who were between 46 and 55 years-old in 2001 should still be active (in the labour force) in 2010

Chart 116- Reasons for leaving last job or business for older workers aged 55-64 in the EU15 (Average over the period 1995-02, % of all reasons given)



Source: Eurostat, LFS, spring results.

when they will be 55-64. This contrasts with a comparable cohort of 1991 of which only half remained active between the ages of 55-64 in 2001. This implies that between 24-26 million people of the 38 million 46-55 year-olds in the labour force in 2001 would need still to be active in 2010, which represents an increase of 7-9 million compared to the labour force aged 55-64 of 2001.

More explicitly, the average exit age in the EU was 59.9 in 2001. At the age of 60 the actual activity rate was approximately 36%. At the age of 65 the activity rate stood at about 10%. The scenario simulates a five-year shift in the activity rate corresponding to the average exit age in 2001 (36%). This activity rate would now represent the minimum EU activity rate

for a 65 year-old in 2010. The fall in the activity rate between those aged 56 in 2001 (the 65 year-olds nine years later in 2010) and the minimum activity rate for those aged 65 in 2010 is assumed to be linear. The reduction in the speed of the fall in the activity rate from 62% (activity rate of 56 year-olds in 2001) to 36% (activity rate of 65 year-olds in 2010) would result in an overall increase in the activity rate for the 55-64 age group. This increase in participation is then weighted by the projected population of the 55-64 year-olds in 2010 to obtain a rough estimate of the labour force of older workers in that age group required in 2010 (about 24-26 million).

This simple simulation should be seen as indicating an order of magnitude rather than

¹²⁰ The 2001 calculations are based on annual averages of the activity rates by single age from the quarterly Community LFS 2000 and 2001. Due to the unavailability of quarterly LFS data, comparable estimates for previous years cannot be provided.

¹²¹ The Labour Force Survey (LFS) includes people receiving a pension but who are at work (at least one hour in the reference week). This happens when pensioners work part-time (e.g. to complement their pensions) and depending on the existing regulations governing the possibility to combine work and retirement. The LFS would also include older workers receiving a pension while being unemployed. There are also self-employed and family workers who stay active until relatively high ages.

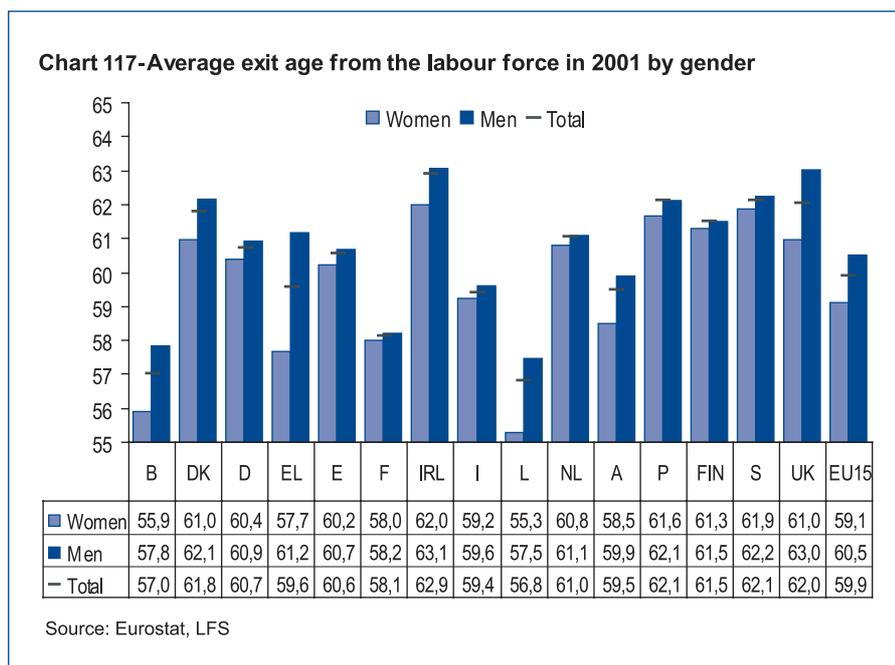


Table 54 – Life expectancy at the age of 60 and average exit age from the labour force in the EU and Acceding countries (AC10)

	Life expectancy at 60 In 2000		Average exit age from the labour force in 2001 (mēn and women)
	Men	Women	
B	19.3	23.8	57.0
DK	18.9	22.3	61.8
D	19.2	23.4	60.7
EL	20.1	23.1	59.6
E	19.8	24.5	60.6
F	20.2	25.3	58.1
IRL	18.3	21.9	62.9
I	19.7	24.1	59.4
L	19.3	24.1	56.8
NL	19.1	23.4	61.0
A	20.0	23.9	59.5
P	18.5	22.6	62.1
FIN	19.2	23.6	61.5
S	20.7	24.3	62.1
UK	19.4	23.0	62.0
CY	19.5	22.7	62.3
CZ	17.0	21.2	59.2
EE	15.4	20.9	61.1
HU	15.3	20.2	57.9
LT	16.8	21.9	57.8
LV	15.3	20.8	62.2
PL	16.7	21.4	56.6
SL	17.6	22.7	61.5
SK	15.9	20.6	57.9
EU15	19.3	23.7	59.9

Source: Life expectancy, demographic statistics, Eurostat. I, 1996; EU, CY, 1997; D, E, EL, F, 1999; remaining countries, 2000. Average exit age from the labour force, methodology, DG Employment and Eurostat. See Annex 1.

giving an exact number for at least three reasons. Firstly, the Barcelona target does not imply a fixed number of active people to be in the labour force by 2010, as the average exit age is based on the relative performance of different successive cohorts resulting from changes in participation between one year and another rather than on the level of participation as such. Secondly, this simulation looks only at the 55-64 age group to highlight better the similarities between the Stockholm and Barcelona targets, while changes in participation at the upper (65-69) and lower (50-54) boundaries of the exit age will alter the results in different ways. Thirdly, uneven activity patterns in the single-age cohorts of the age-class 55-64 will also lead to a change in the average exit age from the labour force. To understand the workings of the model better, different scenarios are presented in Annex 2.

Older workers in acceding countries withdraw earlier from the labour force than in most of the existing EU Member States. Preliminary results from the exit model show that of the 10 acceding countries, the average exit age is above the EU's in Cyprus, Estonia, Latvia and Slovenia and below it in the Czech Republic, Hungary, Lithuania, Poland and Slovakia. The inclusion of these countries today (using 2001 data) would reduce the EU15 exit age from 59.9 to 59.6. Generally speaking, their average exit age from active life is now slightly lower than in the EU15.

In many of the acceding countries participation was traditionally very high. For instance, the activity rate for 55-64 year olds in Poland back in 1970 was as high as 72% and had dropped to 30% 30 years later. In 2002, the activity rate for older workers in acceding countries stood at 33% compared to 43% in the EU15. The ongoing restructuring process has led to a decline in activity rates from the high levels of the late 1980s and early 1990s that has mostly affected older workers. Contrary to the EU where participation has since then increased for older workers, it is likely that the fall in activity rates in acceding countries, on average, has led to a parallel decline in the average exit age from the labour force.¹²² Also, the apparent consistency between low employment rates and low exit ages from the labour force observed in EU

¹²² For older workers (aged 55-64), who have been in employment before but are not occupied now, "retirement" was the single most important reason (70% of them) quoted for not having been at work in 2002.

Member States may not hold entirely in all acceding countries because of their higher unemployment rates.

Moreover, life expectancy at the age of 60 is clearly below that of the EU (table 54). In relative terms, people in acceding countries spend less time in inactivity after withdrawing from the labour force than their EU counterparts. Their population is still younger than in the EU but ageing faster. Thus, although EU current members are in a comparatively worse situation in terms of the economic costs of pension systems today, the need to delay exits from the labour force will soon be essential in acceding countries.

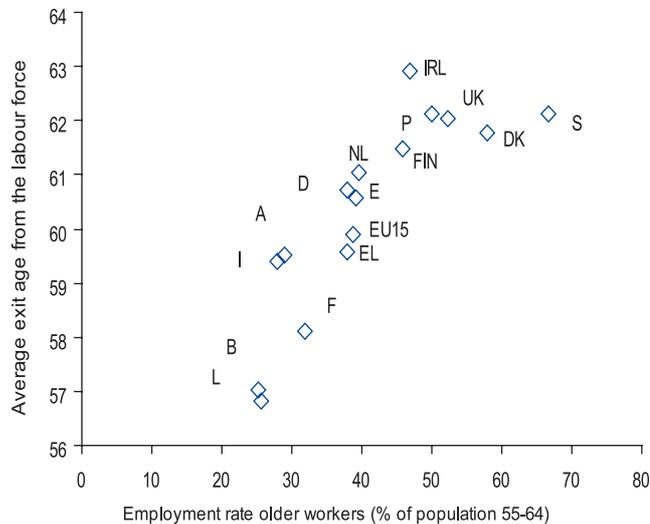
Complementary and different aspects of the Barcelona and Stockholm targets

The Barcelona and Stockholm target for older workers are broadly complementary (chart 118) - they both require an increase in participation.

But there are some differences. The Stockholm target is about increasing the level of employment of those aged 55-64. This can be achieved by reductions in both unemployment and inactivity rates for older people and is monitored through the employment rate. The Barcelona target is about delaying the age at which individuals withdraw from the labour force into inactivity and is monitored by changes in the activity rate. As the latter is calculated looking only at those who are active (in the labour force), countries such as the Netherlands for example, with low participation rates for older workers could have relatively higher exit ages.

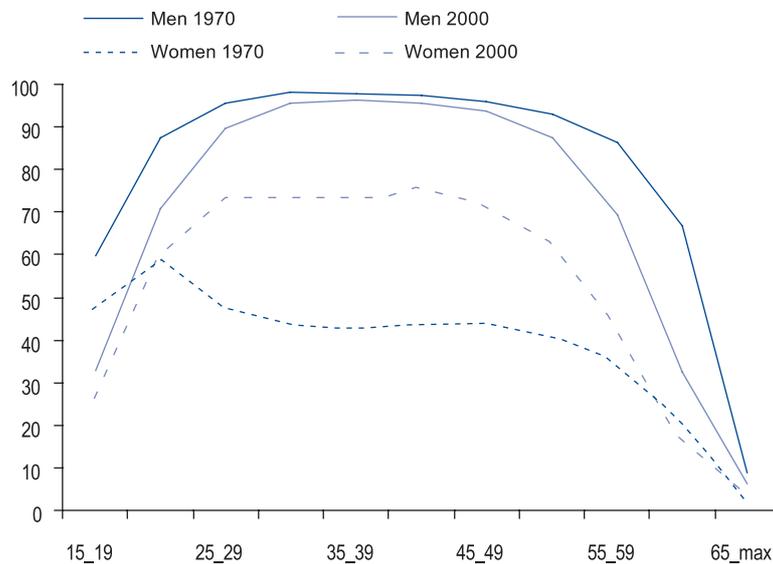
The Stockholm target relates to the performance of the age-specific group of 55-64 year olds over time. The Barcelona target relates to the comparison of the relative performance of different cohorts in relation to slowing down the natural fall in their activity rate as they grow older (i.e. delaying exits). For instance, to determine whether the exit age will increase or decrease in 2002 what matters is not so much the increase in the activity rate in 2002 compared to 2001 but the rela-

Chart 118- The Barcelona and Stockholm targets in 2001



Source: Eurostat, LFS
 Note: annual averages for employment rates for the 55-64 age class; see annex 1 for the methodology underlying the calculation of the average exit age from the labour force.

Chart 119- Activity rates by gender in the EU, 1970 and 2000



Source: OECD
 Note: See also ILO, Economically Active Population Estimates and Projections: 1950-2010.

Table 55 – Activity rates (% population aged 55-64)

	1970			1980			1995			2000		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
B	39.1	67.7	13.5	38.2	64.7	14.1	23.9	34.9	13.5	27.1	37.5	17.1
DK	60.2	88.2	34.2	58.0	76.0	41.3	54.6	70.3	40.2	58.2	66.7	49.0
D	51.9	80.7	31.3	47.8	69.8	33.0	42.9	54.4	31.5	42.9	52.4	33.5
EL	45.6	74.8	19.3	44.0	71.9	20.3	42.4	61.8	24.7	40.2	57.1	25.0
E	47.6	81.4	18.6	47.0	76.2	21.2	35.6	54.0	18.6	39.5	59.0	21.4
F	50.8	68.1	35.5	53.5	68.6	40.1	31.9	36.5	27.5	32.1	36.0	28.3
IRL	55.6	88.8	21.5	49.8	81.7	19.2	42.3	64.4	20.2	46.5	65.1	27.9
I	39.5	66.0	15.5	37.7	61.2	17.3	29.5	46.4	14.1	29.0	42.8	16.1
L	36.3	58.5	16.7	30.2	47.2	16.6	23.7	35.1	12.7	27.0	37.9	16.4
NL	44.0	76.4	14.8	38.5	63.3	16.1	30.0	41.1	19.0	39.0	51.2	26.7
A	41.4	64.1	24.4	37.0	56.8	23.6	30.8	44.0	18.7	30.5	43.6	18.1
P	45.6	83.6	13.7	50.0	70.9	32.0	47.2	63.0	33.4	52.4	64.5	41.8
FIN	54.3	68.2	43.5	46.6	53.1	41.7	42.9	44.6	41.4	45.8	47.3	44.4
S	59.5	82.4	37.3	66.6	79.5	54.3	65.1	68.6	61.9	68.6	72.1	65.2
UK	59.2	87.7	33.8	61.8	84.2	41.4	51.3	62.4	40.7	53.0	63.4	42.9
EU15	49.9	76.9	27.3	49.1	71.2	30.7	39.1	51.4	27.4	40.7	51.5	30.2

Source: ILO, „Economically Active Population Estimates and Projections: 1950-2010“ for 1970 and 1980. Eurostat, LFS, for 1995 and 2000.

tive performance of the 2001 cohorts in 2002 compared with the performance of the 2000 cohorts in 2001. If the expected natural fall in the activity rate (as one gets older) for the 50-70 cohorts of 2001 is less strong than for the cohorts of 2000, then the average exit age should increase.

The model to calculate the average exit age from the labour force also includes the unemployed (6% of the 55-64 year-old labour force in EU15). Contrary to statistics on unemployment benefit recipients who may include people in de facto early retirement, the unemployed here considered are actively seeking employment and are immediately available for work (ILO concept). Thus, they have not decided to stop working and leave the labour market in the Barcelona sense. These unemployed may go back to employment when jobs become available.¹²³ With a few exceptions (Denmark, Germany, Finland, Austria and Sweden) unemployment rates for older workers are below those of prime-age workers (25-54). In all Member States, however, the probability of older workers once they become unemployed remaining so for 12 months or longer (long-term) is significantly higher (60%).

The employment rate for older men is low (49% in 2001), but substantially higher than the 29% rate for women in the same year. The employment gap stands above 20 percentage points. Moreover, men generally exit the labour force at a later age than women. At the EU level the average exit age in 2001 was 60.5 for men and 59.1 for women. This gap seems narrow considering that older inactive women (71%) significantly outnumbered older inactive men (51%). The explanation lies in the fact that significantly more women than men have never previously been in the labour force and the exit age unequivocally relates to withdrawals from it. In Italy or Spain, for instance, exit ages of men and women are broadly similar although the gender-gaps in the participation of older people are among the highest in the EU. Thus, not only do low activity and employment rates not have to be in contradiction with relatively higher exit ages but also substantial gender differences in activity rates can co-exist with small gender differences in exit ages from the labour force.

The Stockholm target refers to those aged 55-64. To monitor the average age of withdrawal from the labour force, the age threshold to measure the Barcelona target should be

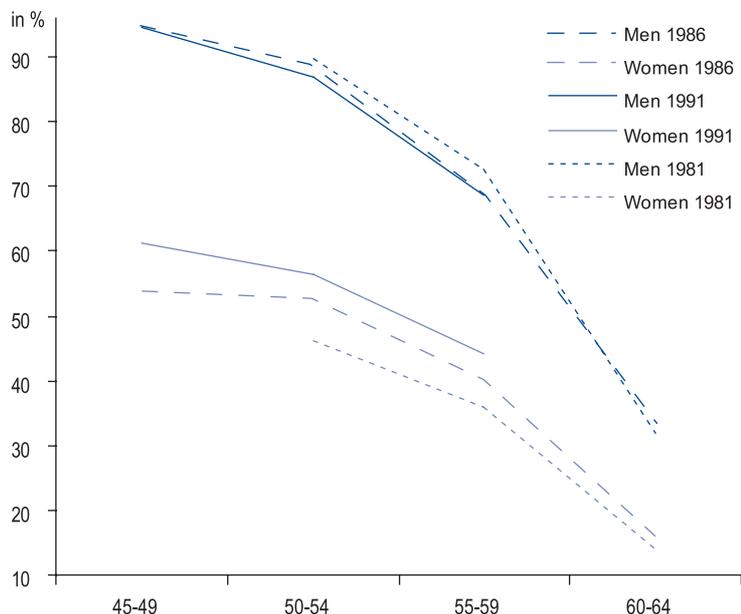
broader (50-70). The 50-54 age group needs to be included because from the age of 50 it is possible to observe significant falls in participation – and transitions from the labour force into inactivity are already high. The activity rate for 50 year-olds in the EU was 79% in 2001 but had dropped to 65% for 55 year-olds in the same year. Also, those above 65 in the labour force are also included in the calculation, almost two thirds of whom are self-employed and family workers.

Different scenarios showing the consistency between the Stockholm and Barcelona targets are presented in annex 2.

Past developments in participation of older workers

To give a historical perspective of how participation for different groups and gender have evolved during the past 30 years, one can look at the change in activity rates between 1970 and 2000 using data from the International Labour Organisation (chart 119).

¹²³ For instance, in Germany the employment rate for older workers is below the EU average but the exit age is above average - this can be partly explained by the high (12%) unemployment rate for this group of workers.

Chart 120- Cohort comparison 1981-1986-1991 by gender in the EU

Source: Eurostat, LFS, spring results.

Note: the chart shows the activity rate of three cohorts in the EU12: 1) cohort of those aged 45-49 in 1986 (50-54 in 1991, 55-59 in 1996 and 60-64 in 2001); 2) cohort 45-49 in 1991 (50-54 in 1996 and 55-59 in 2001); 3) cohort 45-49 in 1981 (50-54 in 1986, 55-59 in 1991 and 60-64 in 1996). The slope of the lines shows the speed at which activity rates decrease as the cohort gets older. The position of the lines represents the actual level of participation. In the Netherlands, the 45-49 cohorts refer to 1985, 1990 and 1980, respectively.

Participation for prime age women (aged 25-54) increased strikingly in all 15 Member States, ranging from Finland that had the lowest yet still very significant increase, to Portugal, with the highest. At the EU level, the prime age female activity rate of 44% in 1970 had risen to about 72% 30 years later. There has been a slight beneficial knock-on effect for older women (aged 55-64) of this extraordinary performance, but their labour force participation has been affected to a much lesser extent. Their activity rate increased in all Member States except for Austria and France, where there was a significant decline. At the EU level, the overall increase was modest; it was up by about 3 percentage points.

A cross-sectional chart showing the female activity rate by age today will give the impression that the activity rate for women falls quite significantly before the age of 50, particularly so in countries where the female labour

force has grown faster. Participation tends to fall with age but the activity pattern shown by women over 50 today is markedly different from that of younger women starting work today. The latter are highly educated and already have and will continue to have much higher levels of participation than previous generations. Rather than illustrating activity rates falling before the age of 50, the graph shows the contrast between generations of women: a highly educated group with high activity rates and a less educated group which is less active in the labour market.

For men, the evolution is quite the opposite. Participation fell in all 15 Member States by a similar degree. Unlike for women, the activity rate for prime age men in 1970 was as high as 97% and despite a fall, still remains well above 90% 30 years on. Together with the sharp increase in participation for prime age women, one of the most staggering features

of the labour market over the past 30 years has been the important reduction in the number of male older workers (aged 55-64) in the labour force.

The EU activity rate for older male workers was as high as 77% in 1970 (table 55). In 2000, only about 52% of the population of 55-64 year olds was in the labour force. Not only was the population in this group increasing quite rapidly (0.6% per annum), but also the labour force was decline even faster (-0.8 per annum). The largest falls in participation of male older workers were seen in France, Belgium and Germany.

It is of interest to examine to what extent declining participation for older workers has affected the average age of withdrawal from the labour force. However, historical quarterly LFS data by single years are not available and these would be needed to analyse exits based on the annual probability model. These exits can be proxied by looking at participation developments by cohort, constructed by combining cross-sectional data at regular intervals. Existing Eurostat LFS data makes it possible to follow the 45-49 cohort of 1986 for 12 Member States (EU12)¹²⁴ up to 2001 when they were 60-64 year-old (chart 120).

Participation starts falling sharply from the age of 50. The evolution of the male cohort clearly reflects this trend. In 1986, 45-49 year-old men had activity rates above 90%. As this cohort aged, differences between countries in participation widened to between 49-79% for the 55-59 age group and between 11-56% for the 60-64 age group. The decline was strongest in France, Luxembourg, Belgium and Italy and slowest in Portugal, Ireland, Spain, the UK and Denmark.

For the female 1986 cohort, participation falls less sharply although the starting levels were also much lower. In contrast to men, differences between countries narrowed. In the EU, the lowest levels of labour force participation for the 45-49 1986 female cohort were those of Spain and Ireland. This cohort remained in the labour force longer reaching activity rates above the EU average 15 years later. The strongest declines occurred in Belgium,

¹²⁴ Eurostat LFS data in the starting year is not available for Austria, Sweden and Finland.

France, Luxembourg, Italy, Germany and the Netherlands. In Denmark and the UK, where the starting activity rate was very high, the decreases were also among the highest.

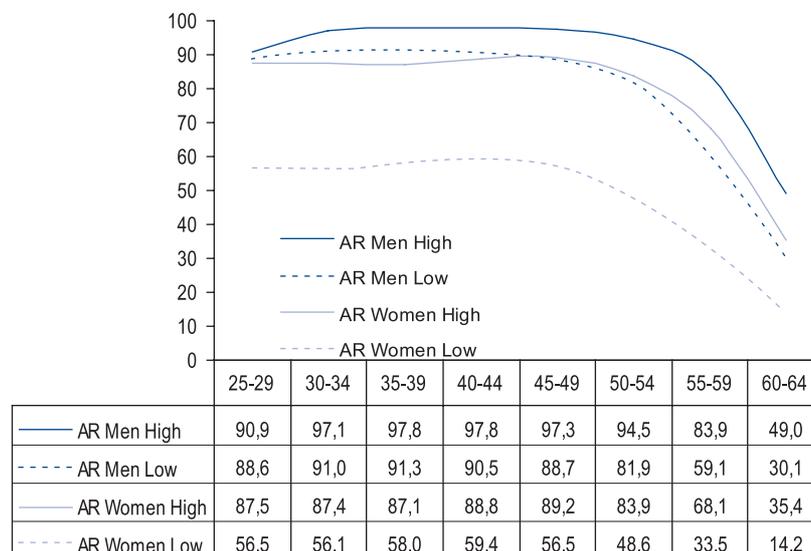
To assess changes in performance across cohorts, the generation of individuals aged 45-49 in 1986 is compared to the preceding same age cohort who were 45-49 in 1981 and the subsequent cohort who were 45-49 in 1991.

Developments for the male cohorts generally show little change, although two Member States stand out. In the Netherlands participation for the 55-59 and 60-64 age groups increased significantly over the successive cohorts and the reduction in the speed of the fall of the activity rate was strong. In Italy, by contrast, the decline in participation was sharp for the 1986 and 1991 cohorts.

For the female cohorts it is important to distinguish between the increase in the level of participation and the speed of the decline as they get older. Younger generations of women have activity rates higher than their predecessors. At the EU level, the activity rate of the 45-49 1991 cohort is higher than for the 1986 and 1981 cohorts. However, as shown by the parallel lines (similar slopes), the speed of the reduction in participation as they get older is broadly similar across the three cohorts. As the average exit age depends on the relative numbers of those leaving to those staying, it could well be that this strong generational shift does not translate into a significant positive change in exit behaviour - a higher exit age - while it will certainly increase the female employment rate. It would all depend on the speed of the decline in participation at the end of the working life (i.e. if this offsets the increase in the activity rate from the generational push).

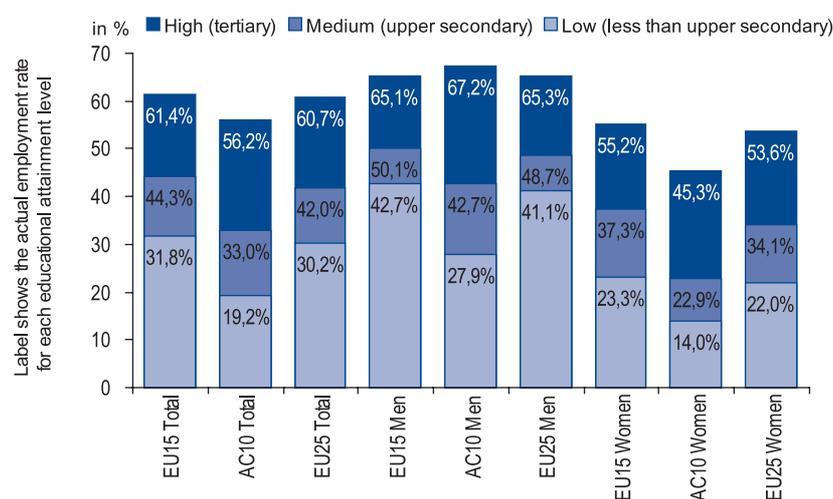
In Denmark, a marked positive trend of younger female cohorts staying longer in the labour market seems to have occurred - there was both an increase in the level and a flattening of the line indicating a slowdown in the speed of the fall for the 1991 cohort. Although less marked, such an apparent shift for women has also occurred in Ireland, the Netherlands and to a certain extent in Germany and Portugal.

Chart 121- Activity rate by 5-year age-group, educational attainment levels and gender in the EU in 2001



Source: Eurostat, LFS, spring results.

Chart 122- Employment rates for older workers (aged 55-64) by educational attainment levels and gender in 2002



Source: Eurostat, LFS, spring results.

The role of educational attainment levels

When do older workers leave the labour market?

In general, the higher the educational level, the higher the employment and activity rates and the lower the unemployment rate. EU-wide, the total employment rate (15-64 age-group) for those who have completed tertiary education (high-skilled) was 83% in 2001. People having completed upper secondary education (medium-skilled) showed an employment rate of about 70%, whereas fewer than one in two of those with less than upper secondary education (low-skilled) was in work in 2001 (chart 121).

The employment rate for high-skilled older workers aged 55-64 was twice as high (61%) as for the low-skilled (31%). This sizeable difference pertains to both men and women (chart 122). Although the employment rate for women is below that of men for every educational level, the probability of older women who have completed tertiary education being in employment compared to older women with less than an upper secondary education is comparatively greater than for older men. In other words, low-skilled older women seem

to be at a greater disadvantage when it comes to employment than low-skilled older men.

Not only do older workers in acceding countries have very low employment rates, but also disparities between those who have completed tertiary education and those with less than upper education secondary are stark. For the group of 10 acceding countries, the employment rate of low-skilled older workers is as low as 19% (14% for women) whereas for high-skilled workers it is about 56% (45% for women). In addition, in the context of ever-increasing demand for a more qualified workforce and the ongoing restructuring process which has heightened disparities between the low and the high-skilled, one of the most important tools to cope with these changes, training, is generally under-utilised.

In addition to having lower employment and participation rates overall, low-skilled older workers also leave the labour force earlier than their high-skilled counterparts. In other words, not only do activity and employment rates increase the higher the educational levels, but also the average exit age from the labour force is higher.

The probability model used to calculate average exit ages from the labour force by gender also allows, with certain limitations, the average exit age to be calculated by educational attainment levels. These ages have been calculated for those in the labour force having

completed tertiary education (high-skilled), upper secondary education (medium-skilled) and lower secondary or no education (low-skilled).

At the EU15 level, the average exit age for the high-skilled was estimated at 62.3 years in 2001. For medium-skilled workers the average exit age was estimated at 60.3 years and for low-skilled workers at 58.7 years. As will be shown, this is due not to a shorter, more compressed employment career for the low-skilled but rather to a working life that starts a few years earlier than for the high-skilled.

When did today's older workers start working?

Based on the available empirical evidence, the fact that low-skilled workers start working earlier is indisputable. According to the ISCED educational classification used by Eurostat in the EU Labour Force Survey, low-skilled workers refer to persons in employment who have completed less than upper secondary education. High-skilled workers are those who have completed tertiary education taking a few additional years after the end of compulsory education (typically at age 15-16) to do so. Clearly, the fact that there are almost no high-skilled workers aged 15-19 in employment in the EU and that about 60% of them are low-skilled (40% medium-skilled) shows

Table 56 – How old were you when you began your working life, that is started your first job or business?

Average age	55-64					35-44				
	total	men	women	low skilled	high skilled	total	men	women	low skilled	high skilled
EU	18.7	18.2	19.3	18.0	21.2	19.8	19.6	20.1	18.6	22.0
D	18.5	18.7	18.2	17.4	20.7	19.6	19.7	19.6	19.4	21.1
DK	16.7	16.6	16.8	15.4	19.5	18.8	18.4	19.2	17.3	21.0
NL	20.8	19.5	22.4	20.7	22.5	21.8	20.7	23.0	21.7	23.4
B	19.5	19.1	20.0	17.8	22.3	20.5	20.1	20.9	17.7	22.6
F	19.0	19.1	18.9	17.6	25.6	20.6	20.2	21.1	19.3	24.4
UK	17.4	17.8	17.1	16.3	19.2	19.0	19.3	18.7	17.0	20.5
IRL	17.2	17.2	17.2	16.3	20.1	17.7	17.9	17.5	16.8	20.0
I	20.8	19.0	22.9	19.9	26.6	21.2	21.0	21.5	19.5	27.4
EL	22.2	20.0	24.9	21.6	24.2	21.8	20.8	22.9	20.4	24.5
E	17.6	15.5	20.1	16.7	21.3	18.4	17.6	19.2	16.6	21.9
P	17.7	15.2	20.0	17.0	23.2	18.2	16.5	19.9	17.0	23.6
A	16.4	15.8	17.0	16.8	23.4	17.4	17.2	17.6	16.6	24.0
FIN	18.1	17.4	18.9	16.7	21.4	19.9	19.7	20.1	17.0	22.0

Source: ECHP (variable: PE039), UDB, version June 2003, wave 7 (2000).

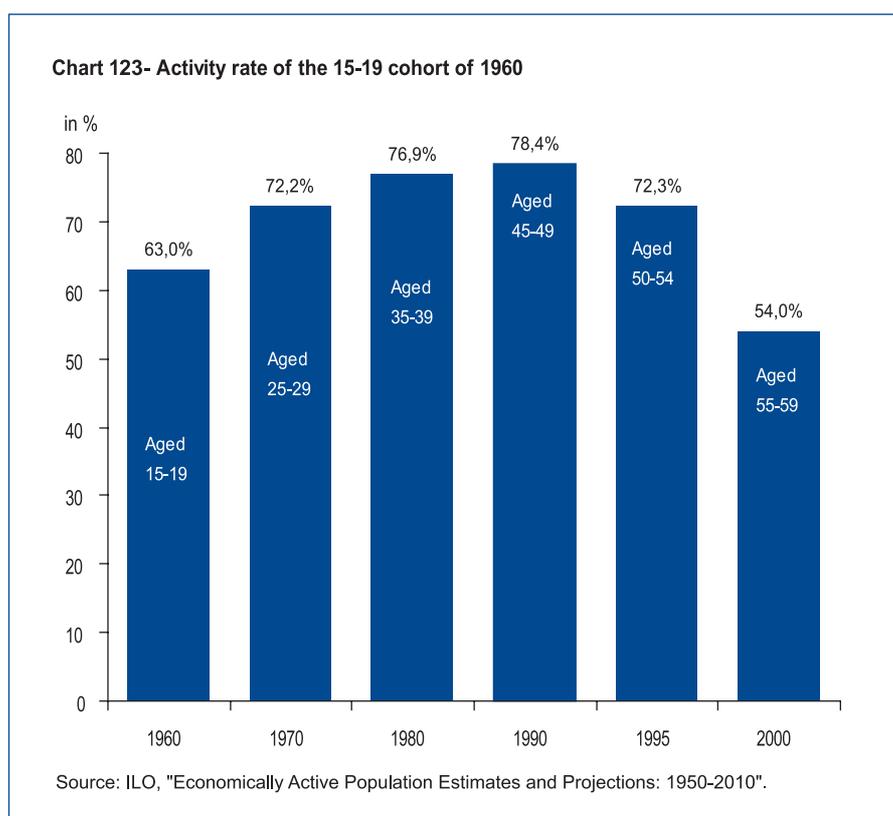
that the latter start working earlier than the former¹²⁵.

Low-skilled workers start working and withdraw from the labour force earlier than their high-skilled counterparts, but do today's low-skilled older workers – who are close to their average exit age from the labour force fairly represent the cohort of young workers back in 1960? If they do it would be possible to establish that these low-skilled workers have been in the labour force for as many, or possibly more, years than the high-skilled.¹²⁶

In 1960, the activity rate of the people aged 15-19 was as high as 63% (chart 123). Two issues should be highlighted. First, participation for this group then was as high as for prime age workers (the 25-54 age group). Secondly, all of these workers aged 15-19 were medium- and low-skilled.

Participation for the different groups of 15-19 year-olds has declined in the past 40 years. What is important to note, however, is that the activity rate of the 1960 15-19 cohort was high and that it increased all along as they grew older to the extent that 55-59 year-olds in 2000 had an activity rate of 57% which was not much below what they had 40 years earlier at the age of 15-19. While recognising that participation for this cohort also includes medium and high-skilled, it is evident that because activity rates for prime age workers have been on the rise, such high rates would not be possible without the low-skilled being part of it. The labour force of the 15-19 1960 cohort in 2000 (at the age of 55-59) represented as much as 80% of the labour force of this back in 1960.

The European Community Household Panel allows the average age at which people began their working-life to be calculated. The results show that among today's (2000) 55-64 year-olds, low-skilled workers were at work at the age of 18, three years earlier than their high-skilled counterparts. Country differences are large (some reflecting the existence of apprenticeship systems) but the difference is most marked for France where those with less than upper secondary education, the low-



skilled, started working-life eight years earlier than those who had completed tertiary education, the high-skilled (table 56).

At the EU level, about half the low-skilled aged 55-64 in 2000 began working before the age of 16 (chart 124). For the 35-44 year-olds of 2000, the proportion of low-skilled at work before the age of 16 was less than a quarter. Empirical evidence also shows that as years go by, and depending on country-specific ages of compulsory education, all educational groups started working life a bit later than before (although this is more marked for the high-skilled).

It is important to note that there are some high-skilled workers who have been active as early as some of the low-skilled. ECHP results show that as many as 13% of the high-skilled aged 55-64 in 2000 started their working life before the age of 16 – maybe by combining education with work. Thus, even though the bulk of people in employment before 16,

who are now close to exit age, are low-skilled, there are still a number of high-skilled workers who have been in the labour force for at least 40 years.

The evidence presented shows that while, at the EU level, the average exit age for the low-skilled is about three years below the high-skilled, this is compensated for by the fact that their working life also started three years earlier (chart 125). More importantly, one could even argue that low-skilled workers, on average, are in the labour force for a longer period than high-skilled workers. The 2001 estimates from the model suggest that low-skilled workers withdraw three to four years before the high-skilled. Given that compulsory education ends at the age of 15-16 and that completion of studies leading to tertiary education requires no less than four years (i.e. a progressive increase in the age of completion of tertiary studies), it is therefore reasonable to assume that the low-skilled spend more years of active life than the high-

¹²⁵ For the whole group of 15-24 year-olds in employment in 2001, 36% were low-skilled, 54% medium-skilled and only 10% were high-skilled. In terms of the population in the same age group (including inactive and unemployed), the shares were 49%, 44% and 7%, respectively.

¹²⁶ With the EU LFS it is not possible to quantify the number of years a person has been in employment before they withdraw from the labour force. The only available characteristic is related to time spent with the current employer. Also, because of lack of historical educational data (ISCED) in the EU LFS before 1992, some simple assumptions will have to be made to establish such a relation.

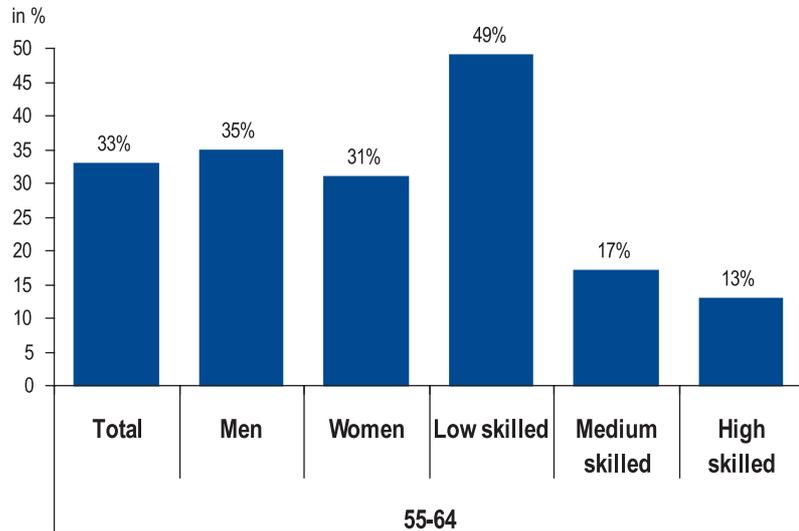
skilled before they definitively withdraw from the labour force. As the self-employed, which includes almost a quarter of all older workers aged 55-64, are more likely to remain active at higher ages than employees, those with low qualifications have probably spent the longest period of activity of all groups.

Different patterns in participation are not limited to the comparison between the high- and the low-skilled. Even among the latter, participation developments for the 15-19 cohort were different in 1960 and in 1992. As mentioned earlier, the activity rate of the 1960 15-19 cohort was more than twice the rate of the equivalent 1992 cohort. Both cohorts were mainly made up of low-skilled workers and participation increased in both although to a very different extent, due to contrasting starting levels. In 1970, the activity rate for the 1960 15-19 cohort (72%), at the age of 25-29, was almost as high as the activity rate of the 1992 15-19 cohort of low-skilled workers 10 years later in 2002 (77%), at the age of 25-29. This suggests that low-skilled workers of the beginning of the 1990s joined the labour force later than low-skilled workers 30 years earlier. The fact that the increase in participation for the former was much steeper than for the latter does not allow any conclusions to be drawn as to whether the 1992 cohort will withdraw later from the labour force. This will only be known in about 30 years from now. What it does clearly show is the *a priori* disadvantage of the 1960 15-19 cohort if the average exit age be pushed towards 65 by 2010 because of the high share of active aged 15-19 in the population back in 1960 compared to the comparable group of low-skilled workers of 1992.

Low-skilled workers are part of the economy and contribute importantly to the work of other skills groups. Labour force participation shall continue to increase as a necessary condition to reach the Lisbon targets. As most of the inactive are low-skilled, one could also expect an increase in the activity rate for this group, should the right conditions be there (i.e. removing obstacles for them to join the labour force as well as the existence of labour demand).

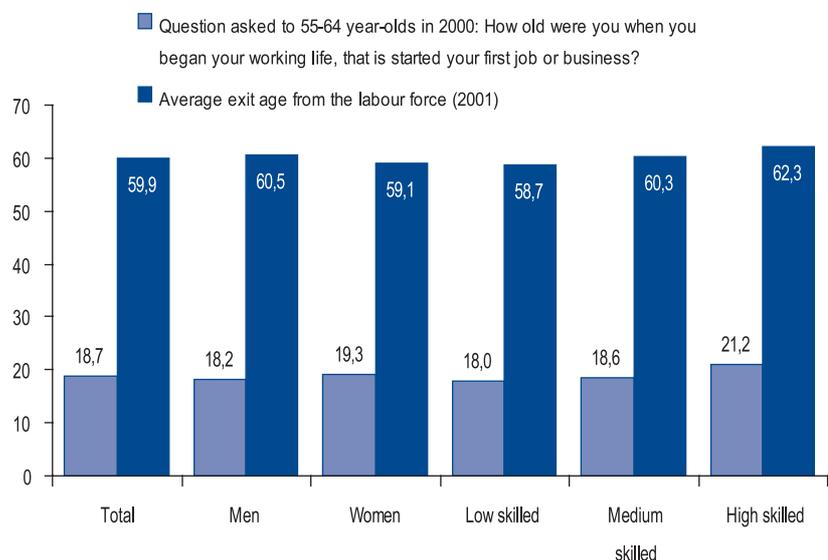
The apparent connection between today's (mainly) low-skilled older workers - whose average exit age was estimated at about 59 in 2001 - and the young workers of 1960 raises

Chart 124- Percentage of people aged 55-64 in 2000 that started working-life before the age of 16 (% in each category)



Source: Eurostat, ECHP (variable: PE039), UDB, version June 2003, wave 7 (2000).
Note: the chart refers to the EU.

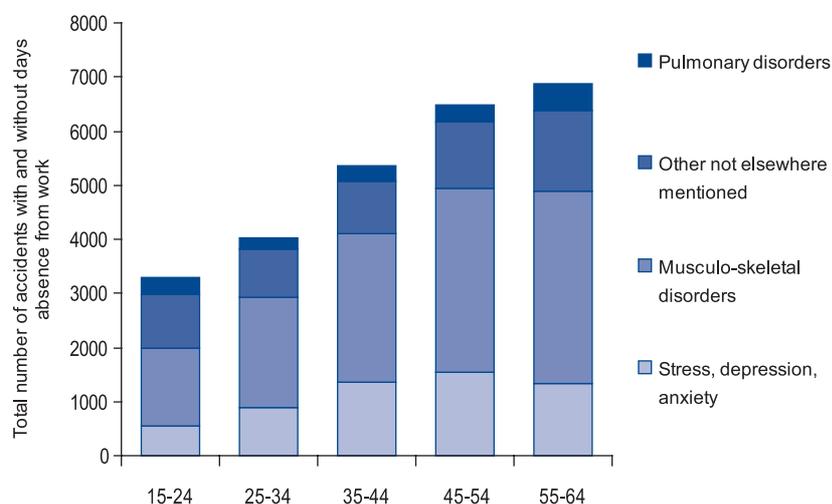
Chart 125- Relationship between starting and exiting active life by gender and educational attainment level in the EU



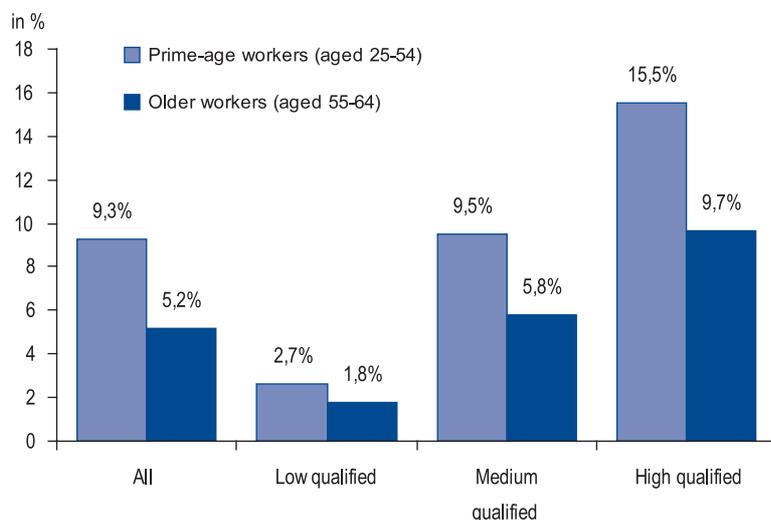
Source: Eurostat, ECHP (variable: PE039), UDB, version June 2003, wave 7 (2000).
Note: see annex 1 for the methodology underlying the calculation of the average exit age from the labour force.

other relevant issues. From an economic point of view it would be questionable to assume that increasing the average exit age to 65 by 2010 for all groups in an indiscriminate

way would have the same positive effect on raising productivity. Arguably, productivity would increase more if more high-skilled older workers are kept in the labour force

Chart 126- Standardised prevalence rate of work-related health problems by diagnosis group and age in the EU in 1999

Source: Eurostat, LFS, ad hoc module on Work-related health problems and accidental injuries 1999.
Note: In the chart, EU data cover all Member States except Belgium, France and Austria.

Chart 127- Percentage of older and prime-age workers in training by educational attainment level in the EU in 2001

Source: Eurostat, LFS, spring results.

Note: the reference group is the occupied population. High qualified refers to those who have completed tertiary education; medium qualified refers to those who have completed upper secondary education; low qualified relates to those with less than upper secondary education.

rate of work-related health problems increase with age (chart 126). A breakdown by occupational structure reveals that musculo-skeletal disorders mostly concern service workers and elementary occupations. In contrast, the incidence of stress-related health problems is more predominant for high-skilled, non-manual occupations. This is particularly important in the context of work organisation and working time flexibility. If quality concerns related to health are not taken into account, there could be an unwanted loss in labour productivity as a result of an expected increase in the number of working days lost. Moreover, and also partly because of the ageing of the labour force, the margin for the EU to meet the Stockholm and Barcelona targets will be squeezed and the objectives of higher employment and delayed withdrawals would be put at risk.

Finally, some national studies show that, in addition to sex and region, life expectancy also depends on the socio-professional characteristics of the individual as well as on their educational attainment levels. Those having completed tertiary education have a life expectancy above the average population, and therefore higher than the low-skilled, and also lower mortality rates (for the 45-64 age-class). Thus, the fact that the low-skilled exit earlier than the high-skilled from the labour force does not say anything about the length that both groups would spend in inactive life once they have withdrawn. It would therefore be inaccurate to say that the low-skilled will draw from public pensions for a longer period than the high-skilled.

Training and its relationship with the average exit age from the labour force

As shown earlier, participation and employment for older workers and average exit ages are higher the more “formally” qualified the person is. Initial levels of educational attainment cannot alone explain the average withdrawal from active life. Arguably, labour demand changes and the need for certain specific type of skills to adapt to new demand patterns becomes more important. Training in this context emerges as a powerful tool for

than low-skilled workers. Also, as low-skilled workers spend at least as long, if not longer, as the high-skilled in active life, raising their exit age to 65 would clearly extend their working life even further.

Another aspect of quality that is often overlooked is health. The 1999 ad-hoc module to the LFS on “work-related health problems and accidental injuries” shows that, adjusting for age and gender, the standardised prevalence

employers to increase the average productivity of their workforce. This is important for older workers, for whom evidence points to significantly lower training levels (5%) than for prime-age workers (chart 127). Only in the Nordic countries and the UK, does the share of older workers in training exceed 10%.

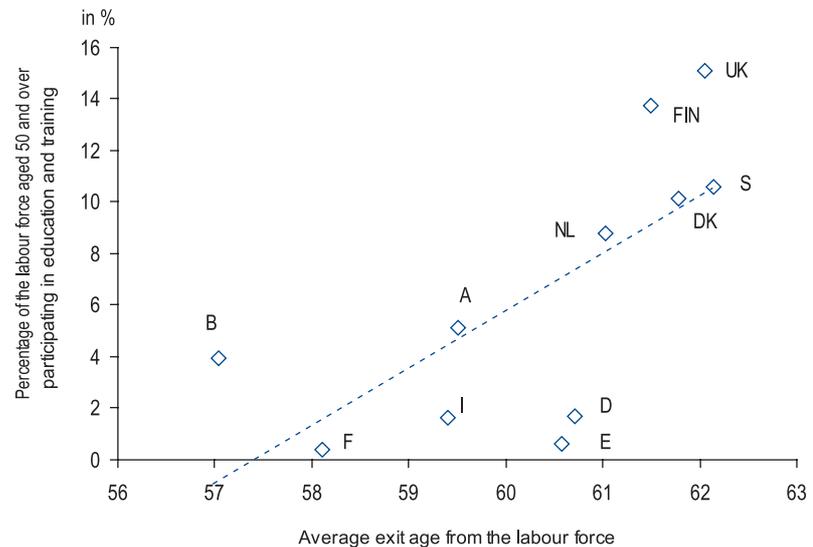
Moreover, the high-skilled receive more training than the low-skilled. According to the 2001 LFS, less than 2% of older workers aged 55-64 with at most upper secondary education received training in the four weeks preceding the survey. For older workers having completed tertiary education, the share was five times higher (about 10%).

One plausible explanation for the low level of training received by older workers could be the generally low average exit age from the labour force. There are some empirical signs to support this statement. For the majority of Member States, the share of workers above 50 in the labour force who are participating in education and training is greater where the average age of withdrawal from active to inactive life is higher (chart 128).¹²⁷

However, the causality could also go in the opposite direction (i.e. lack of training resulting in lack of marketable skills and lower demand for them). In fact, the graph raises two questions: are older workers staying longer in employment because training to meet demand for particular skills has increased their employability and productivity?; or, is training provided because employers do not expect an early withdrawal from the labour force of their employees and decided to invest in them foreseeing a longer pay-off time period?

Research¹²⁸ shows that ageing increases training efforts by employers for younger groups because they become numerically less important/costly (compared to older groups) rather than being imposed by the need to cope with hypothetical declining productivity in the future. It also shows that there isn't any significant increase in training efforts for older workers because retirement limits the time span pay-off period. Indeed,

Chart 128- Training and average exit age from the labour force in 2001



Source: Eurostat, LFS, spring results.

Note: data for Ireland, not available. Data for Greece, Luxembourg and Portugal, unreliable due to low sample size. In France, the information on training refers to the reference week only (instead of 4 weeks preceding the survey). Average exit age from the labour force, DG Employment and Eurostat. See annex 1.

reforms aimed at delaying the age at which older workers withdraw from the labour force into inactivity are likely to raise incentives for life-long learning.¹²⁹

There could be another reason that older workers receive less training than prime-age workers related to the higher job-mobility of the latter compared to the former (chart 129). Some of the underlying benefits in savings should show in lower recruitment and training costs for older workers. In 2001, almost 70% of older workers in the EU had been with the same employer for more than 10 years, compared to just above 40% for prime age workers. Moreover, less than 2% of older workers aged 55-64 already in employment were looking for another job, compared to more than 5% of prime age employees. It could be argued that lower job mobility (increased employment stability) and the consequent increase in the know-how of the employee could also have positive effects on their productivity, which in turn,

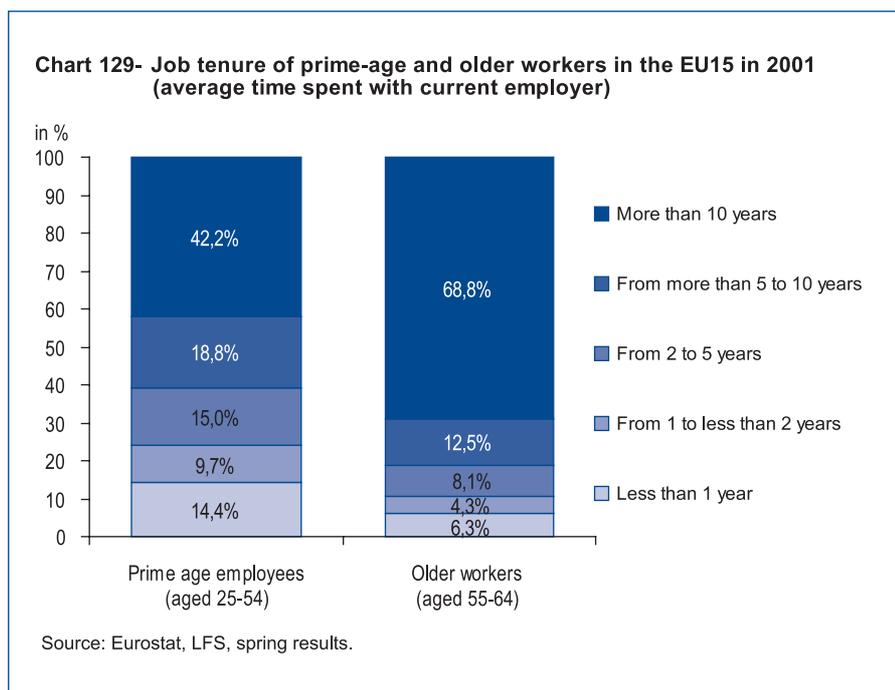
would diminish the need or justification for more training. Undoubtedly, more experience should lead to higher productivity, which, all other things being equal, could compensate for a lower training level.

There is no empirical evidence that older workers are more or less productive than other age groups. If they were less productive, then training should provide some of the tools needed to reverse the trend. The OECD's International Adult Literacy Survey (IALS) provides an important piece of empirical evidence to show the relationship between age, productivity and training. Its analysis suggests that literacy skills measured by the IALS are a key determinant of worker's productivity and that these skills improved with practice and deteriorated if not used. As a result, evidence proves that the productivity potential of older workers is not impaired by age but by skills obsolescence – something that can be corrected through training.

¹²⁷ The share of workers above 50 years of age in the labour force is used for comparability reasons with the average exit age from the labour force, for which the age-bracket refers to 50 to 70 years of age.

¹²⁸ "Ageing of the labour force: which implications for productivity, training or wages at a macro level?" Didier Blanchet, INED and INSEE.

¹²⁹ "Increasing employment: The role of later retirement". OECD Economic Outlook 72.



Furthermore, changes in labour supply will also affect future demand in some of these sectors. “Education” and “Health and social work” are particularly relevant in this respect. Demographic ageing is increasing the demand for “Health and social work”. Also, the need for more education will increase labour demand in this sector. In the long run, higher educational levels of the youth population will translate into higher participation in the labour force at more advanced ages, which should also lead to a higher employment rate. As discussed earlier, not only do many of the older population who are currently not in employment have relatively lower educational attainment levels but also those in employment with low qualifications withdraw from the labour force earlier than their higher skilled counterparts.

By combining cross-sectional data at five-year intervals using spring LFS data, one can identify developments in sectoral employment patterns for older workers during 1997-2002. The cohort of workers aged 50-54 in 1997 is followed five years later in 2002 (at the age of 55-59). Almost 30% of the employment decline in the 50-54 1997 cohort is accounted for by “Manufacturing”, followed by “Wholesale/retail trade”, “Transport” and “Public administration”. In addition to these, “Health and social work” and “Education” also declined quite significantly in absolute terms for the 1997 cohort of 55-59 year-olds (chart 132).

If the sector represents an important share of employment of older workers, the actual number of people leaving that sector as a percentage of the total number of older workers leaving is going to be higher than in sectors where their share is relatively smaller. Isolating the size-effect for the 50-54 1997 cohort, the same four large sectors (plus “Financial intermediation”) that account for the bulk of the number of exits in absolute terms are also at the top in relative terms. For the 55-59 1997 cohort, “Manufacturing”, “Construction” and “Financial intermediation” were the sectors where the employment decline was greater in relative terms. For both cohorts of workers, more than 80% of those who were not in

Sectoral employment structure for older workers

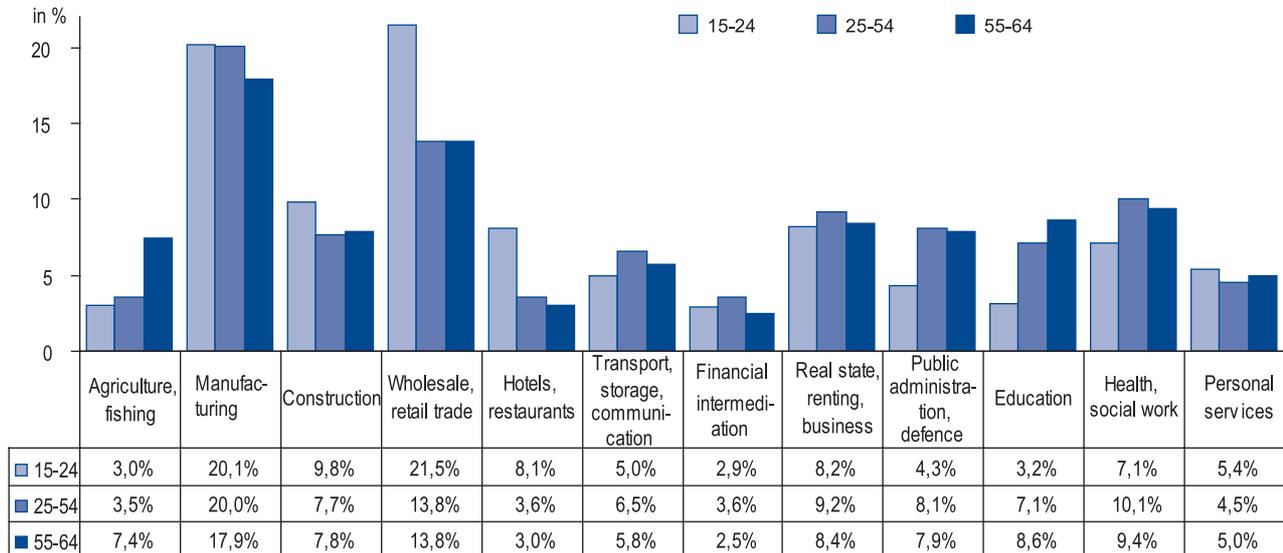
At the EU level, more than 7% of total employment for older workers (55-64) is accounted for by employment in agriculture (chart 130). While this age group has a share of about 10% of total employment in the EU, it accounts for as much as 20% of total employment in agriculture.

Older workers are not only over-represented in agricultural activities, they also unequivocally out-number other groups when it comes to their employment share in more knowledge-intensive sectors such as “Education”. There are significant differences in the sectoral pattern of employment of older workers across Member States but their specialisation in both “Agriculture” and “Education” seem to be common to all Member States with the exception of Greece and Portugal for the latter sector.

With the sole exception of “Agriculture”, older workers today are not clustered around declining sectors, at least at the EU level. Another claim lacking any empirical backing is that younger workers and older workers are substitutes¹³⁰. The fact that exits of older workers (55-64) and inflows of younger workers (15-24) do not occur in the same sectors suggests that this is not the case. Both changes in their specific sectoral employment structure as well as absolute growth rates over the past few years show that, although to a different degree, the positive or negative sign of employment change is generally the same for young and older workers - except for “Hotels and restaurants” (chart 131). Employment growth for older workers in most service sectors over the period 1997-2001 superseded that of prime age workers. More specifically, growth was comparatively stronger in “Financial intermediation”, “Real estate, renting and business activities”, “Education” and “Health and social work”. Clearly, these cannot be said to be declining economic activities.

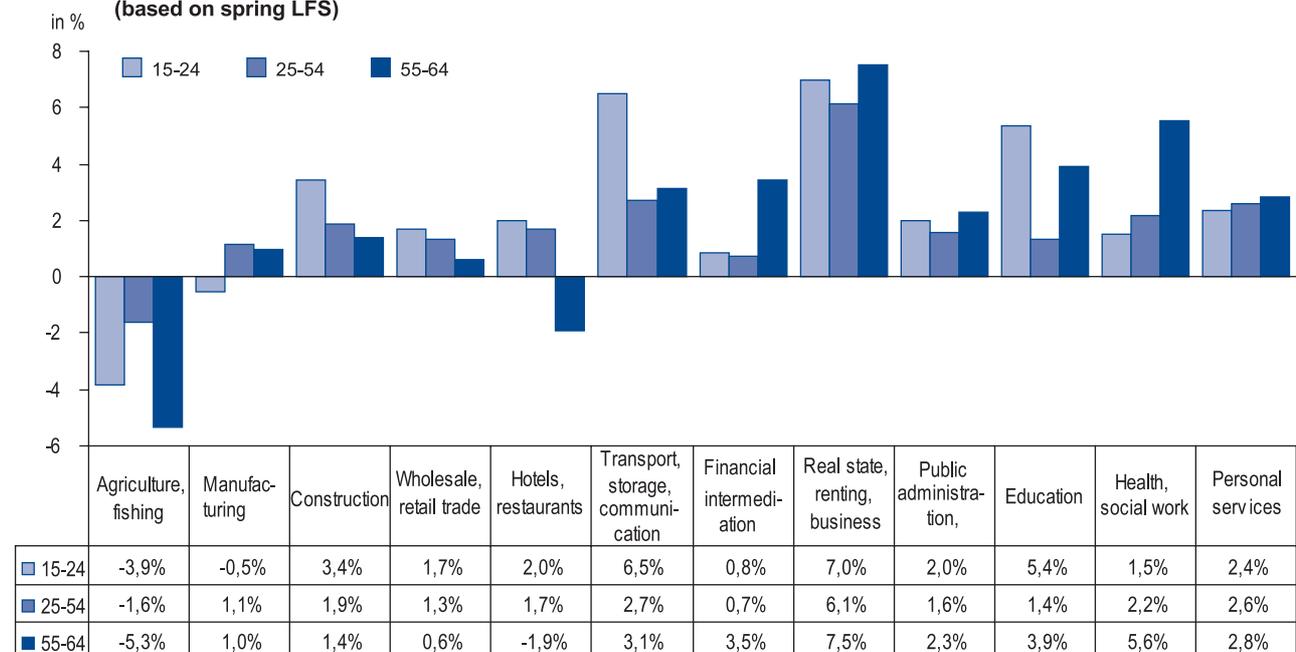
¹³⁰ In an address to the International Labour Conference, Geneva, 87th Session 15 June 1999 Mr. Amartya Sen, Nobel Laureate in Economics said: „There are many big issues to be faced in scrutinizing the proposals for revising the retiring age. That is a very big issue and I do not want to address it so off-handedly but I am just pointing out how conflicts are often seen when none might exist ... indeed, the combination of the gut reaction to the effect that the source of the problem of an ageing population is that the old cannot work with the gut reaction that the young must lose jobs if the older people did work is to provide a hopeless impasse which rides just on unexamined possibilities, based on a simple presumption of conflict that may or may not actually exist. I am afraid quite a lot of thinking on labour economics is really governed by presumption of conflicts which have not been thoroughly examined.“

Chart 130- Sectoral employment structure by sector and age in the EU in 2001
(% of employment in each age-group)

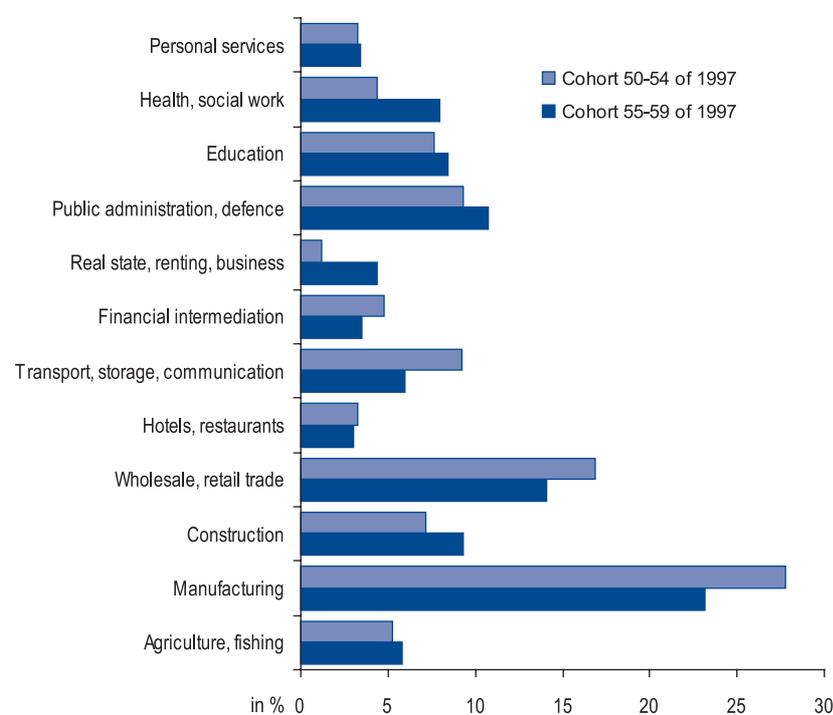


Source: Eurostat, LFS, spring results.

Chart 131- Annual employment growth by sector and age in the EU 1997-2001
(based on spring LFS)



Source: Eurostat, LFS, spring results.

Chart 132- Sectoral share in employment decline 5 years later by cohort

Source: Eurostat, LFS, spring results.

employment five years later had only upper secondary education or less.

As *Employment in Europe 2002*¹³¹ showed, economic restructuring has had a heavy impact on the labour markets in accession countries. While a significant increase in employment in services has been achieved, it has not yet been sufficient to fully compensate for the ongoing adjustment of the important agricultural and industrial sectors, which remain the main employers in the accession countries. With the exception of Cyprus and the Czech Republic, employment rates are generally below the EU's, and high unemployment is widespread in Bulgaria, Slovakia, Poland and Lithuania.

Low employment rates for older workers in many of the new Member States can be partly explained by the adjustment process within

agricultural and industrial activities. Restructuring in agriculture is expected to continue. Its importance in their economies remains significantly greater than for the EU¹³² and even more so for older workers. For the 10 accession countries as a whole, over 20% of employment of older workers is accounted for by agriculture (over a third for the accession countries) compared to 7% for the EU's older workers (chart 133).¹³³ Structural adjustment is likely to continue after membership as the high share of agricultural workers is not usually reflected in a proportionately higher share of gross value-added, with productivity levels very much below the EU's.

The service sector has been the main driving force for job creation in accession countries, although there is still great potential for increasing employment in services to levels comparable to those of the EU. Increasing

wealth should lead to higher demand for services such as financial and business activities, hotels and restaurants and social services. It can also be expected that, as in the EU, more demand in services will also come from increases in female participation and population ageing, which will stimulate demand for care provision, recreational activities and health care.

Conclusions

The population of the EU is ageing rapidly. Employment among older peoples is low and improvements in the employment rate have been modest to date. Moreover, many withdraw from the labour force at relatively early ages. Since the late 1970s Europe has witnessed a stark reduction in participation of older workers leading to an artificial rejuvenation of the labour force despite an increase in the median age of the total population. Currently, the ageing of both the total population and the active population moves in the same direction.

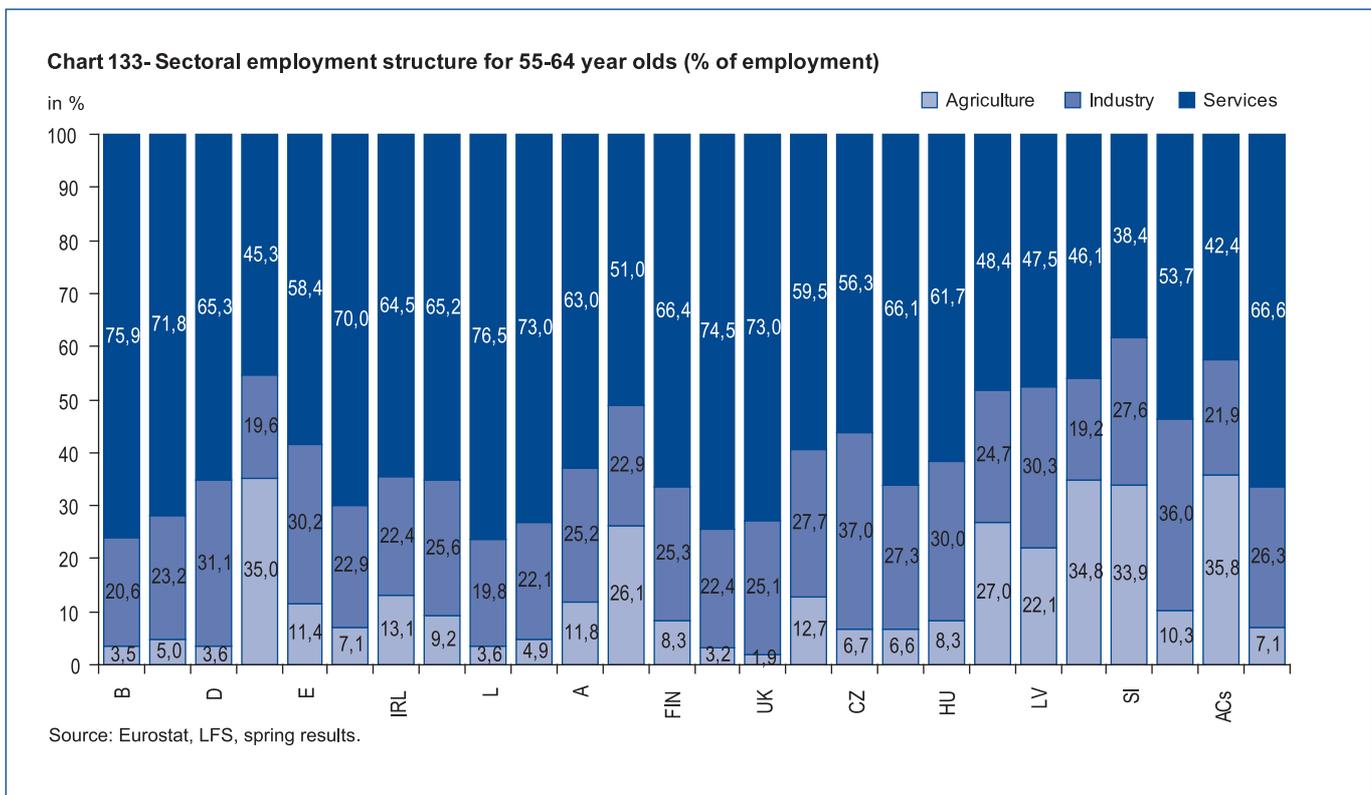
As the baby boomers generation reach retirement age, the number of workers leaving the labour force and going into retirement will increase markedly over the coming years. This, together with low fertility rates, below the level necessary for the replacement of generations, and increasing life-expectancy, will negatively affect the Member States' ability to finance pension and health care systems as well as increase their cost. These features are also putting pressure on those in employment to be more productive in order to maintain rising living standards for the whole population.

In a context where people live for 20 years after withdrawing from active life, increasing participation/employment will become crucial. To address these issues, The EU has set itself two important objectives: to increase the employment rate of older workers to 50% by 2010 (Stockholm target) and to delay by five years the age at which older workers withdraw from the labour force by 2010 (Bar-

¹³¹ <http://europa.eu.int/comm/employment_social/employment_analysis/employ_en.htm>

¹³² Moreover, in many central-eastern accession countries the importance of the industrial sector is also greater than that in the EU. Despite the dynamism of manufacturing in recent years overall net job creation has been subdued or negative because contraction in some sub-industries outweighed the employment gains in others.

¹³³ Also, one of the particular differences between some of the accession countries and the EU is employment above the age of 65 and the large numbers of older workers working in agriculture, particularly self-employed and family workers. In the EU there is a large number of agricultural workers above 65, but the service sector remains the main employer.



celona target). The employment rate for older workers in the EU15 stood at 40.1% in 2002 (50.1% for men and 30.5% for women). The average exit age from the labour force was 59.9 years in 2001 (60.5 for men and 59.1 for women). The March 2003 European Council concluded that working longer represents an important way of increasing employment rates in general and, thus, a major contribution to improving the financial sustainability of pension systems.

Because of the strong projected increase in the population of the age-group 55-64, meeting the Stockholm target for the EU15 would require an increase in employment of older people of about 7 million between 2002 and 2010 (900,000 a year). Although evidence suggests that 2002 showed a marked improvement in employment for older workers, between 1997-2001 the EU only managed an increase in employment of older people of about 250,000 a year. About half of this increase was accounted for by part-time jobs.

The employment rates for older workers in acceding countries (at around 30%) are generally much lower than in existing Member States (40%). Moreover, disparities

in the employment rate between those who have completed tertiary education (56%) and those with less than upper secondary (19%) are stark. Older workers in acceding countries also withdraw earlier from the labour force than in most of the existing EU Member States. Because labour force participation continues to decline their average exit age from the labour force, which is currently below the EU's, is likely to fall further. Life expectancy is also lower than in the EU. While acceding countries generally have younger populations compared to the EU, these are ageing more rapidly.

The employment rate for high-skilled older workers aged 55-64 was twice as high (61%) as for the low-skilled (31%). Low-skilled older workers also leave the labour force earlier (about three years) than their high-skilled counterparts. At the EU15 level, the average exit age for the high-skilled was estimated at 62.3 years in 2001. For medium-skilled it was estimated at 60.3 years and for low-skilled workers at 58.7 years. This is due not to a shorter, more compressed employment career for the low-skilled but rather to a working life that starts a few years earlier than for the high-skilled.

Evidence shows that among today's 55-64 year-olds, low-skilled workers were at work at the age of 18, three years earlier than their high-skilled counterparts. At the EU level, about half of today's low skilled older workers began working before the age of 16. Results also show that even though the bulk of people who started to work before 16, and who are now close to exit age, are low-skilled, there are still a number of high-skilled workers who have been in the labour force for at least 40 years.

Older workers today are not clustered around declining sectors. They are also over-represented in knowledge-intensive sectors such as education. Moreover, sectoral employment growth for young and older workers, as well as changes in their specific employment structure, move in the same direction, which suggests that they are not employment substitutes but rather complement each other.

In addition to reforming early retirement schemes and ensuring that it pays to remain active in the labour market, this chapter has looked into three important elements highlighted in the new Employment Guidelines.

Firstly, evidence suggests that work-related health problems increase with age. Musculo-skeletal disorders mostly concern service workers and elementary occupations, whereas the incidence of stress-related health problems is more predominant for high-skilled, non-manual occupations. This underlies the importance of measures to improve working conditions and to pay more attention to health and safety in the workplace.

Secondly, the increase in employment of older workers in the past years is related to higher incidence of part-time work. At the EU level, part-time work among older workers increased at an annual rate of over 4% compared to just 1% for full-time employment. Half the employment creation for older workers during 1997-2001 is accounted for by increases in part-time employment. This has also led to an increase in the share of 55-64 year-olds in part-time work, currently representing about 22% of their total employment. This indicates that promoting more flexible working time arrangements may be a better way of striking a balance between work and private life which is more in line with the needs of older people.

Thirdly, the chapter provides evidence that older workers receive less training than prime-age workers. Also, low-skilled older workers account for lower training levels than high-skilled older workers. There is a relationship between workers staying longer in the labour force and training provision. Generally, the higher the average exit age into inactivity, the higher the shares in education and training for the labour force of older workers. The cause-effect in this relationship is not clear. On the one hand, older workers may remain in the labour force because training to meet demand for particular skills has increased their employability and productivity. In this case, measures aimed at increasing training would have a positive effect in keeping older workers longer in the labour force. On the other hand, evidence also suggests that the reason older workers receive less training is because employers know that they will not be in the labour force long enough to benefit from the expected productivity increases. In this case, reforms aimed at delaying the age at which older workers withdraw from the labour force into inactivity are likely to raise incentives for life-long learning. This suggests that measures aimed at increasing both

training for the older population and keeping them longer in the labour force would need to go together.

Finally, there is no empirical evidence that older workers are more or less productive than other age groups. OECD analysis also shows that the productivity potential of older workers is not impaired by age but by skills obsolescence – something that can be corrected through training.

Annexes to chapter 5

Annex 5.1 – Methodology “average exit age from the labour force”¹³⁴

The input data

Starting points are the activity rates per age and year coming from the EU quarterly Labour Force Survey (Eurostat). The activity rates taken into consideration are the average over four quarterly observed rates in the year considered. ‘Spring’ data (quarter 1 or 2) are used in case EU-LFS data is not available for all quarters. The data quality (sample sizes) for higher ages in some countries makes it necessary to smooth artificially the decline of activity rates linearly from age 65 to age 70 so that at age 70 the active population in terms of the model is zero (linear “melt-away” hypothesis). In such cases, it is also necessary to consider the moving average over the ages 64-66 instead of the actual activity rate at 65.

The model

The model considers the relative changes of activity rates from one year to another at a specific age, that is, the conditional probability to stay in the labour market at a specific age in a specific year:

$$(1) \quad p_{age,year}^{stay} = a(age, year) / a(age - 1, year - 1); \quad 0 \leq p_{age,year}^{stay} \leq 1$$

In cases where the relation given in (1) would exceed 1, a 100% probability to stay on the labour market is assumed in order to keep the counter probability of not staying in the labour market from being negative.

Consequently, the conditional probability not-to-stay on in the labour market at the age specified is:

$$(2) \quad p_{age,year}^{not-stay} = 1 - p_{age,year}^{stay}$$

The probability of still being in the labour market at a certain age is equal to the overall probability of staying in the labour market from the theoretical starting age up to the age specified (minus one). In terms of the model, the starting age is set to 50 years: it is assumed that up to the age of 49 years nobody will have left the labour force. The unconditional probability to be still in the labour market at a certain age (for example, 64) is then:

$$(3) \quad p_{64,year}^{be} = p_{50,year}^{stay} \cdot p_{51,year}^{stay} \cdot p_{52,year}^{stay} \cdot p_{53,year}^{stay} \cdots p_{62,year}^{stay} \cdot p_{63,year}^{stay}$$

Finally, the unconditional probability of withdrawing from the labour market at a certain age is equal to the overall (unconditional) probability of still being in the labour market at this age, see equation (3), times the conditional probability of exiting from the labour market at this particular age, see equation (2):

$$(4) \quad p_{age,year}^{be-but-not-stay} = p_{age,year}^{be} \cdot p_{age,year}^{not-stay}$$

It is assumed that from a certain age, the probability of still being part of the labour force is zero (no labour force for the age 70 years and over). That is, at the maximum age of 70, everybody who is still in the labour market will withdraw. Under this assumption, the age-specific unconditional probabilities of withdrawing from labour market $p_{age,year}^{be-but-not-stay}$ from 50 to 70 will add up to 100%.

Finally, in order to obtain an overall average age of withdrawal, the specific ages are weighted by their probability of withdrawal at these ages. The contribution of each age from 50 to 70 is given by

$$p_{age,year}^{be-but-not-stay} \cdot \text{age}$$

Summing up over all ages considered leads to the average age of withdrawal from the labour market

$$(5) \quad \sum_{age=50}^{70} p_{age,year}^{be-but-not-stay} \times \text{age}$$

¹³⁴ The methodology to calculate an average age of withdrawal based on changes in participation rates (dynamic approach) is described in the OECD-paper “Labour market and social policy – occasional papers No. 49 Age of withdrawal from the labour force in OECD countries”, by Peter Scherer, DEELSA/ELSA/WD(2001)2, 11 January 2002. The formal description can be found on the pages 12 - 14. The approach is modified so as not to take five-year-age clusters but to consider single ages.

Annex 5.2 – Consistency between the Stockholm and Barcelona targets

The average exit age from the labour force is based on a probability model that considers the relative changes in activity rates (from the quarterly LFS) for single-year cohorts from one year to another. As said earlier, the model assumes that the probability of remaining in the labour force at the age of 49 is 100% as the active are modelled to withdraw only from the age of 50 onwards and the probability of being in the labour force at the age of 70 is 0% as no active are assumed to be left in the labour force at the age of 70.

Generally speaking, if the activity rate for a specific cohort at a specific age goes up, then the probability of that cohort staying in the labour force increases and, consequently, the probability of it leaving at that age goes down. This increases the probability of withdrawal from the labour force at a later age (table 57).

By way of illustration, sensitivity analysis will show how the average exit age from the labour force relates to the employment rate of older workers. The actual methodology to calculate the former can be found in annex 1. Data for the years 2000 and 2001 are used for the calculation of the average exit age from the labour force in 2001 for the individual cohorts aged between 50 and 70 in 2000. The performance of the 2000 cohorts led to an average exit age of 59.9. The scenarios presented below show how the model would react to changes in the activity rate of specific 2000 cohorts one year later in 2001, while keeping unchanged the activity rates of the remaining cohorts. For simplicity reasons, the increase in the activity rate will be applied to the 2001 age group as if they represented the 2000 cohort one year later. Changes in participation for four age groups will be considered: 50-54, 55-59, 60-64 and 65-69. The first and the last represent the lower and upper boundaries of the average exit age from the labour force although they have been aggregated to age-classes of five years (instead of single years) for the purpose of the exer-

cise. The two middle age groups are common to both indicators (i.e. the employment rate of older workers and the average exit age from the labour force).

1) An increase of 1 percentage point in the activity rate of each of the five age classes of the group of 50-54 year-olds is assumed for the year 2001.

Because of this change, the conditional probability of 50-54 year-olds staying in the labour force goes up. This has not affected the conditional probability for those above 54 staying active, which remains unchanged. As a mirror image, the probability of the 50-54 group not staying active and becoming inactive falls by the same degree. The unconditional “cumulative” probability of still being active goes up for the 50-54 year-olds as well as for the other three groups up to the age of 70. The unconditional probability of being in the labour force at a specific age but to withdraw from it at that age is the product of the unconditional probability not having withdrawn before that age and the conditional probability of being

Table 57 – Steps for the calculation of the average exit age from the labour force in the EU15 in 2001

Age / Year	Activity rate data		Conditional probability to stay		Conditional probability NOT to stay		Unconditional probability to be still in the labour force		Unconditional probability to be still in the labour force but to leave		Average exit age from the labour force	
	2000	2001	Age / Year	2001	Age / Year	2001	Age / Year	2001	Age / Year	2001	Age / Year	2001
48	82.3	82.0	48		48	0.0%	48	100.0%	48		48	
49	80.5	80.6	49	100.0%	49	0.0%	49	100.0%	49	0.0%	49	0.00
50	79.0	79.3	50	98.5%	50	1.5%	50	98.5%	50	1.5%	50	0.76
51	78.0	78.2	51	98.9%	51	1.1%	51	97.4%	51	1.0%	51	0.53
52	75.8	76.2	52	97.7%	52	2.3%	52	95.2%	52	2.2%	52	1.14
53	73.5	73.3	53	96.7%	53	3.3%	53	92.1%	53	3.1%	53	1.65
54	69.8	70.2	54	95.5%	54	4.5%	54	87.9%	54	4.1%	54	2.22
55	66.6	65.1	55	93.2%	55	6.8%	55	81.9%	55	6.0%	55	3.27
56	62.0	62.3	56	93.4%	56	6.6%	56	76.5%	56	5.4%	56	2.98
57	58.7	57.8	57	93.1%	57	6.9%	57	71.2%	57	5.3%	57	2.99
58	53.0	53.0	58	90.4%	58	9.6%	58	64.4%	58	6.9%	58	3.95
59	47.1	48.3	59	91.2%	59	8.8%	59	58.7%	59	5.7%	59	3.33
60	33.0	35.6	60	75.6%	60	24.4%	60	44.3%	60	14.3%	60	8.53
61	27.6	27.8	61	84.3%	61	15.7%	61	37.4%	61	7.0%	61	4.21
62	24.1	24.3	62	88.1%	62	11.9%	62	32.9%	62	4.4%	62	2.74
63	19.4	19.8	63	82.0%	63	18.0%	63	27.0%	63	5.9%	63	3.70
64	16.3	16.4	64	84.5%	64	15.5%	64	22.8%	64	4.2%	64	2.66
65	9.4	9.7	65	59.6%	65	40.4%	65	13.6%	65	9.2%	65	5.95
66	7.3	7.3	66	78.4%	66	21.6%	66	10.7%	66	2.9%	66	1.93
67	6.0	6.4	67	87.4%	67	12.6%	67	9.3%	67	1.3%	67	0.89
68	5.2	5.4	68	90.4%	68	9.6%	68	8.4%	68	0.9%	68	0.60
69	4.5	5.1	69	98.3%	69	1.7%	69	8.3%	69	0.1%	69	0.10
70	3.7	3.9	70	0.0%	70	100.0%	70	0.0%	70	8.3%	70	5.75
71	3.4	3.6	71	0.0%	71	100.0%	71	0.0%	71	0.0%	71	0.00

Source: average exit age from the labour force, methodology, DG Employment and Eurostat. See annex 1.

inactive at that age. The former has increased from the age of 50, the latter only fell for the 50-54 year olds. The product, therefore, is lower for the 50-54 group but higher from age 55 upwards. Because the unconditional probability of the active aged 50-54 leaving the labour force is lower now, the probability of the active aged over 54 entering inactivity (at a later age) is higher. As the probability of leaving the labour force from 55 onwards has increased the average age of withdrawal into inactivity also rises.

Because the increase in participation occurs for the 50-54 year-olds, the resulting higher average exit age has not led to a higher employment rate for those aged 55-64, which remains unchanged.

2) The activity rate for each of the five individual ages of the group 55-59 is increased by 1 percentage point.

The conditional probability of staying in the labour force for 55-59 year-olds goes up but the conditional probabilities of the age groups 50-54 and 60 and above staying active remain unchanged. The probability of the 55-59 group becoming inactive falls. The unconditional cumulative probability of still being active goes up from the age of 55, both for 55-59 year-olds and for those aged 60 and over. Because the unconditional probability of the active aged 50-54 leaving the labour force has not changed and the probability of 55-59 year-olds becoming inactive has gone down, then the probability of the active over 59 year-old going into inactivity at a later age is higher. This leads to an increase in the average exit age from the labour force.

Because the increase in participation occurs for the 55-59 year olds, a higher average exit age is also translated into a higher employment rate for those aged 55-64, assuming that not all of the increase in the activity rate is explained by an increase in the unemployment rate.

3) The activity rate for each of the five individual ages of the group 60-64 increases by 1 percentage point.

The conditional probability of 60-64 year-olds staying in the labour force has gone up but the conditional probabilities of the 50-54, 55-59 and 65-69 staying active remain unchanged.

The probability of the 60-64 year olds becoming inactive falls. The unconditional cumulative probability of still being active increases from the age of 60, both for 60-64 and 65-69 year-olds. Because, the unconditional probability of withdrawing from the labour force has not changed for 50-59 year-olds and the probability of becoming inactive has gone down for 60-64 year-olds, then the probability for the active aged at least 65 going into inactivity at a later age is higher. This leads to an increase in the average exit age from the labour force.

Because the increase in participation occurs for the 60-64 year-olds, a higher average exit age and a higher employment rate for older workers (in the 55-64 age group) are complementary if some of the increase in the activity rate feeds through into an increase in the employment rate.

4) The activity rate for each of the five individual ages of the group 65-69 increases by 1 percentage point.

The conditional probability of 65-69 year-olds staying in the labour force goes up but the conditional probabilities of staying active below 65 (50-54, 55-59 and 60-64) remain unchanged. The probability of the 65-69 year-olds becoming inactive falls. The unconditional cumulative probability of still being active increases from the age of 65. Because, the unconditional probability of withdrawing from the labour force has not changed for 50-64 year-olds and the probability of becoming inactive for 65-69 year-olds has gone down, then the probability of the active above 69 going into inactivity at a later age is higher. This basically forces everyone to leave the labour force at the age of 70 (also one of the assumptions of the model) and leads to an increase in the average exit age.

For clarity reasons aggregations of five-year groups have been used. In reality, the increase of 1 percentage point for 65 year-olds also increases the probability of leaving the labour force above that age, and so on with 66, 67, 68 and 69 year-olds. The increase for each of these individual weightings will also increase the overall average exit age.

Because the increase in participation occurs for the 65-69 year-olds, a higher average exit

age does not lead to a higher employment rate for older workers in the 55-64 age group.

If instead of an increase of 1 percentage point for each of the age classes a 1 percentage point reduction in the activity rates was simulated, then the average exit age would go down in all four cases. Assuming that participation and employment move in the same direction, the employment rate of older workers (those aged 55-64) would also decline in the second and third case.

The same four age groups (50-54, 55-59, 60-64, 65-69) can be considered to simulate the effect on the average exit age and on the employment rate that results from both positive and negative changes in activity. Because of the numerous combinations that are possible, just two additional cases will be considered.

5) The single age activity rates increase by 1 percentage point for the 50-54 group and decline by 1 percentage point for the 60-64 group.

The conditional probability of staying in the labour force for 50-54 year-olds increases and the conditional probability of the 60-64 year-olds being active falls. For the other two groups (55-59, 65-69) it remains unchanged. The unconditional cumulative probability of being active goes up from the age of 50 and the probability of not staying active falls for the group 50-54 (as in case 1). In parallel, the probability of not staying active increases for the group 60-64, despite the increase in the overall cumulative probability of being active from the age of 50 that overlaps the group 60-64. The positive or negative sign of the change in the average exit age will be determined by whichever of these effects is stronger. The increase at the lower boundary is stronger because the cumulative increase in the unconditional probability of leaving the labour market after 54 (from 55) outweighs the increase in the conditional probability of leaving at the age 60-64 as well as the fall in the unconditional probability of leaving at a later age. Consequently, the average exit age increases.

Despite the overall increase in the average exit age, the employment rate of older workers aged 55-64 goes down, since participation falls for 60-64 year-olds and remains unchanged for the 55-59 group.

6) The activity rates of the single age classes of the group 55-59 increase by 1 percentage point and those of the groups 60-64 and 65-69 go down by 1 percentage point.

The conditional probability of staying in the labour force for 55-59 year-olds goes up and for the 60-69 group falls. The unconditional cumulative probability of still being active goes up from the age of 55 (as in case 2), both for 55-59 year-olds and for those aged 60 and over (overlapping the 60-69 year-olds). Because the unconditional probability of being inactive for 55-59 year-olds has gone down, then the probability for the active above 59 (from 60) going into inactivity at a later age is higher. In parallel, because the conditional probability of leaving the labour force for 60-69 year-olds has increased, the unconditional probability of withdrawal at a later age has fallen. In this particular case the fall at the upper boundary for each of the single age-cohorts between 60 and 69 outweighs the 1 percentage point increase for 55-59 year-olds, leading to a decline in the average exit age.

Despite the overall decline in the average exit age, the employment rate of older workers goes up, since the increase of 1 percentage point in the activity rate of 55-59 year-olds more than offsets the decline in the activity rate of 60-64 year-olds as they are still numerically more important.

Different scenarios have been made to illustrate how the average exit age from the labour force and the employment rate of older workers relate one to the other. If participation increases, the employment rate of older workers (55-64) will also increase if unemployment does not fully explain the change in participation (i.e. if higher/lower activity rates go hand-in-hand with higher/lower employment rates). The results would also seem to show that the change in the average exit age from the labour force will be positive if participation increases across all single age cohorts and it will be negative if it declines in all single age cohorts. If the activity rate falls in some cohorts but increases in others, the overall effect is more unpredictable although the model can explain the relative contributions of each of them in determining the average age of withdrawal.

The conclusions from this analysis, however, would only pertain to the performance of the

2000 cohorts over time. As stated earlier, the average exit age from the labour force in 2001 refers to the performance of the 2000 cohorts in 2001. The average exit age in 2002 would refer to the performance of the 2001 cohorts in 2002. In dynamic terms, to determine whether the exit age will increase or decrease in 2002 what matters is the relative performance of two different cohorts: those of 2001 compared with those of 2000. That is, the interest lies in how much better, in terms of delaying exits into inactivity, will perform the 2001 cohorts compared to the 2000 cohorts and not in the performance of the 2000 cohorts two years later in 2002. Participation tends to decrease steadily from about the age of 50. If the expected natural fall in the activity rate of the 50-70 cohorts of 2001 is less strong/steep than for the cohorts of 2000, then the average exit age should increase.

The relationship with the employment rate of older workers is not simple. Let's assume an increase in participation for the age group of 55-64 year olds between 2001 and 2002 and that this is fully absorbed by an increase in the employment rate. For the Stockholm target, this means that the number of 55-64 year olds employed in 2002 relative to their population is higher than the number of 55-64 year olds employed in 2001 relative to theirs. This increase in the employment rate of older workers would translate into a positive change in the average exit age if the performance of the 2001 cohorts resulting from the increase in the activity rate of the 55-64 age group between 2001 and 2002 was better than for the 2000 cohorts one year earlier. One should not forget that that the average exit age will also depend on the relative performances of the 50-54 and 65-69 cohorts of 2000 and 2001 and to what extent these do not offset the relative performance of the 55-64 cohorts.

At the EU level, age specific activity rates are increasing. The activity rate of 55-64 year olds was lower in 2000 than in 2001, and in 2001 was lower than in 2002. The same applies to the employment rate. These developments, however, do not necessarily lead to an increase in the average exit age from the labour force. The Stockholm target relates to increasing employment for the age-specific group of 55-64 year olds over time. The Barcelona target relates to the comparison of relative performance of different cohorts in terms of slowing down the natural reduction in their

activity rate as they grow older (i.e. delaying exits).

Chapter 6 Immigration and employment in the EU

Introduction

Due to demographic and economic imbalances between the North and South, more sustained immigration flows are likely. They may help reduce the labour shortages that are already noticeable in the EU, due to changing demographics and skills structures, and contribute to spreading the effects of the demographic change between 2010 and 2030 over a longer period of time.

The relationships between immigration, integration and employment was examined by the Commission in a recent Communication¹³⁵ (box 9). At its Thessaloniki session of June 2003, the European Council discussed this Communication. It stressed the need to explore legal means for third country nationals to migrate to the Union, taking into account the reception capacity of the Member States, within the framework of an enhanced co-operation with the countries of origin which would prove beneficial for both sides. It also called for an accurate and objective analysis of these issues, which should help develop and promote policy initiatives for more effective management of migration in Europe. The present chapter is a first response to the analytical requirements expressed by the European Council.

Immigration trends in the EU

One of the widely documented trends in migration in the post-war period is the growth of immigration in the reconstruction years and during the period of strong economic growth. Immigrants were recruited abroad through targeted schemes and bilateral agreements – often with countries related with the host country through historical links – to work in industries for which a sufficient number of

nationals could not be recruited. This type of labour immigration is generally considered to have stopped after the oil crises in the 1970s.

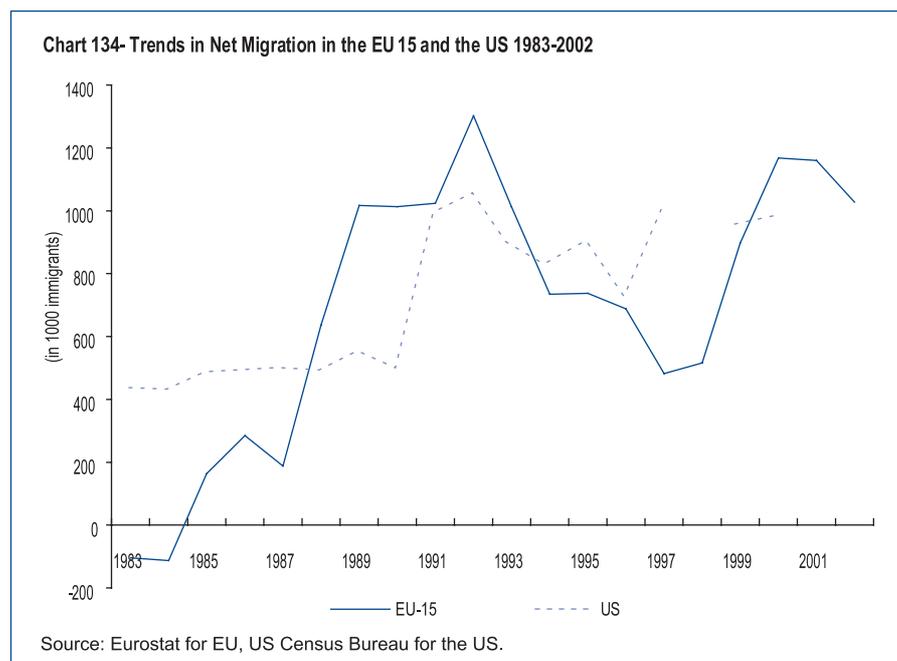
More recently labour migration has again attracted a lot of attention. An important distinction to make between the first post-war immigration surge and that of recent years is that countries in southern Europe which were among the source countries from where labour was recruited are now among the group of European countries that contemplate facilitating labour immigration.

One of the reasons why the issue of labour immigration is particularly sensitive is that the intended schemes devised for the return of labour immigrants from the post-war influx did not work as planned. Many labour immigrants stayed in Europe and their families joined them. Family reunion, also called secondary migration, has contributed strongly to immigration into the EU in the last two decades. The major part played by

secondary migration over other types of immigration (examined in more detail below) has led many countries to impose a variety of restrictions.

Chart 134 illustrates how immigration of foreign nationals into the EU area increased steadily over the 1980s to reach an absolute annual level of immigrants higher than that of the US. The fall of the Iron Curtain spurred immigration and caused immigration flows that in some countries reached peaks unequalled to this day. In Germany, for example, immigration in 1992 was almost two times as high as in 2001.

Efforts by some countries to control immigration in the 1990s met with some success despite a rebound in the latter part of the decade. This upsurge appears much stronger in some countries, for example Belgium, Italy, the Netherlands and the UK, than in others, such as France, Germany and Luxembourg.



¹³⁵ Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on immigration, integration and employment, COM(2003)336, 03.06.2003

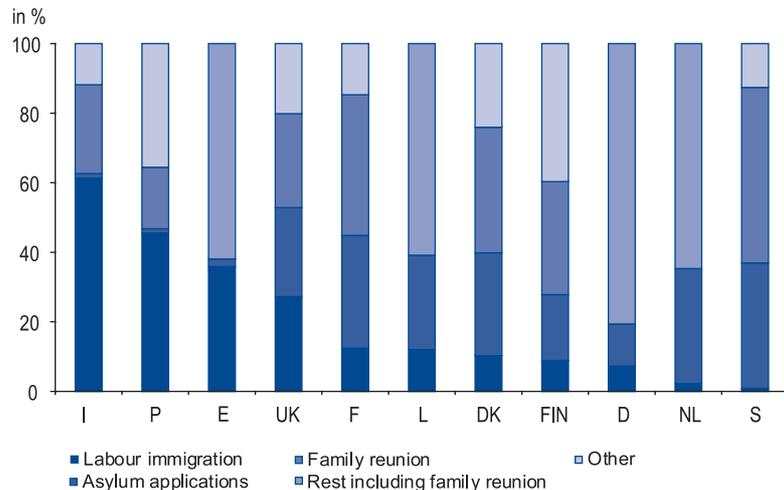
For a significant part at least, the sharp increase in immigration in Greece, Portugal and Spain can be accounted for by the unprecedented regularisation campaigns involving more than 1.5 million people in just a few years.¹³⁶ Greece dealt with 722,000 illegally employed immigrants on its territory in two naturalisation rounds between 1997 and 2001. Over the same period Spain regularised 302,000 illegal immigrants and Portugal 142,000. These countries are not alone, however, in organising large-scale amnesties. Italy added 462,000 people to its stock of legal immigrants between 1996 and 1998. Belgium and France also organised regularisation campaigns between 1997 and 2000 affecting 52,000 and 78,000 people respectively.¹³⁷

The increase may, therefore, possibly be a statistical artefact. The number of immigrants on the territory would not have increased, but the regularisation would have been reflected in national migration statistics. As illegal immigrants are mainly low-skilled, such large scale regularisation rounds imply some acceptance of an immigration structure that may not correspond to the immigration policy as defined by the Member States concerned.

The key components of immigration are immigration for employment, family reunion and search for asylum. Their relative importance in the overall immigration flow varies over time. Attempts to restrict immigration after the sizeable labour immigration through guest worker schemes of more than 30 years ago did not always have much effect on secondary migration. The same is true for the restrictions in immigration which were implemented in some countries in 1992 and 1993.

Comprehensive information on the relative importance of the three key components of immigration is available for 2000 only. Employment can be seen as the most frequent reason of entry for immigrants in only two countries, (chart 135). For a selected number of Member States, the chart gives the relative importance of employment, family reunion, asylum and other reasons for immigrants to

Chart 135- Immigration from third countries by reason for entering 2000



Source: OECD SOPEMI 2002, Part III; Eurostat for the number of asylum applications

Notes: labour immigration refers to the number of work permits granted. For Finland these include temporary and fixed term worker schemes. For France and Sweden these include permits given to EEA citizens. Asylum applications give the total number of applications, this may leave a number of family members unaccounted for. The number of granted asylum requests generally is far lower than the number of applications. For France, Italy, Luxembourg and Spain these are for 1999

enter the country in the total immigration in 2000. In 61% of the cases, employment was the reason of legal entry in Italy, 46% in Portugal and 36% in Spain. In the case of Spain, however, family reunion may be as important as migration for employment, if not more. In the UK, employment was reported as the reason for entry in 27% of the cases, as was family reunion. This latter motive came first as an explanation for migration in Sweden (50%), France (40%), Denmark (36%) and Finland (33%).

Family reunion is also the main reason for immigration in the US.¹³⁸ In 2001, it accounted for 62% of the total versus 17% for employment-related immigration and 10% for asylum. It is reported that foreign-born workers constituted nearly half of the net increase in the US labour force between 1996 and 2000.¹³⁹

One of the factors explaining the growing importance of immigration for employment is the tendency observed in several countries to attract highly skilled workers to sustain their economic expansion. An important element of this was temporary immigration - particularly of IT specialists - facilitated through special schemes, such as those introduced in France, Germany and the UK or through exceptions to standard immigration laws, for example in the Netherlands, where other professions also benefited.¹⁴⁰ The economic conditions did not only favour highly qualified professionals, the demand for low-skilled workers also increased. The recruitment of low qualified workers from third countries is often regulated through seasonal visas. The use of temporary foreign labour supply has increased markedly in many countries.

¹³⁶ For a more detailed description of these trends see: Trends In International Migration, SOPEMI 2002, OECD Paris, 2003.

¹³⁷ Source: OECD op cit.

¹³⁸ See Developments in International Migration to the United States: 2002, U.S. Department of Labor

¹³⁹ see Abraham T. Mosisa, The role of foreign-born workers in the US economy *Monthly Labor Review*, May 2002

¹⁴⁰ Immigration is due to the situation in countries of origin as well as to the needs of host countries. An analysis of the so-called push factors would have exceeded the scope of this chapter, but further work in this area is of prime importance to support the mainstreaming of immigration in external and development policies (see box on the Commission Communication).

Table 58 – Entries of seasonal and other temporary workers for selected countries 1992, 1997–2000

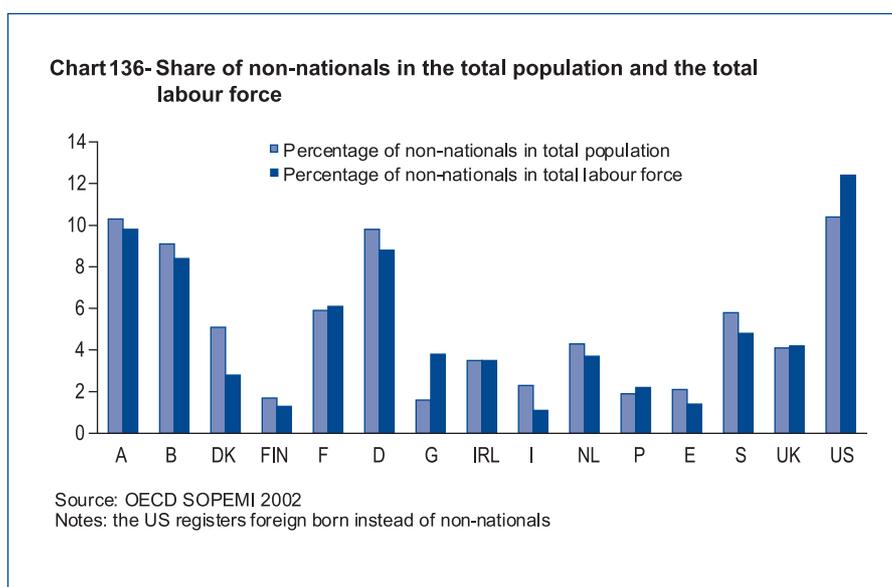
		1992	1997	1998	1999	2000
France	Seasonal workers	13.6	8.2	7.5	7.6	7.9
	Others	4.5	4.5	4.3	5.8	7.5
Germany	Seasonal workers	212.4	226.0	207.9	230.3	263.8
	Others	120.2	41.7	36.1	43.8	67.8
Italy	Seasonal workers	..	..	..	18.7	24.5
Sweden	Grants for temporary permits	..	..	..	15.0	19.4
UK	Seasonal workers	3.6	9.3	9.4	9.8	10.1
	Others	52.0	80.4	89.4	98.1	124.0

Source: OECD SOPEMI 2002.

Note: Sweden, Grants for temporary permits mainly apply to seasonal workers.

Table 58 gives an indication of the increase in the use of temporary foreign labour supply for a selected number of EU Member States in the period 1992 to 2000. For Germany and the UK the table shows significant seasonal and temporary immigration. Despite the small absolute numbers, temporary immigration is considerable in Sweden in the context of the size of its economy. In France, there was a shift from predominately seasonal work in 1992 to a more balanced situation in 2000. Whereas the inflow of temporary workers showed a noticeable increase over the period, inflows of seasonal workers fell sharply until 1998 before starting to increase again. Generally, however, the importance of seasonal and temporary work does not appear very significant. On the whole, most recent data point towards an increase in the number of temporary and seasonal workers. This looks to be particularly true for seasonal workers in Germany.

Years of immigration have led to a significant foreign presence within the EU Member States. According to national data compiled by OECD, Austria, Germany and Belgium have the highest share of people with a foreign nationality, from 10.3% in Austria to 9.1% in Belgium. This compares with a 10.4% share of foreign-born residents in the total population of the US.¹⁴¹ The share of foreigners is reported to be low in Greece, Finland, Portugal, Spain and Italy, ranging from 1.6% in Greece to 2.3% in Italy. However, this information does not appear to reflect fully the regularisation operations referred to above. Chart 136 shows that the share of foreigners in other countries lies somewhere in between.



Across the Member States the distribution of foreigners in the total labour force is broadly in line with the population share of foreigners. In most Member States, the share of non-nationals is lower in the labour force than in the population as a whole. This is the case in Belgium, Germany and Austria where it lies between 8% and 10%, in the Netherlands and Sweden, where it is about 4%, and in Italy, Finland, Spain and Denmark, where non-nationals account for 1% or 2% of the labour force. On the other hand, non-nationals are at the least equally as represented in the labour force as in the total population in France (6%), Ireland, Greece and the UK (3% to 4%) and Portugal (2%). These differences may reflect the relative importance of family reunion in total immigration in the Member States.¹⁴²

The presence of foreign illegal workers, that has through the years become more or less important in some Member States, means that these labour force numbers are underestimates. It is, however, impossible to say by how much, as data on people apprehended during illegal border crossings do not help in estimating the scale of illegal immigration. It is considered that only a minority crosses the border illegally. Many come with a valid visa, but overstay. Others work when their visa only allows for tourism or study. Others remain after their asylum applications have been rejected. A better indication of the illegal foreign presence may be the large-scale regularisation programmes and amnesty rounds referred to above.

¹⁴¹ These data are not strictly comparable as foreign-born persons may have acquired the nationality of their country of residence (box 10). It is also to be noted that here all foreigners living in Member States are concerned. In most of the chapter, data refer to non-EU nationals only.

¹⁴² For a more detailed description of these trends see: Trends In International Migration, SOPEMI 2002, OECD Paris, 2003.

Box 9 – The Commission Communication on Immigration, Integration and Employment

On 3rd of June 2003, the Commission adopted a Communication on Immigration, Integration and Employment (COM(2003)336). This reviews integration policies at national and at EU level, looks at the role of immigration in the context of demographic change, and suggests ways to promote integration of immigrants.

The three main policy messages emerging from this Communication are as follows:

1. Increased immigration flows are not only likely due to “push” factors, they become also increasingly necessary to fill the needs of the labour market as EU employment is likely to start falling after 2010.

Even if the Lisbon targets set for employment were met by 2010, and assuming no increase in net migration, an overall decline of employment could be expected after 2010 as a result of demographic change. The fall in the number of employed people between 2010 and 2030 might be of the order of 20 million workers for EU25. Labour and skills shortages are already noticeable in a number of sectors and they will tend to increase across the board.

From an economic viewpoint, this decline of employment will impact negatively on economic growth. To compensate for the decrease in employment and achieve sustained economic growth, the EU economy would require a drastic increase in productivity. However, it is questionable whether such increase in productivity growth will occur.

Having said this, the Commission is not claiming that immigration can fully compensate for the impact of demographic ageing on the labour market. To address the consequences of demographic ageing, the EU must first tap into its existing human resources. Promoting labour force participation and increasing productivity are essential for meeting the Lisbon objectives of increased employment, social cohesion and economic growth. Immigrants currently residing in the EU can make an important contribution.

However, in the context of an ageing and shrinking working-age population, more sustained immigration flows appear increasingly likely and necessary. This should be clearly recognised and the EU should prepare for future immigration in an effective and responsible way.

2. The EU must achieve better integration of immigrants. This is a key condition for success in preparing for future immigration.

In this context, the EU must first strengthen the legal channels for immigration. It must replace illegal immigration by legal immigration.

Secondly, the difficulties in securing economic and social integration of new immigrants and the persisting issues in relation to residing immigrants, including descendants, are a major barrier to the achievement of the Lisbon goals in relation to employment and social cohesion. Better integration is a matter of social cohesion, a pre-requisite for economic efficiency and a political necessity.

A holistic approach to integration is therefore needed, which encompasses the key elements of the integration process: access to the labour market, education and language skills, housing and urban issues, health and social services, social and cultural environment but also civic and political rights.

3. The EU can and should take the necessary initiatives to provide a more coherent framework at EU level

The EU as a whole must become more efficient in developing policies to ensure the integration of current and future immigrants. Since Tampere and Lisbon in particular, the EU has a range of instruments to ensure that the right framework is in place. While integration measures remain primarily the responsibility of the Member States, the Commission should intensify its efforts in a number of areas to provide a more coherent European framework for integration and to ensure that the contribution of immigrants is fully realised.

This requires mainstreaming the issue of immigration in existing policies and instruments at EU and national level on the one hand, and reinforcing coordination of national integration policies on the other hand.

Mainstreaming immigration requires that it is adequately dealt with in the employment and social cohesion aspects of the Lisbon strategy. This is particularly the case for the European Employment Strategy, the Social Inclusion Process and the strategy to combat discrimination.

To take the example of the Employment Strategy, the revised employment guidelines endorsed by the Council have given more attention to the issue of immigration: Member States should take into account labour market aspects of immigration when addressing change and promoting adaptability and mobility in the labour market (guideline 3). They should also give full consideration to the additional labour supply resulting from immigration (guideline 5). They should finally foster the integration of immigrants and in

particular aim to achieve a significant reduction in each Member State in the unemployment gaps between non-EU and EU nationals, according to any national targets (guideline 7).

Mainstreaming is also to be carried out in other relevant policy fields, so as to provide a comprehensive and consistent framework for action: external relations, development, trade, enterprise, education, research, statistics, etc.

As regards cohesion policy, the Communication states that it will be important to seize the opportunities of the mid-term review of the current programming period and of the discussion of the next period to take better into account the challenge of immigration in terms of jobs and social inclusion, particularly as regards access to employment, investment in human capital (education and train-

ing) and the regeneration of deprived urban areas. Important policy lessons can be drawn from the EQUAL initiative¹⁴³.

Reinforced cooperation in integration policies at EU level will also take the form of a more systematic exchange of experiences in a number of priority domains identified in the Communication, in particular introduction programmes for newly arrived immigrants, language training and participation of immigrants in civic, cultural and political life.

The Commission will prepare an annual report on progress made with the development of the common immigration policy. It will draw on the information provided from the wide range of different EU policies and initiatives affecting immigrants. The adoption of the first report is planned for 2004.

Box 10 – Naturalisations make evaluating the labour market performance of immigrants difficult

When a foreigner acquires the nationality of the host country he or she is no longer included in the statistics on foreigners, that is non-national residents. The naturalisation policies vary significantly among EU Member States. In Belgium there is a possibility for speeding up the naturalisation process (the so-called “Snel Belg Wet”) whereas the eligibility criteria in Austria, for example, are quite strict. The conditions for naturalisation are reflected in the number of persons acquiring the nationality of the country as a percentage of the stock of foreign population, the naturalisation rate.

Once foreigners acquire the nationality of the country it is usually no longer possible to distinguish them statistically and to monitor their labour market performance. However, the Netherlands have introduced a terminology to distinguish between people of foreign origin, naturalised or not, of different generations.

Table 59 – Average number of acquisitions of citizenship of the host country 1995–2000

	Average number of acquisitions of citizenship 1995-2000	For comparisons: stock of third country nationals in 2000
Austria	17,830	597,000
Belgium	25,149	300,000
Denmark	9,919	148,000
Finland	2,469	43,000
France	82,918	2,203,000
Germany	106,296	5,271,000
Greece	928	381,000
Ireland	1,101	94,000
Italy	7,442	..
Luxembourg	533	23,000
Netherlands	64,200	450,000
Portugal	807	159,000
Spain	11,778	623,000
Sweden	36,439	293,000
UK	51,940	1,740,000

Source: Eurostat, International Migration and Asylum Statistics and LFS.

Notes

- Belgium Estimates based only on data for 1995 and 1999.
- France Estimates based only on data for 1995, 1996, 1997, 1998 and 1999.
- Greece Estimates based only on data for 1995, 1996, 1997, 1998.
- Ireland Estimates based only on data for 1995, 1998, 1999 and 2000.
- Italy Estimates based only on data entry for 1995.
- Sweden Estimates based only on data for 1996, 1997, 1998, 1999 and 2000.

¹⁴³ 1.500 EQUAL development partnerships have already been established since 2001. For the period 2001 - 2006, 127 million Euro is available for actions aiming at combating racism and xenophobia in relation to the labour market and 153 million Euro in relation to asylum seekers.

Labour market performances of third country nationals

One of the main concerns about immigrants is their integration in the host societies. This chapter deals with integration into the labour market. Immigrants will have achieved integration when their labour market performance is similar to that of the native population. The basic information to make possible an assessment of the degree of labour market integration of migrants is provided by the EU Labour Force Survey.

The Survey distinguishes between EU and non-EU nationals as moves from one Member State to another are defined as mobility and not migration. The information analysed in this section must therefore be distinguished from the one in section 1 based on SOPEMI data which put together non-EU nationals and nationals of other Member States.

The employment rate of non-EU nationals is on average much lower than that for EU nationals (13.8 percentage points lower in 2002) (table 59). The gap is 30 percentage points in Belgium (i.e. employment rate of EU-nationals is 30 percentage points higher than for non-EU nationals). It exceeds 20 percentage points in Denmark, the Netherlands, Sweden and France, and 10 percentage points in Germany, Finland and the UK. Smaller differences are reported for Ireland and Luxembourg. The employment rates are about the same for EU and non-EU nationals in Austria and lower for EU nationals than for non-EU nationals in Portugal, Spain and Greece. No data are available for Italy.

The gap is wider for women (17.6 percentage points) than for men (10.0 percentage points), and for prime-age workers (20.0 percentage points) than for the young (6.3 percentage points) and the older workers (9.5 percentage points). In each of the three working age categories, non-EU national women are more at a disadvantage than men. Among young men in particular, the employment rate of non-EU nationals (43.8%) is not far below that of their EU national counterparts (46.0%).

Table 60 – Employment and unemployment rates by nationality 1992 and 2002

Employment rates	EU nationals		Non-EU nationals	
	1992	2002	1992	2002
B	57.4	60.6	31.2	30.7
DK	74.8	77.2	53.5	49.8
D	67.1	66.5	59.0	51.2
EL	53.6	56.3	55.3	68.4
E	49.1	58.3	54.2	67.1
F	61.0	63.9	42.2	43.2
IRL	50.9	65.1	42.8	58.2
L	61.5	64.0	62.1	57.1
NL	64.7	75.3	35.5	48.6
A*	68.2	68.2	70.9	67.4
P	66.0	68.5	51.2	76.1
F*	59.9	69.2	42.6	54.4
S*	71.7	74.9	41.1	49.9
UK	68.6	72.1	52.9	57.3
<i>EU available</i>	<i>62.6</i>	<i>66.4</i>	<i>51.5</i>	<i>52.6</i>

Unemployment rates	EU nationals		Non-EU nationals	
	1992	2002	1992	2002
B	6.3	6.3	24.5	33.5
DK	9.1	4.2	16.0	13.0
D	6.1	8.1	10.4	16.2
EL	8.0	9.9	14.2	9.6
E	17.8	11.0	16.2	15.6
F	9.7	8.1	26.2	24.9
IRL	15.4	4.3		
L	2.0	2.3		
NL	5.2	2.5	23.3	5.7
A*	4.1	4.5	7.6	10.0
P	4.1	4.7		
FIN*	17.1	10.4	28.6	22.1
S*	8.6	4.8	27.3	15.0
UK	9.7	4.9	17.1	10.0
<i>EU available</i>	<i>9.1</i>	<i>7.1</i>	<i>16.0</i>	<i>15.8</i>

Source: Eurostat, LFS, spring results

Notes: Nationality characteristic not available for Italy from the Community LFS. Earliest available LFS data for Austria, Finland and Sweden refer to 1995. Employment rates defined as employed aged 15-64 as a percentage of the population of the same age-group. Unemployment rates defined here as unemployed aged 15-64 as a percentage of the labour force of the same age-group. Unemployment rates for non-EU nationals in Ireland, Luxembourg and Portugal are unreliable and thus, not shown.

In 2002, the unemployment rate was more than twice as high among non-EU nationals than for EU nationals. In all Member States for which information is available except Greece, non-EU nationals performed less well. There are no data for Ireland, Italy, Luxembourg and Portugal. The biggest differences were reported for Belgium (33.5% for non-EU nationals versus 6.3% for EU nationals) and France (24.9% against 8.1%).

The information available on wages shows also that non-EU nationals and particularly

women are at a disadvantage. The non-adjusted wage gap between EU nationals and non-EU nationals in 2000 amounted to 6 percent. The gap rose to 10 percent for women versus 4 percent for men.

Despite definitional problems, a comparison can be attempted between the situation of migrants in the EU and in the US.¹⁴⁴ Contrary to the situation in the EU, the US employment rate in 2000 was almost as high for foreign-born (66.7%) as for natives (67.2%). US foreign-born men were far more likely to

¹⁴⁴ see Abraham T. Mosisa, op. cit. for US data, and footnote 6.

Table 61 – Employment rates of EU nationals and non-EU nationals, 1992-2002

EU nationals	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
B	57.4	56.9	56.7	57.3	57.2	58.0	58.3	60.2	61.9	60.7	60.6
DK	74.8	72.9	73.1	74.4	74.6	76.3	76.2	77.3	77.1	76.6	77.2
D	67.1	65.8	65.5	65.7	65.2	64.8	64.9	65.9	66.4	66.7	66.5
EL	53.6	53.5	54.0	54.4	54.8	54.7	55.3	55.1	55.6	55.3	56.3
E	49.1	46.6	45.9	46.7	47.5	49.1	50.8	53.5	56.0	57.4	58.3
F	61.0	60.4	59.8	60.5	60.7	60.4	60.9	61.4	62.6	63.6	63.9
IRL	50.9	51.3	52.7	54.2	55.0	56.5	59.8	62.7	64.7	65.2	65.1
L	61.5	61.0	60.2	58.7	59.2	60.1	60.4	62.0	63.2	63.2	64.0
NL	64.7	64.6	64.9	65.5	66.6	68.6	70.4	72.1	73.8	74.9	75.3
A				68.2	67.4	67.1	67.5	68.3	67.9	67.8	68.2
P	66.0	64.4	62.9	62.5	62.4	63.4	66.9	67.5	68.2	68.6	68.5
FIN				59.9	60.6	62.1	63.6	67.7	68.4	69.4	69.2
S				71.7	70.9	69.6	69.8	71.7	72.2	75.1	74.9
UK	68.6	67.8	68.2	68.6	69.1	70.1	70.7	71.1	71.8	72.2	72.1
EU available	62.6	61.5	61.3	62.2	62.3	62.7	63.5	64.6	65.7	66.3	66.4

Non-EU nationals	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
B	31.2	29.9	29.0	26.9	29.1	27.2	28.7	27.5	33.7	31.6	30.7
DK	53.5	36.1	32.0	42.6	43.4	43.2	47.4	45.0	50.0	46.8	49.8
D	59.0	55.9	53.2	52.7	49.4	46.7	48.0	50.0	51.2	52.6	51.2
EL	55.3	55.5	60.0	61.5	62.9	64.3	66.7	65.9	64.8	65.2	68.4
E	54.3	52.1	45.1	53.6	52.6	48.8	59.7	66.2	59.5	66.1	67.1
F	42.2	41.8	38.9	40.7	39.6	37.1	40.5	40.5	42.0	44.0	43.2
IRL	42.8	42.0	45.6	41.5	40.4	42.3	44.9	44.8	44.9	56.5	58.2
L	62.1	60.5	60.2	51.5	56.4	53.0	55.7	52.1	53.3	58.9	57.1
NL	35.5	32.8	32.8	30.0	32.8	37.6	37.6	33.7	44.7	49.3	48.6
A				70.9	66.2	67.3	66.3	66.9	67.7	68.2	67.4
P	51.2	57.9	48.3	47.3	54.9	64.8	61.3	63.6	72.3	67.9	76.1
FIN				42.6	51.6	46.4	37.1	46.7	48.1	48.4	54.4
S				41.1	34.0	33.5	37.1	38.4	42.7	53.7	49.9
UK	52.9	51.3	48.1	50.5	50.2	60.3	54.9	52.7	54.6	54.6	57.3
EU available	51.5	49.6	47.1	48.8	46.2	45.9	47.9	48.6	50.6	52.4	52.6

Source: Eurostat, LFS, spring results

Notes: Nationality characteristic not available for Italy from the Community LFS. Employment rate defined as employed aged 15-64 as a percentage of the population in working-age (15-64).

be employed (76.8%) than their native-born counterparts (71.0%). The negative gap for women was less than half that in the EU which does not take naturalised persons into account. The unemployment rate was only marginally higher for US foreign-born (4.2%) than for native-born (4.0%).

On the other hand, in terms of wages, the disadvantage affecting US foreign-born appears to be far more significant than that experienced by EU non-nationals. The unadjusted wage gap amounts to 24 percent in the US case (with a higher wage gap for men (29 percent) than for women (19 percent)) versus 6 percent for the EU. It must be noted, however, that US calculations are based on the median of weekly wages while

the EU results are computed from the mean of hourly wages. If migrant workers had shorter working weeks than nationals, this would be reflected in wage gaps for the US but not for the EU.

Integration can only be assessed over time. The message from the last 10 years is at best mixed. The employment rate of non-EU nationals increased by 1.1 percentage points to 52.6% between 1992 and 2002, but that of EU nationals increased by 3.8 percentage points to 66.4% over the same period. The discrepancy is due to a fall during the recession of 1993/1994 that was bigger for non-EU nationals (-4.4 percentage points between 1992-94) than for EU nationals (-1.3 percentage points). Since 1994, the improvements

have been similar (5.5 percentage points for non-EU nationals and 5.1 percentage points for EU nationals).

During the recession of 1993/94, the employment rate of non-EU nationals fell most sharply in Denmark (-21.5 percentage points), Spain (-9.1 percentage points) and Germany (-5.8 percentage points). On the other hand, it increased in Greece and Ireland (by 4.7 and 2.8 percentage points respectively). In these two countries, the situation also improved for EU nationals, but to a more limited extent (0.4 and 1.8 percentage points).

Between 1994 and 2002, particularly strong improvements for non-EU nationals were recorded in Portugal (27.8 percentage points),

Table 62 – Unemployment rates of EU nationals and non-EU nationals, 1992-2002

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
B	6.3	7.5	9.1	8.7	9.0	8.4	8.7	8.0	6.0	5.7	6.3
DK	9.1	10.6	7.8	6.8	6.7	5.1	4.9	5.0	4.3	4.1	4.2
D	6.1	7.2	8.1	7.6	8.3	9.3	9.2	8.3	7.5	7.4	8.1
EL	8.0	8.7	9.1	9.2	9.9	9.8	10.9	12.0	11.3	10.4	9.9
E	17.8	22.3	24.4	22.8	22.4	21.0	18.9	15.7	13.9	10.3	11.1
F	9.7	10.8	11.9	11.2	11.6	11.9	11.3	11.3	9.6	8.0	8.1
IRL	15.4	15.9	14.8	12.2	11.9	10.4	7.8	5.8	4.4	3.8	4.3
L	2.0	2.1	3.3	2.9	3.0	2.4	2.4	2.1	2.1	1.5	2.3
NL	5.2	5.8	6.6	6.6	6.1	5.2	4.1	3.4	2.6	2.1	2.5
A				4.1	4.8	4.6	5.0	4.3	4.3	3.6	4.5
P	4.1	5.4	6.9	7.3	7.6	6.9	4.9	4.8	4.0	4.0	4.7
FIN				17.1	15.6	14.9	13.0	11.6	11.0	10.1	10.4
S				8.6	9.0	9.8	8.5	7.2	5.1	4.5	4.8
UK	9.7	10.3	9.5	8.6	8.1	7.0	6.1	6.0	5.5	4.6	4.9
EU available	9.1	10.5	11.1	10.3	10.5	10.3	9.6	8.8	7.7	6.7	7.1

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
B	24.5	31.3	34.7	37.4	30.8	34.7	34.2	35.8	30.7	26.7	33.5
DK	16.0	36.1	32.9	26.9	21.4	24.5	12.7	16.5	13.5	11.3	13.0
D	10.4	15.2	18.6	17.0	18.6	20.8	19.8	18.9	15.5	15.1	16.2
EL	14.2	17.0	14.3	14.7	14.4	13.4	13.2	12.4	11.3	11.2	9.6
E	16.2	17.8	27.8	24.8	25.7	23.9	18.4	14.3	18.2	15.2	15.6
F	26.2	27.7	32.9	29.4	32.5	32.6	31.4	30.5	27.9	25.4	24.9
IRL											
L											
NL	23.3	28.4	30.8	32.9	24.3	22.5	18.4	18.5	10.1	5.3	5.7
A				7.6	11.4	12.0	10.7	9.4	9.9	8.8	10.0
P											
FIN				28.6	28.3	29.7	43.9	27.6	33.3	30.1	22.1
S				27.3	36.3	37.6	31.8	28.4	22.0	14.9	15.0
UK	17.1	18.5	20.5	17.2	17.0	7.4	12.0	11.4	12.0	10.6	10.0
EU available	16.0	19.5	23.0	20.2	22.6	22.0	20.6	19.8	17.0	15.6	15.8

Source: Eurostat, LFS, spring results

Notes: Nationality characteristic not available for Italy from the Community LFS. Unemployment rate defined here as unemployed aged 15-64 as a percentage of the active population (labour force) aged 15-64. Unemployment rates for non-EU nationals in Ireland, Luxembourg and Portugal are unreliable and thus, not shown.

Spain (22.0 percentage points), Denmark (17.8 percentage points), the Netherlands (15.8 percentage points), Ireland (12.6 percentage points) and Finland (since 1995, 11.8 percentage points). Noticeable advances were registered in the UK (9.2 percentage points), Sweden (since 1995, 8.8 percentage points) and Greece (8.4 percentage points).

On the other hand, progress was below average in France (4.2 percentage points) and Belgium (1.6 percentage points), and further falls were reported in Germany (-2.0 percentage points), Luxembourg (-3.1 percentage points) and Austria (since 1995, -3.5

percentage points). The contrast between the turnaround in Spain and Denmark and the continuous deterioration in Germany is striking as are the sustained increases throughout the decade in the employment rates of non-EU nationals in Ireland and Greece.

Strictly speaking however, integration into the labour market should be assessed by comparing the increases in employment rates of non-EU and EU nationals over a given time span instead of looking at non-EU nationals only. Between 1994 and 2002, the relative situation of non-EU nationals clearly improved in half of the Member States, but not in the

four with the largest population. In Portugal and Denmark, the employment rate for non-EU nationals increased more than 10 percentage points above the rates of EU nationals. The increase was 5 percentage points, in Spain, Greece, Sweden and the Netherlands. It was small in Finland and hardly noticeable in France and in Ireland where the employment rates of EU and non-EU nationals rose equally strongly. The relative position of non-EU nationals deteriorated in the UK, Belgium and the three Member States that registered falling employment rates of non-EU nationals between 1994 and 2002, namely Germany, Austria and Luxembourg.¹⁴⁵

¹⁴⁵ The OECD contrasts evolutions in the countries of old immigration, where economic growth should favour first the employment of nationals, and new immigration countries (southern Europe and Ireland) where migrants would benefit from the start (see Trends in International Migration, SOPEMI 2002)

Table 63 – Female employment rates of EU and third country nationals 1992 and 2002

	Female Employment rates			
	1992		2002	
	EU nationals	Non-EU nationals	EU nationals	Non-EU nationals
B	45.5	17.4	52.3	18.1
DK	70.7	50.2	73.5	42.7
D	56.8	43.3	60.3	39.8
EL	36.2	40.1	42.4	50.7
E	31.7	42.3	43.7	56.8
F	52.4	22.6	57.7	29.1
IRL	36.8	33.1	55.3	47.5
L	46.2	44.9	52.0	44.5
NL	51.8	25.9	66.7	40.2
A*	59.3	59.1	61.4	58.0
P	55.8	30.9	61.2	63.2
FIN*	58.2	49.6	67.5	46.8
S*	70.8	39.5	73.5	45.3
UK	61.4	45.5	65.9	47.4
<i>EU available</i>	<i>51.8</i>	<i>36.8</i>	<i>58.8</i>	<i>41.2</i>

Source: Eurostat, LFS, spring results

Notes: Nationality characteristic not available for Italy from the Community LFS. Earliest available LFS data for Austria, Finland and Sweden refer to 1995. Female employment rate defined as women employed aged 15-64 as a percentage of the female population in working age (15-64).

An examination of unemployment data confirms the lessons drawn from the analysis of employment. During the 1993/1994 recession, the unemployment rate of non-EU nationals grew much faster (from 16% in 1992 to 23% in 1994) than the one of EU nationals (from 9.1% to 11.1%). Since 1994, the unemployment rate decreased more for non-EU nationals (-7.2 percentage points) than for EU nationals (-4.0 percentage points), but the unemployment rate of non-EU nationals remained at least twice as high as that for EU nationals throughout the period.

A systematic analysis at country level would have limited value for unemployment as data are missing for four Member States and the broad pattern of evidence is in line with that observed for employment. Wide differences can be observed between countries, with the unemployment rate of non-EU nationals in 2002 being more than five times or 27.2 percentage points higher than that of EU nationals in Belgium, while the reported difference is only 3.2 percentage points in the Netherlands.

To sum up, situations vary greatly at country level but, for the EU as a whole, there has been no sizeable improvement in the relative situation of non-EU nationals as far as both employment and unemployment is concerned since the deterioration recorded during the 1993/1994 recession.

On average, non-EU national women were less affected by the 1993/1994 recession than men. Between 1992-94, their employment rate fell by only 2.1 percentage points compared to 6.0 percentage points for men. Since 1994, their employment rate has also increased rather more than that of men (6.5 versus 5.8 percentage points). Nevertheless the employment rate of EU-national women rose still faster between 1994 and 2002, so that the gap between the employment rates of EU and non-EU nationals increased by 0.7 percentage points over that period for women while for men it decreased by 2.8 percentage points.

On this basis, it can be argued that migrant women are lagging behind in labour market integration. However, southern Europe is a striking exception as the female employment rate is higher for non-EU nationals than for

EU nationals in Spain, Greece and more recently Portugal (no data available for Italy). Both rates are also similar in Austria (58.0% versus 61.4%) according to 2002 data. The sharp differences between northern and southern Europe need to be investigated further. Possible determinants could be the origin of migrants (box 11) and the relative importance of migration for family reunion.

An analysis of employment by age and qualification is possible at EU-level for the period 1995-2002.¹⁴⁶ Data show that the employment rate of non-EU nationals increased mainly for prime-age workers (+4.0 percentage points). The rise is more limited for younger workers (+2.6 percentage points) as no progress was recorded among young women. The situation of older workers has deteriorated (-1.2 percentage points) as the employment rate of older men fell.

On the other hand, the employment rate of EU nationals has increased for men and women of all age groups. Therefore, since 1995, the relative position of non-EU nationals has deteriorated sharply for older workers and slightly for young people while no difference was observed in the relative position of the prime age group.

The employment rate of the low-skilled has fallen marginally for non-EU nationals while it has increased slightly for EU nationals. For the medium-skilled, the employment rate increased for both groups, but more for EU nationals than for non-EU nationals. Among highly qualified workers on the other hand, the employment rate increased faster for non-EU nationals (6.9 percentage points) than for EU nationals (2.0 percentage points). Consequently, the gap between the employment rate of high-skilled, non-EU nationals and that of EU nationals fell by about 5 percentage points. This reduction applied equally to both women and men.

In 2002, the employment rate of non-EU nationals was consistently lower than that of EU nationals for all ages and qualifications, and significantly more so for women than for men.¹⁴⁷ The gap increased with qualifications to reach 10.3 percentage points for highly

¹⁴⁶ Data are not available for Italy, nor for the Netherlands in 1995.

¹⁴⁷ The difference was less than one percentage point for low qualified young people.

Table 64 – Employment rates for EU nationals and non-EU nationals by gender, age and qualification, 1995 and 2002

		Employment rate for EU-nationals in 1995				Employment rate for non-EU-nationals in 1995			
		Low qualified	Medium qualified	High qualified	Total	Low qualified	Medium qualified	High qualified	Total
Young men	15-24	35.6	50.5	53.8	42.3	36.0	56.1	-	38.3
Young women	15-24	27.0	45.4	54.4	37.1	26.1	46.7	-	30.4
All young men and women	15-24	31.5	47.9	54.1	39.7	30.8	51.3	-	34.3
Prime-age women	25-54	51.7	69.2	81.6	64.6	35.0	50.4	48.9	39.6
Prime-age men	25-54	79.9	87.6	92.2	86.3	69.4	73.9	71.8	69.6
All prime-age men and women	25-54	64.5	78.8	87.3	75.4	51.0	64.9	62.0	55.5
Older men	55-64	43.6	48.0	63.8	47.8	37.8	-	-	42.0
Older women	55-64	26.4	32.9	53.2	27.8	-	-	-	20.3
All older men and women	55-64	33.8	41.4	60.3	37.5	31.1	-	-	33.9
All women in working-age	15-64	40.7	60.1	76.4	52.9	31.7	48.5	47.5	36.0
All men in working-age	15-64	61.2	75.2	85.6	71.4	57.1	69.2	69.1	60.1
All men and women in working-age	15-64	50.2	67.9	81.5	62.2	44.0	60.8	60.0	48.8

		Employment rate for EU-nationals in 2002				Employment rate for non-EU-nationals in 2002			
		Low qualified	Medium qualified	High qualified	Total	Low qualified	Medium qualified	High qualified	Total
Young men	15-24	36.5	58.0	61.8	46.0	38.7	54.1	-	43.8
Young women	15-24	26.6	52.1	62.3	40.3	23.4	42.4	-	30.4
All young men and women	15-24	31.9	55.1	62.1	43.2	30.9	48.1	-	36.9
Prime-age women	25-54	53.8	74.4	84.7	71.1	36.2	56.7	60.0	46.2
Prime-age men	25-54	81.3	88.6	93.0	87.8	68.1	76.0	78.8	73.0
All prime-age men and women	25-54	66.9	81.6	89.0	79.5	50.8	67.5	69.3	59.5
Older men	55-64	45.9	50.1	64.7	51.7	34.5	-	-	40.3
Older women	55-64	27.1	37.9	56.1	33.0	-	-	-	22.7
All older men and women	55-64	35.1	44.5	61.5	42.2	27.2	-	-	32.7
All women in working-age	15-64	41.2	65.4	79.9	58.8	31.5	52.5	57.5	41.2
All men in working-age	15-64	61.9	77.6	86.7	74.0	56.5	70.5	76.4	64.0
All men and women in working-age	15-64	51.1	71.6	83.4	66.4	43.4	62.4	66.9	52.6

Source: Eurostat, LFS, spring results 2002

Notes: Employment rates in the EU in 1995 do not include the Netherlands nor Italy; in 2002, only Italy is excluded. Qualifications according to the ISCED educational classification: Low qualified (less than upper secondary education); medium qualified (upper secondary education completed); high qualified (tertiary education completed).

qualified men and 22.3 percentage points for highly qualified women.¹⁴⁸ The employment rate of the highly qualified, non-EU nationals was indeed only moderately higher (by 4.4 percentage points) than for the medium-skilled, while there was a sharp difference for EU nationals (11.8 percentage points). Among non-EU nationals, the gender gap in the employment rate for each qualification level is of the order of 20 percentage points, whereas it is only 6.8 percentage points for high-skilled EU nationals. There are also some differences with regards to unemployment rates. Men and women of third country nationality have similar unemployment rates for each qualification level, except for the high-skilled group where women tend to be unemployed more often than men. Among EU-nationals,

however, women at all educational levels have higher unemployment rates.

The gap between the overall employment rates of non-EU and EU nationals is only partly accounted for by lower employment for workers of all skills levels. In addition the distribution of skills between non-EU nationals is less favourable than for EU nationals. In occupational terms, half of the non-EU nationals in employment are low-skilled (unskilled manual and low- or unskilled non-manual) while this is the case for less than a third of the EU nationals (chart 137). In addition, for EU nationals, the proportions of high-skilled is larger than that of medium-skilled (skilled manual plus medium-skilled

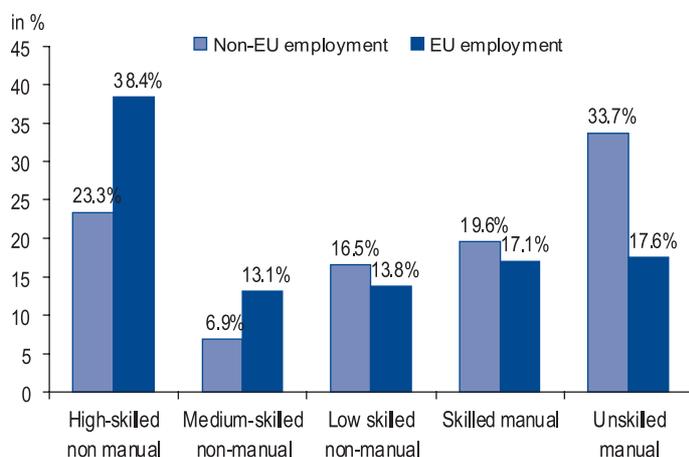
non-manual) while the opposite is true for non-EU nationals

There may be a correspondence between the skills or occupational and the sectoral distributions of non-EU nationals. The proportion of non-EU nationals in “Hotels, restaurants and private households” is far above that of EU nationals. To a smaller extent, this is also true for “Manufacturing” “Construction” and “Business services”. Altogether, some 60% of the non-national workers were employed in these sectors in 2002. On the other hand, the proportion of non-EU nationals was lower than the one of EU nationals in “Agriculture”, “Financial services”, and “Health and social work”¹⁴⁹. The analysis of the growth and em-

¹⁴⁸ By contrast, in the US, the employment rate of high skilled foreign foreign-born residents is broadly equal to the one of natives for men and some 10% percent below for women. See Abraham T. Mosisa op.cit.

¹⁴⁹ As well as in public administration, defence and education, which has an institutional explanation.

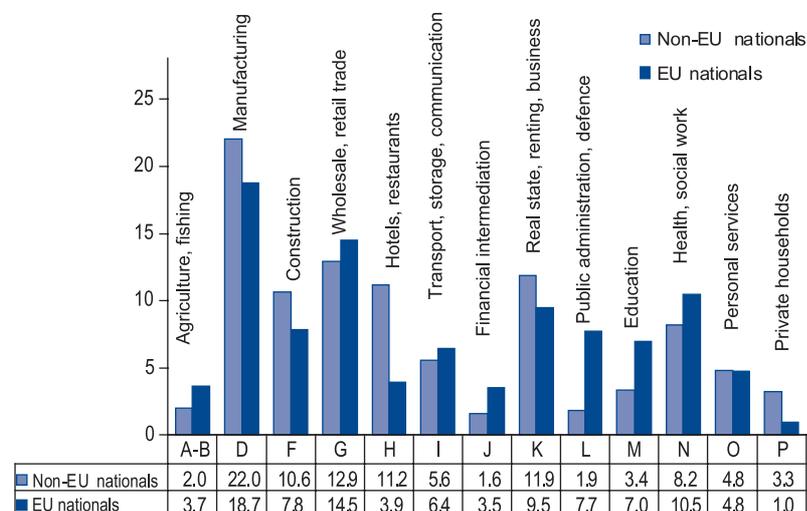
Chart 137-Occupational employment structure of EU and non-EU nationals in the EU in 2002 (% of their total employment 15-64)



Source: Eurostat, LFS, spring results

Note: high skilled non-manual (ISCO 100+200+300); Medium skilled non-manual (ISCO 400); Low skilled non-manual (ISCO 500); Skilled manual (ISCO 600+700); Unskilled manual (ISCO 800+900).

Chart 138-Sectoral employment structure of EU and non-EU nationals in the EU in 2002 (% of their total employment 15-64)



Source: Eurostat, LFS, spring results

employment prospects of these various sectors should be pursued further.

There is a high probability that the disadvantage of non-EU nationals as regards the skills or occupational structure will continue unless more is done as regards education. Among non-EU nationals, 35.1% of the population

aged 18-24 had lower secondary education at most and were not in further education or training, in 2002. This was the case for only 16.7% of EU nationals.

On the other hand, the skills level of third country immigrants is on average higher for recent arrivals than for people who arrived

a number of years ago. The share of high-skilled immigrants has gone up from between 15% and 18% in the period from 1986 to 1993 to 25% in 2001. At the same time, the share of immigrants with low skills levels has decreased steadily from over 60% in 1986 to under 42% in 2001. The majority of immigrants who entered the EU in 2001 had medium or high skill levels (chart 139).

This higher skills levels of recent immigrants has not translated into an improved position in the labour market. Rather, performance seems related to the number of years spent in the host country. Immigrants who arrived in 1992 showed an employment rate of over 65% in 2002, while for those who arrived in 2001, the employment rate was only 45%. It can also be seen that activity rates are lower and that unemployment rates are higher for recent arrivals.

One can assume that immigrants that have lived in a country longer have had more time to adapt, speak the host language, learn the right skills and acquire valuable work experience. This could explain what looks like a gradual improvement in the labour market performance of immigrants as the time spent in the host country increases.

It would be instructive to try and link the employment situation of cohorts of immigrants to the relative importance of labour immigration in the total inflow. The higher the share of immigrants in any cohort who have been recruited for employment purposes and the lower the share of refugees and secondary migrants (in the context of family migration) the more likely that cohort may be to perform well on the labour market.

Conclusions

The increasing flows of immigrants for employment and family reunion as well as of refugees in the last 20 years have concerned all Member States, although to a varying extent. They raise questions about the relative importance of pull and push factors, and the correspondence between the policies of the host countries which often tend to favour the immigration of skilled workers, and reality. The growth of seasonal and temporary immigration, the pros and cons of regularisation and the ways to tackle illegal immigration

Table 65 – Employment and unemployment rate for EU-nationals and non-EU-nationals in 2002

		Employment rate for EU-nationals in 2002		
		Low qualified	Medium qualified	High qualified
Young men and women	15-24	31.9	55.1	62.1
Prime-age women	25-54	53.8	74.4	84.7
Prime-age men	25-54	81.3	88.6	93.0
Older men and women	55-64	35.1	44.5	61.5
All women in working-age	15-64	41.2	65.4	79.9
All men in working-age	15-64	61.9	77.6	86.7
All men and women in working-age	15-64	51.1	71.6	83.4

		Employment rate for non-EU-nationals in 2002		
		Low qualified	Medium qualified	High qualified
Young men and women	15-24	30.9	48.1	52.0
Prime-age women	25-54	36.2	56.7	60.0
Prime-age men	25-54	68.1	76.0	78.8
Older men and women	55-64	27.2	46.7	49.4
All women in working-age	15-64	31.5	52.5	57.5
All men in working-age	15-64	56.5	70.5	76.4
All men and women in working-age	15-64	43.4	62.4	66.9

		Unemployment rate for EU-nationals in 2002		
		Low qualified	Medium qualified	High qualified
All women in working-age	15-64	11.6	7.5	4.9
All men in working-age	15-64	9.2	6.4	3.9
All men and women in working-age	15-64	10.2	6.9	4.3

		Unemployment rate for non-EU-nationals in 2002		
		Low qualified	Medium qualified	High qualified
All women in working-age	15-64	19.5	14.6	12.7
All men in working-age	15-64	19.7	14.2	10.2
All men and women in working-age	15-64	19.6	14.4	11.3

Source: Community Labour Force Survey, Spring results 2002, Eurostat.

Notes: Nationality characteristic not available for Italy from the Community LFS. Unemployment rate defined here as unemployed aged 15-64 as a percentage of the active population (labour force) aged 15-64. Qualifications according to the ISCED educational classification: Low qualified (less than upper secondary education); medium qualified (upper secondary education completed); high qualified (tertiary education completed).

are other complex political issues requiring improved assessments of the situation in the various Member States.

The examination of the integration of migrants and their offspring into the labour market has shown that performances vary widely among host countries as well as countries of origin. On the whole, the performance of non-EU nationals appears to have deteriorated more than that of EU nationals during the last recession, and the discrepancy in terms of employment and unemployment rates has not been significantly reduced afterwards. This raises the question of what is going to happen during the ongoing sharp slowdown.

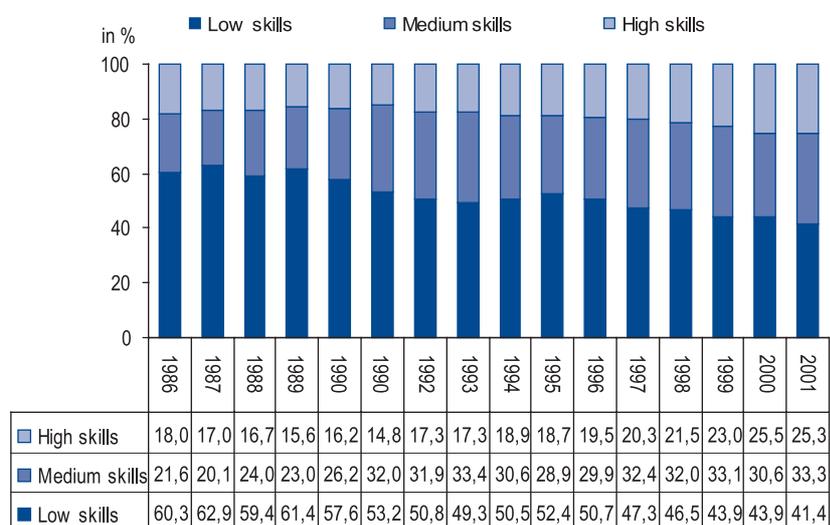
Among non-EU nationals, women and older workers in particular are lagging behind. There is some deterioration in the situation of

the low- and medium-skilled non-EU workers which makes the high rate of school drop-out among non-EU nationals particularly worrying.

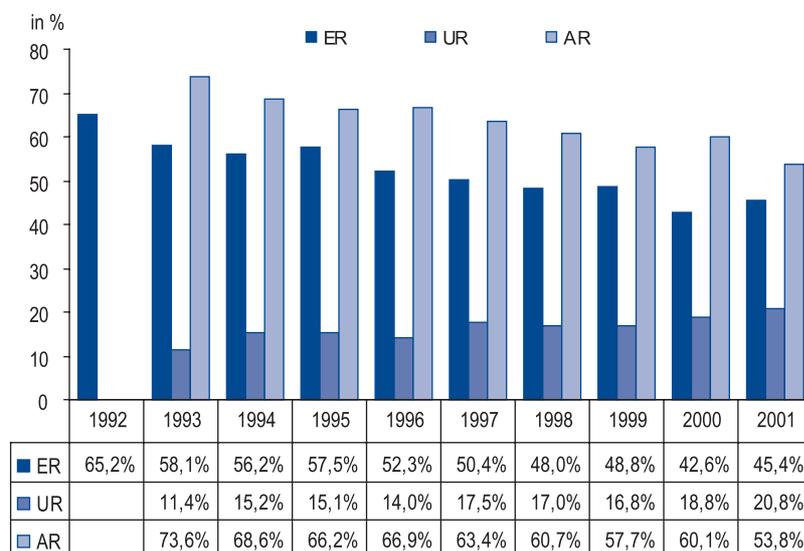
High-skilled workers tended to close the employment gap, but their disadvantage remains particularly significant. Next to discrepancies at every occupational level, the lower employment rate of non-EU nationals is also accounted for by the fact that their whole occupational distribution tends to be skewed towards low skills despite improvements in the skills of newcomers. Integration policies will have to take into account the fact that finding a job appears to be less related to the skills level of immigrants on arrival than to the experience acquired over the years in the host country.

The reviewed evidence shows that improving the integration of immigrants already established in the EU is the first priority. This fits within the European Employment Strategy which aims to mobilise all existing EU resources to fulfil the objectives set in Lisbon, notably by promoting the integration of people at a disadvantage in the labour market. This should lead to a significant reduction in the unemployment gaps between non-EU and EU nationals that exist in the Member States, as called for in Employment Guideline 7.

This chapter is meant to contribute to the analysis of immigration in the framework of the European Employment Strategy. Work should continue on the part that immigration can play in addressing labour shortages and bottlenecks, as referred to in Employment Guideline 3. In addition, a forward-looking approach to immigration is needed today to

Chart 139- EU: skills composition of non-EU national, by year arrival

Source: Eurostat, LFS, spring results

Chart 140- Labour market performance by cohorts of immigrants EU15 - by year of arrival

Source: Eurostat, LFS, spring results

prepare for the socio-demographic challenges of tomorrow. Full consideration should be given to the potential contribution of immigration to the labour supply, in accordance with Employment Guideline 5. The trend towards a shrinking working age population in Europe in combination with various push

factors in the developing countries is likely to generate a sustained flow of immigrants over the coming decades helping to fill the needs of the EU labour markets.

Box 11 – Employment performances by nationality.

The EU Labour Force Survey contains information on the nationality of respondents. On this basis, employment rates can reliably be computed at EU level, including by gender, for the nationalities most represented as shown below.

For US nationals and those of the Balkan countries overall performances are broadly similar to those of EU nationals. On the other hand, the gap is at least of 20 percentage points for nationals of Turkey, the Russian Federation and the Magrehb, with Polish workers in an intermediate situation.

Discrepancies between men and women are less pronounced than for EU nationals in the cases of Croatia, Bosnia Herzegovina and the Russian Federation. For the other nationalities it is much more striking.

The combination of low average employment and high gender gap result in an employment rate below 40% for Russian, Turkish and still more Magreghi women. It is also for these nationalities that the male employment rate is the lowest ranging from 61 to 50%.

**Table 66 – Employment rates of third country nationals in 2002
Most numerous nationality groups (ranked by highest to lowest employment rate)**

	Total	Men	Women
USA	71	82	59
Croatia	68	71	65
Albania	64	79	47
Bosnia Herzegovina	62	68	57
Poland	58	75	49
Turkey	47	61	32
Russian Federation	43	50	39
Morocco	40	56	21
Algeria	39	53	22
<i>EU nationals</i>	66	74	59

Source: Eurostat, LFS, spring results

Note: List drawn on the most numerous working-age populations (15-64) of non-EU nationals living in the EU.