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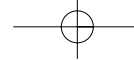Employment in Europe 2006

Employment in Europe 2006

Country abbreviations

BE	Belgium
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
EL	Greece
ES	Spain
FR	France
IE	Ireland
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	The Netherlands
AT	Austria
PL	Poland
PT	Portugal
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden
UK	United Kingdom
IS	Iceland
LI	Liechtenstein
NO	Norway
BG	Bulgaria
RO	Romania
HR	Croatia
TR	Turkey
JP	Japan
US	The United States

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Foreword by the Commissioner

The eighteenth edition of the *Employment in Europe* report is published at a moment when employment performance in the EU appears to be picking up. Nevertheless, progress over recent years towards the Lisbon and Stockholm employment rate targets for 2010, although encouraging with respect to women and older workers, remains insufficient overall and greater efforts are needed to provide the right impetus for further improvement. This is why, at the Spring 2006 European Council, Heads of State and Government reiterated the need for more effective and comprehensive implementation of the European Employment Strategy, particularly by emphasising a number of aspects, such as an adequate balance between security and flexibility in the labour market (i.e. "flexicurity"), mobility, education and skills, and a life-cycle approach to labour force participation.

The need for increasingly adaptable European labour markets reflects a rapidly changing economic environment characterised by phenomena such as globalisation; the ageing of European societies; and the development of segmented labour markets. These key challenges require that Member States identify and carry through comprehensive reforms aimed at improving the balance between flexibility and security in their labour markets. In order to improve employment outcomes and facilitate broader social acceptance, the pathways to higher "flexicurity" must be comprehensive and include four key elements – flexible contractual arrangements; effective active labour market policies; credible lifelong learning systems; and modern social security systems combining the provision of adequate income support with the need to facilitate labour market mobility and transition.

Against this background, the current edition of *Employment in Europe* addresses a number of politically prominent issues. The main conclusions are:

• Significant synergies/complementarities exist between flexibility and security outcomes in the labour market, for instance between employment rates and income equality.

• There is a need for furthering the culture of active labour market policy evaluation, using both the micro- and macro-economic approaches.

• Economies close to the technology frontier need to focus more on creating new technologies by allocating a higher share of resources to tertiary education and fostering a highly adaptable work force.

• Geographic mobility is a crucial element in the strategy to cope with the current labour market challenges, but it has to be combined with other relevant policies, such as education and immigration policies, in order to provide an efficient and consistent policy response.

The findings of this issue of *Employment in Europe* will, like in previous years, provide an important analytical input into the Commission's policy considerations during the coming months. I strongly recommend this report to you, as I believe that it provides an important insight into some of the key employment issues facing us in the EU today. We will have to continue to address these issues through joint efforts both at the level of Member States and at the level of the EU.

Vladimír Špidla

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Executive summary

Moderate improvement in employment performance in the EU in 2005, despite the slow down in economic growth

Despite the deceleration in economic growth in 2005 …

Compared to 2004, economic growth in the EU decelerated in 2005, mainly due to the impact of the sharp rise in oil prices. GDP growth averaged 1.6% for the year as a whole, down from 2.4% in 2004. However, this appears to be only a temporary deceleration.

… there was a moderate improvement in EU employment performance, althrough labour productivity growth slowed down.

Despite the deceleration in economic growth, employment growth in the EU continued to recover gradually from the low in 2003, but remains well down on the levels observed in the late 1990s and 2000. Employment growth averaged 0.9% for the year as a whole, up on the previous year's level of 0.5%. Reflecting the moderate improvement in labour market conditions, the employment rate in the EU increased to 63.8% in 2005 (from 63.3% in 2004), while the unemployment rate declined to 8.7%, down from 9.1% the year before. However, although moderate, there was a generalised decline in labour productivity growth in 2005, and the EU continues to underperform relative to the US, both in terms of employment and productivity growth.

Recent progress towards the overall 2010 Lisbon employment rate target has continued to be slow, but general progress towards the female and older people's targets is encouraging.

Progress towards the overall Lisbon employment rate target for 2010 has continued to be slow and reaching this target is becoming increasingly challenging. Nevertheless, recent progress towards the female and older people's targets, especially during what has been a period of low economic growth in general, is rather more encouraging. The average employment rate for the EU rose by 0.5 of a percentage point in 2005, while that for women rose by 0.6 percentage points to 56.3%. For older people (aged 55–64) the employment rate increased substantially by 1.5 percentage points to 42.5%, indicating a rebound from the relatively limited increase in 2004. Employment rates among the young (aged 15–24) remained unchanged from 2004, at 36.8%.

Strong disparities in labour market outcomes across Member States persist.

Much of the weak employment performance of the EU over recent years has been due to the relatively poor labour market performance in Germany and Poland, although recent figures indicate that the situation may be finally turning around in those two Member States. At the same time, many of the southern EU Member States remain well below the common EU employment targets, and still tend to exhibit marked gender differences in labour market outcomes, together with large disparities in the performance of labour markets at regional level. Better labour market integration of migrants remains a challenge for many EU countries.

Across the EU, overall employment performance in 2005 was generally positive at Member State level, …

At Member State level, employment performance for the year as a whole was generally positive, with negative annual employment growth only in Germany and the Netherlands. For the vast majority of Member States employment expanded in 2005, with growth of over 1% in ten countries. Particularly strong growth was experienced in Luxembourg (2.9%), Spain (3.6%) and Ireland (4.7%).

…. reflecting continued strong employment expansion for women and older workers, but also for prime-age men in

With regard to the characteristics of the expansion in employment between 2004 and 2005, growth continued to be faster for women than for men, although a notable development was the upturn in the employment rate of prime-age males

2005, and in the incidence of part-time and fixed-term employment.

(those aged 25–54) after several years of decline. The continuation of the positive trend in the employment of older workers, and the strong rise in the share of part-time employment and of employment under fixed-term contracts, were also notable developments.

The ongoing improvement in the skill structure of the working age population in recent years …

The skill profile of the EU working age population continues to improve, with strong improvements particularly in the skill composition of the female component, contributing to a more employable and adaptable workforce and in turn to increased employment and participation rates.

…is reflected in the substantial rise in employment in high-skilled non-manual occupations.

The high-skilled non-manual occupations have been the main driver for overall increases in employment in recent years, accounting for the major part of employment expansion since 2000. This suggests an underlying improvement in the skill level of those in employment, as well as reflecting the ongoing shift towards a more knowledge-based economy. However, there are indications of a certain degree of polarisation in the changes in occupational structure towards high-skilled occupations and very low-skilled occupations, with a decline in employment of the skilled manual occupations.

There are mixed trends in the incidence of atypical working time arrangements but a generalised decline in shift work and in working hours per employed person.

There is a wealth of working arrangements in European labour markets, both in terms of contractual and working hour arrangements, and with atypical working hours not uncommon in most Member States. Recent data indicate varying trends across Member States in the incidence of atypical working hour arrangements such as night work and Sunday work, but a general reduction in the incidence of shift work. Average working hours per employed person remain relatively high in the new Member States, partly due to the low incidence of part-time work in those countries, although there appears to be a continued generalised decline in average working hours across EU Member States with few exceptions.

Prospects of ongoing employment growth, albeit at relatively modest levels, and further decline in unemployment.

The employment growth prospects for 2006 and 2007 are similar to 2005. Employment growth is forecast to increase only marginally in 2006, remaining below the 1% level, and to stabilise at around 0.8% in 2007. The unemployment rate is foreseen to fall gradually to 8.5% in 2006 and to decline further to 8.2% in 2007.

Flexibility and security in the EU labour markets

"Flexicurity" has gained importance in the EU policy debate.

The 2006 Annual Progress Report has called on Member States to seek a convergence of views on a set of common principles on the combinations of flexibility and employment security in the labour market (i.e. "flexicurity"). Flexicurity is a response to the need to improve the adaptability of both workers and firms to a rapidly changing labour market and to labour market segmentation. A segmented labour market implies risks of increasing the precariousness of jobs, damaging sustainable integration in employment and limiting human capital accumulation. The 2006 Joint Employment Report highlights that a good balance between flexibility and security can be achieved by the interaction of four key elements: a) sufficiently flexible contractual arrangements; b) effective active labour market policies; c) credible lifelong learning systems; d) modern social security systems.

"Flexicurity" has moved away from the description of specific national contexts to become a tool to classify different labour markets.

The term "flexicurity" was initially used to describe the successful combinations of flexibility and security realised by the Danish and Dutch labour markets. However, flexicurity has then moved away from the description of specific national contexts to become a tool to classify different labour markets. EU Member States

can be grouped into several flexicurity regimes based on the mix of one dimension of flexibility (external flexibility) and one dimension of security (income/employability security). However, further work will be needed to include other dimensions, in particular internal and functional flexibility.

Stringent EPL tends to reduce the dynamism of the labour market, worsening the prospects of the groups "at the margin"…

External flexibility refers to the ease of hiring and firing workers, and the use of flexible forms of labour contracts. This has been measured by the OECD's indicator on the strictness of employment protection legislation (EPL). Both theoretical and empirical findings suggest that stringent EPL, while having an ambiguous or limited impact on total unemployment and employment, worsens the employment prospects of women, youths and older workers. It can also slow down the flow of labour between different jobs making the labour market less dynamic and increasing the average duration of unemployment spells.

…but deregulation "at the margin" only tends to favour the creation of segmented labour markets.

In recent years, certain Member States have increased external flexibility "at the margin", chiefly by easing EPL for temporary contracts only, while keeping stringent rules for regular contracts largely intact. This has favoured the development of two-tier labour markets in which the brunt of adjustment to shocks falls on employees under atypical contractual forms (e.g. fixed-term contracts). This has led to precarious employment and a lack of adequate provision of training for workers under atypical contracts, with negative impact on productivity. "Flexicurity" would rather call for a simultaneous easing of rules on both regular and atypical contracts as a way to provide for improved flexibility in the labour market.

Well-designed unemployment benefit systems seem to perform better as an insurance against labour market risks.

EPL and unemployment benefit (UB) can be seen as two different ways of protecting workers against labour market risks. Empirical studies suggest that workers feel better protected by UB than by EPL. Relatively high UB tends to be associated with longer spells in unemployment, *inter alia*, because of the decline in the intensity of job search. However, this can be largely offset by setting efficient activation strategies that coordinate UB administration with active labour market policies (ALMPs). A possible reform strategy could be to "trade" more flexible EPL for higher transfers to the unemployed both in the form of income compensation (i.e. passive labour market policies) and active measures (ALMPs).

EU Member States can be grouped in different "flexicurity" models…

The "flexicurity" debate emphasises the importance of interactions between labour market policies and institutions. In line with well-established theoretical results and statistical procedures, EU Member States are clustered on the basis of a limited number of dimensions (or axes) to characterise national labour markets. This classification suggests the presence of three major axes, which can be broadly interpreted as representing: a) (external numerical) flexibility/employability; b) security; and c) tax and social security contributions burden. A key finding of this analysis is that there are significant synergies between the flexibility/employability and security axes in terms of labour market outcomes. A high country score on both the flexibility and security axes is positively correlated with favourable outcomes for socio-economic variables, such as higher employment rates and a more equal distribution of income.

… but political economy constraints can make regime change problematic…

The political feasibility of reform packages improving the combinations of flexibility and security can be enhanced by negotiations in the framework of (tripartite) social dialogue. However, the largely compensatory nature of "flexicurity" reforms (i.e. loosening EPL in exchange for both higher and better spending on LMPs) may make their implementation problematic, because of the implied increase or shift in government expenditure, together with the necessary gains required in the efficiency of public administrations.

…and different policy options seem to be compatible with "flexicurity" principles.

A number of policies consistent with "flexicurity" have also been proposed or implemented that may not involve significant increases in government expenditure. Such policies included: a) setting up individual and portable unemployment accounts; and b) replacing all types of labour contracts by a single one, lowering firing costs and creating a layoff tax to fund UB and public employment services (PES). These measures/proposals illustrate that there can be different pathways to improving the combination of flexibility and security – as concrete solutions depend on particular national circumstances and policy choices that can eventually yield equivalent socio-economic outcomes.

Effective European Active Labour Market Policies

Effective active labour market policies are a key element for successful implementation of "flexicurity" principles.

In the context of the current "flexicurity" debate and according to the conclusions of the Spring 2006 Council, effective active labour market policies (ALMPs) – supporting transitions between jobs as well as from unemployment and inactivity to jobs – is one of the ingredients essential to achieve a good balance between flexibility and employment security while reducing the risk of labour market segmentation.

The EES emphasises both the need to strengthen spending on active policies and make them more effective.

Both the European employment strategy (EES) and the OECD Jobs Strategy have recommended the following actions. Firstly, to shift resources from passive LMPs (i.e. those concentrating in providing income support) to active LMPs (i.e. those attempting to improve the labour market prospects of participants); and secondly, to take better account of the interactions between ALMPs and tax and benefit systems, preferably in the framework of activation strategies, in order to increase the effectiveness of ALMPs.

Expenditure on active measures accounts for about one-third of total spending on LMPs.

Average spending on LMPs in EU Member States totalled just over 2% of GDP during the period 1985–2004, with a small downward drift emerging after the mid-1990s. There is a wide variation in spending across countries, ranging from a low of under 0.5% in the Czech Republic, Estonia, Latvia, Lithuania, Slovakia and the UK, to a high of 4.4% in Denmark in 2004. In the EU, the share of expenditures on active measures accounts, on average, for approximately one-third of total LMP spending. This indicates that EU Member States have not made any significant progress on shifting resources from passive to active measures, despite the declared intentions of many governments.

The effectiveness of ALMPs is assessed using either micro- or macro-econometric techniques.

The effectiveness of ALMPs is usually evaluated using either micro- or macro-econometric techniques. The large majority of programme evaluations use micro-econometric techniques to measure the impact of participation in the programme on subsequent employment and/or earning prospects. However, assuming adequate data availability, use of a general equilibrium/macro framework is preferable to a partial equilibrium/micro approach, as the former is capable also of measuring indirect and long-run effects, which might lead to a reversal of the policy conclusions drawn from the micro-econometric evaluation.

Micro-econometric evaluations suggest that spending on training is relatively ineffective, while employment incentives and PES are associated with the most favourable post-programme employment outcomes.

Overviews of programme evaluations, including a recent meta-analysis of more than 100 studies conducted in Europe, find the following: training has a modest likelihood of making a positive impact on post-programme employment rates. In contrast, spending on employment incentives and PES is associated with significantly better outcomes. The evidence suggests that job search assistance programmes in general, and activation policies in particular, rank highly among the more cost-effective ALMP measures in terms of helping the unemployed find a job and keep it. Programmes involving direct job creation in the public sector are

even less likely to show a positive impact on post-programme employment outcomes than training programmes.

In contrast, macro-econometric studies usually find training as the most effective category of ALMP. This paradox could be solved by extending the observation period to include the medium- to long-term effects of training.

The results of micro-econometric evaluations and of the few macro-econometric studies available are somewhat contradictory. Macro-econometric studies usually find that training is the only category of ALMP that seems to have a significant positive impact on aggregate labour market outcomes. This paradox could be solved by extending the observation period to include the post-participation effects of training. In practice, evaluations of training programmes often find a negative, or only a slight positive, effect on participants' outcomes during the first year or two after participation. However, after that initial period, a growing number of follow-up studies have found evidence of a positive impact attributable to training.

Interactions between LMPs can have a significant impact on the effectiveness of active measures and affect labour supply.

In order to explore synergies and make active policies more effective, it is important to consider the interactions between active and passive LMPs. The disincentive effects of relatively high and long-lasting unemployment benefits on labour supply can be, at least partially, counteracted by adopting well-designed ALMPs. In recent years EU Member States have preferred to counterbalance some of the disincentive effects of UB/welfare systems by introducing comprehensive activation strategies that coordinate public UB administration with expenditure on ALMPs.

Despite recent progress, an evaluation culture for labour market policies needs to be further developed to make active policies more effective.

Although the situation in Europe is rapidly improving as the practice of conducting evaluations becomes more widespread, development of an evaluation culture for labour market policies is still in its infancy in many EU Member States. Evaluating the effects and monitoring the implementation of ALMPs are important steps in the process of improving policy design in order to secure better results.

Human capital, technology and growth in the EU Member States

Human capital is at the heart of the Lisbon Strategy but investment in a high-skilled workforce has been rather disappointing.

Human capital together with technology have been put at the heart of the Lisbon Strategy with the aim to increase EU productivity in the context of the knowledge-based economy. However, particularly investment in a high-skilled workforce has been rather disappointing. Currently, the EU allocates approximately 1.2% of its GDP in higher education compared with nearly 2.9% in the US. This underinvestment in a high-skilled workforce has been seen as one of the main reasons behind the relatively slow growth in Europe in the past years. The 2005 revised Lisbon Strategy and the subsequent *Integrated Guidelines for Growth and Jobs (2005–2008)* have thus placed an even stronger emphasis on the need to invest more in human capital through better education and skills.

Some growth models treat human capital as an additional input in the production function, alongside physical capital and labour …

Several models in the existing economic literature link human capital to economic growth and they broadly follow two main approaches. A standard approach treats human capital as an additional input in the production function, alongside physical capital and labour. In this approach, growth is driven by the accumulation of human capital. Consequently, differences in growth rates across countries can be explained by differences in the rates at which these countries accumulate human capital. This implicitly considers education as affecting the workers' productivity in the same way, regardless of the type of job they perform.

… while other models link the stock of human capital to the creation and absorption of new technologies.

In the second approach, growth is driven by the stock of human capital, which determines the capacity of a country to create new technologies and to absorb new technologies developed in other countries. This alternative approach sets out to

explain the difference in growth rates between countries in terms of differences in human capital stocks, thus in the ability of countries to create and absorb new technologies. It sees education as especially important for jobs requiring innovation and adaptation to change, which are growing fast in a knowledge-based economy. A skilled workforce is better at creating and absorbing new technologies and therefore at generating technological progress.

In a knowledge-based economy, a high-skilled and adaptable workforce is essential for growth.

Since human capital and technology are seen as key determinants of EU's productivity, this alternative approach has been adopted to examine empirically the growth effects of a high-skilled workforce through technological progress in the EU Member States. However, especially in a knowledge-based economy where technological progress can create an economic imbalance, it is not only the level of human capital or its composition but also adaptability that matters for economic growth. Adaptability of workers is crucial for effective reallocation of resources in response to changes in economic conditions. Although the capacity to adapt to change is one of the main features of a well-educated workforce, it is reasonable to assume that the degree of adaptability of the workforce is sensitive to the forms of work organisations workers face. Consequently, the growth effects of a skilled workforce may have different magnitudes depending on whether the work environment is designed to encourage the effective use of the adaptability of the skilled workers for technological progress.

An estimation of panel data from 14 EU Member States suggests the importance of a skilled workforce for technological progress through technology creation and absorption …

To assess these assumptions, a model using panel data in 14 EU Member States with observations for every five years between 1960 and 2000 is used. It estimates the impact of high-skilled labour, measured here in terms of fraction of adult population with tertiary education in total adult population, on technological progress. An important distinction is made between the impact of high-skilled labour on a country's capacity to innovate and on its ability to catch up with the technology leader. The speed of the latter is a function of both the proportion of high-skilled workers in the workforce and its distance to the technology frontier. As a country nears the technology frontier the impact of technology adoption weakens and the ability to innovate domestically gains importance. The results suggest a positive impact of skilled labour on the ability of EU Member States to create domestically new technologies and to absorb technologies developed abroad.

… but a working environment facilitating adaptability matters too in countries close to the technology frontier.

The empirical results also support the assumption that the effects on technological progress will be more significant in countries that are closer to the technological frontier and where the working environment supports the capacity of high-skilled workers to adapt to changes in economic conditions. Indeed, a combination of a high-skilled workforce and a flexible working environment enhances the ability of countries to create new technologies.

Geographic mobility within the EU

The overall share of EU workers living in another Member State is relatively small, but varies from country to country.

Geographic labour mobility of EU citizens remains a limited phenomenon both relative to the total EU population and compared to migration from third countries to the EU. Currently, less than 2% of EU working age citizens live in another EU Member State, the biggest majority of them from the old 15 Member States. This is less than 20% of the total foreign-born labour force of the EU. There are nevertheless, substantial differences across Member States.

Annual cross-border mobility flows between EU-15 countries are low and

Current labour mobility flows are low, with official statistics showing only 0.1% of the EU-15 national labour force changing its place of residence from one Mem-

mobility from the new to the old Member States remains limited.

ber State to another every year. Mobility rates with respect to flows of workers from the EU-10 to the EU-15 after enlargement have been limited according to the evidence so far and the flow from EU-15 to EU-10 Member States has been largely negligible.

Regional mobility rates in the EU are significantly higher, but comparisons with the US still suggest a potential for increase.

Regional mobility within Member States is significantly higher than cross-border mobility, although regional mobility rates between countries vary greatly and are substantially lower in the new Member States compared with the old Member States. Overall, geographic mobility rates in the EU are lower than in the US. Although not as wide as sometimes claimed, the existing mobility gap with the US suggests that there may be a potential for higher mobility in the EU.

EU-15 movers are on average young, highly educated, single, without children and tend to work in high-skilled white-collar positions.

Internationally mobile EU-15 citizens tend to work in high-skilled white-collar positions and are significantly younger, better educated, mostly single and less likely to have children than the total labour force and migrants from non-EU countries. Their skill level has increased since 2000, and there seems to be a trend to higher mobility among older workers.

Mobile workers from the new Member States tend to be even younger, with a higher proportion of women, having mostly medium skill levels and tending to work in complementary sectors and occupations.

Compared to their EU-15 counterparts, internationally mobile workers from the EU-10 Member States are even younger, show a higher share of female workers and are significantly less likely to be highly educated, but include a very high share of medium-skilled persons. They are therefore less likely to be in high-skilled positions, but have a substantially higher concentration in skilled blue collar and elementary occupations, which would suggest their complementary role in the host countries' economies.

Employment rates of EU-10 movers are still lower than the average of EU-15, but have been improving rapidly.

The employment rates of mobile EU-15 citizens are very similar, if not higher than those of the total working age population. Employment rates of EU-10 citizens resident in the old Member States have increased considerably over recent years, are close to those of the overall population and EU-15 movers, and substantially higher than for non-EU nationals.

Data show some limited increase in expected future mobility for most countries. Expected mobility levels from the EU-8 countries to the old Member States are unlikely to pose problems for their labour markets.

Survey data on the intention of European citizens to move to another country in the next five years indicate that cross-border mobility between the EU-15 Member States is likely to increase somewhat but probably not greatly in the short and medium term. Among the EU-8 countries, the Czech Republic, Hungary, Slovakia and Slovenia have expected mobility rates which are below that of most old Member States. Expected mobility from the three Baltic countries and Poland is significantly higher than that from the rest of the Member States, but this is unlikely to pose major and lasting challenges for the labour markets of the receiving countries. Looking at longer-term developments, demographics are likely to act as a brake on mobility, particularly because of a decrease in the younger age group, which has tended to be the most mobile.

Efforts to increase geographic mobility in the EU need to continue, both in terms of further reducing legal and administrative barriers and tackling the social, cultural, educational and infrastructure barriers.

Given the relatively low mobility levels in Europe, it is essential to further foster the free movement of workers as one of the fundamental freedoms of European citizens and for its contribution to a better functioning of labour markets. Efforts to further reduce and remove existing legal and administrative barriers to mobility, including the transitional arrangements for the free movement of workers from new Member States, need to continue. However, even if all administrative barriers and information hurdles to mobility were removed, the social, cultural, educational and infrastructure barriers to mobility would still remain as the main obstacles. Tackling these obstacles will require policy actions aimed at fostering the integration and acceptance of newcomers, providing more attractive urban environments

and housing markets, improving language skills, raising educational levels, and helping young people to gain first mobility experiences through studies or internships abroad.

Policies on geographic mobility need to be put in context with other policies.

Geographic mobility represents a crucial element in the strategy to cope with the current and future labour market challenges in the enlarged EU. However, in order to provide an efficient policy response to these challenges, policies on geographic mobility need to be coupled with actions in the field of other employment policies, education and immigration.

Conclusions

Despite further progress in the employment situation in the EU, reaching the Lisbon target remains a challenge.

The employment situation in the enlarged EU continued to improve in 2005 despite the slowdown in economic growth. Further progress was achieved in terms of overall, female and particularly older worker employment rates; though reaching the overall Lisbon employment target remains a major challenge. Increased efforts will be needed in all three priority areas identified by the Employment Guidelines; namely attracting and retaining more people in employment, increasing labour supply and modernising social protection systems; improving the adaptability of workers and enterprises; and increasing the investment in human capital through better education and skills.

Member States need to identify and implement comprehensive reform packages aimed at enhancing the flexibility and security of their labour markets…

The conclusions of the last Joint Employment Report stressed the importance of a comprehensive approach to reform in the face of rapid structural changes brought about by ageing and globalisation. The findings of this year's Employment in Europe corroborate this assertion. The Member States need to identify and implement appropriate combinations of policies enhancing both the flexibility and security of their respective labour markets. While there is clearly no single flexicurity solution for all, and adopted reforms will need to reflect the specific situation in each Member State, a comprehensive reform approach encompassing all the key elements – modern labour laws, active labour market policies, life-long learning systems and modern social security systems – may not only deliver better employment outcomes, but also prove to be more politically feasible.

…in order to progress toward fulfilling the EES objectives within the framework of the renewed Lisbon Agenda.

Looking in some more detail into the individual policy areas, this Employment in Europe highlights the need to create a stronger culture of the evaluation of labour market policies, to invest in a high-skilled and adaptable workforce, and to foster the free movement of workers in the enlarged EU. These are some of the policy actions that will be needed in order to progress toward fulfilling the objectives of the European Employment Strategy within the broader framework of the re-launched Lisbon Agenda.

1 | Panorama of the European labour markets

Chapter

1. Introduction

This chapter provides a detailed overview of recent developments in the European labour market up to 2005 and compares them with developments in an international context, in particular with those in the US and Japan. The chapter begins with an overview of recent labour market performance, examining the current situation and recent trends in the EU set in a global perspective, and reports on the short-term prospects for the EU labour market in the year ahead. It then focuses in more detail on the latest developments in activity, employment and unemployment rates across the individual Member States, with a focus on progress with regard to the Lisbon and Stockholm employment rate targets. This is followed by an overview of recent employment trends according to type of employment and working time arrangements, together with an examination of the skill composition of the workforce, of trends in the sectoral and occupational structure of employment over recent years, of the continuing disparities in labour market performance at regional level, and of the latest demographic trends, including migration, and the labour market situation of non-EU nationals. The findings reported in this chapter are based on data available up to June 2006[1], while many of the tables and charts include data for the EU-15 aggregate to provide a longer-term historical perspective.

2. Recent labour market performance

2.1. EU labour market performance in 2005 in a global perspective

The expansion in the world economy remained robust in 2005. Due to an acceleration in economic activity in the second half of the year, world GDP growth for 2005 is estimated at 4.6%, only slightly down on the recent high of 5.1% observed in 2004. Particularly strong growth was again observed in certain emerging economies such as China (9.9%) and India (8.0%). In the US, economic activity remained strong, reflecting continued buoyant consumer spending and relatively strong investment growth. GDP growth was robust at 3.5%, although this was down from 4.2% the previous year, partly reflecting hurricane-related disruptions. In Japan, economic expansion, at 2.7%, reached a five-year high in 2005, up from 2.3% the year before, with growth mainly driven by domestic demand, although exports also made a significant contribution.

As in the US, economic growth in the EU slowed down in 2005 compared to the year before, mainly due to the impact of the sharp rise in oil prices[2]. GDP growth averaged 1.6% for the year as a whole, down from 2.4% in 2004, although this is expected to be only a temporary deceleration (Table 1). Indeed, over the course of the year economic growth picked-up from around 1.5% in the first half of the year to around 1.8% in the second.

In 2005, employment growth in the EU continued to recover gradually from the low in 2003, despite the deceleration in economic growth compared to 2004, but remains well down on the levels observed in the late 1990s and 2000 (Chart 1). Employment growth averaged 0.9% for the year as a whole, up on the previous year's level of 0.5% (Chart 2). Reflecting the moderate improvement in labour market conditions the employment rate in the EU rose to 63.8% (Chart 3), while the unemployment rate declined to 8.7%, down from 9.1% the year before.

In the US the labour market continued to show strong signs of recovery. Employment continued to expand at a faster rate than in the EU, with growth accelerating to 1.8%, up from 1.1% the year before and approaching the rates experienced at the end of the last century. The unemployment rate fell to just above the 5% level, down from 5.5% in 2004. In Japan, the turnaround in the labour market observed in 2004 continued in 2005. Employment growth was positive for the second consecutive year, although, at 0.4%, much lower than in the EU and the US, while the unemployment rate fell from 4.7% to 4.4%.

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1   The figures in this chapter are based on the data available up to June 2006 and generally include data for the years up until 2005. Where "LFS" is mentioned as the data source this refers to the spring results from the Labour Force Survey unless otherwise stated. Where "QLFD" is mentioned, this should be understood to mean either annual averages from national accounts or annual averages of quarterly data from the Labour Force Survey, depending on the specific variable in question. Due to the transition to a quarterly survey, data for missing quarters for the LFS are estimated by Eurostat until 2003. For further details on the data and the sources used, see the statistical annexes.

2   The average annual price (in US dollars per barrel) of Brent crude oil rose 43% compared to 2004.

Table 1 – International Comparison of Key Indicators (2005)				
	EU-25	EU-15	USA	Japan
Population (millions)	459	385	296	128
GDP (in 1000 million PPS, current prices)	10798	9822	10362	3274
GDP Growth, at constant prices (annual % change)	1.6	1.5	3.5	2.7
Employment Rate (as % of working age population)	63.8	65.2	71.5	69.3
Employment Growth (annual % change)	0.9	0.7	1.8	0.4
Unemployment Rate (as % of civilian labour force)	8.7	7.9	5.1	4.4

Source: GDP and employment growth from Commission's Spring 2006 Economic Forecasts and QLFD, Eurostat. GDP in PPS from AMECO database, Commission Services. Employment rate from QLFD, Eurostat and OECD data for US and Japan. Unemployment rate from the harmonised unemployment series, Eurostat. Population from demographic statistics, Eurostat.

Note: Employment rates for the EU and Japan refer to persons aged 15-64; US employment rate refers to persons aged 16 to 64.

Chart 1 **Real GDP growth and employment growth in the EU (% change on same period of previous year), 1996 – 2006**
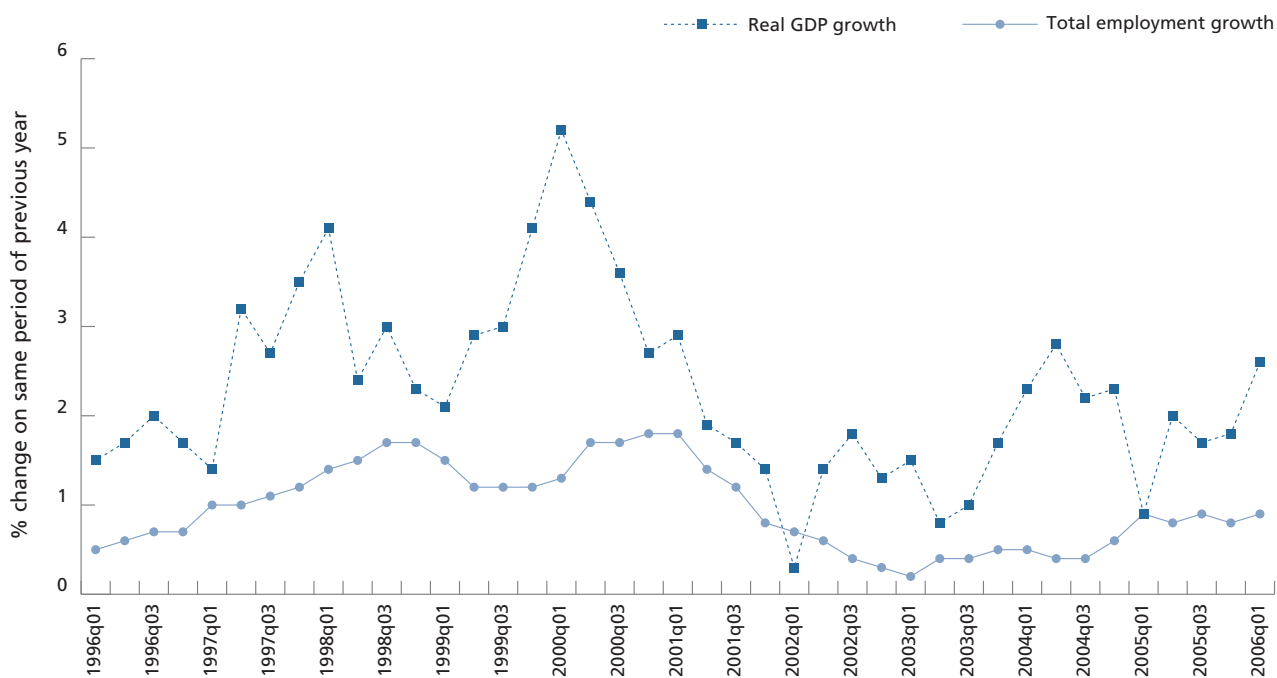
Source: Eurostat, national accounts.

Chart 2 **Employment growth rates in the EU, US and Japan, 1997 – 2005**

EU-25 ■ · · · · EU-15 ● —— US ◆ – – JP ▲ – –
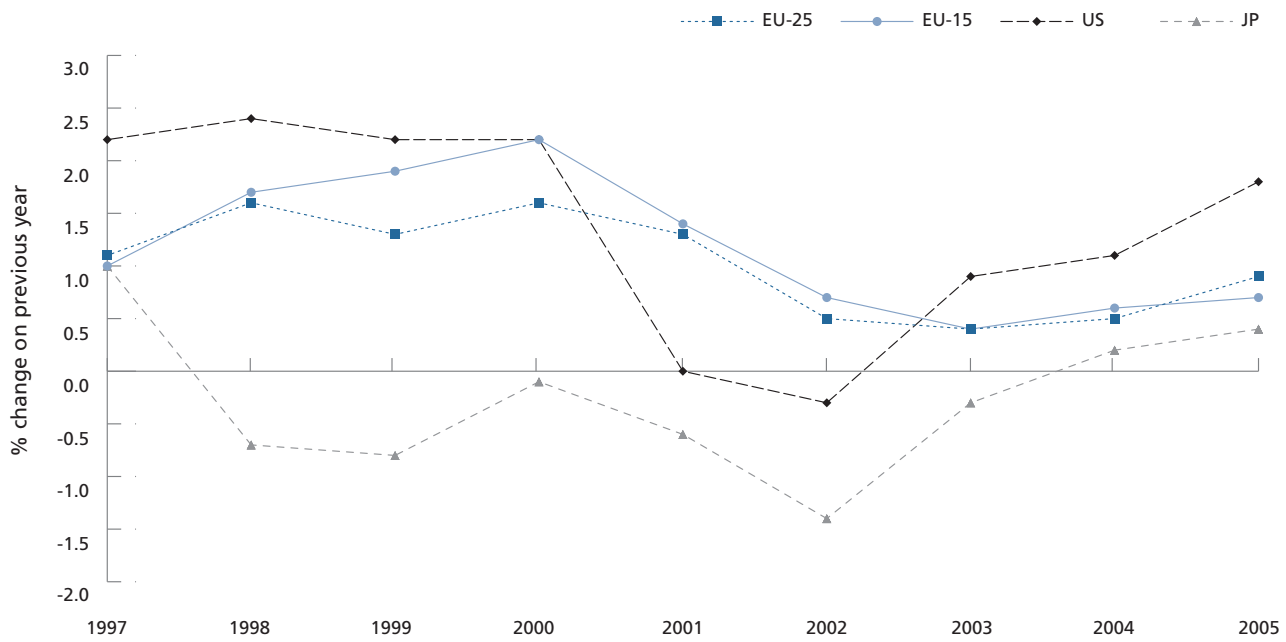
Source: EU data from QLFD, Eurostat; US and Japan data from AMECO database, Commission Services.

Chart 3 **Employment rates in the EU, US and Japan 1975 – 2005**

EU-15 ● —— EU-25 ■ · · · · US ◆ – – JP ▲ – –
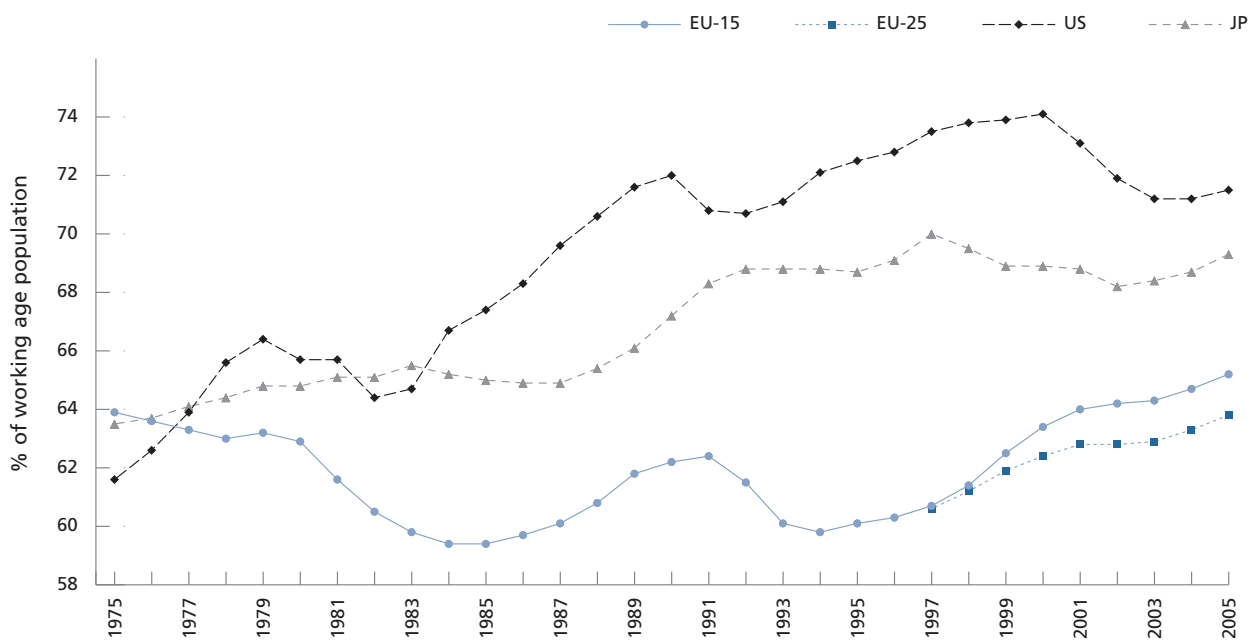
Source: DG EMPL calculation based on long-term trends in employment and population, Commission Services.

2.2. Recent general labour market developments in the EU

2.2.1. Employment growth across Member States in 2005

Employment growth for the EU as a whole continued to improve during 2005, a development reflected across the vast majority of Member States (Table 2). Only Finland, Germany and Italy experienced a significant decline in growth, with rates for the latter two turning negative during the course of the year.

Among the larger Member States, employment growth continued to be particularly strong in Spain where it accelerated over the course of the year to reach 3.7% by the last quarter (Chart 4). In contrast, growth in Italy fell from around the 1% level in the first quarter to turn negative from the third quarter onwards, thus continuing the recent broad trend of declining employment growth in that Member State. Growth in Germany, which had seemed to be back on a positive track following a resumption in growth in 2004, fell back into negative territory from the second quarter of 2005 onwards. In France, employment expansion remained subdued, continuing the lacklustre labour market performance of recent years, but nevertheless showed a moderate improvement over the course of the year. Meanwhile growth in the UK remained relatively robust at around the 1% mark for most of 2005, similar to previous years, before dropping to 0.6% in the last quarter.

Among the remaining Member States, almost all experienced a clear improvement in their employment situation compared to the previous year. Several Member States that had experienced spells of employment contraction in 2004 saw a strong upturn in growth over 2005 (Austria, Denmark, Estonia,

	2002q01	2002q02	2002q03	2002q04	2003q01	2003q02	2003q03	2003q04	2004q01	2004q02	2004q03	2004q04	2005q01	2005q02	2005q03	2005q04
BE	0.1	0.2	-0.4	-0.5	-0.1	-0.1	-0.3	0.1	0.2	0.5	0.7	0.9	1.0	1.0	0.9	0.8
CZ	-0.1	0.8	1.2	1.1	3.7	3.4	2.7	2.8	0.1	0.0	0.8	0.7	0.6	0.7	0.7	0.9
DK	-0.2	0.2	0.2	-0.4	-0.7	-1.5	-1.3	-1.4	-0.4	-0.2	0.3	0.4	0.3	0.8	0.8	1.0
DE	-0.1	-0.4	-0.7	-1.1	-1.3	-1.2	-0.8	-0.5	0.0	0.4	0.5	0.6	0.0	-0.3	-0.3	-0.3
EE	1.9	0.9	1.3	1.0	0.1	1.3	2.0	2.3	2.3	0.5	-1.9	-0.9	0.5	2.7	2.3	2.5
EL	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ES	2.4	2.7	2.3	2.1	2.3	2.4	2.8	2.7	2.6	2.3	2.6	2.9	3.3	3.5	3.7	3.7
FR	0.9	0.6	0.5	0.5	0.4	0.2	0.0	0.0	-0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.4
IE	2.5	2.0	1.2	1.4	1.7	1.6	1.9	2.7	2.7	2.7	3.3	3.6	4.3	5.0	4.8	4.8
IT	2.1	2.0	1.1	1.1	0.5	1.8	1.6	2.1	1.3	1.1	-0.4	-0.6	1.0	0.3	-0.3	-0.1
CY	2.2	2.0	2.0	2.1	3.9	3.7	3.8	3.8	4.2	3.6	3.6	3.7	3.1	3.5	3.6	:
LV	0.6	1.3	4.5	2.7	1.6	1.5	0.6	0.5	0.9	1.8	0.3	1.5	1.3	0.6	1.3	2.9
LT	0.0	4.6	6.3	5.0	2.7	3.7	0.8	2.0	1.2	-2.4	-0.2	1.0	2.5	2.2	2.8	2.9
LU	4.1	3.1	2.3	2.2	1.7	1.9	1.9	1.8	1.7	2.3	2.5	2.5	3.0	2.8	2.9	2.9
HU	-0.5	0.2	-0.1	0.6	0.5	1.4	1.6	1.6	0.7	-0.9	-1.2	-1.2	-0.6	-0.1	0.5	0.2
MT	-1.2	0.5	1.4	1.6	3.3	1.1	0.2	-0.4	-1.3	-1.9	-0.5	0.5	1.6	2.0	1.7	0.8
NL	1.1	0.6	0.3	0.1	0.1	-0.4	-0.8	-1.3	-1.7	-1.6	-1.5	-1.0	-0.9	-0.5	-0.1	0.1
AT	0.2	-0.2	0.0	-0.5	-0.1	0.2	0.2	0.1	0.1	0.0	-0.4	0.2	0.1	0.3	1.4	1.8
PL	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
PT	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
SI	1.6	1.5	1.3	1.7	-0.2	-0.1	-0.2	-0.4	0.0	0.2	0.7	0.8	0.6	0.8	0.8	0.8
SK	-1.1	-0.6	-0.1	-0.3	2.0	1.7	1.5	2.0	-0.4	-1.0	-0.2	0.3	1.4	1.3	1.0	1.8
FI	1.2	0.8	1.0	0.9	0.5	0.4	0.0	-0.5	-0.6	-0.4	1.0	1.6	1.9	1.9	0.6	0.0
SE	0.4	0.3	0.1	-0.1	-0.5	0.0	-0.3	-0.6	-0.7	-0.8	-0.3	-0.3	0.0	0.0	0.4	0.9
UK	0.6	0.8	0.7	1.0	1.1	1.0	1.1	0.6	1.2	0.8	0.8	1.2	1.0	1.0	1.3	0.6
EU-25	0.7	0.6	0.4	0.3	0.2	0.4	0.4	0.5	0.5	0.4	0.4	0.6	0.9	0.8	0.9	0.8

Table 2 – Annual change in employment growth, by quarter, over 2002 to 2005 (% change compared to same period of previous year)

Source: Eurostat, QLFD quarterly results.

Note: No quarterly employment growth data from QLFD for EL, PL and PT.

Lithuania, Malta, Slovakia and Swe-
den). In Ireland, already strong employ-
ment growth picked up even further,
while in the Netherlands the period of
employment contraction, which began

in the second quarter of 2003, had come
to an end by the close of 2005.

As a consequence of these develop-
ments, employment growth for the year

as a whole was positive for the majority
of Member States (Chart 5). Annual
growth was negative in only two coun-
tries (Germany and the Netherlands,
although due to the weight of the former

Chart 4   **Employment Growth in the larger Member States, 2002 – 2005**
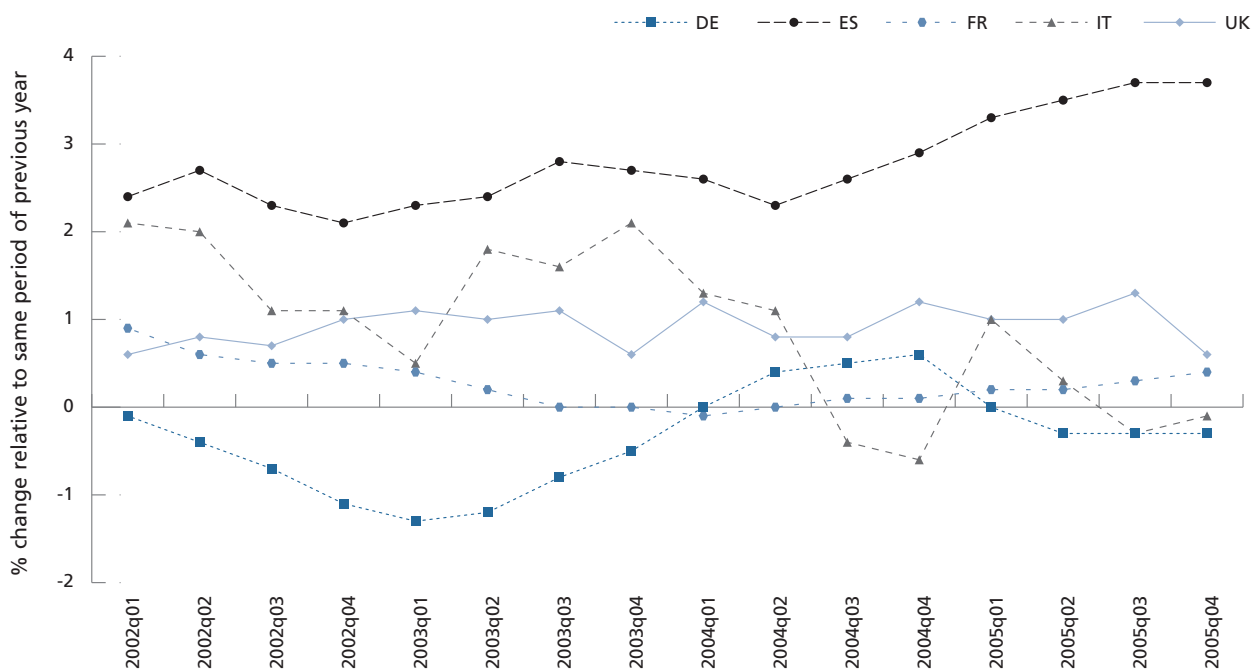
Source: Eurostat, QLFD quarterly results.

Chart 5   **Employment growth for EU Member States, 2005**
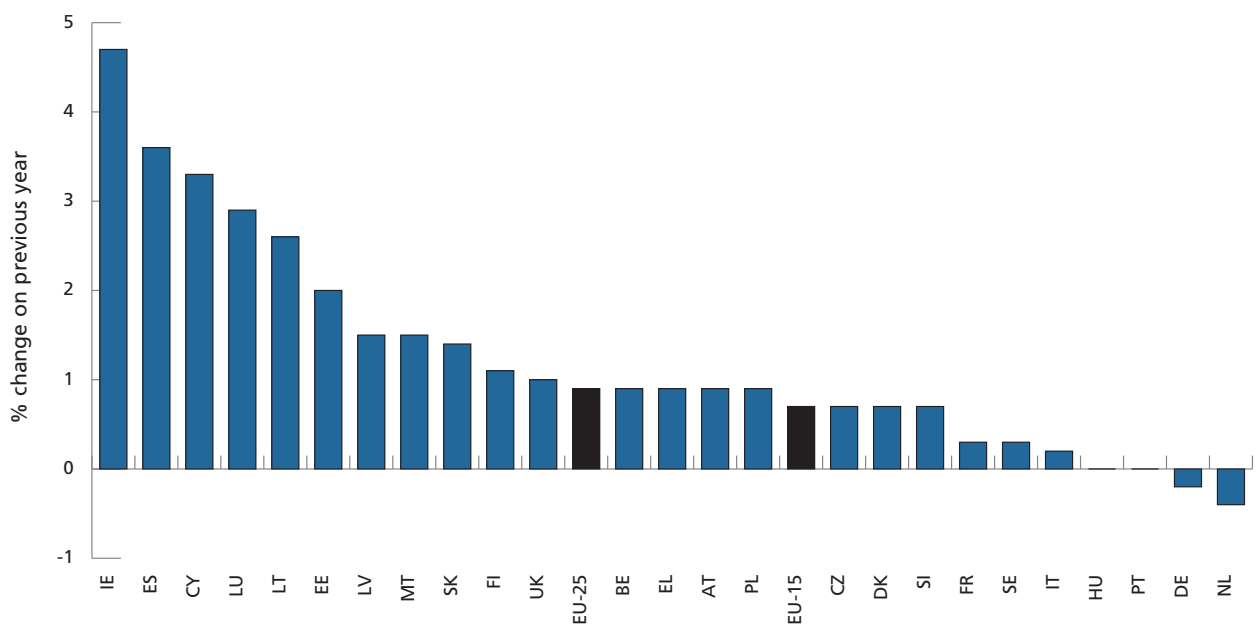
Source: Eurostat, QLFD. Note: data for CY provisional.

this had a certain restraining effect on overall growth for the EU), and then only of the order of -0.2% to -0.4%, and at a standstill in just two others (Hungary and Portugal). For the other twenty-one Member States employment expanded in 2005, with growth of over 1% in ten countries. Particularly strong growth was experienced in Cyprus (3.3%), Spain (3.6%) and above all Ireland (4.7%). A further positive sign is that annual employment growth turned positive in Poland in 2005 following a long period of employment contraction in that country.

At EU level, employment creation between 2004 and 2005 was again characterised by greater employment increases for women than for men, while in terms of age, those of prime working age (i.e. 25–54) accounted for around two-thirds of the total increase (Table 3). A significant development was the strong contribution from prime working age men in 2005, a marked change from previous years and leading to a more balanced composition of

growth by gender. Older workers aged 55–64 continued to account for a substantial share (just under one-third) of the overall rise in employment, in contrast to the negligible change in employment levels for younger people aged 15–24. Focussing on types of employment, part-time employment was a major factor in employment expansion, accounting for almost two-thirds of the rise in overall employment, while fixed-term employment was associated with almost half the increase in employment among employees.

2.2.2. Overall trends in unemployment

Over the course of 2005 the overall unemployment rate for the EU-25 continued the fall that had started from the first quarter of 2004, when the rate peaked at 9.2% (Chart 6). By the first quarter of 2006 it had fallen to 8.4%, the same level as the minimum achieved in the first half of 2001, and with the number of persons in unem-

ployment being just under 19 million. At that time the (seasonally adjusted) unemployment rate ranged from as low as just over 4% in Denmark, Ireland and the Netherlands to as high as 15.7% in Slovakia and 16.9% in Poland.

Similarly, declines in the unemployment rate were observed in the US and Japan. In the US the unemployment rate continued to fall over the course of 2005 and into 2006, having peaked at 6.1% in the second quarter of 2003. By the first quarter of 2006 it had fallen below the 5% level to 4.7%, but nevertheless remained some 0.8 percentage points above the minimum of 3.9% attained in the fourth quarter of 2000. Unemployment rates in Japan had fallen to 4.2% by the first quarter of 2006, down from the peak of 5.4% in early 2003. As a result of these developments the gap between the EU-25 unemployment rate and those of the US and Japan remained around 4 percentage points – little changed from 2004.

2.2.3. Developments in productivity growth

Reflecting the temporary slowdown in economic growth in 2005 and the moderate recovery in employment, average labour productivity growth (in terms of GDP per person employed) for the EU declined to 0.9%, down from 2.0% the previous year and returning to the low levels of the previous years 2001–2003 (Chart 7). Although moderate, this generalised decline in labour productivity growth contrasts with the upturn observed in 2004, which was essentially a cyclical rebound. Labour productivity also fell sharply in 2005 in the US, down from 3.3% the year before to 1.7%, but remained relatively stable in Japan at 2.3%. As a result of these developments, EU productivity growth remained substantially below that in the US and Japan, continuing the trend observed since 2002.

Table 3 – Contribution to employment creation between 2004 and 2005 by sex, age and type of employment		
		% contribution to employment creation 2004 – 2005
Sex and age		
Women	15-24	negligible
	25-54	32.6
	55-64	20.6
	All women 15+	54.6
Men	15-24	negligible
	25-54	30.6
	55-64	11.0
	All Men 15+	45.4
Type of employment		
Full-time versus Part-time	Full-time	35.4
	Part-time	64.6
		% contribution to employment creation of employees 2004 – 2005
Permanent versus fixed-term	Permanent	54.2
	Fixed-term	45.8

Source: Eurostat, LFS spring results.

Chart 6 | **Trends in unemployment rates in the EU, US and Japan since 1995 (seasonally adjusted quarterly data)**

EU-25   EU-15   US   JP
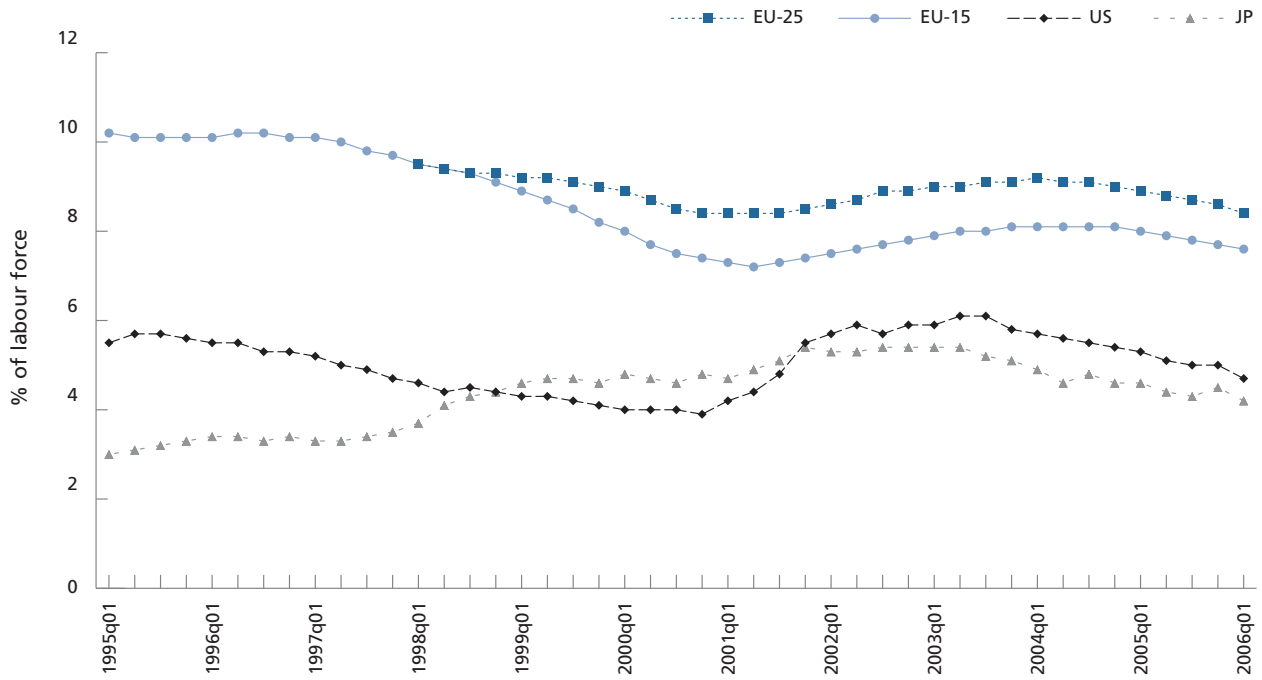
Source: Eurostat, harmonised series on unemployment.

Chart 7 | **Growth in productivity per person employed, 2000 – 2005**

EU-25   US   JP
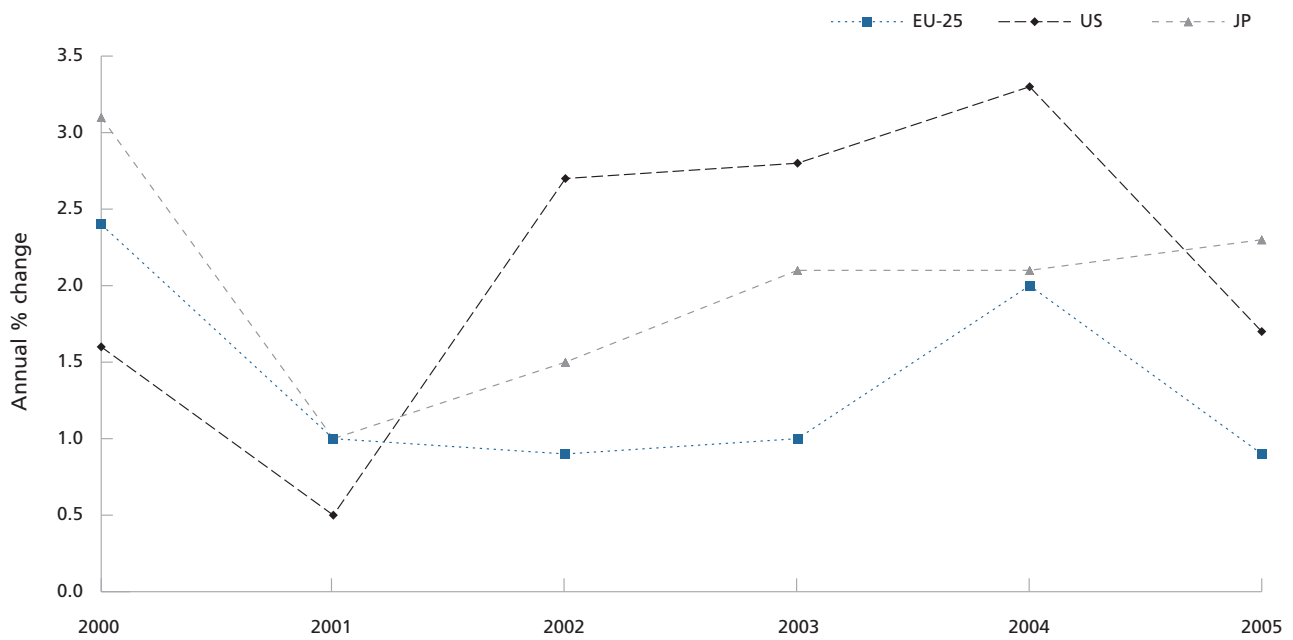
Source: Commission Services.

Considering productivity in terms of GDP per hour worked, productivity growth in the EU also declined sharply in 2005, and also on this basis remains below the growth rates observed in the US and Japan (Chart 8). Even though recent hourly productivity growth figures for the US peaked in 2003 and have declined since, the rate remained around twice that of the EU in 2005.

At Member State level, strong productivity growth at rates well above the EU average continued in the new Member States other than Poland. Apart from Germany, among the larger Member States productivity growth was generally subdued, and particularly weak in Italy and Spain, continuing the trend of recent years in these two Member States (Table 4). In line with the overall decline in productivity growth at EU level, growth rates declined in the vast majority of Member States compared to the previous year.

2.3. Short-term prospects for the EU labour market

According to the European Commission's 2006 Spring Economic Forecasts, the recovery in the EU economy is expected to gather pace in 2006, with GDP growth forecast to reach 2.3% for the year as a whole, some three-quarters of a percentage point higher than growth in 2005. Economic growth is then expected to moderate slightly and decline by 0.1 of a percentage point in 2007.

The expectation is that the general recovery in the EU will be supported by a strengthening of domestic demand, in particular increasing investment while private consumption is forecast to grow more moderately, reflecting the expected gradual improvement in the labour market. Furthermore, external demand is expected to be supported by the continued strong growth in the world economy, which is forecast to be sustained for most of 2006, and to average 4.6% for the year as a whole. However, there is expected to be a moderation in growth in the latter part of the year,

resulting from the strong increase in the price of oil and other commodities coupled with the effects of monetary tightening across world regions.

In the labour market, the moderate response of employment to the upturn in economic activity after the slowdown of 2001–2003 continues, still partly reflecting the effects of labour hoarding during the slowdown but also the relative weakness of the current economic upswing and the effects of the temporary deceleration in 2005. Employment growth has now been relatively low (under 1%) for four years and has not picked up markedly since the start of the general economic upturn in mid-2003. Furthermore, employment growth is forecast to increase only marginally in 2006, remaining below the 1% level, and to stabilise at around 0.8% in 2007. The unemployment rate is expected to fall gradually to 8.5% in 2006 and to decline further to 8.2% in 2007.

Labour productivity growth in the EU (in terms of real GDP per occupied person) is expected to improve to 1.4% in

Chart 8 **Growth in productivity per hour worked, 2000 – 2005**

EU-25 ···■··· US – –◆– – JP ——▲——
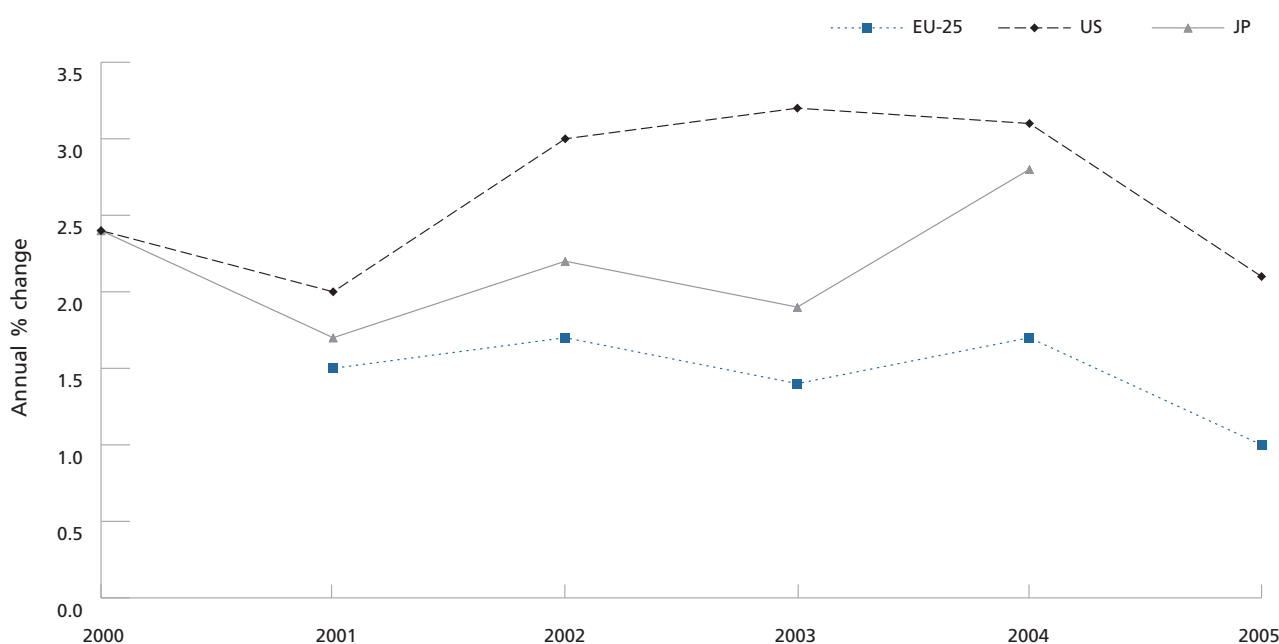
Source: Commission Services.

Table 4 – Annual productivity growth 2000 – 2005												
	Growth in GDP per person employed						Growth in GDP per hour worked					
	2000	2001	2002	2003	2004	2005	2000	2001	2002	2003	2004	2005
BE	1.9	-0.4	1.7	1.0	2.0	0.3	1.9	-0.6	1.7	1.3	3.3	0.9
CZ	4.6	2.2	0.0	0.1	4.8	5.0	4.2	7.0	0.9	5.1	3.9	4.8
DK	3.1	-0.1	0.5	1.9	1.8	2.4	2.1	-0.6	0.9	2.2	2.6	1.5
DE	2.3	1.4	1.1	1.5	2.1	1.5	2.6	1.8	1.5	1.2	0.9	1.5
EE	11.0	5.6	5.6	5.8	7.7	7.9	n.a.	6.0	5.6	5.1	7.2	7.1
EL	4.6	5.4	3.7	3.4	1.7	2.2	4.0	5.2	3.7	3.4	3.0	2.0
ES	0.0	0.3	0.3	0.4	0.5	0.3	-1.2	0.6	0.5	0.6	0.8	0.5
FR	1.1	-0.3	0.1	1.1	2.3	0.9	3.8	1.0	3.1	1.5	2.4	1.0
IE	4.4	3.1	4.3	2.4	1.3	-0.1	4.6	3.7	5.5	3.7	1.7	0.6
IT	1.7	0.0	-0.9	-0.6	1.0	0.4	2.9	0.1	-0.2	-0.2	0.3	0.4
CY	2.7	1.9	1.0	0.9	2.3	2.2	n.a.	-4.6	1.7	-0.2	1.4	2.2
LV	10.1	5.7	4.8	5.4	7.4	8.5	9.4	6.2	5.2	4.4	10.3	8.0
LT	8.3	10.1	2.6	8.0	7.1	4.7	n.a.	10.0	4.4	9.3	5.9	1.9
LU	2.7	-2.9	0.7	0.2	1.9	1.1	2.9	-2.0	1.2	1.5	4.0	1.1
HU	3.7	3.8	3.9	2.6	5.8	3.2	4.2	6.2	3.4	3.5	6.0	3.8
MT	4.0	-1.4	0.9	-3.5	-0.7	0.9	n.a.	1.6	1.4	-1.0	-4.7	4.0
NL	2.1	0.6	0.3	0.7	3.4	1.7	0.3	-0.1	0.7	0.5	3.3	1.3
AT	2.3	0.3	1.2	1.2	2.2	1.3	2.7	0.3	1.0	1.3	2.2	1.3
PL	5.8	3.4	4.5	5.1	3.9	0.9	n.a.	4.1	4.3	4.8	4.2	0.9
PT	2.1	0.3	0.4	-0.7	1.0	0.3	4.6	0.1	0.2	0.4	0.0	0.5
SI	3.3	2.2	1.9	2.9	3.7	3.1	2.6	1.8	5.1	2.5	6.5	2.1
SK	3.9	2.6	4.7	2.3	5.8	4.7	3.8	3.3	7.8	5.3	3.4	4.5
FI	2.7	1.1	0.7	1.7	3.1	1.6	3.6	2.1	1.0	2.1	2.8	2.1
SE	1.9	-0.8	1.8	2.0	4.3	2.4	3.3	0.6	3.3	3.2	2.9	2.2
UK	2.6	1.5	1.3	1.7	2.2	0.9	3.3	1.4	2.4	2.4	2.5	1.5
EU-25	2.4	1.0	0.9	1.0	2.0	0.9	n.a.	1.5	1.7	1.4	1.7	1.0
EU-15	1.9	0.6	0.6	0.9	1.9	1.0	2.6	0.9	1.5	1.2	1.6	1.1
US	1.6	0.5	2.7	2.8	3.3	1.7	2.4	2.0	3.0	3.2	3.1	2.1
JP	3.1	1.0	1.5	2.1	2.1	2.3	2.4	1.7	2.2	1.9	2.8	n.a.

Source: Commission Services.

2006, up from the growth rate of 0.9 % in 2005, and then to stabilise at 1.3% in 2007. Growth in productivity is expected to be particularly low in Portugal and Spain in 2006 (around 0.5%), but strong in the Baltic States (over 5%) and most of the other new Member States.

3. Labour market situation in 2005 in the enlarged EU

3.1. Employment rates and the Lisbon and Stockholm targets

3.1.1. Overall progress in relation to the Lisbon and Stockholm targets

In 2005 the EU continued to make progress towards the Lisbon and Stockholm employment targets (Box 1), albeit moderate other than for the older people's target. Between 2004 and 2005 the average employment rate[3] for the EU rose by 0.5 of a percentage point to 63.8%, simi-lar to the increase recorded in 2004 and despite the deceleration in economic growth in 2005. The employment rate for women rose by 0.6 percentage points to 56.3%, while that for men rose by a more moderate 0.4 percentage points to 71.3%. As a result, the gender gap in employment rates in the EU narrowed further between 2004 and 2005, falling by 0.2 of a percentage point to 15.0 per-centage points. For older people (aged 55 to 64) the employment rate rose sub-stantially, by 1.5 percentage points to 42.5%, indicating a rebound from the relatively limited rise of 2004. Given the above developments, in 2005 the overall, female and older people's employment rates were around 6, 4 and 7.5 percentage points below the respective Lisbon and Stockholm employment targets for 2010 (Table 5).

The relative weakness in employment growth over the first half of this decade, together with the rather limited prospects for growth in 2006 and 2007, means that achieving an EU employ-ment rate of 70% by 2010 is becoming increasingly challenging, although it should also be recognised that in absolute terms employment has expanded significantly since 2000 and that the overall employment rate has risen despite the slowdown in econom-ic growth which characterised much of this period. According to recent labour force projections prepared by the Com-mission and the Ageing Working Group attached to the Economic Policy Com-mittee[4] the overall employment rate of the EU-25 is projected to rise to 67% by 2010.

Box 1 – Lisbon and Stockholm employment rate targets and the relaunched Lisbon Strategy

The Lisbon European Council of 2000 set a strategic goal, over the decade 2000–2010, for the EU "to become the most competitive and dynamic knowl-edge-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 employ-ment 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 sys-tems. In addition to the 2010 Lisbon targets, the Stockholm European Council of 2001 set a new target of raising the average EU employment rate for older men and women (aged 55 to 64) to 50% by 2010.

Recognising the limited progress achieved so far towards these targets, the European Council decided in 2005 to re-launch the Lisbon Strategy with-out delay and refocus priorities on eco-nomic growth and employment. As part of this, a new set of employment guidelines for the period 2005 to 2008 was adopted by the Council in July 2005 to reflect the renewed focus on jobs, and they form part of the "Inte-grated Guidelines" package also adopted in 2005, which lays out a comprehensive strategy of macroeco-nomic, microeconomic and employ-ment policies to redress Europe's weak growth performance and insufficient job creation. The employment guide-lines continue to reflect the EU's over-all goal of achieving full employment, quality and productivity at work, and social and territorial cohesion, and advocate a lifecycle approach to work that tackles the problems faced by all age groups. The eight employment guidelines fall under three broad areas for action, namely to:

- *Attract and retain more people in employment, increase labour supply and modernise social protection systems;*
- *Improve adaptability of workers and enterprises;*
- *Increase investment in human capi-tal through better education and skills.*

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3 Defined as the share of employed persons aged 15–64 in the total population of the same age group.

4 A long-run labour force projection was recently prepared by the Commission and the Ageing Working Group attached to the Economic Policy Committee as part of the project to produce common age-related expenditure projections. Using a baseline population projection supplied by Eurostat, the labour force projections are based on an age-cohort methodology developed by the OECD and refined by DG ECFIN and the AWG. (http://ec.europa.eu/economy_finance/publications/european_economy/2005/eespecialreport0405_en.htm)

Table 5 – Employment Rates in EU Member States in 2005 and progress towards the Lisbon and Stockholm targets for 2010											
	Total employment rate				Female employment rate				Older People's employment rate			
	2005	Change 2004 – 2005	Change 2000 – 2005	Gap below 2010 target	2005	Change 2004 – 2005	Change 2000 – 2005	Gap below 2010 target	2005	Change 2004 – 2005	Change 2000 – 2005	Gap below 2010 target
BE	61.1	0.8	0.6	8.9	53.8	1.2	2.3	6.2	31.8	1.8	5.5	18.2
CZ	64.8	0.6	-0.2	5.2	56.3	0.3	-0.6	3.7	44.5	1.8	8.2	5.5
DK	75.9	0.2	-0.4	>	71.9	0.3	0.3	>	59.5	-0.8	3.8	>
DE	65.4	0.4	-0.2	4.6	59.6	0.4	1.5	0.4	45.4	3.6	7.8	4.6
EE	64.4	1.4	4.0	5.6	62.1	2.1	5.2	>	56.1	3.7	9.8	>
EL	60.1	0.7	3.6	9.9	46.1	0.9	4.4	13.9	41.6	2.2	2.6	8.4
ES	63.3	2.2	7.0	6.7	51.2	2.9	9.9	8.8	43.1	1.8	6.1	6.9
FR	63.1	0.0	1.0	6.9	57.6	0.2	2.4	2.4	37.9	0.6	8.0	12.1
IE	67.6	1.3	2.4	2.4	58.3	1.8	4.4	1.7	51.6	2.1	6.3	>
IT	57.6	0.0	3.9	12.4	45.3	0.1	5.7	14.7	31.4	0.9	3.7	18.6
CY	68.5	-0.4	2.8	1.5	58.4	-0.3	4.9	1.6	50.6	0.7	1.2	>
LV	63.3	1.0	5.8	6.7	59.3	0.8	5.5	0.7	49.5	1.6	13.5	0.5
LT	62.6	1.4	3.5	7.4	59.4	1.6	1.7	0.6	49.2	2.1	8.8	0.8
LU	63.6	1.1	0.9	6.4	53.7	1.8	3.6	6.3	31.7	1.3	5.0	18.3
HU	56.9	0.1	0.6	13.1	51.0	0.3	1.3	9.0	33.0	1.9	10.8	17.0
MT	53.9	-0.1	-0.3	16.1	33.7	1.0	0.6	26.3	30.8	-0.7	2.3	19.2
NL	73.2	0.1	0.3	>	66.4	0.6	2.9	>	46.1	0.9	7.9	3.9
AT	68.6	0.8	0.1	1.4	62.0	1.3	2.4	>	31.8	3.0	3.0	18.2
PL	52.8	1.1	-2.2	17.2	46.8	0.6	-2.1	13.2	27.2	1.0	-1.2	22.8
PT	67.5	-0.3	-0.9	2.5	61.7	0.0	1.2	>	50.5	0.2	-0.2	>
SI	66.0	0.7	3.2	4.0	61.3	0.8	2.9	>	30.7	1.7	8.0	19.3
SK	57.7	0.7	0.9	12.3	50.9	0.0	-0.6	9.1	30.3	3.5	9.0	19.7
FI	68.4	0.8	1.2	1.6	66.5	0.9	2.3	>	52.7	1.8	11.1	>
SE	72.5	0.4	-0.5	>	70.4	-0.1	-0.5	>	69.4	0.3	4.5	>
UK	71.7	0.1	0.5	>	65.9	0.3	1.2	>	56.9	0.7	6.2	>
EU-15	65.2	0.5	1.8	4.8	57.4	0.6	3.3	2.6	44.1	1.6	6.3	5.9
EU-25	63.8	0.5	1.4	6.2	56.3	0.6	2.7	3.7	42.5	1.5	5.9	7.5
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 a collective target for the EU and not individual Member States. The symbol ">" indicates that the respective target has already been exceeded by the Member States concerned.

It is estimated that between 2005 and 2010 employment of the working age population would need to increase by around 21 million in order to attain the overall 2010 target, equivalent to an employment growth of just over 2% per year. This should be seen in the context of employment creation for the working age population of around 8 million over the first half of the decade as well as the fact that forecast employment growth[5] is expected to lead to the creation of around 3.6 million new jobs in the period 2006–2007. Similarly, to meet the employment rate targets for women and older workers, increases in employment of around 6.5 million in each of these population subgroups would be necessary, although recent trends in the employment rate increases for these suggest that the chances to

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5   Commission 2006 spring forecasts.

reach the respective 2010 targets, or at least make substantial progress towards them, are more encouraging[6]. Indeed, rates for women have risen by around 3 percentage points since 2000 and for older workers by around 6 percentage points, despite this being a period of low economic growth in general. However, continuing the long-term increases in activity for women and older people will be essential to achieving the employment growth needed to meet the targets, together with improving employment opportunities for the low-skilled. In this regard, removing remaining disincentives to female participation, continuing structural reforms aimed at retaining older people in the labour force longer and raising skill levels, particularly for the less skilled, are crucial. Efforts are also required to improve the labour market integration of young people, as highlighted in the European Youth Pact adopted by the European Council in March 2005.

3.1.2. Employment rate developments at Member State level in 2005

Large variations remain in employment rates between EU Member States. In 2005, these ranged from as low as around 53% in Poland to close to 76% in Denmark (Chart 9). In line with the overall improvement in the employment rate at EU level, rates rose in the large majority of Member States compared to 2004, most notably in Estonia, Ireland, Latvia, Lithuania, Luxembourg and Poland where rates all increased by more than one percentage point, and in particular Spain where the rate increased by over 2 percentage points. Rates declined noticeably only in Cyprus and Portugal. Among the large Member States, rates remained essentially unchanged in France, Italy and the UK, but rose 0.4 percentage points in Germany. In view of the apparent standstill in rate increases in the former three, the turn-

around in the labour markets in Germany and Poland in 2004 and 2005 following several years of decline are particularly welcome.

Apart from Estonia, Finland and Sweden, employment rates for women remain substantially below those for men in EU Member States. Despite the continuing reduction in the disparity between male and female employment rates at EU level, large gender differences of more than 20 percentage points still remain in Cyprus, Greece, Italy and Spain, while in Malta the gap is around 40 percentage points, reflecting the fact that in that country only one in three women of working age is in employment.

Notable disparities persist within the EU between the employment rates of different gender and age groups within the working age population (Chart 10). Employment rates among the young (those aged 15–24) averaged

| Chart 9 | Employment rates by gender, 2005 |

Source: Eurostat, QLFD.
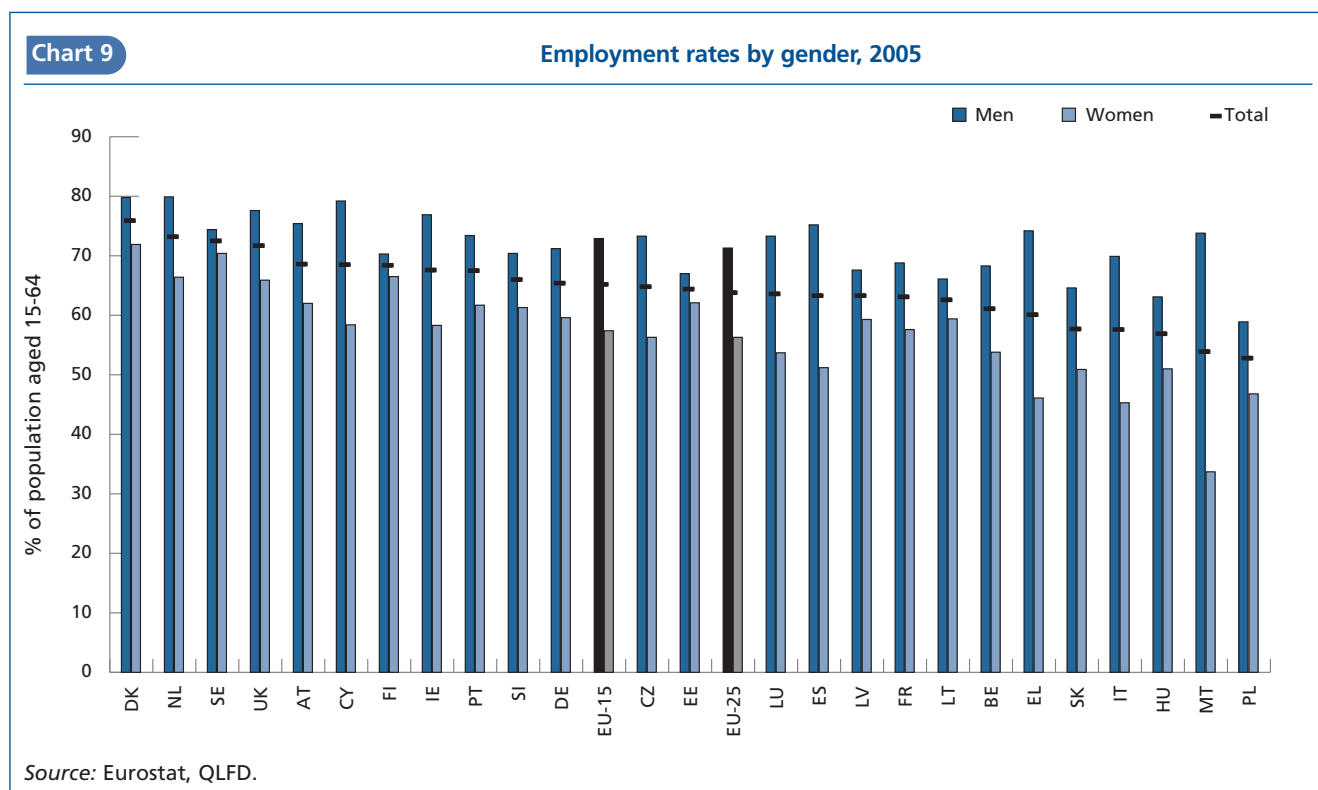
6   The recent Commission and Ageing Working Group projections referred to above put the female employment rate at 60% in 2010, and that for older workers substantially up at 47%.

36.8% in 2005 at EU level, unchanged from the year before and ranging from 25% or below in Greece, Hungary, Lithuania, Luxembourg and Poland to over 65% in the Netherlands. Similar variation exists in the employment rates for older people (aged 55–64), which ranged from 27% in Poland to almost 70% in Sweden. However, while employment rates for older people have risen strongly over recent years in almost all Member States, in contrast those for young people have fallen substantially in a large majority, although the latter partly reflects the recent trend of higher participation in education among youth.

3.1.3. Situation of individual Member States in relation to the Lisbon and Stockholm targets

While the Lisbon and Stockholm employment rate targets are collective targets for the EU as a whole, it is interesting to examine the position of individual Member States with respect to the collective EU targets for 2010. Based on employment rates in 2005, these can be summarised as follows:

• It is still the case that only four Member States (Denmark, the Netherlands, Sweden and the UK) already meet the overall EU target for 2010 of an employment rate of 70%, while five others (Austria, Cyprus, Finland, Ireland and Portugal) are presently within 3 percentage points (Chart 11). However, the gap remains over 10 percentage points in five countries, including the large Member States of Italy and Poland, which are currently around 12 and 17 percentage points respectively below the EU target. Since the launch of the Lisbon Strategy, the greatest improvement in the overall employment rate has taken place in Spain where the rates has risen by 7 percentage points. However, rates

have also declined in some Member States, most notably in Poland.

• Nine Member States already meet the 2010 employment rate target for women, and six others are within 3 percentage points (Chart 12), including France and Germany. Among the remaining Member States the gap remains above 10 percentage points in Greece, Italy and Poland and as high as 26 percentage points in Malta. Since 2000, large increases in the female employment rate have been achieved in Cyprus, Estonia, Latvia and Italy, where rates have all risen by around 5 percentage points or more, and above all Spain (up 10 percentage points).

• For the older people's 2010 employment rate target, eight Member States already meet the target, but only two others are within 3 percentage points of it (Chart 13). While substantial gaps remain for many Member States (being of the order of 15 to 25 percentage points in nine cases), since 2000 substantial progress has been made towards the target in many countries. In particular, sixteen Member States have achieved increases of 5 percentage points or more, with especially strong rises (over 10 percentage points) in Finland, Hungary and Latvia. Only Poland and Portugal have experienced declines in employment rates for older people since 2000, although for the latter the rate is already high and above the 2010 target.

Chart 10 **Employment rates in the EU by age group and gender, 2005**

Legend: Men Women Total

Y-axis: % of group/gender population

	15-24	25-54	55-64	Total 15-64
Men	39.7	85.5	51.8	71.3
Women	33.8	68.9	33.7	56.3
Total	36.8	77.2	42.5	63.8
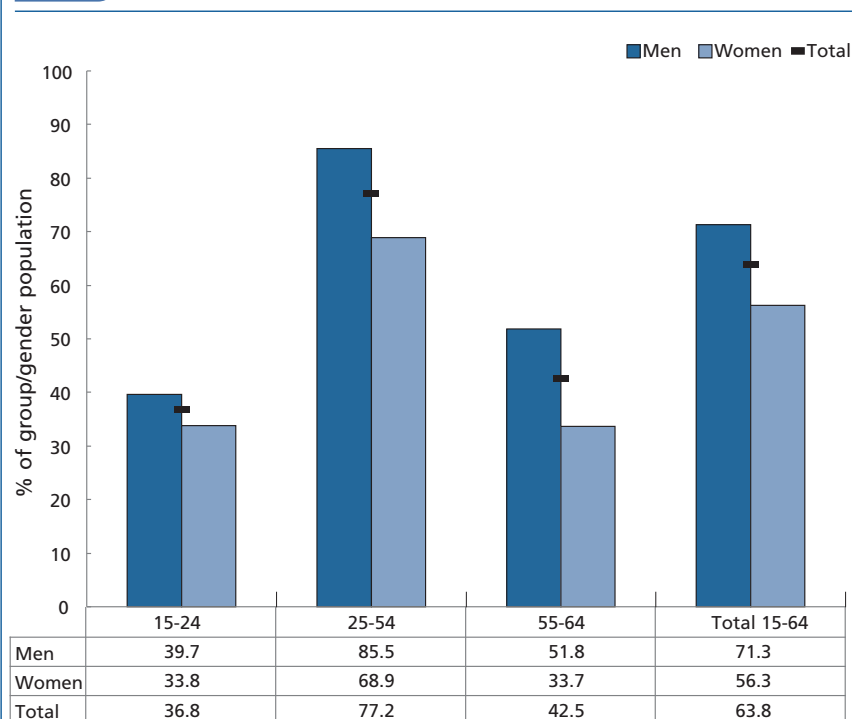
Source: Eurostat, QLFD.

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Chart 11 — **Overall employment rates for EU Member States, 2000 and 2005**
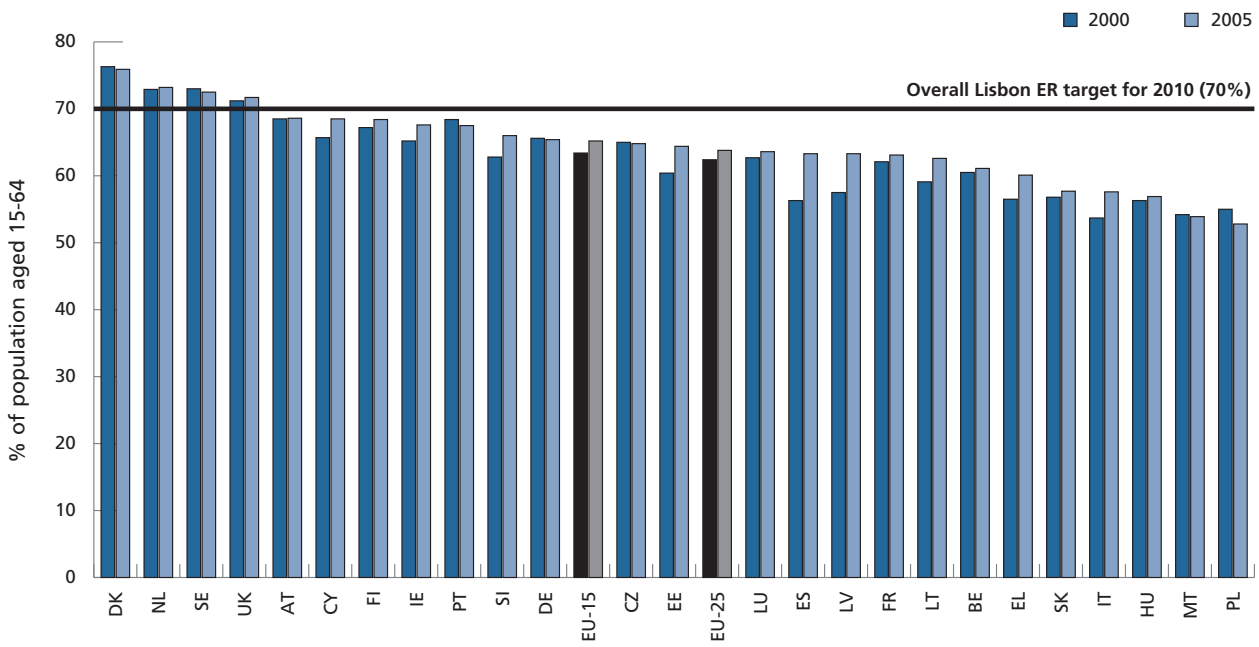
Source: Eurostat, QLFD.

Chart 12 — **Female employment rate for EU Member States, 2000 and 2005**

Source: Eurostat, QLFD.

Chart 13 **Older people's employment rates for EU Member States, 2000 and 2005**

■ 2000   ■ 2005
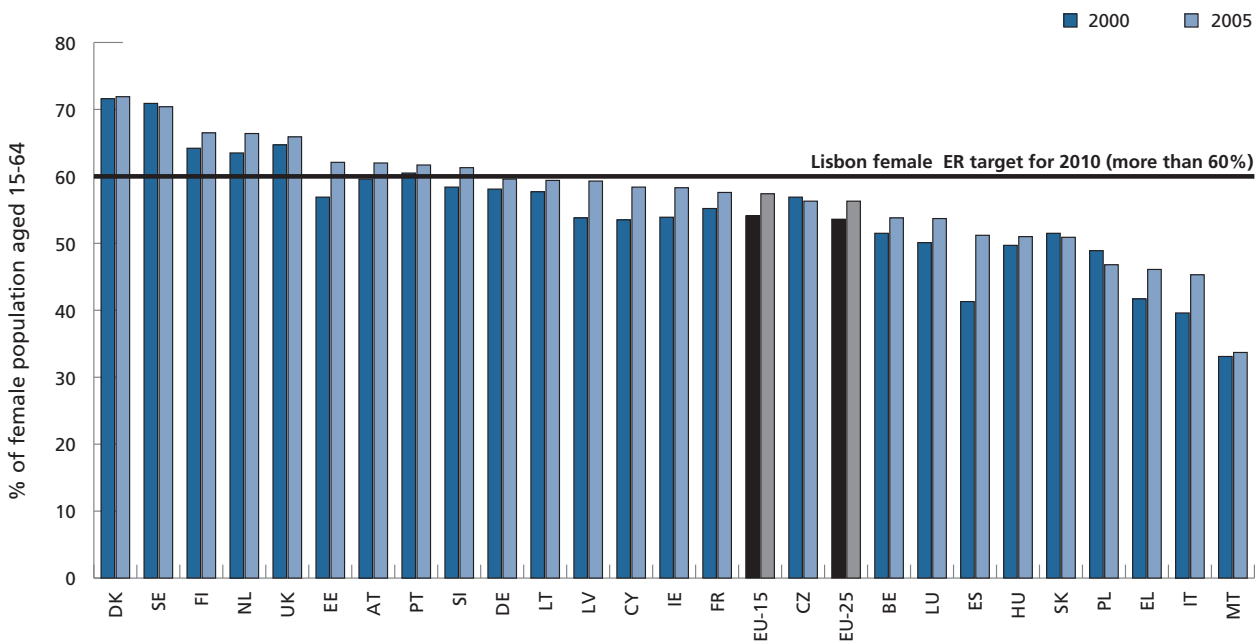
Source: Eurostat, QLFD.
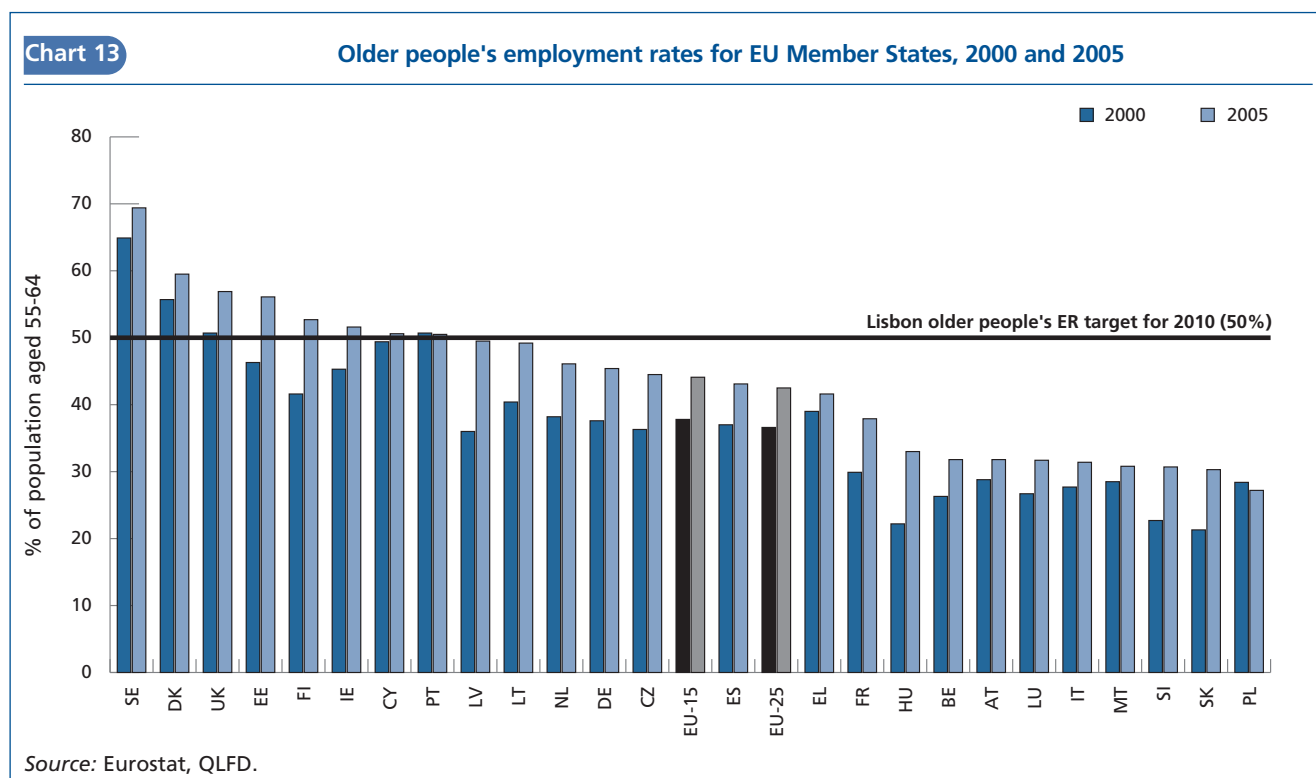
3.2. Activity rates

Despite the recent improvement in the performance of the EU labour market, the continued under-performance of the EU economy relative to other similarly advanced economies is due, in part, to the fact that labour input remains relatively low (Chart 14). In 2005, the activity rate[7] in the EU averaged 70.2%, some 5 percentage points lower than in the US and almost 11 percentage points lower than its European neighbour Switzerland.

This suggests that the EU has a substantial reserve of unused labour, with considerable scope for raising employment further, especially among such groups as women, older people and youth. Raising employment rates to the targets set by the Lisbon Council relies on reducing unemployment and/or increasing participation in the labour market. In line with this, a core element of the *Integrated Guidelines for Growth and*

Jobs, adopted by the Council in July 2005, concerns taking the necessary steps to attract more people into the labour market and to create more jobs.

The overall activity (or participation) rate for the EU continued to rise in 2005, increasing by 0.5 percentage points on the previous year and driven by strong increases in Austria, Germany, Ireland, Spain and Sweden. The activity rates for the individual Member States ranged from just over 58% in Malta, with Hungary, Italy and Poland also substantially (5 percentage points or more) below the EU average, to as high as just under 80% in Denmark (Chart 15). Although rates for men and women are rather close in certain Member States such as Finland and Sweden, large disparities remain in several countries, in particular Greece, Spain and Italy, and especially Malta, implying there is still much scope for increasing female participation in many Member States.

Activity rates in the EU are extremely age and gender specific. For young (15–24) and older persons (55–64) activity rates average 45%, well below the rate for prime age workers (25–54) at 84% (Chart 16). The main reason for inactivity among young people is participation in education, while retirement is the main reason for inactivity of older persons. Women are much more likely to be inactive than men in all age groups and in all Member States apart from Finland and Sweden, with the EU labour force survey indicating family responsibilities as the main reason. In 2005, the difference between the activity rates for men (77.8%) and women (62.5%) in the EU stood at 15.3 percentage points, slightly down on the previous year and continuing the trend towards closing the gap, largely driven by rising female participation.

Continuing the rise in participation rates observed over the late 1990s, rates in the EU have increased by

7   The proportion of the total population aged 15–64 that is economically active (i.e. either in employment or unemployed).

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1.5 percentage points since 2000 (Chart 17). This has been driven almost entirely by the continued underlying increase in female participation, which went up by 2.5 percentage points compared to only 0.4 percentage points for men. Strong contributions to the activity rate increase have come from females of prime-working age and from older women aged 55-64. For men the only contribution has come from the older persons group, since activity rates among prime-age workers have not changed compared to 2000 while those for young men have declined. Youth activity rates have fallen by 1.3 percentage points since 2000, with declines more-or-less the same for men and women. This reflects, at least in part, increased participation in education[8], which in the context of building a competitive knowledge-based economy, and given that improved skill levels for youth generally increases their chances to be

Chart 14 — International comparison of activity rates in 2005

	EU-15	EU-25		AU	CA	JP	CH	US
Activity rates	71.0	70.2		75.5	77.8	72.6	80.9	75.4
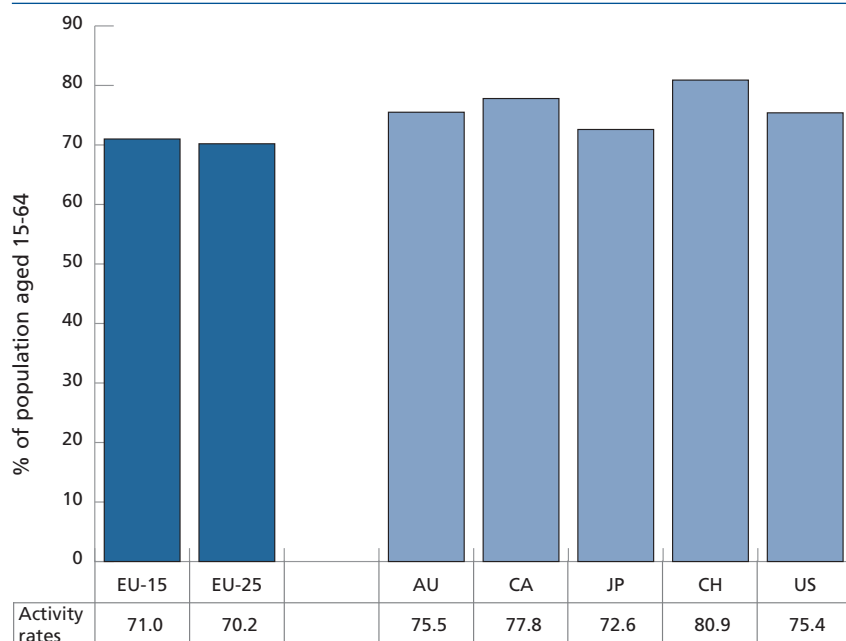
Source: Eurostat, QLFD for EU-15 and EU-25, OECD Employment Outlook 2006 for AU, CA, JP, CH and US.
Note: US refers to population aged 16-64.

Chart 15 — Activity rates of the working age population by gender, 2005
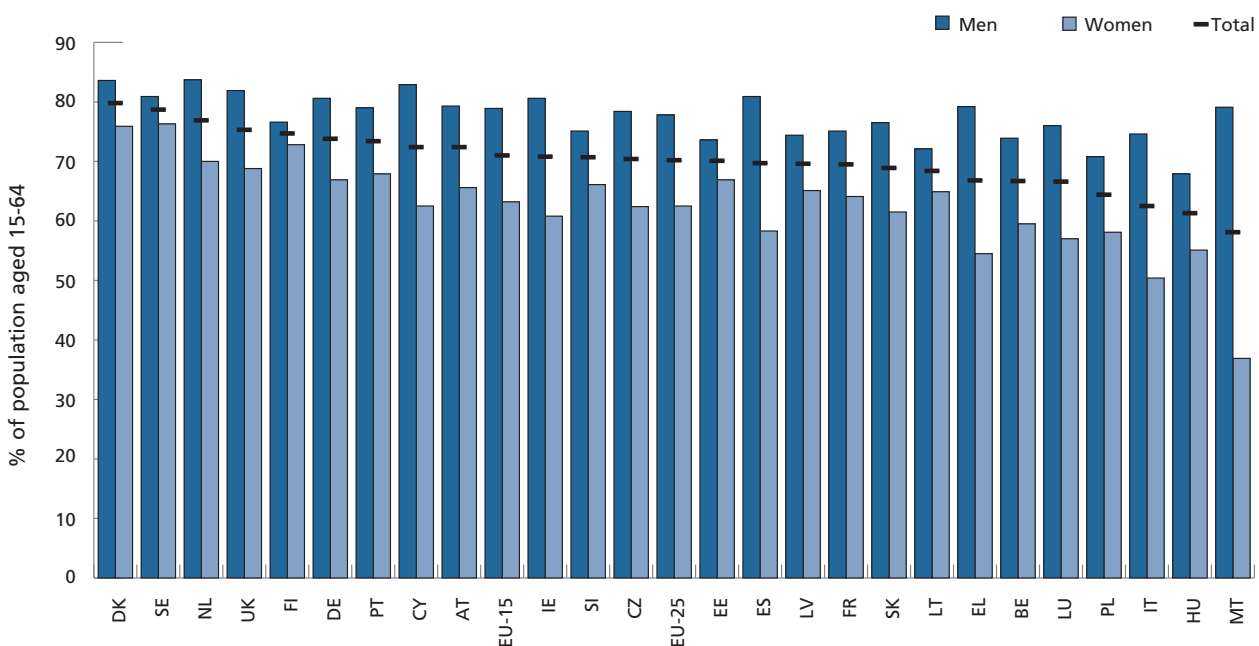
Source: Eurostat, QLFD.

8   Within the EU the proportion of students in the 15–24 age group rose from 56.4% in 2000 to 60.5% in 2004 (Source: Eurostat, education statistics), while the share of early school leavers (i.e. the percentage of the population aged 18 to 24 with at most lower secondary education and not in further education or training) has declined from 17.7% in 2000 to 15.2% in 2005 (Source: Eurostat, structural indicators).

Chart 16 — Activity rates in the EU by age group and gender, 2005

	15-24	25-54	55-64	Total 15-64
Men	48.7	92.1	55.5	77.8
Women	41.7	75.7	36.0	62.5
Total	45.2	83.9	45.5	70.2

Source: Eurostat, QLFD.

Chart 17 — Change in activity rates between 2000 and 2005 by age/gender grouping

	Youth (15-24)	Prime age (25-54)	Older people (55-64)	WAP (15-64)
Men	-1.2	0.0	4.9	0.4
Women	-1.3	2.6	6.9	2.5
Total	-1.3	1.3	6.0	1.5

Source: Eurostat, QLFD.

in employment later on, could be seen as a positive development. Furthermore, in contrast to the declining trend of recent years, activity rates for youth stabilised in 2005. Meanwhile activity rates for older people aged 55–64 have risen dramatically since 2000, up 6 percentage points on average, and with a strong rise between 2004 and 2005 of 1.6 percentage points.

3.3. Unemployment

The unemployment rate for 2005 averaged 8.7% for the EU as a whole, down from 9.1% the year before. Among the individual Member States, rates went up in only six countries compared to 2004, most notably Hungary, Portugal and Sweden (all with rates up of the order of 1.0 to 1.5 percentage points), and remained essentially unchanged in a further six, including the large Member States of France, Germany and the UK. All the other Member States recorded reductions in their unemployment rates, with particularly strong falls (around 1.5 to 2.0 percentage points) in Estonia, Latvia, Poland, Slovakia and Spain, and most notably Lithuania (down 3.1 percentage points).

Despite having achieved substantial reductions in their unemployment rates over recent years, those in Poland and Slovakia remain comparatively high, at 17.7% and 16.3% respectively. Rates in France and Germany (both at 9.5%) were also above average in 2005, although showing signs of stabilising after the increases of recent years, while the rate in Spain, traditionally a country with relatively high unemployment, is approaching the EU average following the substantial reduction in unemployment compared to 2004. Despite these developments, unemployment remains high in the large continental European economies. In comparison, unemployment rates in 2005

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were as low as around 4–5% in Denmark, Ireland, Luxembourg, the Netherlands and the UK (Chart 18).

At EU level the disparity in the average unemployment rate between genders fell noticeably between 2004 and 2005, down from 2.2 to 1.9 percentage points, with the actual unemployment rates at 7.9% for men and 9.8% for women in 2005. Nevertheless, large disparities between unemployment rates for men and women remain in several Member States, especially Greece, Italy and Spain where gaps in unemployment rates are respectively 9, 4 and 5 percentage points. However, in some Member States, namely Estonia, Ireland, Latvia, Sweden and the UK, unemployment rates for women are actually lower than those for men.

For the first time in several years the average youth unemployment rate in the EU declined in 2005, down some 0.4 percentage points compared to 2004 and mainly driven by the reductions in most of the new Member States (especially the Baltic States, Poland and Slovakia) and Spain. However, at 18.5% the youth unemployment rate still remains around twice as high as the overall unemployment rate, pointing to an over-supply of relatively low-skilled, inexperienced young workers. Furthermore, large disparities are still evident across the Member States (Chart 19), with rates above 20% in eight countries, and especially high in Slovakia and Poland at around 30% and 37% respectively, but as low as around 8.5% in Denmark, Ireland and the Netherlands.

Reversing the gradual rising trend experienced since 2001, the long-term unemployment rate[9] in the EU fell back to 3.9% in 2005, down from 4.1% the previous year. Several Member States recorded strong falls in long-term unemployment in 2005, including the large Member States of Germany and Spain, while rates continued to rise significantly only in Hungary and Portugal.

Within the EU the long-term unemployment rate remains highest in Poland and Slovakia, where around 10% and 12% respectively of the labour force, or around three times the EU average, are affected (Chart 20). At around 5% it also remains relatively high in Germany and Greece. For the majority of Member States, long-term unemployment rates are higher for women than for men, the EU averages being 4.5% and 3.5% respectively, with the largest gender differences being found in Italy, Spain, Poland and above all Greece.

Chart 18   **Unemployment rates in the EU by gender, 2005**
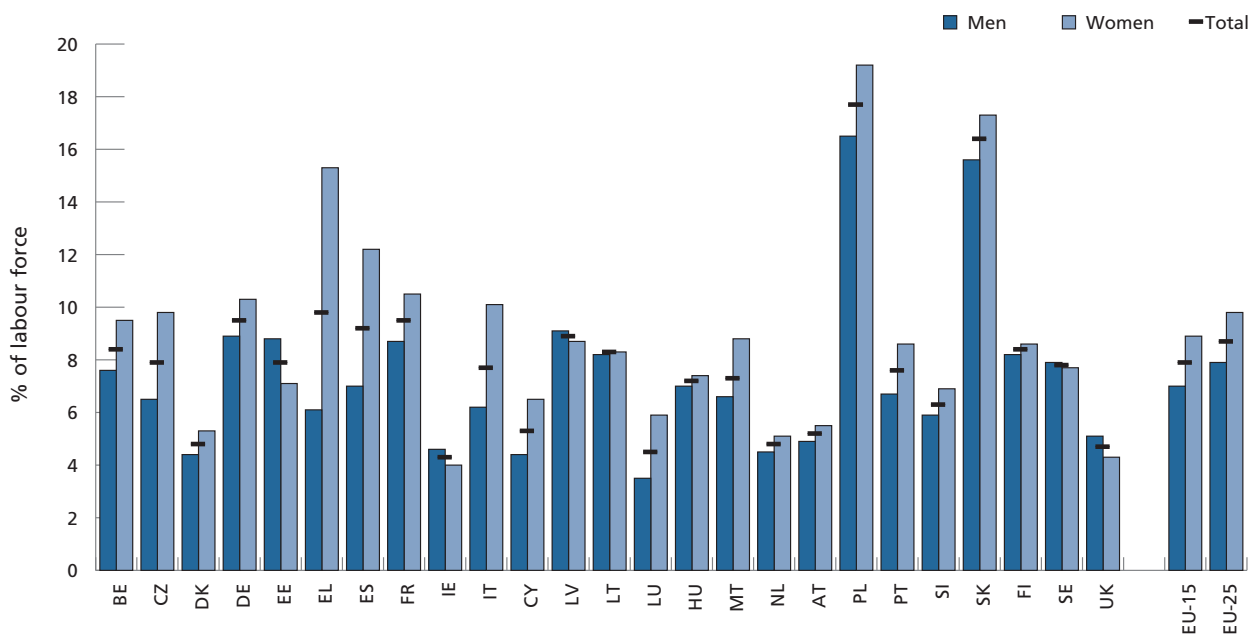
Source: Eurostat, harmonised series on unemployment.

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9   Those in unemployment for a duration of 12 months or more as a percentage of the labour force.

Chart 19   **Youth unemployment rates in the EU by gender, 2005**

■ Men   ■ Women   ▬ Total

% of labour force aged 15-24
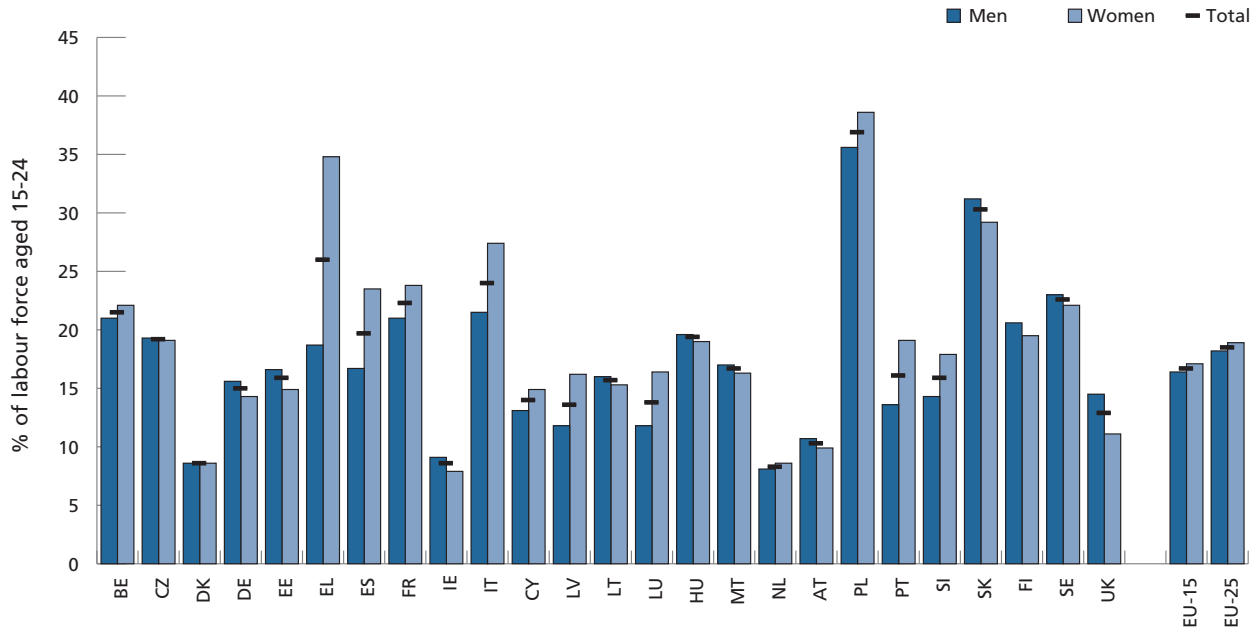
Source: Eurostat, harmonised series on unemployment.

Chart 20   **Long-term unemployment rates in the EU by gender, 2005**

■ Men   ■ Women   ▬ Total

% of labour force
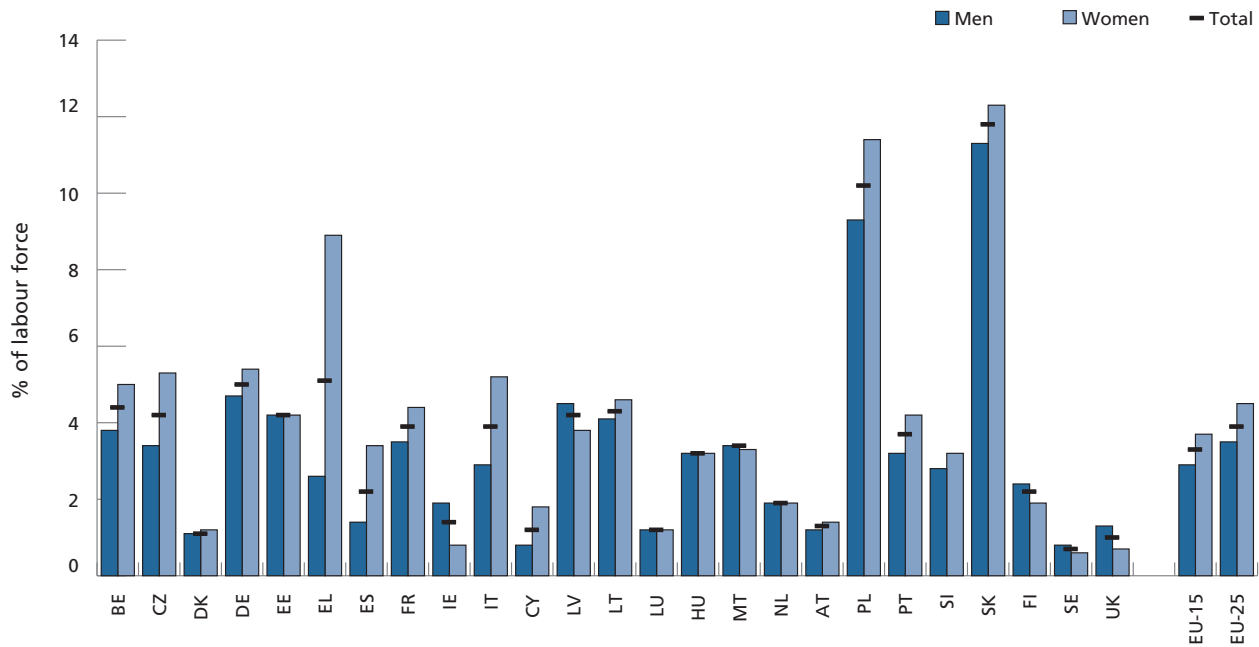
Source: Eurostat, QLFD.

3.4. Features of EU employment expansion between 2000 and 2005

Despite the occurrence of the economic slowdown in the early part of the decade, compared to 2000 employment in the EU has expanded. However, the increase in employment between 2000 and 2005 has not been uniform with respect to gender, age and type of employment. In reality, there are marked differences in the trends in the labour market performance of the various elements of the working age population (Chart 21) and by type of employment arrangement, as detailed below:

• Increasing female participation

In terms of gender, women have accounted for the greatest growth in employment, both in relative and absolute terms. Indeed, the overall increase in female employment has been more than twice that for men. This reflects the recent trend of rising labour market participation of women, for whom activity rates have increased from 60% to 62.5% between 2000 and 2005 against an increase in the male rate of only 0.4 percentage points.

• Increasing participation of older people aged 55–64

Relative to employment levels in 2000, growth has been greatest for the 55–64 age group, where employment has increased by almost a quarter on 2000 levels. The over 65s have also seen a substantial relative increase. Even in absolute terms the increase for the 55–64 age group has been dramatic, accounting for almost half the overall increase in employment and not far below the total increase for the whole prime working age group. This reflects a 6 percentage point increase in activity rates for those aged 55–64 since 2000 and indicates that developments such as recent reforms in pension systems that have postponed the statutory retirement age and more generally reduced incentives for early retirement are taking effect and contribute to the reversal of the decrease in participation of older workers in many Member States.

• Declining youth employment

While the other age groups have all experienced increases in employment, the 15–24 age group has witnessed a contraction in employment of around 4% since 2000, and with activity rates falling from 46.5% to 45.2%. This development may be partly explained by increased participation in education since, as

Chart 21 | **Change in employment in the EU between 2000 and 2005 by age, gender and type of employment**
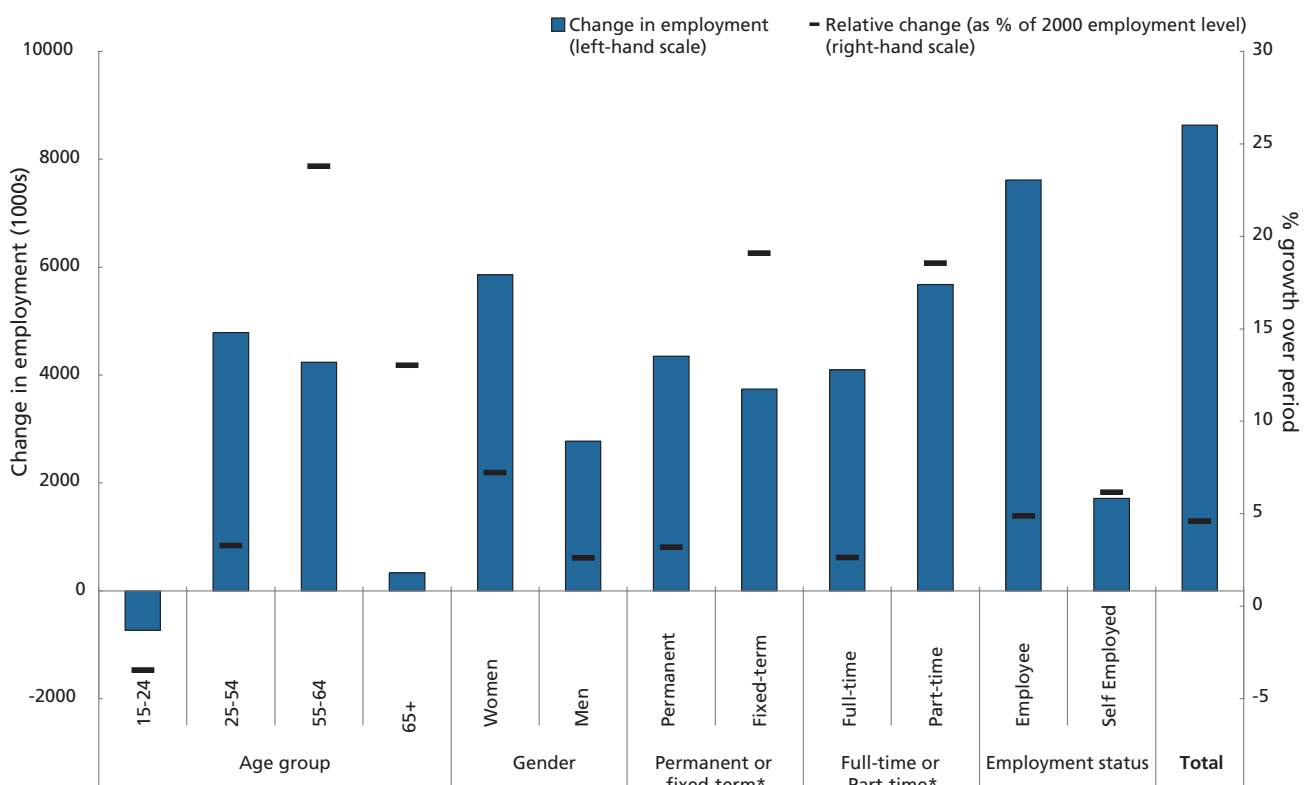
Source: Eurostat, LFS spring results.
*Note: Results for fixed/permanent and full/part-time are broad estimates due to high non-response to the related LFS questions in 2000 and may well be slightly lower than shown.

enrolment in education rises so labour market participation falls, while those young people who remain in the labour market tend to be the lowest skilled. Indeed, the share of young people in education has increased considerably in most EU countries over recent years[10], impacting on labour force participation, although in the longer term the implied improvement in human capital should have a positive effect on overall employment performance and the economy.

- Rising shares of part-time and fixed-term employment

In terms of developments by type of employment, the relative growth in part-time and fixed-term employment since 2000 has been substantial, with both increasing in the order of 15–20%[11]. The extended availability of part-time jobs has facilitated the participation of women in particular, by allowing them to better combine work and family responsibilities, although it should also be recognised that part-time work may have fewer fringe benefits and career possibilities than full-time jobs, and may to a certain degree reflect the unavailability of full-time work. Furthermore, although recourse to part-time work may reflect personal preferences and may help people to (re)enter and stay in the labour market, the high gender gap in the share of part-time workers is also evidence of differences of time use patterns between women and men, and of the role of carer predominantly assumed by women and the

greater difficulties they face in trying to reconcile work and private life.

- Improved skill structure of the labour force

From 2000 to 2005 the share of low-skilled people in the working age population declined from 36.2% to 32.8% while that of the medium and high skilled rose from 46.3% to 47.3% and from 17.6% to 19.9% respectively[12]. This change in the skill structure of the working age population also contributed to the increase in employment through creating a more employable workforce.

Other factors accounting for the improvement in employment performance in Europe in recent years include the reduction of disincentives to work embedded in tax and benefit systems, a stronger reliance on active labour market policies, some reduction of the tax burden on labour (especially for the low skilled)[13] and more generally, a widespread wage moderation.

4. Recent employment trends according to type of contractual arrangement

4.1. Part-time employment

In 2005, 18.4% of workers in the EU were in part-time employment. This reflects a significant increase on the previous year (when the share was 17.7%) and indicates a continuation in the recent rise in the prevalence of this more flexible form of employment. The increase at EU level was mainly driven by developments in Germany and Spain, where the share of people in part-time employment relative to total employment rose 1.7 and 3.7 percentage points respectively. In contrast, the share of people in part-time employment continued to fall or remain unchanged in all the new Member States other than Cyprus and Malta.

Part-time employment has risen noticeably in the EU in recent years and has accounted for a larger contribution (around 60%) to employment creation post-2000 than full-time employment (Chart 22). It also continues to be predominantly a feature of female employment – even more so as the increase in part-time employment for women between 2000 and 2005 was more than twice the increase in female full-time employment, as well as in male part-time employment. In 2005, 32.3% of women in employment in the EU had a part-time job compared to only 7.4% for men, and for all

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10 As reported on in section 6.2.2 (Trends in youth participation in the labour market) of Chapter 1 in Employment in Europe 2005

11 LFS spring data 2000 contain a relatively high share of no answers to the questions on part-time versus full-time employment and permanent versus fixed-term employment, hence only broad estimates of changes between 2000 and 2005 (with much fewer "no answer" responses) can be given.

12 Low-skilled: those with education only at lower secondary level or below, medium skilled: those having completed upper secondary education, high skilled: those having completed tertiary education.

13 An analysis of implicit tax rates relating taxes on labour to total compensation of employees in the EU shows a small reduction in the tax burden on labour since the year 2000 (see *European Commission (2006), Structures of the taxation systems in the European Union*).

Member States the share was higher for women than for men (Chart 23).

The share of part-time employment in the Netherlands (46%) continues to be much higher than for any other Member State, with three-quarters of female employment in that country being part-time. Shares are also relatively high (above 20%) in Austria, Belgium, Denmark, Germany, Sweden and the UK. However, within most of the new Member States the overall share of part-time employment remains relatively low, and particularly so in the Czech Republic, Hungary and Slovakia where it is less than 5%.

In the context of achieving the Lisbon employment rate target for women, the availability of part-time employment is a key factor in raising female employment rates, through facilitating female labour force participation. Indeed, figures from the EU labour force survey indicate that family or personal responsibilities are one of the main reasons for working age women choosing to work part-time, accounting for almost one third of women

employed part-time, while a further 28% indicate they do not want a full-time job. At the same time around 19% of females in part-time employment indicate that they work part-time only because they could not find a full-time job. Nevertheless, a high share of part-

time work is not a necessary condition for a high female employment rate, as the cases of Finland and Portugal show.

For the EU as a whole, the share of part-time employment has risen by

Chart 22 — **Employment creation in the EU between 2000 and 2005 by full-time and part-time employment**

Change 2000 – 2005

Full-time men 22 %
Full-time women 20 %
Part-time men 15 %
Part-time women 43 %

Source: Eurostat, LFS spring results.
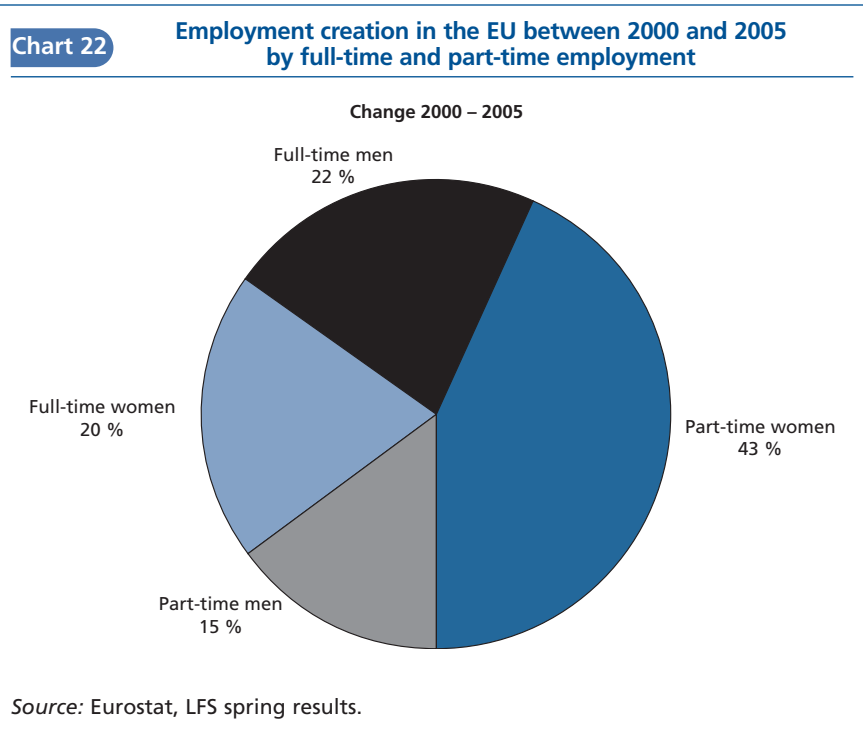
Chart 23 — **Part-time employment by gender in the EU, 2005**

■ Men ■ Women ▬ Total

% of total employment

NL UK SE DE DK BE AT EU-15 EU-25 LU FR IE FI IT ES PT PL MT SI CY LV EE LT EL CZ HU SK
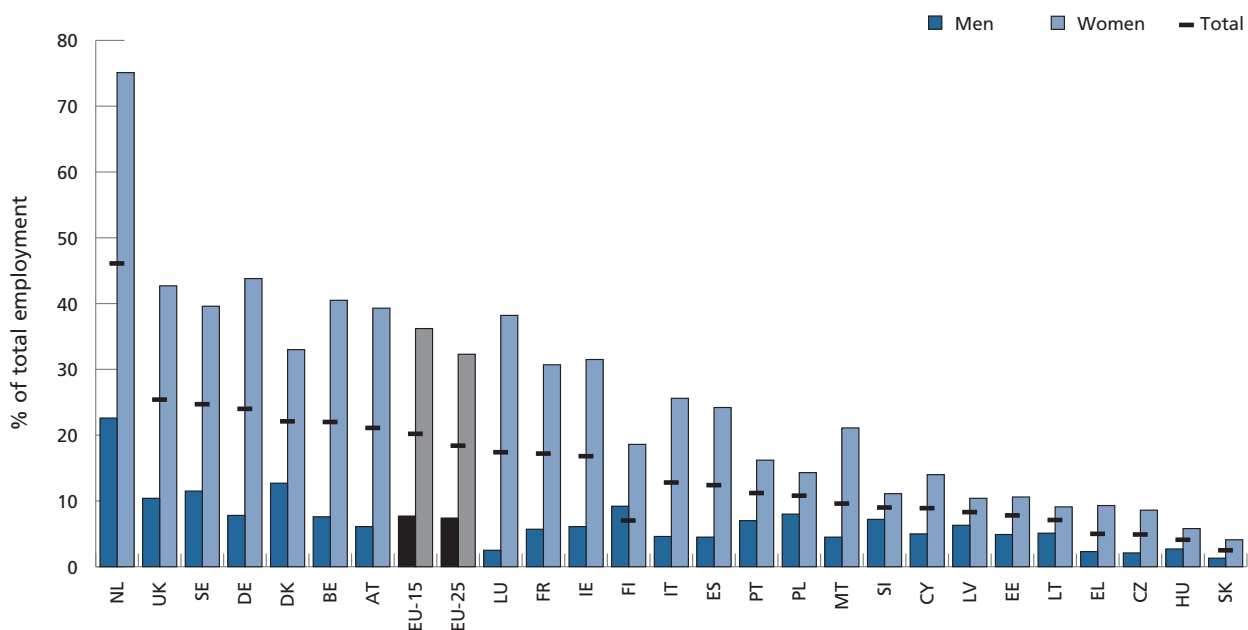
Source: Eurostat, QLFD.
Note: for IE data refer to 2004.

just over 2 percentage points between 2000 and 2005. This reflects underlying strong increases in many Member States, and especially Austria, Germany, Italy, Luxembourg, the Netherlands, Spain and Sweden (Chart 24). In general the new Member States have not witnessed the same trend in rising shares of part-time employment as observed in most of the EU-15. Rates in the former have generally changed little, but the Baltic States and the Czech Republic have even declined.

4.2. Fixed-term employment

Employment contracts of a fixed-term nature were held by 14.5% of EU-25 employees in 2005. While only 5% or less of employees were employed under such contracts in Estonia, Ireland, Malta and Slovakia in 2005, more than a quarter of employees in Poland and around a third in Spain worked under fixed-term contract (Chart 25).

Unlike part-time work, fixed-term employment does not exhibit large gender differences at EU level. In 2005 the average share of fixed-term employment in the EU-25 was 15.0% for women compared to 14.0% for men. Furthermore, the gap is closing, with the share for men increasing by 0.8 percentage points between 2004 and 2005 compared to a 0.7 percentage point rise for women. However, there is still substantial variation at individual Member State level. Generally the share of women in fixed-term employment exceeds that for men, most notably in Belgium, Cyprus and Finland. Only in Austria, Estonia, Germany, Hungary, Latvia, Lithuania, Poland and Slovakia were larger shares of men employed on a fixed-term basis than women in 2005.

As in the preceding year, 2005 saw a noticeable rise in the share of employees on fixed-term contracts (up 0.8 percentage points), confirming the increase in the prevalence of this type of employment from the period 2001–2003 when the share was static at around 13.0%. However, since fixed-term employment has a strong business cycle component, the recent increase in the share of fixed-term employment may largely reflect a cyclical rather than structural effect. The increase in 2005 was mainly driven by developments in Germany and Poland, where the share of employees in temporary employment rose around 2 and 3 percentage points respectively. In Poland, the rise in such contracts was a continuation of the marked trend since 2000, where the share of employees on fixed-term contracts has risen sharply from around 6% to 26% over this period, a much greater change than in any other Member State (Chart 26). However, the share has also risen compared to 2000 in most Member States, including the other large continental Member States with the exception of France, with the result that at EU level, the share of fixed-term employment has increased by almost 2 percentage points since 2000, and accounted for almost half of the employment creation among employees between 2000 and 2005 (Chart 27).

Chart 24   **Change in the share of part-time employment in total employment between 2000 and 2005**
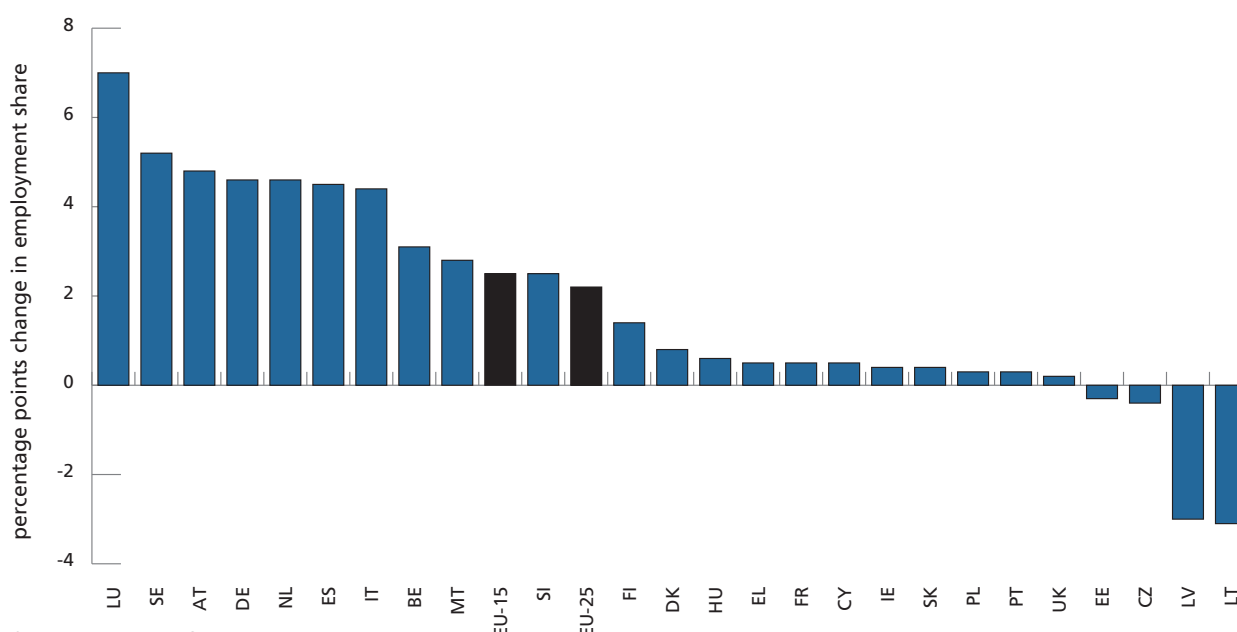
Source: Eurostat, QLFD.
Note: For IE the period is 2000 to 2004.

5. Working hours and atypical working time arrangements

Working hours and working time arrangements are increasingly important issues in today's labour markets, in particular with regard to their relation to productivity, labour market flexibility and quality in work. In principle they potentially offer benefits both to employers and employees: on the one hand they help firms to adapt labour input to their production needs, while on the other hand they allow employees to better adjust the balance between work and private commitments such as childcare and care for other dependents (the so-called "work-life balance"). At the same time certain work practices such as very long

Chart 25   **Fixed-term employment by gender in the EU, 2005**

■ Men   ■ Women   ▬ Total
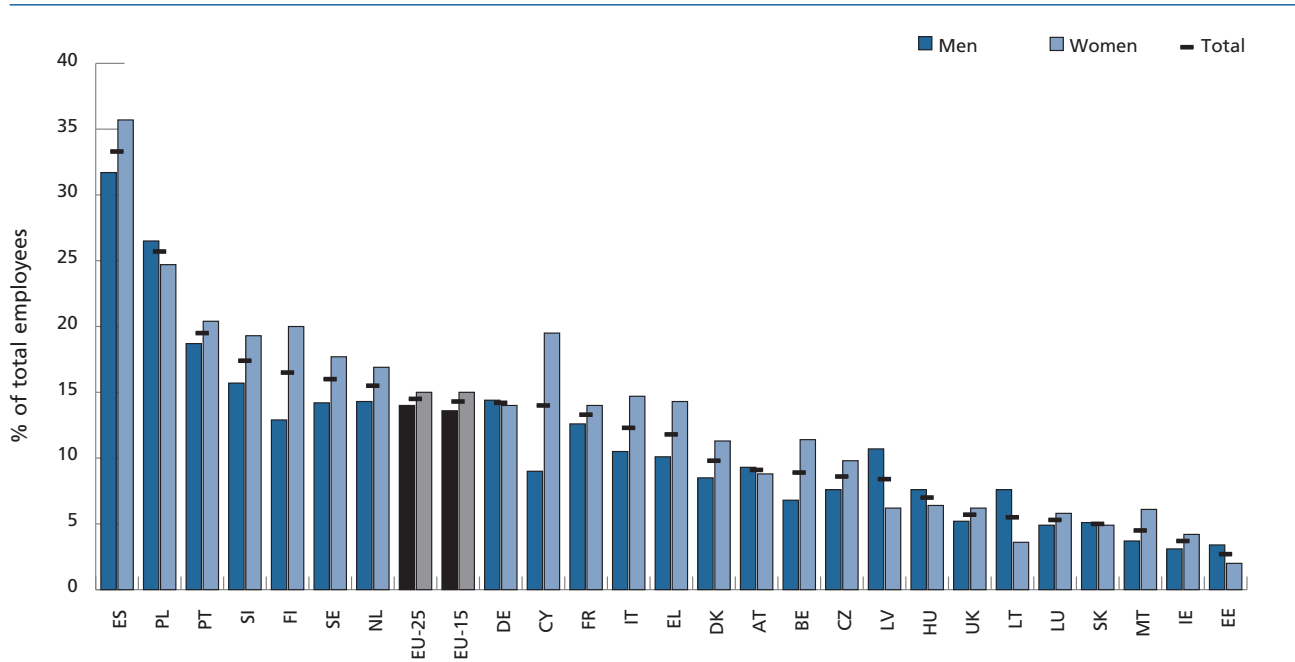
Source: Eurostat, QLFD.

Chart 26   **Developments in the share of employees in fixed-term employment in the EU between 2000 and 2005**

■ 2000   ■ 2005
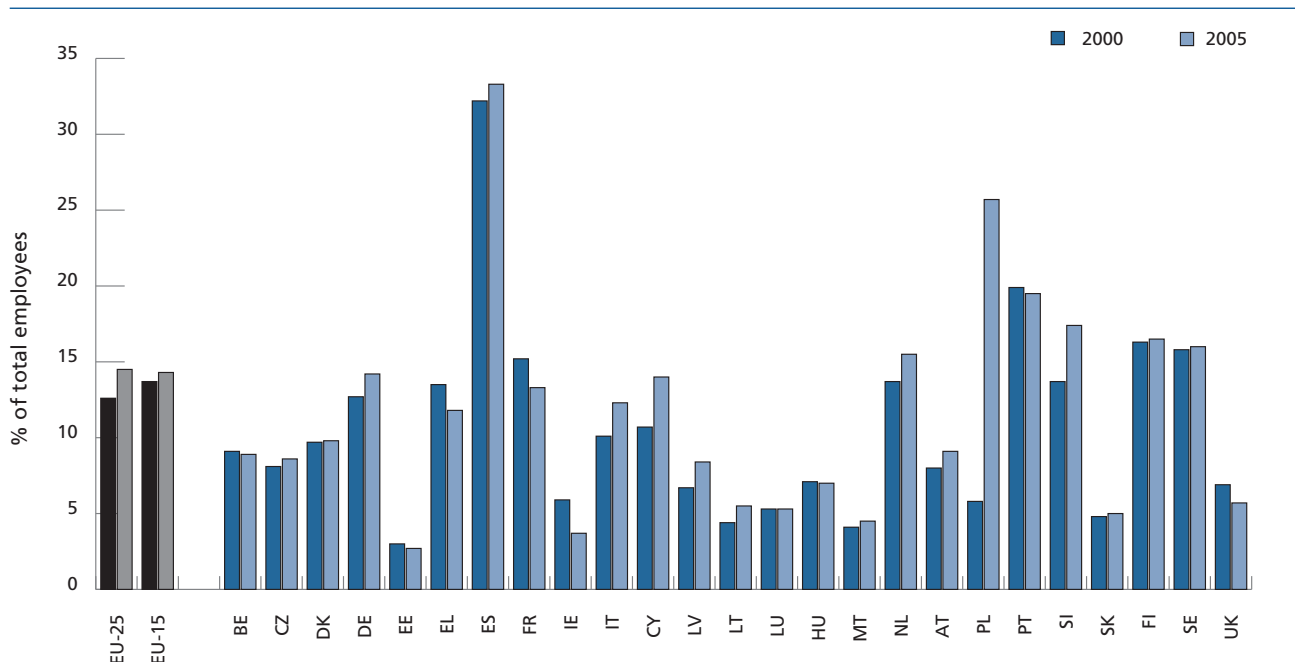
Source: Eurostat, QLFD.

working hours, night work and weekend work may be at odds with the aim of achieving greater productivity and quality in work through, for example, association with less favourable working conditions and increased work-related health problems. Such considerations are of topical importance in the current debate on the need to improve the adaptability of workers and enterprises, and in particular in the context of Employment Guideline 21, which calls for promoting flexibility through, among other measures, reviewing the different contractual and working time arrangements in the Member States and the promotion and dissemination of innovative and adaptable forms of work organisation[14].

5.1. Working hours

5.1.1. Long-term trends in working hours

In general there is a long-term downwards trend in the EU in the average annual number of hours worked per employed person. Over the last two decades the average hours worked per person in employment have declined in almost all EU Member States (with the exception of Sweden) although the magnitude varies across countries (Table 6). Compared to 1983, large decreases in hours worked have occurred in France, Ireland and the Netherlands (and in Germany compared to 1994), while all other Member States (for which long time series are available) have seen average working hours per person in employment decline by the order of 5% or more, except for Sweden and the UK. In contrast, outside of Europe average working hours have declined only much more moderately in Australia, Canada and the US, although in Japan a strong fall similar to the most pronounced cases in Europe has occurred.

Chart 27 — **Employment creation (for employees) in the EU between 2000 and 2005 by fixed-term and permanent employment**

Change 2000 – 2005

- Fixed-term men 23 %
- Permanent women 49 %
- Fixed-term women 23 %
- Permanent men 5 %
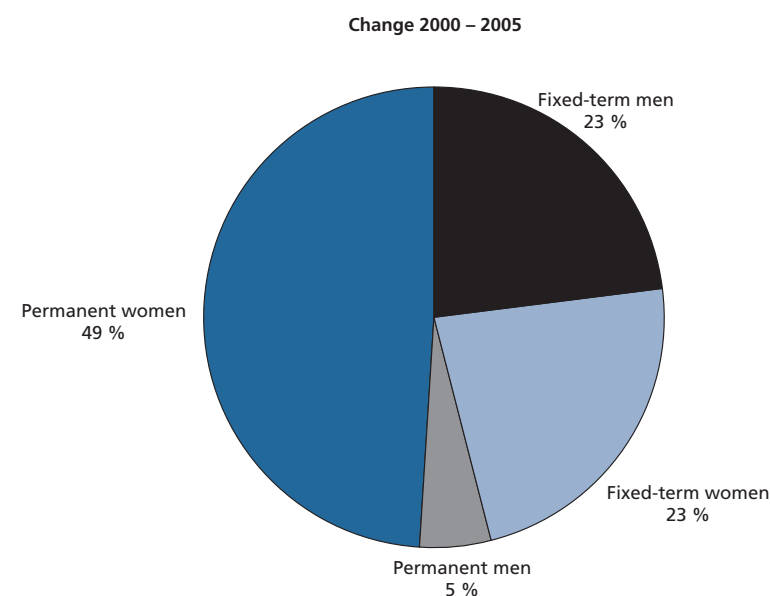
Source: Eurostat, LFS spring results.

Table 6 – Average annual hours worked per person in employment

	1983	1994	2000	2005	% change 1983 – 2005	% change 2000 – 2005
BE	1659	1551	1545	1534	-7.5	-0.7
CZ	:	2043	2092	2002	:	-4.3
DK	1669	1494	1554	1551	-7.1	-0.2
DE	:	1543	1468	1435	:	-2.2
EL	2152	2092	2080	2053	-4.6	-1.3
ES	1912	1816	1815	1775	-7.2	-2.2
FR	1759	1676	1592	1535	-12.7	-3.6
IE	1902	1824	1696	1638	-13.9	-3.4
IT	1946	1882	1855	1791	-8.0	-3.5
LU	1727	1663	1639	1557	-9.8	-5.0
HU	2112	2032	2061	1994	-5.6	-3.3
NL	1664	1362	1368	1367	-17.8	-0.1
AT	:	:	1632	1636	:	0.2
PL	:	:	1988	1994	:	0.3
PT	:	1744	1691	1685	:	-0.4
SK	:	1854	1811	1791	:	-1.1
FI	1823	1777	1750	1700	-6.7	-2.9
SE	1532	1621	1625	1587	3.6	-2.3
UK	1713	1737	1708	1672	-2.4	-2.1
US	1825	1842	1841	1804	-1.2	-2.0
JP	2095	1898	1821	1775	-15.3	-2.5
CAN	1780	1780	1766	1737	-2.4	-1.6
AU	1853	1875	1855	1811	-2.3	-2.4

Source: OECD, Employment Outlook 2006.

14   Chapter 4 shows indeed that the introduction of innovative and adaptable forms of work organisation can contribute to enhance productivity, especially in the most advanced economies.

5.1.2. Working hours across EU Member States in 2005

In 2005, average usual weekly working hours[15] (in the main job) among all employees in the EU varied from 29.6 hours in the Netherlands to 41.2 hours in Latvia, and with the average for the EU as a whole being 36.6 hours (Table 7 and Chart 28). The low average in the Netherlands, which is almost 5 hours below Germany, the country with the next lowest average, reflects the high share of part-time employment in that Member State. Average weekly working hours generally remain higher in the new Member States than among the EU-15 countries (with the exceptions of Greece and Portugal) and generally range from 2 to 5 hours above the EU-15 average. Much of the difference is due to the fact that in the new Member States average working hours for women are more similar to those of men than is the case in the EU-15 countries. In general, and resulting from the fact that part-time work remains predominantly a feature of female employment, men work longer hours on average than women, the difference being 7 hours on average for the EU as a whole but more than 10 hours in the UK and the Netherlands. In contrast the gender difference is much lower in the new Member States.

Taking into account the full-time and part-time contractual distinction, weekly working hours in the main job for full-time employees show considerably less variation across Member

Table 7 – Average usual weekly working hours in the main job in the EU Member States by gender and full-time/part-time distinction, 2005								
	All employees			Full-time employees			Part-time employees		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
EU-25	39.8	32.8	36.6	41.3	39.1	40.4	19.0	20.1	19.9
EU-15	39.5	31.9	36.0	41.1	38.9	40.3	18.6	20.0	19.7
BE	38.6	31.3	35.3	39.8	37.6	39.1	24.0	23.2	23.3
CZ	41.7	39.2	40.6	42.1	40.5	41.4	23.0	24.1	23.8
DK	37.1	32.2	34.7	40.4	38.0	39.4	14.2	19.9	18.2
DE	38.7	29.6	34.4	40.5	39.2	40.1	15.3	17.8	17.4
EE	41.0	38.4	39.6	41.9	40.3	41.1	20.6	19.9	20.1
EL	41.4	38.3	40.1	41.8	39.8	41.0	22.7	20.5	21.1
ES	40.9	34.8	38.3	41.8	39.8	41.1	19.5	19.5	19.5
FR	38.9	33.3	36.2	39.8	37.8	39.0	22.6	23.3	23.2
IE	39.1	31.4	35.4	40.4	37.3	39.1	17.6	18.3	18.2
IT	39.9	33.1	37.0	40.6	36.9	39.2	21.2	21.7	21.6
CY	40.2	38.1	39.2	40.7	39.7	40.2	20.0	21.8	21.4
LV	43.1	39.2	41.2	43.7	41.1	42.5	23.9	21.3	21.9
LT	39.8	37.5	38.6	40.3	38.7	39.5	20.8	20.0	20.2
LU	39.9	32.6	36.8	40.3	39.9	40.2	23.6	21.1	21.3
HU	40.8	39.1	40.0	41.3	40.1	40.7	23.3	23.2	23.2
MT	40.6	35.3	38.8	41.6	38.9	40.8	18.2	19.4	19.0
NL	34.5	23.9	29.6	39.0	38.1	38.8	19.3	19.3	19.3
AT	41.8	33.1	37.7	43.1	41.0	42.4	18.6	21.1	20.8
PL	42.1	37.8	40.1	43.0	39.6	41.4	24.8	22.5	23.3
PT	40.6	37.3	39.1	41.0	39.1	40.2	20.5	19.7	19.8
SI	41.0	39.1	40.1	42.1	41.0	41.6	18.4	19.1	18.8
SK	40.9	39.4	40.2	41.2	40.1	40.7	21.1	21.3	21.2
FI	38.5	35.3	36.9	40.0	38.4	39.2	20.1	21.1	20.8
SE	37.4	33.8	35.6	39.9	39.8	39.9	21.5	26.3	25.3
UK	41.6	31.3	36.5	44.2	40.2	42.6	17.8	19.2	18.9

Source: Eurostat, LFS spring results.

15   Usual working hours corresponds to the number of hours the person normally works. It covers all hours including extra hours, either paid or unpaid, which the person normally works, but excludes the travel time between home and the place of work as well as the main meal breaks.

States, ranging from 38.8 hours in the Netherlands to 42.6 hours in the UK. Gender differences in the working hours of full-time employees are smaller among full-time employees (on average two hours for the EU), although in Ireland, Italy, Poland and the UK on average women employed on a full-time basis work 7–10% fewer hours (equivalent to 3–4 hours less) per week. The small difference between usual working hours for all employees and full-time employees in the new Member States is generally a result of the low levels of part-time employment in these countries.

Among part-time employees women work longer hours on average than men, this being particularly the case in Denmark and Sweden but is also a notable feature in Austria and Germany (Chart 29). On average women in part-time employment in the EU work 20.1 hours per week compared to 19.0 hours for men. Nevertheless in some Member States men actually work longer hours in part-time employment, notably in Greece, Latvia, Luxembourg and Poland. There remains

substantial variation across Member States in the average hours worked in part-time employment. The shortest hours are in Germany (17.4 hours), markedly lower than the 25.3 hours worked on average in Sweden.

In 2005 some 12 million full-time employees within the EU reported usually working more than 48 hours a week, the statutory maximum number of working hours per week in most EU Member States. This equates to a share of around 9% of full-time employees, with the share having risen compared to 2000 (when it stood at 8.5%). This increase reflects the fact that while the share has declined in recent years in almost all the new Member States, it has generally risen compared to 2000 in the large continental Member States, apart from Germany. Working such comparatively long hours is a relatively common experience among full-time employees in Austria and Latvia, and particularly so in the UK where almost one in five full time employees is affected (Chart 30). In contrast, it is relatively rare in Lithuania, Luxembourg, the Netherlands and

Sweden for full-time employees to usually work more than 48 hours per week.

Examining the changes in weekly working hours (in the main job, based on data from the EU labour force survey) for all employees between 2000 and 2005 reveals that average hours in work continue to decline for employees in the majority of EU Member States and for the EU as a whole (Chart 31). For some (mainly the new Member States, Ireland and the UK) this reflects reductions in working hours in general, for example in the Czech Republic and Slovakia weekly working hours for full-time employees have decreased by around 2 hours and 1.5 hours respectively, driving the overall decline in average working hours for all employees in those Member States (Chart 32). In other Member States (mainly the EU-15 countries) the fall in average weekly working hours for employees is due more to the increase in the share of part-time employment, this being the case for example in Germany and Spain.

Chart 28   **Average usual weekly working hours (in main job) of all employees in the EU by gender, 2005**
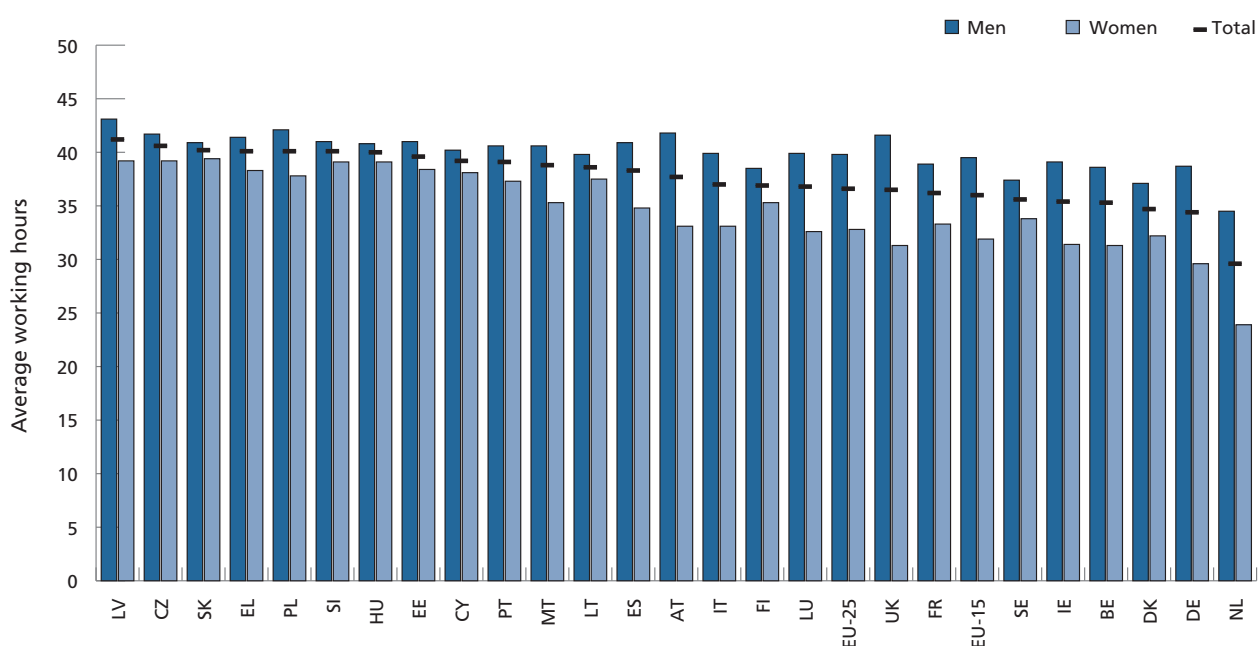
Source: Eurostat, LFS spring results.

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The largest reductions in the average weekly working hours of employees have taken place in the Czech Republic, Germany, Malta and Slovakia. Generally the changes have been greater for women than for men, although in the Czech Republic, Denmark, Cyprus, Hungary, the Netherlands, Sweden and the UK, reductions in working hours were greater for men. In contrast to the general trend, Belgium and France actually experienced increases in average hours worked for employees, in both cases driven by rises in hours worked by men.

Chart 29 **Average usual weekly working hours (in main job) of part-time employees in the EU by gender, 2005**
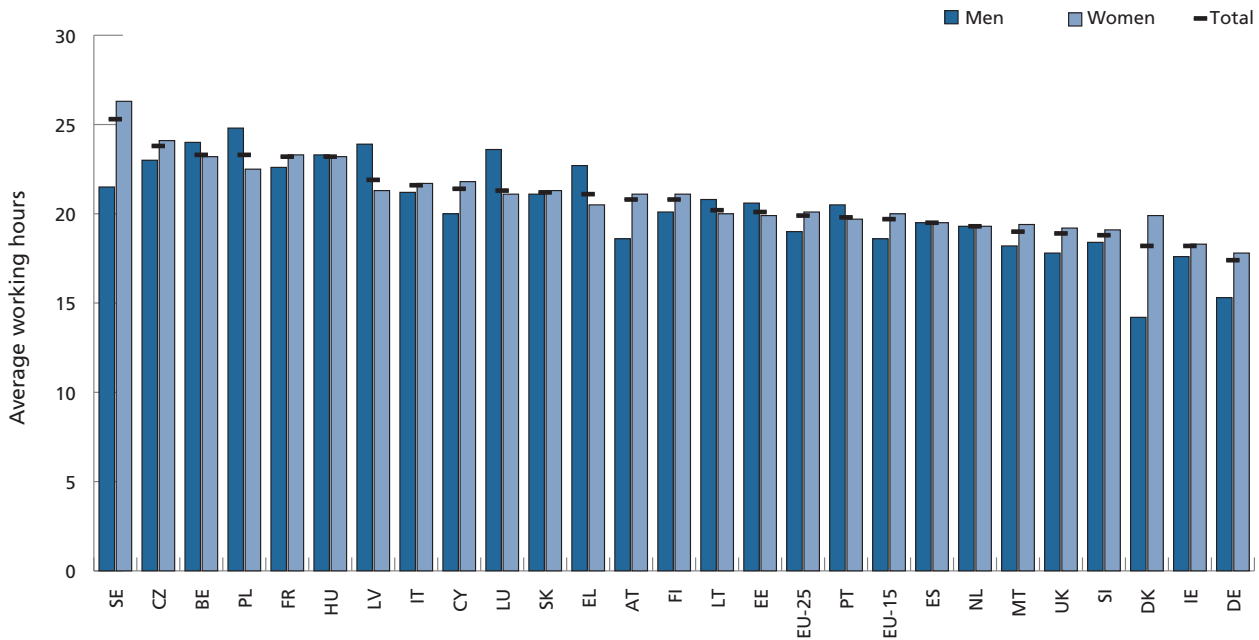
Source: Eurostat, LFS spring results.

Chart 30 **Share of full-time employees usually working long hours (> 48 hours per week) in the EU, 2005**
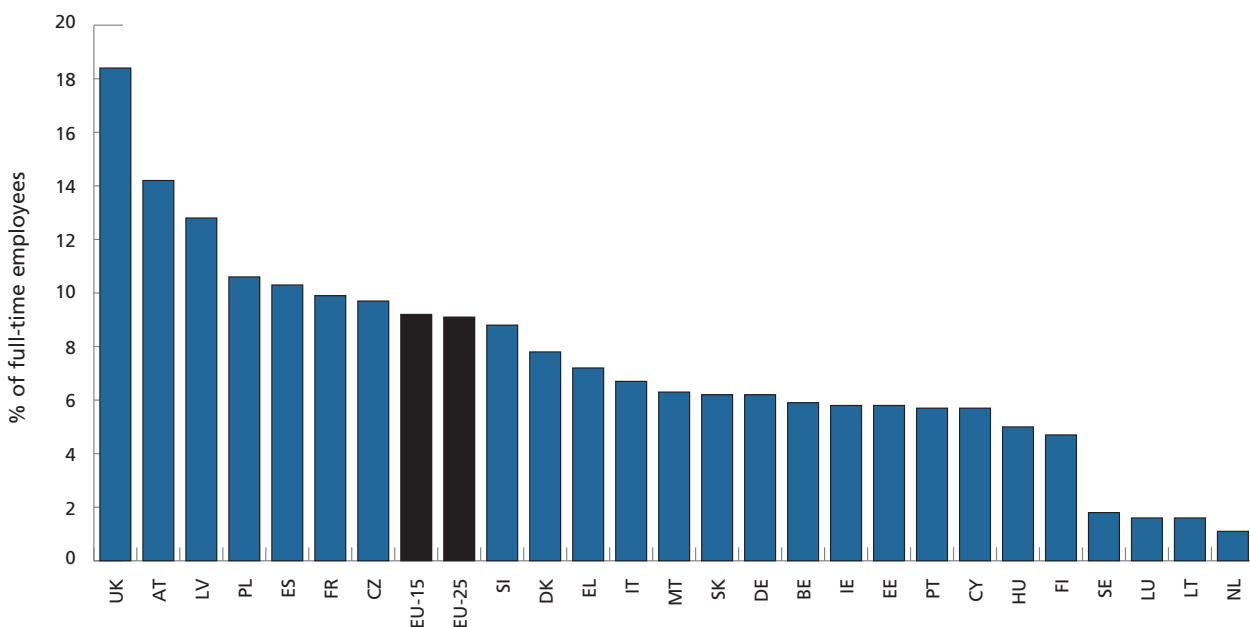
Source: Eurostat, LFS spring results.

Chart 31 — Change in working hours (in main job) of all employees between 2000 and 2005
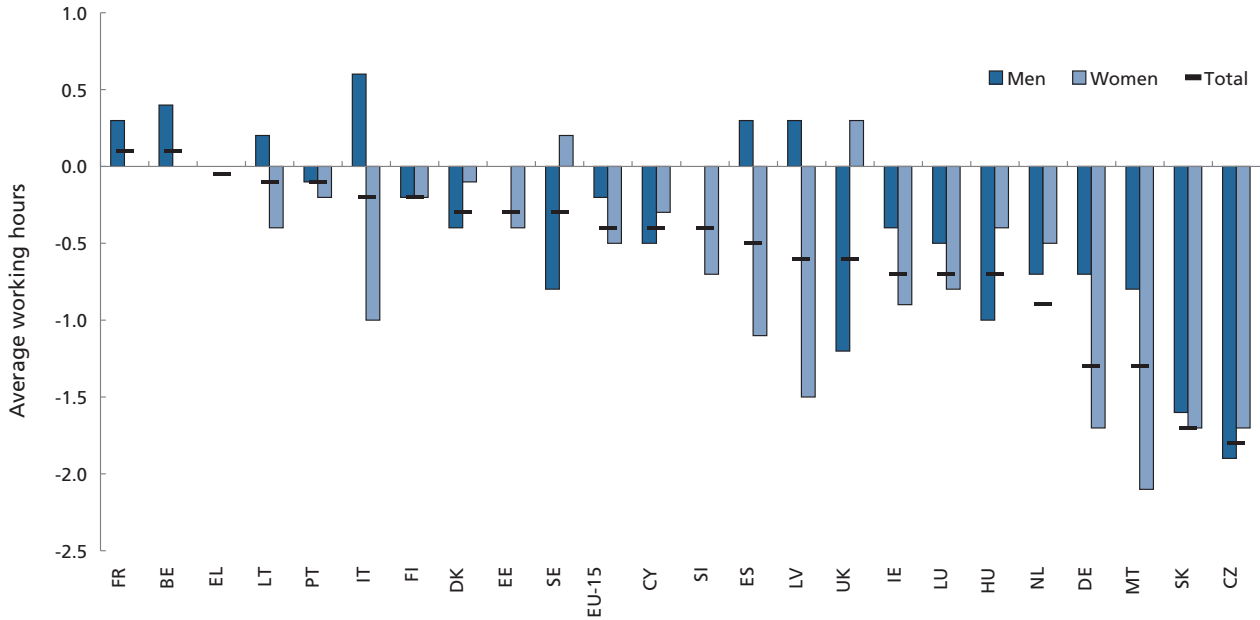
Source: Eurostat, LFS spring results. Note: *no 2000 results for PL and EU-25. For AT no comparable results before 2004.

Chart 32 — Change in working hours (in main job) of full-time employees between 2000 and 2005
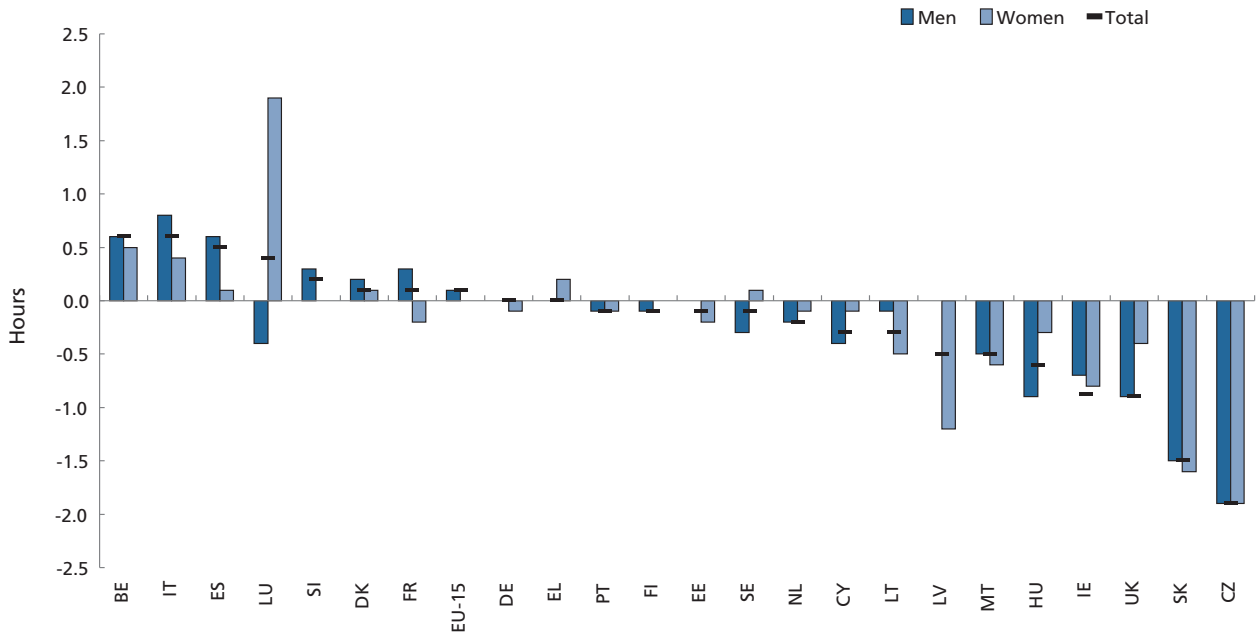
Source: Eurostat, LFS spring results. Note: *no 2000 results for PL and EU-25. For AT no comparable results before 2004.

Employment in Europe 2006

5.1.3. Working hours across sectors of economic activity

Working hours vary considerably across sectors. At EU level, the average usual weekly working hours for full-time employees range from 36.5 hours in the "education" sector to 43 hours in the "hotels and restaurants" sector (Chart 33). Other sectors with above average working hours are "transport, storage and communication", "wholesale and retail trade, repair of vehicles and domestic goods" and "real estate, renting and business activities" within services, and "mining and quarrying" and "construction" within industry. In general, hours worked by full-time employees in "agriculture" are also above the EU average. Overall, average full-time

hours worked in the services sector are slightly below the average for industry, this being due to the relatively lower hours worked in "public administration, defence and compulsory social security", "education" and "health and social work" sectors. This may also partly explain the ongoing decline in working hours in Europe, as the employment structure in the EU continues to shift towards services while employment in industry and agriculture continues to contract.

For almost all Member States the shortest average hours in full-time employment are worked in the education sector, the main exceptions being for those countries where average hours are slightly lower in the "health and social work" sector (Denmark, Germany, the

Netherlands and the UK), and most notably Sweden where in fact the hours in the "education" sector are the highest of any sector (Table 8). Excluding "agriculture", the "hotels and restaurants" sector accounts for the highest average full-time working hours in most Member States (around half), although the "mining and quarrying" and "construction" sectors account for the longest hours in several countries. Within Member States, variations in working time across sectors is greatest in the southern European Member States plus Ireland, Poland and the UK. In contrast, there is much less variation across sectors in Austria, Germany, Hungary, Luxembourg and Sweden, mainly due to the comparatively long working hours in education in these countries.

Chart 33 — **Average usual weekly working hours (in main job) of full-time employees in the EU by sector, 2005**
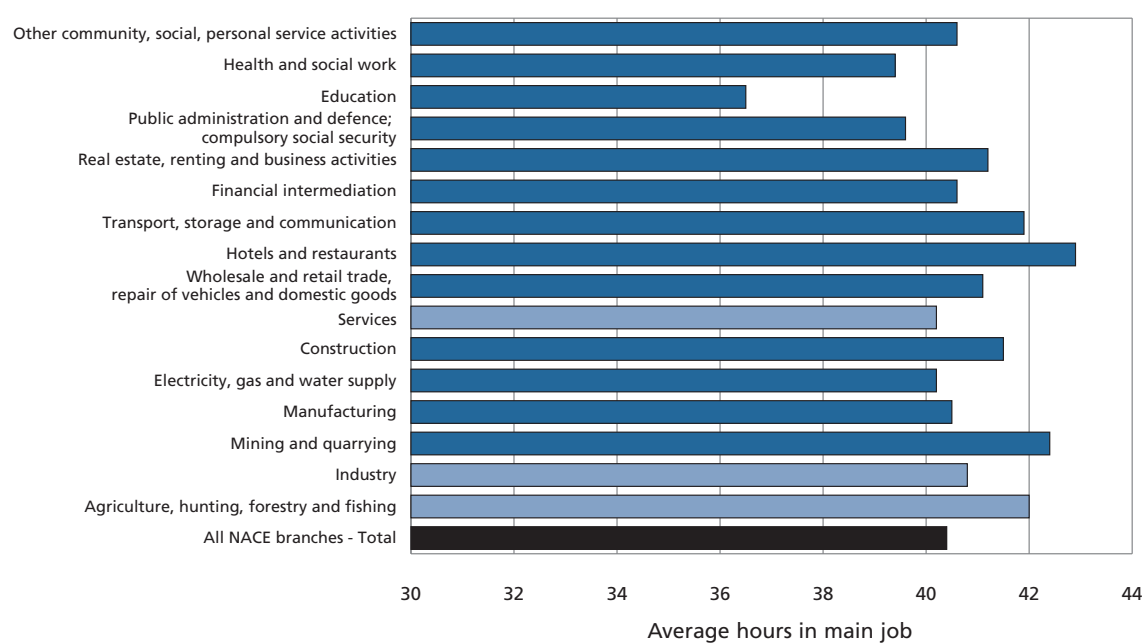
Source: Eurostat, LFS spring results.

Table 8 – Average usual weekly working hours (in main job) of full-time employees in the EU by sector, 2005																											
Sector (NACE rev1 description)	EU-25	EU-15	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK
Agriculture, fishing and forestry	42.0	41.7	40.1	41.7	41.9	40.9	44.0	48.2	42.6	39.2	43.4	41.1	45.8	44.6	40.6	40.0	41.3	41.1	39.5	44.3	44.4	43.5	43.3	41.7	41.4	40.9	46.4
Mining and quarrying	42.4	43.3	39.6	39.3	:	39.9	:	41.3	43.1	40.5	41.0	43.0	39.3	:	:	:	41.1	:	42.9	43.3	41.7	40.6	40.1	39.8	44.7	38.1	51.9
Manufacturing	40.5	40.3	39.6	40.4	39.0	39.3	40.9	41.9	41.5	38.7	39.9	40.9	41.0	42.1	40.0	40.4	40.6	40.9	38.9	41.4	42.4	40.8	41.1	40.2	39.6	39.2	43.1
Electricity, gas and water supply	40.2	40.0	38.9	40.6	39.5	39.3	41.0	40.1	40.7	38.0	39.8	40.3	37.9	41.2	39.9	40.0	40.4	40.9	39.0	40.9	40.6	38.8	40.6	40.0	38.5	39.4	42.6
Construction	41.5	41.2	39.9	43.3	39.1	40.3	42.2	42.8	42.4	38.9	40.7	40.9	39.6	45.5	40.8	40.2	41.7	40.8	39.5	41.7	45.0	41.3	44.3	42.2	40.6	40.0	44.0
Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods	41.1	40.8	39.0	41.7	39.8	40.1	41.4	43.1	42.1	39.1	39.6	41.4	41.8	43.6	40.5	40.2	41.1	40.8	39.1	41.6	43.4	41.8	41.8	41.0	39.4	39.8	42.3
Hotels and restaurants	42.9	43.0	39.6	42.7	41.7	41.8	41.3	45.9	44.7	42.8	39.7	43.6	42.4	42.5	41.1	40.8	41.7	41.0	38.9	43.9	43.0	43.4	41.8	42.7	38.2	40.7	42.8
Transport, storage and communication	41.9	41.6	40.2	42.6	41.7	41.4	43.0	44.5	42.0	39.3	40.4	40.8	40.6	43.7	40.5	40.2	41.3	41.1	40.0	44.2	44.4	41.6	42.6	41.9	40.8	39.9	44.9
Financial intermediation	40.6	40.5	39.6	41.9	40.0	40.4	40.0	40.0	40.7	40.0	39.5	40.1	37.8	41.0	39.9	40.3	41.0	41.7	38.0	42.5	41.5	39.4	41.8	40.3	39.6	39.5	41.7
Real estate, renting and business activities	41.2	41.1	40.4	42.7	40.1	40.9	41.4	41.6	41.3	40.3	39.8	40.6	40.1	43.1	40.2	40.2	41.2	42.8	39.2	43.4	42.5	40.3	42.4	41.3	39.1	39.9	42.9
Public administration and defence, compulsory social security	39.6	39.3	38.9	41.3	39.3	40.0	40.7	39.8	37.7	39.8	38.2	37.7	39.0	41.3	40.1	40.0	40.6	41.7	37.6	43.1	41.2	37.8	40.7	39.8	38.2	40.0	40.9
Education	36.5	36.9	34.7	40.1	38.5	40.5	38.0	29.7	36.0	36.0	31.9	28.2	35.7	37.9	34.2	40.0	38.5	34.7	38.3	42.2	31.4	35.4	40.6	38.7	37.0	41.6	43.2
Health and social work	39.4	39.1	39.2	42.1	38.3	39.3	40.9	40.0	38.9	38.6	38.2	37.9	38.4	41.7	38.6	40.3	40.5	41.1	37.3	42.8	40.7	38.2	42.2	41.0	38.9	39.0	40.4
Other community, social and personal service activities	40.6	40.5	39.3	41.5	39.0	40.6	40.0	41.3	40.9	38.4	39.2	40.2	40.2	41.6	39.8	40.2	40.7	42.0	38.6	42.8	41.2	40.0	41.6	40.5	39.1	39.9	42.3
Total Agriculture, fishing and forestry	42.0	41.7	40.1	41.7	41.9	40.9	44.0	48.2	42.6	39.2	43.4	41.1	45.8	44.6	40.6	40.0	41.3	41.1	39.5	44.3	44.4	43.5	43.3	41.7	41.4	40.9	46.4
Total Industry	40.8	40.6	39.7	40.9	39.1	39.5	41.2	42.1	41.8	38.8	40.3	40.9	40.2	43.1	40.3	40.3	40.8	41.3	39.1	41.5	42.7	40.9	41.5	40.6	39.8	39.4	43.5
Total Services	40.2	40.1	38.8	41.8	39.5	40.4	40.9	40.5	40.6	39.1	38.5	38.2	40.2	42.0	39.0	40.1	40.6	40.5	38.6	42.8	40.6	39.6	41.6	40.7	38.9	40.0	42.3

Source: Eurostat, LFS spring 2005 results.

5.2. Atypical working arrangements

With regard to working time arrangements, a substantial proportion of employed people in the EU work shifts or work outside the usual working hours[16], for example at night or on weekends.

The use of shift work[17] arrangements seems to be more common in the central European new Member States, with the Czech Republic, Poland, Slovakia and Slovenia all having more than 25% of employees usually working under such arrangements (Chart 34). This is likely to be linked to the relatively high share of employment in industry in these countries. It is also quite common in the Nordic Member States of Finland

and Sweden, where around a quarter of employees usually do shift work, but in contrast is the least common in the EU in Denmark, where the incidence of shift work has traditionally been low compared to the rest of Europe. In general shift work is more a feature of male employment than female, although in Finland and Sweden and the new Member States of Estonia, Lithuania and Slovenia relatively more women than men are involved in shift work.

Work outside the standard daily working hours is not an uncommon feature in the EU labour market[18]. For example, across Member States generally between 10–20% of people in employment report they work at least sometimes during the night (Chart 35). In

certain Member States (namely Austria, the Czech Republic, Malta, Poland, Slovakia and the UK) the share of workers affected actually exceeds 20%. It is most common in Slovakia, where 22% of the employed do night work, and with as much as 15% of workers doing so on a regular basis. The share of workers usually doing night work in Slovakia is relatively high among EU Member States, although Malta and the UK also have shares over 10%. In contrast, regularly working during night time hours is relatively uncommon in Belgium, Cyprus, Greece, Lithuania and Spain, all with 5% or less of employed people working regularly during the night.

Working on Sundays is also a fairly common feature of today's labour mar-

Chart 34 — Incidence of shift work in the EU (employees usually working shift work as percentage of total employees), 2005
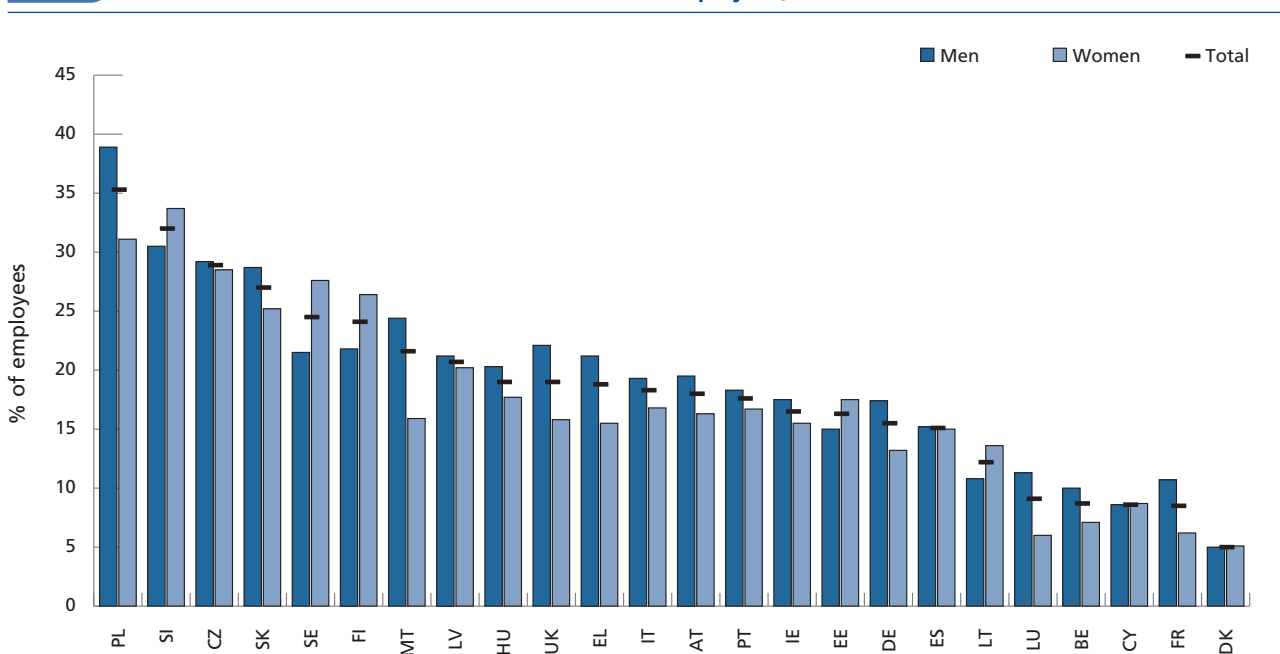
Source: Eurostat, LFS 2005Q2 results.
Note: No data available for the Netherlands.

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16   Generally considered as normal day time working hours during the weekdays Monday to Friday

17   Shift work is a regular work schedule during which an enterprise is operational or provides services beyond the normal working hours, and involves different groups or crews of workers succeeding each others at the same work site to perform the same operations. It usually involves work at unsocial hours in the early morning, at night or at the weekend and the weekly rest days do not always coincide with normal rest days.

18   Definitions of evening and night vary considerably so it is not easy to establish a strictly common basis for all Member States. While cross-country differences in standard (core) working hours and evening or night work may therefore partly reflect cultural and climatic differences across Member States, the statistics presented are based on harmonised survey questions in the EU Labour Force Survey. In general "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. "Usually" means 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 and refers to formal working arrangements.

ket. In several Member States (the Czech Republic, Denmark, Lithuania, Poland, Slovakia and the UK) more than one in three employed people work at least sometimes on Sundays (Chart 36). Among Member States it is most com-mon in the UK and Poland, with close to 36% of workers affected, although the shares regularly working on Sundays in these countries are relatively low. In fact, when considering only those that regularly work on a Sunday it is workers in Austria, Denmark and Slovakia that have the highest shares at around 18–19%. In contrast, regular Sunday work is relatively uncommon in the Czech Republic, Cyprus and Hungary, all with shares below 10%.

Chart 35 **Incidence of night work (population in employment working at night as percentage of total employment) in the EU, 2005**
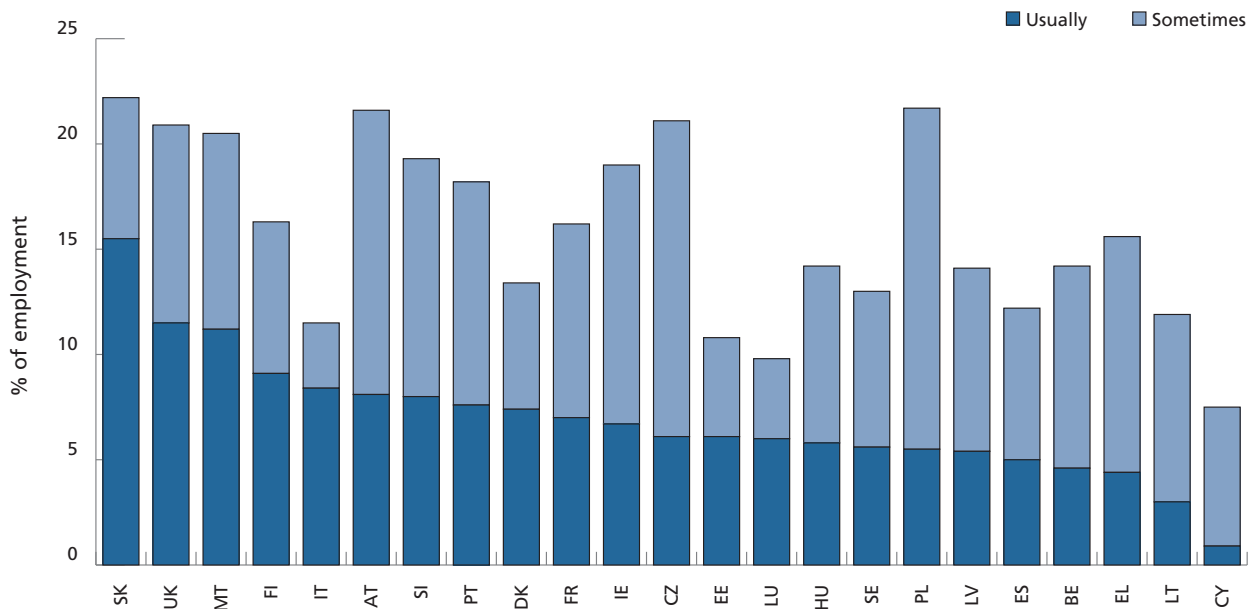
Source: Eurostat, LFS 2005Q2 results.
Note: No data available for Germany and the Netherlands.

Chart 36 **Incidence of work on Sundays (population in employment working on Sunday as percentage of total employment) in the EU, 2005**
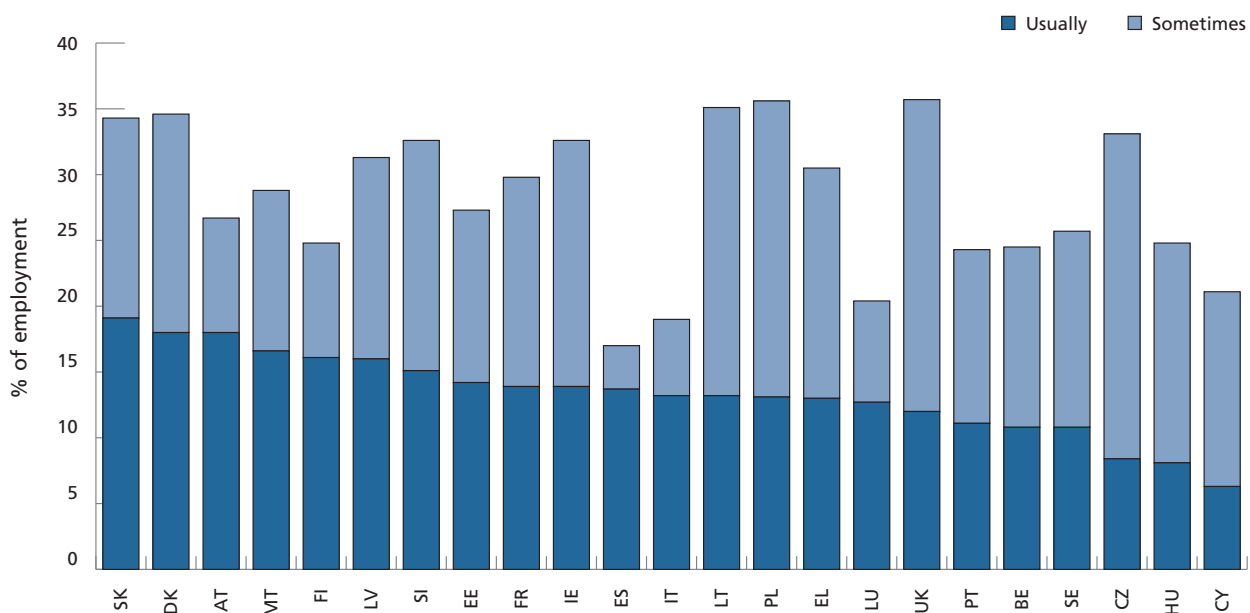
Source: Eurostat, LFS 2005Q2 results.
Note: No data available for Germany and the Netherlands.

Considering both regular night work and regular Sunday work together, Slovakia is clearly the Member State with the greatest share of workers regularly employed in such atypical working time arrangements, having the greatest share in both types. Other countries with relatively high shares of regular work in both are Austria, Finland and Malta. On the other hand, countries such as Belgium, Cyprus, and Hungary have relatively low shares of the employed regularly working in these forms of atypical working hours arrangements.

Recent trends in the incidence of shift, night and Sunday work are rather mixed across Member States (Table 9 and Chart 37). In general there has been a decline in the incidence of shift work in recent years in a majority of Member States, particularly in most of the new Member States and especially Lithuania, Poland and Slovakia. This is likely to be related to the reduction in employment in the industry sector, where shift work is generally more common. Only the Czech Republic and Sweden have seen any significant rise in the incidence of shift work.

Developments in the incidence of regular Sunday work show no general pattern across Member States. In Estonia, Malta and Sweden (all countries with relatively high shares of regular Sunday work in 2000) there has been a sharp

Table 9 – Changes in the incidence (as % of employment) of regular Sunday work and regular night work in the EU Member States between 2000 and 2005, and of shift work (as % of employees) between 2001 and 2005									
	Sunday work			Night work			Shift work		
	2000	2005	change	2000	2005	change	2001	2005	change
BE	9.3	10.8	1.5	5.0	4.6	-0.4	10.3	8.7	-1.6
CZ	n.a.	8.4	n.a.	n.a.	6.1	n.a.	26.7	28.9	2.2
DK	19.5	18.0	-1.5	7.1	7.4	0.3	6.1	5.0	-1.1
DE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	15.0	15.5	0.5
EE	18.5	14.2	-4.3	9.4	6.1	-3.3	19.7	16.3	-3.4
EL	14.7	13.0	-1.7	4.2	4.4	0.2	19.2	18.8	-0.4
ES	13.7	13.7	0.0	3.7	5.0	1.3	17.4	15.1	-2.3
FR	9.2	14.0	4.8	4.6	7.1	2.5	9.7	8.4	-1.3
IE	14.3	13.9	-0.4	5.7	6.7	1.0	17.7	16.5	-1.2
IT	8.0	13.2	5.2	5.3	8.4	3.1	21.0	18.3	-2.7
CY	8.3	6.3	-2.0	1.6	0.9	-0.7	10.1	8.6	-1.5
LV	n.a.	16.0	n.a.	n.a.	5.4	n.a.	n.a.	20.7	n.a.
LT	12.3	13.2	0.9	2.9	3.0	0.1	16.2	12.2	-4.0
LU	7.4	12.7	5.3	3.0	6.0	3.0	10.7	9.1	-1.6
HU	9.7	8.1	-1.6	7.3	5.8	-1.5	22.2	19.0	-3.2
MT	23.3	16.6	-6.7	13.9	11.2	-2.7	22.1	21.6	-0.5
AT	14.5	18.0	3.5	9.9	8.1	-1.8	19.3	18.0	-1.3
PL	12.3	13.1	0.8	3.6	5.5	1.9	38.8	35.3	-3.5
PT	11.7	11.1	-0.6	8.3	7.6	-0.7	17.0	17.6	0.6
SI	15.3	15.1	-0.2	8.4	8.0	-0.4	33.1	32.0	-1.1
SK	13.4	19.1	5.7	10.2	15.5	5.3	34.5	27.0	-7.5
FI	17.6	16.1	-1.5	8.4	9.1	0.7	23.9	24.1	0.2
SE	18.0	10.8	-7.2	7.6	5.6	-2.0	21.8	24.5	2.7
UK	13.3	12.0	-1.3	12.5	11.5	-1.0	19.0	19.0	0.0

Source: Eurostat, LFS spring results.

Note: For ES, IE, LU, PL and SK spring results for 2001 have been used for Sunday and night work instead of 2000 due to unavailability of data for these countries in 2000, while there is no data on either available for DE and NL. For shift work, the first reference year is 2001 due to a change in response categories for this question in most Member States after 2000, and all data are spring 2001 except FR for which spring 2000 is used.

Chart 37 — Changes in the incidence (% shares of employed people) of regular Sunday and night work between 2000 and 2005, and of shift work (as % of employees) between 2001 and 2005

Legend: ■ Sunday work ■ Night work ■ Shift work

Y-axis: percentage point change

X-axis categories: BE, CZ*, DK, DE*, EE, EL, ES, FR, IE, IT, CY, LV*, LT, LU, HU, MT, AT, PL, PT, SI, SK, FI, SE, UK

Source: Eurostat, LFS spring results.
Note: see footnote to related Table for details. *Data missing for CZ, DE and LV.

decline in the share of workers regularly working on Sundays, while in Austria, France, Italy, Luxembourg and Slovakia (countries with low shares in 2000 apart from the latter) there has been a marked increase. A similar situation exists with regard to trends in the incidence of night work, with those Member States registering strong increases in Sunday work also generally recording strong rises in night work, and vice-versa. In several of the new Member States (Cyprus, Estonia, Hungary, Malta and Slovenia) there has been a reduction in the incidence of all three types of working hour arrangement. Another pattern observed for several Member States is a reduction in the incidence of shift work combined with increases in the prevalence of regular Sunday and night work, this being the case in France, Italy, Luxembourg, Poland and Slovakia. However, none of the Member States has seen an increase in the share of all three types of working arrangement.

6. Skills and employment

Europe needs to invest more and more effectively in human capital in order to improve access to employment for all age groups, to raise productivity levels and quality at work, and to build a workforce that can adapt to change[19]. Too many people fail to enter or to remain in the labour market because of a lack of skills, or more generally due to skill mismatches. At the same time, knowledge-based and service-based economies require different skills from traditional industries – skills that also need regular updating in the face of technological change and innovation. The importance of the need to improve education and skills is fully reflected in the Employment Guidelines adopted by the Council in 2005. Two of the guidelines specifically cover this area: Guideline 23 which calls for expanding and improving investment in human

capital through specified measures including lifelong learning strategies, and Guideline 24 which calls on Member States to adapt education and training systems in response to new competence requirements.

6.1. Skill structure of the working age population

The skill content of the EU-25 working age population continues to rise, contributing to a more employable and adaptable workforce and in turn to increased employment and participation rates. Since employment rates are generally higher the greater the educational attainment level, this change in the skill structure of the working age population can be seen as a positive development for employment as a whole. In 2005, the high skilled (i.e. those having completed tertiary education) represented close to 20% of the working age population, while the low skilled (those with education only at lower secondary level or below) repre-

19   See Chapter 4 for further evidence on the positive relationship between a high-skilled and adaptable human capital and growth.

Employment in Europe 2006

sented just under 33% (Table 10 and Chart 38). This compares with shares of 17.6% and 36.2% respectively in 2000 and reflects the ongoing improvements in the level of human capital in the EU. This has mainly been the result of improvements in the skill composition of the female working age population, where the share of high skilled has increased 3 percentage points and the low skilled declined 4.3 percentage points, compared to changes of 1.7 and 2.5 percentage points respectively for men.

There are significant variations across Member States in the skill composition of the working age population

(Chart 39). Despite the general trend of improving skill levels, the low skilled still account for a comparatively large share of the working age population in several Member States. In Malta and Portugal, the low skilled still represent around three-quarters of the working age population, and in Italy and Spain account for more than half. The greatest share of high-skilled people is found in Finland (28.5%), with eight other Member States having shares above 25%. In contrast, the high-skilled account for only between 10 and 15% of the working age population in the Czech Republic, Italy, Hungary, Malta, Poland, Portugal and Slovakia, although all these

Member States have seen increases in this share over recent years. The overall upward shift in the skill composition of the working age population since 2000 is a significant trend observed across all Member States except Germany.

In 2005 the skills composition of the working age population at EU level was very similar for both men and women, reflecting the relatively greater up-skilling of the female population over recent years. The increase in female levels of education in recent decades appears to be a major determinant of the positive trend in female labour force participation. In 2005 a woman with

Table 10 – Share (as %) of the working age population (15-64) by educational attainment levels in 2005								
	Total			Men			Women		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
BE	37.4	35.9	26.7	37.7	36.7	25.6	37.0	35.0	28.0
CZ	17.2	71.8	11.0	14.3	73.6	12.1	20.1	69.9	10.0
DK	24.5	47.4	28.1	24.3	49.5	26.2	24.7	45.3	30.1
DE	24.8	54.8	20.5	22.2	53.9	23.9	27.4	55.6	16.9
EE	20.4	51.8	27.8	23.5	55.6	21.0	17.7	48.3	34.1
EL	40.8	41.6	17.6	40.5	41.4	18.1	41.1	41.8	17.1
ES	51.9	22.5	25.7	52.9	22.1	25.1	50.9	22.9	26.2
FR	36.1	41.0	22.9	35.0	43.4	21.6	37.1	38.6	24.3
IE	37.1	37.5	25.4	40.0	36.4	23.6	34.1	38.7	27.3
IT	50.7	38.9	10.4	51.5	38.6	9.8	50.0	39.2	10.9
CY	36.5	38.7	24.8	35.0	40.4	24.5	37.8	37.1	25.1
LV	24.7	57.5	17.9	27.8	57.7	14.5	21.8	57.2	21.0
LT	22.1	55.7	22.2	24.2	56.2	19.7	20.2	55.3	24.5
LU	30.5	46.5	23.0	28.5	46.8	24.7	32.5	46.2	21.3
HU	29.0	56.5	14.5	26.4	60.4	13.2	31.5	52.9	15.6
MT	73.0	16.7	10.3	68.8	19.6	11.7	77.3	13.7	9.0
NL	33.0	40.8	26.3	30.7	41.3	28.0	35.2	40.3	24.5
AT	24.3	60.5	15.2	20.7	61.8	17.5	28.0	59.1	12.9
PL	22.4	64.0	13.6	22.0	66.2	11.8	22.7	62.0	15.3
PT	72.8	16.3	10.9	75.6	15.7	8.7	70.1	16.8	13.1
SI	24.3	59.2	16.6	22.7	63.2	14.0	25.8	55.0	19.2
SK	20.7	68.1	11.2	18.5	70.2	11.4	22.8	66.1	11.1
FI	26.5	45.0	28.5	28.6	47.0	24.3	24.3	43.0	32.7
SE	21.3	52.9	25.8	23.1	55.1	21.8	19.4	50.6	30.0
UK	14.8	58.9	26.3	13.9	59.7	26.4	15.7	58.0	26.2
EU-25	32.8	47.3	19.9	32.1	48.0	19.9	33.5	46.6	19.9

Source: Eurostat, LFS spring results.
Notes: Low (ISCED 0-2: lower secondary), Medium (ISCED 3-4: upper secondary), High (ISCED 5-6: tertiary); UK: GCSE levels included under "medium".

Chart 38

Share (as %) of the working age population (15-64) by educational attainment levels and gender, in 2000, 2004 and 2005

■ 2000 ■ 2004 ■ 2005

% of respective population

	Low	Medium	High	Low	Medium	High	Low	Medium	High
		Total			**Men**			**Women**	
2000	36.2	46.3	17.6	34.6	47.1	18.3	37.8	45.4	16.8
2004	33.6	47.1	19.3	32.7	47.8	19.5	34.5	46.3	19.2
2005	32.8	47.3	19.9	32.1	48.0	19.9	33.5	46.6	19.9

Source: Eurostat, LFS spring results.

Chart 39

Share (as %) of the working age population (15-64) by educational attainment levels in 2005

■ Low ■ Medium ■ High

% of working age population

MT, PT, ES, IT, EL, BE, IE, CY, FR, NL, EU-25, LU, HU, FI, DE, LV, DK, AT, SI, PL, LT, SE, SK, EE, CZ, UK

Source: Eurostat, LFS 2005 spring results.

tertiary-level education was more than twice as likely (79%) to be in employment as a woman with lower-secondary level education or below (36%).

Nevertheless, there remain large skill composition differences between the genders at Member State level. In Austria, the Czech Republic, Ger-

many, Hungary and Malta the share of low-skilled women is much higher (more than 5 percentage points) than that for men, although in contrast the

opposite situation exists in several Member States, notably Estonia, Ireland, Latvia and Portugal. Similarly, large differences are observed at Member State level in the shares of high-skilled men and women. For example, in Austria and Germany there is a markedly lower share of high-skilled women than men, while in Estonia, Latvia, Lithuania, Slovenia, Finland and Sweden the reverse situation is found.

6.2. Skills and employment performance

Skill levels have an important relation to employment rates, with the rate generally being higher the greater the educational attainment level (Table 11). In 2005 the average employment rate among the high skilled in the EU was 82.5% and for the medium skilled[20] 68.7%, whereas for the low skilled it was only 46.4%. The greatest within-country differences in employment

rates for the low- and high-skilled are found among the east European new Member States, with differences above 50 percentage points for most and as high as 70 percentage points in Slovakia. In these countries the importance of skill levels to the employment status of individuals is the most pronounced.

The variation in employment rates across Member States is significantly higher for the low skilled. Employment rates for the high skilled range from

Table 11 – Employment, unemployment and activity rates by education levels in 2005, in % (age group 15-64)											
	Total, irrespective of education level			High			Medium			Low		
	ER	UR	AR	ER	UR	AR	ER	UR	AR	ER	UR	AR
BE	61.0	8.1	66.4	83.6	3.8	86.9	66.0	8.2	71.9	40.0	13.7	46.3
CZ	64.7	7.8	70.2	85.0	2.1	86.8	72.0	7.1	77.4	21.3	27.3	29.3
DK	75.5	4.9	79.4	85.7	3.6	88.9	78.3	4.8	82.3	58.3	7.1	62.8
DE	65.3	11.4	73.7	82.7	5.8	87.8	69.2	11.5	78.2	42.1	19.0	52.0
EE	64.9	8.3	70.8	82.6	3.2	85.3	69.9	10.1	77.7	28.3	15.2	33.3
EL	60.3	9.8	66.8	81.4	7.7	88.2	61.0	11.5	68.9	50.5	9.0	55.4
ES	63.2	9.4	69.7	80.4	6.6	86.1	66.0	9.1	72.6	55.3	11.4	62.5
FR	62.8	9.3	69.3	76.9	6.6	82.3	68.7	8.2	74.9	47.2	13.6	54.6
IE	67.1	4.3	70.2	85.7	2.3	87.8	72.4	3.7	75.2	48.9	7.4	52.7
IT	57.8	7.6	62.5	79.5	6.0	84.6	67.6	6.6	72.4	45.8	9.2	50.4
CY	68.7	5.5	72.6	85.9	4.0	89.5	73.1	5.5	77.4	52.2	6.9	56.1
LV	63.0	9.2	69.4	85.6	3.9	89.1	68.9	8.9	75.6	33.1	18.6	40.7
LT	62.6	8.6	68.5	87.5	3.8	91.0	67.6	9.7	74.9	25.1	16.0	29.9
LU	63.6	4.5	66.6	82.5	3.5	85.5	63.0	4.2	65.8	50.5	6.2	53.8
HU	56.8	7.1	61.2	82.6	2.5	84.8	64.9	6.9	69.7	28.1	14.2	32.7
MT	53.6	7.9	58.2	82.7	2.7	84.9	76.0	3.7	78.9	44.5	10.6	49.8
NL	73.2	4.8	76.9	85.6	2.9	88.2	77.5	4.3	81.0	58.2	7.7	63.0
AT	67.6	5.3	71.3	83.6	3.1	86.4	72.5	4.5	76.0	45.1	10.4	50.3
PL	52.2	18.3	63.9	81.1	6.8	87.0	56.4	19.4	70.0	22.9	30.1	32.7
PT	67.6	7.7	73.2	87.5	4.4	91.5	63.5	7.5	68.7	65.5	8.3	71.5
SI	66.0	5.9	70.1	86.5	3.1	89.2	70.7	6.0	75.2	40.7	9.1	44.7
SK	57.4	16.3	68.6	83.4	5.2	88.0	66.6	14.4	77.8	13.1	53.1	28.0
FI	69.2	9.7	76.6	84.1	4.6	88.1	72.8	9.5	80.5	47.0	18.5	57.7
SE	72.6	8.8	79.6	86.0	4.7	90.2	78.7	7.8	85.3	52.0	17.1	62.8
UK	71.5	4.6	74.9	87.4	2.5	89.7	76.1	4.8	80.0	49.2	9.2	54.1
EU-25												
Total	63.6	9.1	70.0	82.5	5.0	86.9	68.7	9.3	75.8	46.4	12.9	53.2
Men	71.1	8.5	77.7	85.9	4.6	90.1	75.1	8.7	82.3	56.8	11.7	64.4
Women	56.2	9.9	62.4	79.1	5.5	83.7	62.2	10.0	69.1	36.3	14.5	42.5

Source: Eurostat, LFS spring results.

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20   Those having completed upper secondary education.

76.9% in France to around 87.5% in Lithuania, Portugal and the UK, a difference of only around 10 percentage points, while for the low skilled it ranges from an extremely low 13% in Slovakia to as high as around 66% in Portugal. The countries where employment rates for the low skilled are very low (below 30%) are all among the new Member States from Eastern Europe, reflecting the relatively low level of labour market participation by the low skilled in these countries, although it is also the case that the shares of the low skilled in the working age population in these countries are well below the EU average.

Focussing on unemployment rates, the average unemployment rate for the low skilled in the EU is more than twice that for the high skilled. Differences in unemployment rates between these two groups are particularly pronounced in the Czech Republic and Slovakia, as well as in Poland. In the former two countries, the unemploy-

ment rate for the low skilled is more than ten times that for the high skilled. This contrasts markedly with the situation in Cyprus, Denmark, Greece, Italy, Luxembourg, the Netherlands, Portugal and Spain where the unemployment rates for low and high skilled differ by less than 5 percentage points.

7. Sectoral employment structure and trends

7.1. Sectoral employment structure in the EU in 2005

In 2005, the overall sectoral employment structure of the EU-25 consisted of 4.9% of total employment[21] in agriculture, 27.5% in industry and 67.7% in services. The increasing importance of the share of employment in the services sector, together with the declining

shares in agriculture and industry, continues to feature.

Noticeable differences remain at the level of individual Member States in terms of the relative importance of employment shares within the main sectors (Table 12 and Chart 40). For example, in Poland and Lithuania the agriculture sector still accounts for 17% and 15% respectively of total main employment, while the share also remains relatively high in Greece, Latvia and Portugal. This compares with shares as low as below 2% in Luxembourg, Malta and the UK. Industry's share of employment varies from 17% in Luxembourg to around 39% in the Czech Republic and Slovakia. In all Member States the services sector accounts for by far the largest employment share, ranging from just under 55% of total main employment in Poland and Slovenia, to as high as over three-quarters in the Netherlands, Sweden and the UK, and over 80% in Luxembourg.

Chart 40 **Comparative employment structure (by main employment) of the EU Member States by main sector, 2005**
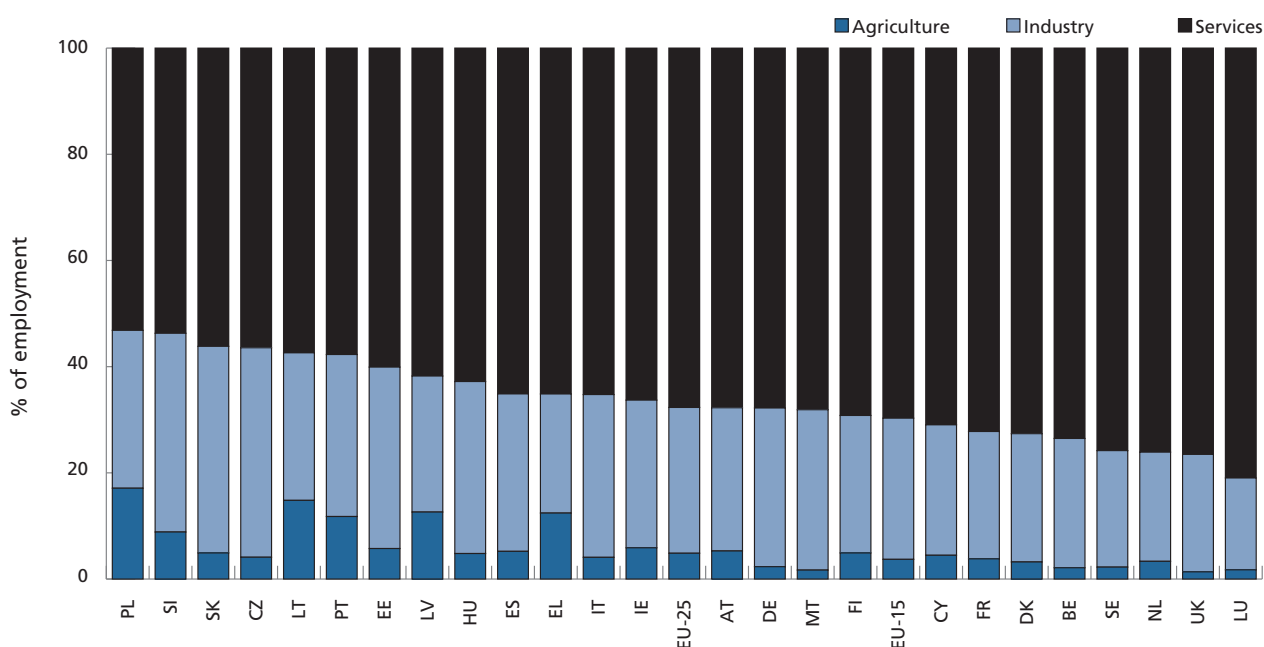
Source: Eurostat, LFS, spring 2005 results.

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21   By main employment and resident concept.

Table 12 – Employment structure in 2005 (% of total employment 15+, by main employment, resident concept)

Sector (NACE rev1 description)	EU-25	EU-15	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK
Agriculture, fishing and forestry	4.9	3.7	2.1	4.1	3.2	2.3	5.8	12.4	5.2	3.8	5.9	4.1	4.5	12.6	14.8	1.7	4.8	(1.7)	3.3	5.3	17.1	11.8	8.9	4.9	4.9	2.3	1.4
Mining and quarying	0.4	0.3	0.2	1.0	(0.1)	0.4	(0.7)	0.4	0.3	0.2	0.5	0.2	(0.2)	:	:	:	0.4	:	(0.1)	0.2	1.6	0.4	(0.6)	0.7	0.2	0.2	0.4
Manufacturing	18.3	17.6	17.0	27.1	16.2	21.9	24.0	12.8	16.4	16.4	14.1	21.2	11.9	14.7	17.3	8.7	22.3	20.0	13.7	18.6	20.7	19.0	29.5	26.9	18.3	15.3	13.3
Electricity, gas and water supply	0.9	0.7	0.6	1.6	0.6	0.9	(2.1)	0.9	0.5	0.8	0.7	0.7	0.8	2.1	1.8	(0.6)	1.6	(1.6)	0.6	0.9	1.7	0.5	(1.1)	1.9	0.8	0.6	0.6
Construction	7.9	8.0	6.5	9.7	7.2	6.7	7.4	8.4	12.4	6.6	12.6	8.6	11.7	8.6	8.4	7.9	8.1	8.2	6.2	7.3	5.7	10.7	6.3	9.3	6.6	5.9	7.9
Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods	14.6	14.7	13.4	12.9	14.6	14.5	13.6	17.8	15.0	13.6	13.8	15.1	17.4	14.6	16.0	11.1	15.2	14.3	14.8	16.0	14.4	15.3	11.8	12.1	12.6	12.4	15.3
Hotels and restaurants	4.2	4.4	3.5	3.9	2.2	3.6	3.7	6.9	7.1	3.2	5.8	4.9	8.2	3.2	2.1	3.8	4.1	7.6	4.1	6.4	1.7	5.2	4.3	3.9	3.3	2.7	4.3
Transport, storage and communication	6.1	6.1	7.8	7.5	6.4	5.3	8.9	6.1	5.8	6.6	6.1	5.5	5.0	9.4	6.5	6.8	7.2	7.6	6.4	6.2	6.0	4.2	5.6	6.5	7.0	6.3	6.9
Financial intermediation	3.0	3.2	3.7	2.0	3.0	3.5	:	2.6	2.5	2.9	4.4	2.8	5.2	1.9	(1.0)	11.4	2.1	4.3	3.4	3.8	2.1	1.9	2.4	2.1	1.9	1.8	4.2
Real estate, renting and business activities	9.4	10.1	8.3	5.9	9.6	9.9	7.5	6.6	8.9	10.2	8.9	10.3	7.1	4.6	4.1	8.8	7.2	5.2	12.5	8.5	5.7	5.7	6.6	5.9	11.4	13.9	11.5
Public administration and defence, compulsory social security	7.3	7.4	10.2	7.0	6.0	7.7	5.4	7.8	6.3	9.5	5.1	6.4	7.1	7.8	5.5	12.2	7.4	8.8	7.5	6.5	6.5	6.6	6.2	7.0	4.6	5.6	7.1
Education	7.2	7.1	9.2	6.2	7.4	5.7	9.5	7.1	5.9	7.1	6.4	6.9	6.5	8.4	10.0	7.5	8.3	7.8	7.3	5.9	7.8	6.3	7.2	7.4	6.9	11.0	9.1
Health and social work	9.8	10.4	12.4	6.9	17.9	10.9	5.5	5.0	5.9	12.2	9.7	6.7	4.4	5.8	7.3	9.7	6.7	7.8	15.9	9.2	5.8	6.3	5.4	6.8	15.3	16.4	12.3
Other community, social and personal service activities	4.8	5.0	3.8	4.0	5.3	6.0	4.8	3.5	4.1	4.3	4.9	5.1	5.0	5.7	4.4	2.9	4.5	4.4	4.1	4.9	3.2	3.1	4.0	4.1	5.9	5.5	5.5
Private households with employed persons	1.2	1.3	0.5	(0.0)	(0.2)	0.5	:	1.5	3.6	2.6	0.4	1.4	4.1	:	(0.4)	1.8	:	:	(0.1)	0.2	(0.1)	3.0	:	0.3	0.3	:	0.4
Extra-territorial organisations and bodies	0.1	0.1	0.8	:	:	0.1	:	:	(0.0)	(0.1)	0.7	0.1	0.8	:	:	4.9	:	:	:	0.2	:	:	:	:	:	:	:
Total Agriculture, fishing and forestry	4.9	3.7	2.1	4.1	3.2	2.3	5.8	12.4	5.2	3.8	5.9	4.1	4.5	12.6	14.8	1.7	4.8	(1.7)	3.3	5.3	17.1	11.8	8.9	4.9	4.9	2.3	1.4
Total Industry	27.5	26.6	24.4	39.5	24.0	29.9	31.4	22.4	29.6	24.0	27.8	30.7	24.4	25.5	27.5	16.6	32.4	28.2	20.5	27.0	29.7	30.5	35.8	38.9	25.9	21.9	22.1
Total Services	67.7	69.7	73.5	56.4	72.4	67.8	58.9	65.1	65.1	72.1	66.3	65.3	71.0	61.5	55.9	81.0	62.7	67.8	76.0	67.7	53.1	57.7	53.6	56.2	69.1	75.8	76.5

Source: Eurostat, LFS spring 2005 results.

Data in parenthesis "( )" are not reliable due to small sample size, while ":" indicates sample too small to show a figure at all.

7.2. Sectoral employment trends in 2005

Between 2004 and 2005 the service sector once again proved to be the most dynamic sector for employment creation in the EU (Chart 41), with the rate of annual growth[22] in this sector showing some signs of a moderate recovery over 2005. For the EU as a whole, employment growth in industry turned positive in the first quarter of 2005, spurred on by strong growth in construction. However, growth returned to negative territory in the remaining quarters, although the rate of contraction was much lower than observed in the preceding years. Meanwhile, in the agriculture sector the contraction of employment slowed over the first half of the year before picking up again in the second half.

A more detailed sectoral breakdown of net employment creation (by main employment) between 2004 and 2005

(Chart 42) shows that the "real estate, renting and business activities" sector experienced the greatest increase in employment (up 0.6 million), followed by "other community, social and personal service activities" and "health and social work". Within the services sector, the "wholesale/retail trade, repair of vehicles and domestic goods" and "hotels and restaurants" sectors also saw employment increases of around 0.4 million, while, in contrast, the "education" and "transport storage and communication" sectors saw relatively little employment expansion. Within industry, employment in "construction" rose by just under 0.4 million, just below the level of contraction in "manufacturing", with the result that employment for the industry sector as a whole was little changed.

Sectoral employment developments in the four largest Member States (Chart 43) show that all experienced

positive annual employment growth[23] throughout 2005 in the services sector. However, annual employment growth in services slowed down over 2005 in Germany and Italy and picked up only slightly in France, although more substantially in the UK. In industry, employment developments were again rather mixed. In Germany, compared to the same quarter of the preceding year employment in industry continued to contract and at a rate higher than in the previous year with negative growth of -2.0% to -2.5% for all quarters, while in Italy annual employment growth returned to negative territory from the second quarter of the year onwards. In France the rate of job losses in industry slowed over 2005 and remained at levels well down on those over 2004, while in the UK the rate of decline in industry was also generally lower than in previous years during the first half of the year but accelerated sharply over the second half. Employment developments in

Chart 41 — Employment growth in the EU by main sector, 2001-2005

Source: Eurostat, national accounts.

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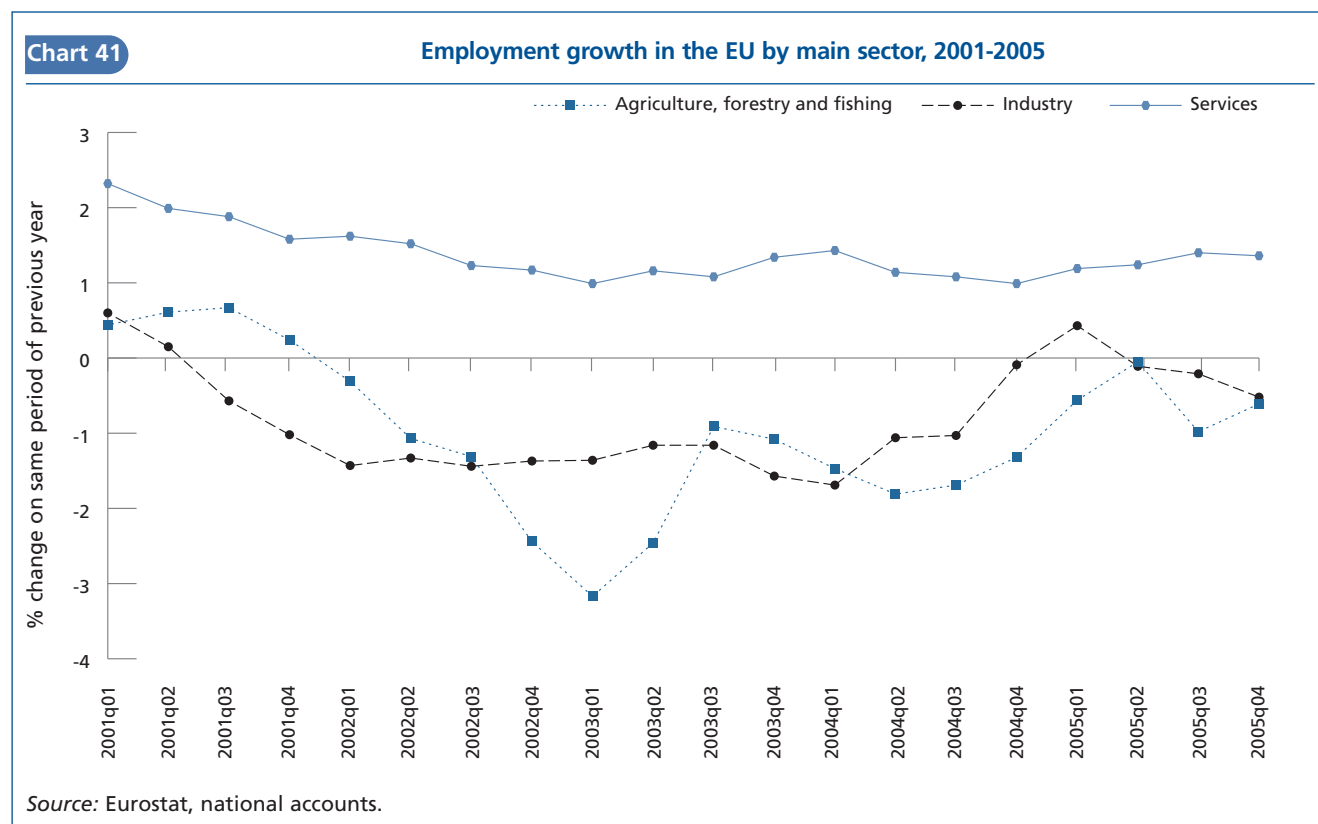
22   Comparing employment levels with those in the corresponding quarter of the previous year.

23   Comparing employment levels with those in the corresponding quarter of the previous year.

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Chart 42   **Change in sectoral employment in the EU between 2004 and 2005**

Services	
Industry	
Agriculture	
Private households with employed persons	
Other community, social and personal service activities	
Health and social work	
Education	
Public administration and defence, compulsory social security	
Real estate, renting and business activities	
Financial intermediation	
Transport, storage and communication	
Hotels and restaurants	
Wholesale/retail trade, repair of vehicles and domestic goods	
Construction	
Electricity, gas and water supply	
Manufacturing	
Mining and quarying	
Agriculture, fishing and forestry	

-1.0   -0.5   0.0   0.5   1.0   1.5   2.0   2.5   3.0   3.5   4.0

Change in employment (millions)

Source: Eurostat LFS spring results.

agriculture were generally negative, with a return to strong employment contraction in Germany and Italy, but more subdued contraction in France. In contrast, comparing to employment levels in the same quarter of the previous year the UK saw strong employment expansion in agriculture in the first part of 2005, but this also gave way to substantial employment contraction from the third quarter onwards.

Chart 43

Sectoral employment growth (compared to employment in same quarter of previous year) in the four largest Member States, 2001-2005

Employment growth in Germany by main sector, 2001-2005

Employment growth in France by main sector, 2001-2005

Employment growth in Italy by main sector, 2001-2005

Employment growth in United Kingdom by main sector, 2001-2005
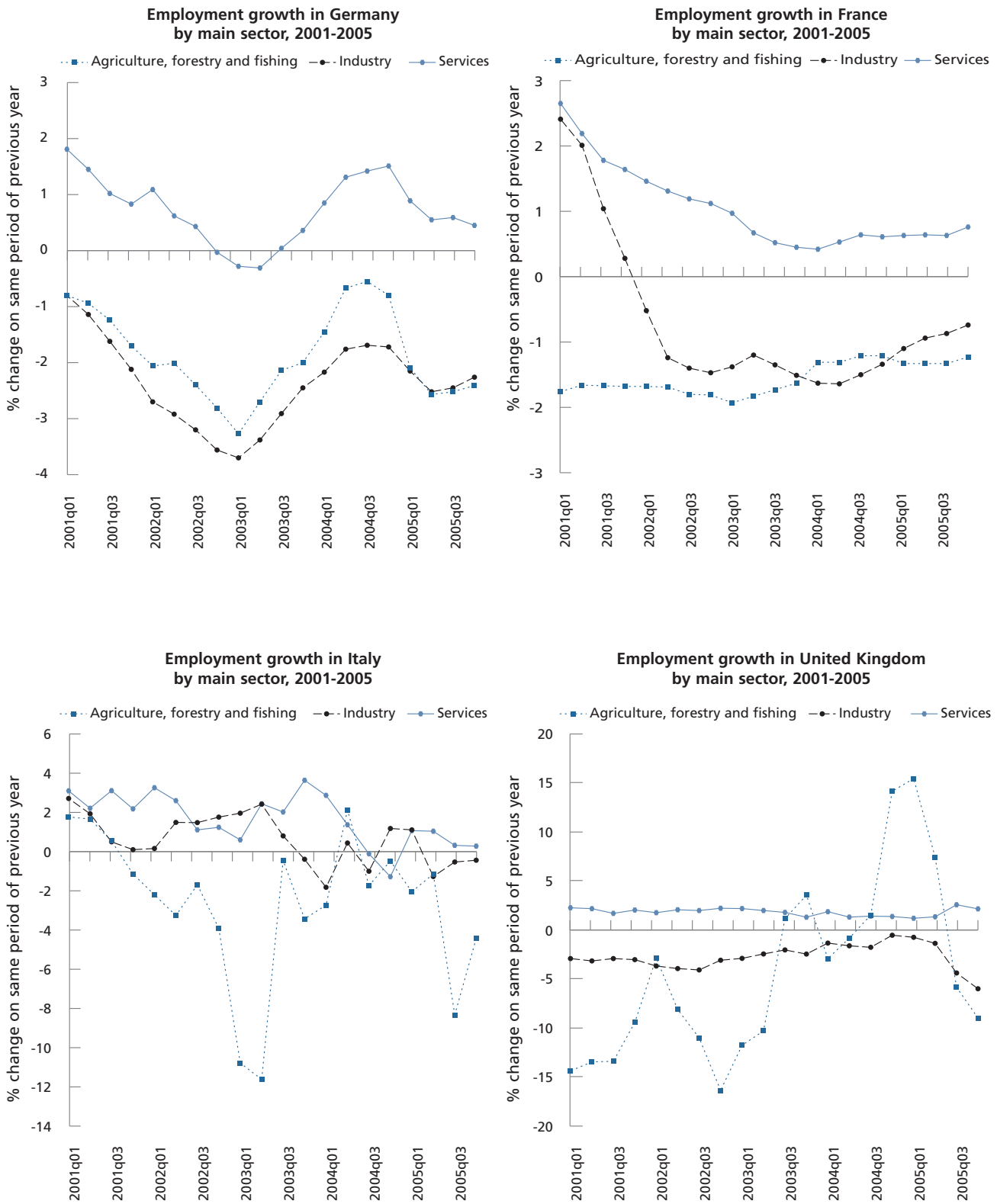
Source: National accounts.
Note: UK sectoral breakdowns are estimates produced by Eurostat.

Employment in Europe 2006

7.3. Sectoral employment trends in the EU since 2000

The recent trend in the sectoral structure of EU employment reflects the continued shift towards a service economy, and the ongoing decline in employment in agriculture and industry. Since 2000 total employment[24] in the EU has increased by over 8.5 million, mainly driven by strong net employment creation of almost 11.5 million in the services sector (Chart 44). The latter has more than made up for the employment contraction in industry (down 1.6 million) and agriculture (down 1.2 million) since 2000.

Within industry, employment has contracted particularly strongly in manufacturing, where it has fallen by 2.2 million (or about 6% on 2000 levels), although this has been offset to a certain extent by the rise in employ-

ment of 0.8 million in the construction sector. Within services, where employment has expanded in all sub-sectors apart from "financial intermediation", the main drivers of employment creation have been the "real estate, renting and business activities" (up 3.5 million), "health and social work" (up 2.3 million) and "education" (up 1.3 million) sectors.

7.3.1. Sectoral developments by gender

At EU level, the increased participation of women in the labour market accounts for the majority of the net increase in employment in services since 2000 (almost two-thirds). The sectors that have witnessed the greatest expansion in female employment are the "health and social work", "education" and "real estate, renting and business activities" sectors. In the former

two, the contribution of women to employment expansion has far outweighed that of men, while it is also interesting to note that women account for essentially the whole increase in net employment at EU level in the "public administration and defence, compulsory social security" sector between 2000 and 2005. Women also account for the majority in the overall decline in employment in industry, where their employment in "manufacturing" has declined almost as much as for men while expansion in the "construction" sector has essentially only concerned their male counterparts.

7.3.2. Sectoral developments by age group

In terms of age groups, the strong contribution of older people aged 55–64 to employment growth has been mostly felt in the services sector, but to a cer-

Chart 44   **Change in sectoral employment in the EU between 2000 and 2005, by sex**
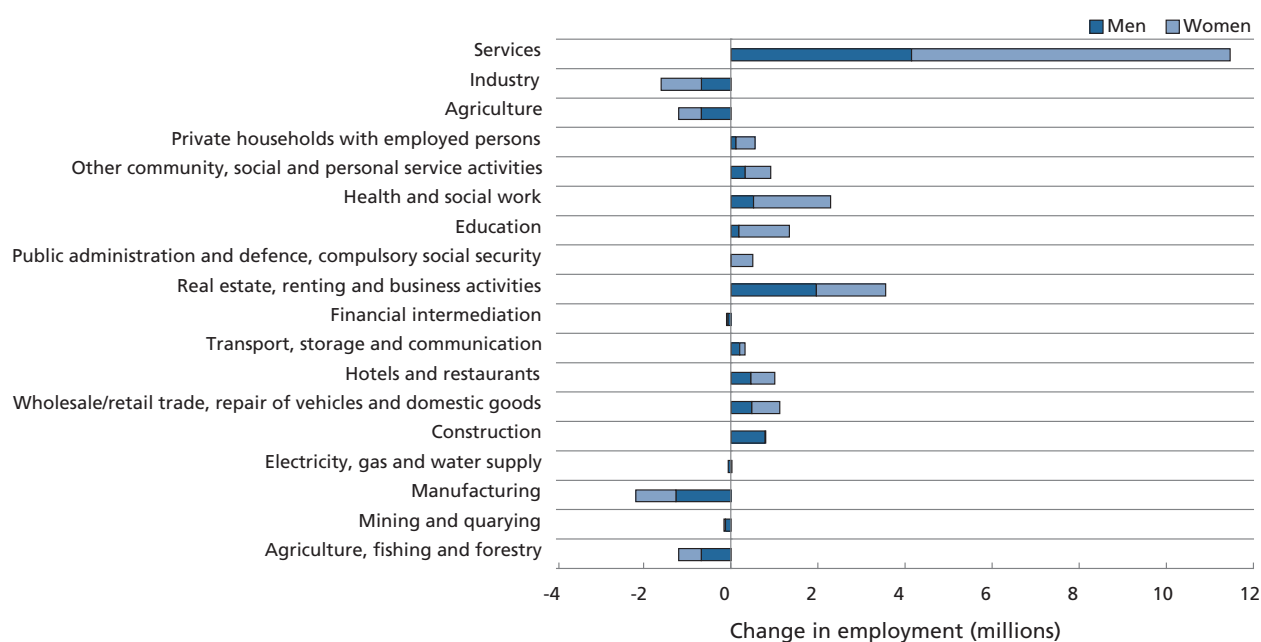
Change in employment (millions)

Source: Eurostat, LFS spring results.

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tain extent also in industry (Chart 45). In the former they account for around one-third of net employment creation in this sector between 2000 and 2005, while in the latter sector they were the only working age group to experience a positive contribution to net employment. Within services the main sector where employment of older people has risen substantially was "health and social work", followed closely by "real estate, renting and business activities" and "education". Furthermore, older people aged 55–64 account for almost all the net increase in employment in the "public administration and defence, compulsory social security" and "transport, storage and communication" sectors during this period. In contrast to the developments for older workers, young persons (aged 15–24) have seen a net decrease in employment, resulting mainly from a decline in youth employment in the industry

sector (essentially "manufacturing"), but also in "agriculture", which has only been offset to a limited extent by increased employment in services. On the other hand, for prime age workers, reductions in employment in industry and agriculture have been more than offset by large increases in employment in services, especially in sectors such as "real estate, renting and business activities" and "health and social work".

8. Occupational employment structure and trends

8.1. Occupational employment structure in the EU in 2005 and overall trends

In 2005 the occupational structure of the employed population in the EU-25[25] was broadly composed of approximately 40% of total employment in high-skilled non-manual occupations, around a quarter in both low skilled non-manual and skilled manual occupations, and just under one in ten in elementary occupations[26] (Table 13). Compared to 2000, there has been an almost 3 percentage point increase in the share of employment in high-skilled non-manual occupations, and a similar

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Chart 45   **Change in sectoral employment in the EU between 2000 and 2005, by age group**

■ Young (15-24) ■ Prime-age (25-54) ■ Older persons (55-64)

Source: Eurostat, LFS spring results.

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decline in the share of people employed in skilled manual occupations.

Similar to the sectoral distribution of employment, noticeable differences remain at the level of individual Member States in terms of the relative shares of employment (by main job) within the main occupational categories (Chart 46). Within the EU, the Netherlands has the highest share (close to 48%) of employment in high-skilled non-manual occupations, compared to only around 27% in Portugal. In Poland, employment in skilled manual occupations accounts for 42% of total employment, with a substantial share of this due to employment in skilled agricultural and fishery workers' occupations. Similarly, in the Czech Republic, Greece, Hungary, Lithuania, Portugal, Slovakia and Slovenia, employment in skilled manual occupations accounts for over a third of total employment, compared to below 20% in Luxembourg, the Netherlands and the UK. Relatively high shares of employment in the low-skilled non-manual occupations are found in Cyprus, Ireland and the UK, while for the elementary occupations the highest employment shares are in Cyprus and Spain.

Within the high-skilled non-manual occupation grouping, "legislators, senior officials and managers" accounted for 8.6% of employment at EU level in 2005, "professionals" 13.7% and "technicians and associate professionals" 16.2%, with all three major ISCO[27] groupings experiencing increases in the share of total employment since 2000 (Chart 47). Within the low-skilled non-manual group, the share of "service workers and shop and market sales workers" in employment, at 13.4%, has not changed since 2000 and it is the decline in the employment share of "clerks" from 12.4% to 11.3%, which drove the overall decline in the share of low-skilled non-manual employment. Within the skilled manual occupations, "craft and related trades workers" have seen their share of employment decline from 15.6% to 14.1%, while the "skilled agricultural and fishery workers" and "plant and machine operators and assemblers" occupational groupings also saw losses in employment shares although to a lesser extent.

Table 13 – Occupational structure in the EU by main occupational grouping (as % shares of total employment (excl armed forces))

Main occupational grouping	2000	2005	Change 2000-2005
High-skilled non-manual	35.8	38.7	2.9
Low-skilled non-manual	25.9	24.9	-1.0
Skilled manual	29.3	26.8	-2.6
Elementary occupations	9.0	9.7	0.7

Source: Eurostat, LFS spring results.

Chart 46

Variation across EU Member States in the occupational structure of employed persons (by main occupation class), 2005
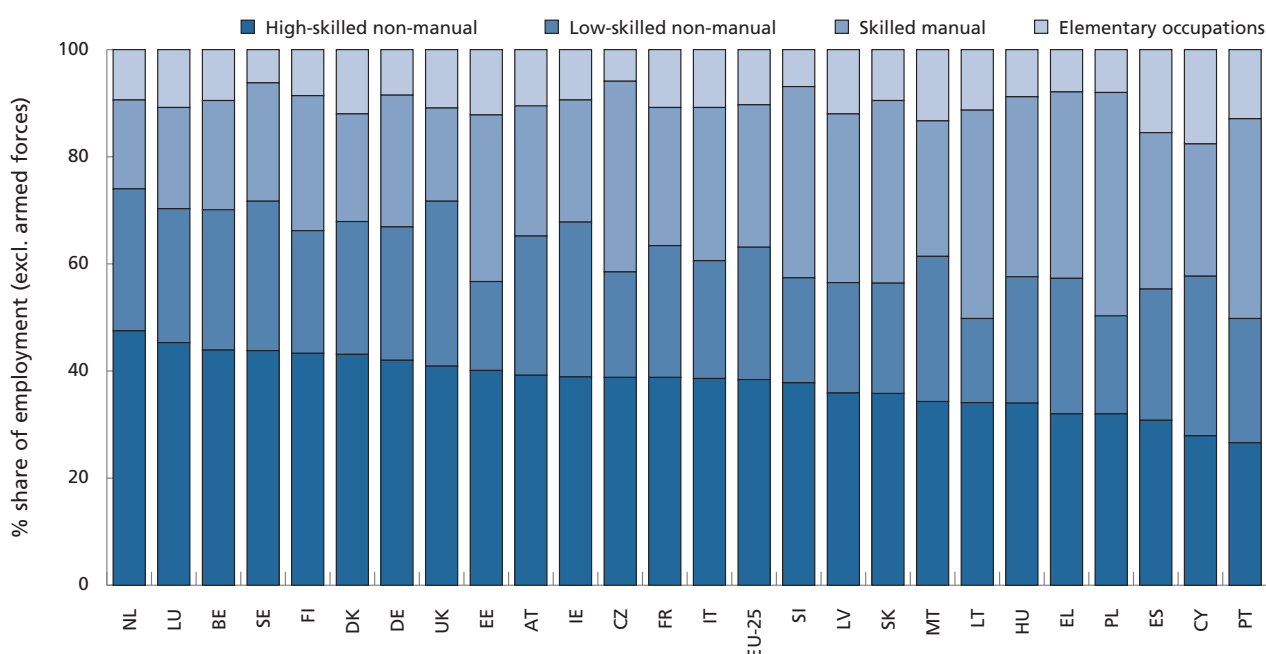
Source: Eurostat, LFS spring results.
Note: Occupation class is based on ISCO 88-COM (groups 1-3 for high-skilled non-manual, 4-5 for low-skilled non-manual, 6-8 for skilled manual and 9 for elementary occupations. Armed forces not included.

27   International standard classification of occupations (ISCO- 88 (com))

Chart 47   **Developments in occupational structure of the employed population in the EU between 2000 and 2005**

■ 2000 ■ 2005

Elementary occupations

Plant and machine operators and assemblers

Craft and related trades workers

Skilled agricultural and fishery workers

Service workers and shop and market sales workers

Clerks

Technicians and associate professionals

Professionals

Legislators, senior officials and managers

0   2   4   6   8   10   12   14   16   18

% of total employed population
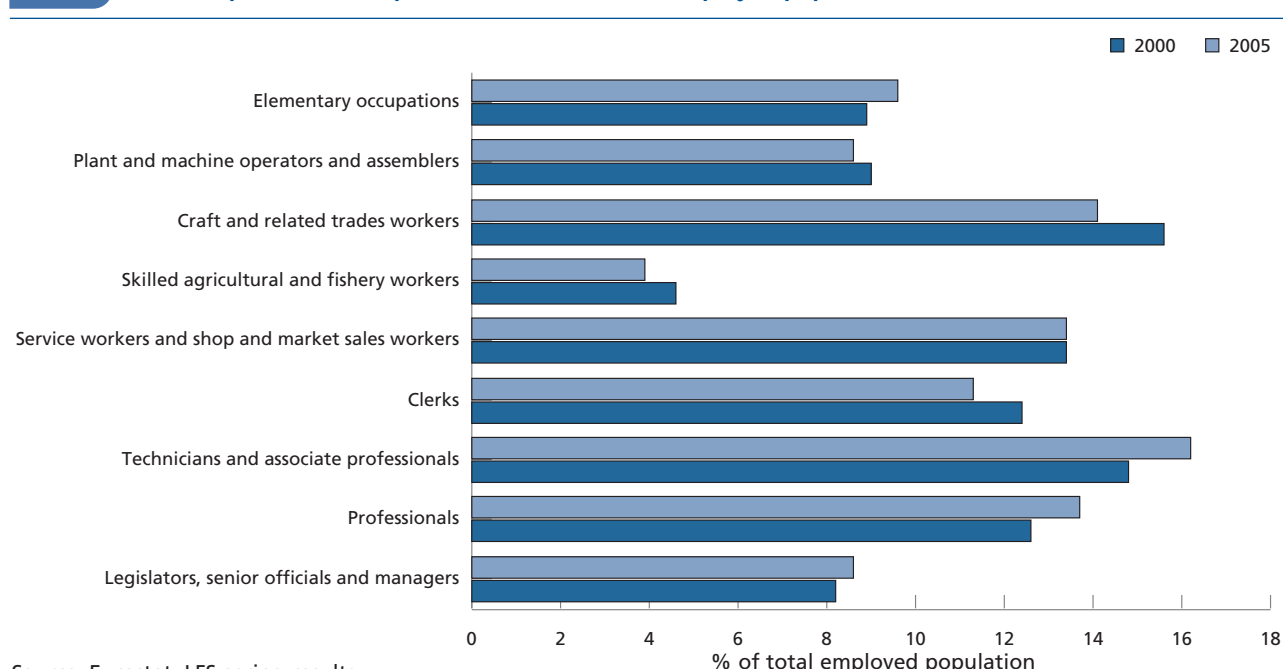
Source: Eurostat, LFS spring results.
Note: occupations refer to ISCO major groupings.

Looking at the changes in occupational employment in absolute terms, all three occupational groups in the high-skilled non-manual category have seen substantial increases in employment in recent years, in particular the "technicians and associate professionals" and "professionals" groups (Chart 48). In effect, the high-skilled non-manual occupations have been the main driver for the overall increase in employment, accounting for the major part of employment expansion since 2000. This suggests an underlying improvement in the skill level of employment, as well as reflecting the ongoing shift towards a more knowledge-based economy. However, employment has also risen substantially in the elementary occupations and in "service workers and shop and market sales workers" occupations, while it has declined in all the skilled-manual occupations and for "clerks". To a certain degree, this points to a polarisation in the changes in the occupational structure towards high-skilled occupations and very low-skilled occupations.

8.2. Recent developments in occupational structure by gender and age

From a gender perspective, increases in employment since 2000 for both women and men have been rather similar in most major occupational groupings, apart from "technicians and associate professionals" and "service workers and shop and market sales workers". In both of the latter groups, increases in female employment were substantially higher than those for men, while in the low-skilled non-manual and skilled manual occupations the declines in employment have mainly affected men. Overall, the main increases in employment for both sexes have been in the high-skilled non-manual occupations.

Despite these changes, the distribution of occupational employment remained markedly different between men and women in 2005 (Chart 49). Low-skilled non-manual occupations account for a substantially higher share of female employment (close to 40%) than male

(around 14%), while for skilled manual the opposite situation exists (10% of female employment versus 40% for men), essentially due to particularly large differences in "craft and related trades workers" and "plant and machine operators and assemblers" occupations. For the high-skilled non-manual and elementary occupations groups as a whole, the shares of the working populations are broadly similar, at around 40% and 10% respectively, although within the high-skilled non-manual group, women are under-represented relative to men in the "legislators, senior officials and managers" occupations, and over-represented in the "professionals" and "technicians and associate professionals" occupational groups.

Breakdowns of the changes in occupational employment since 2000 by age (Chart 50) indicate that the majority of employment creation in the high-skilled non-manual occupations has been for prime-age workers, but there have also been substantial increases in employment for older persons aged 55–64 in

Chart 48 **Changes in employment in the EU by main occupational groupings and gender between 2000 and 2005**
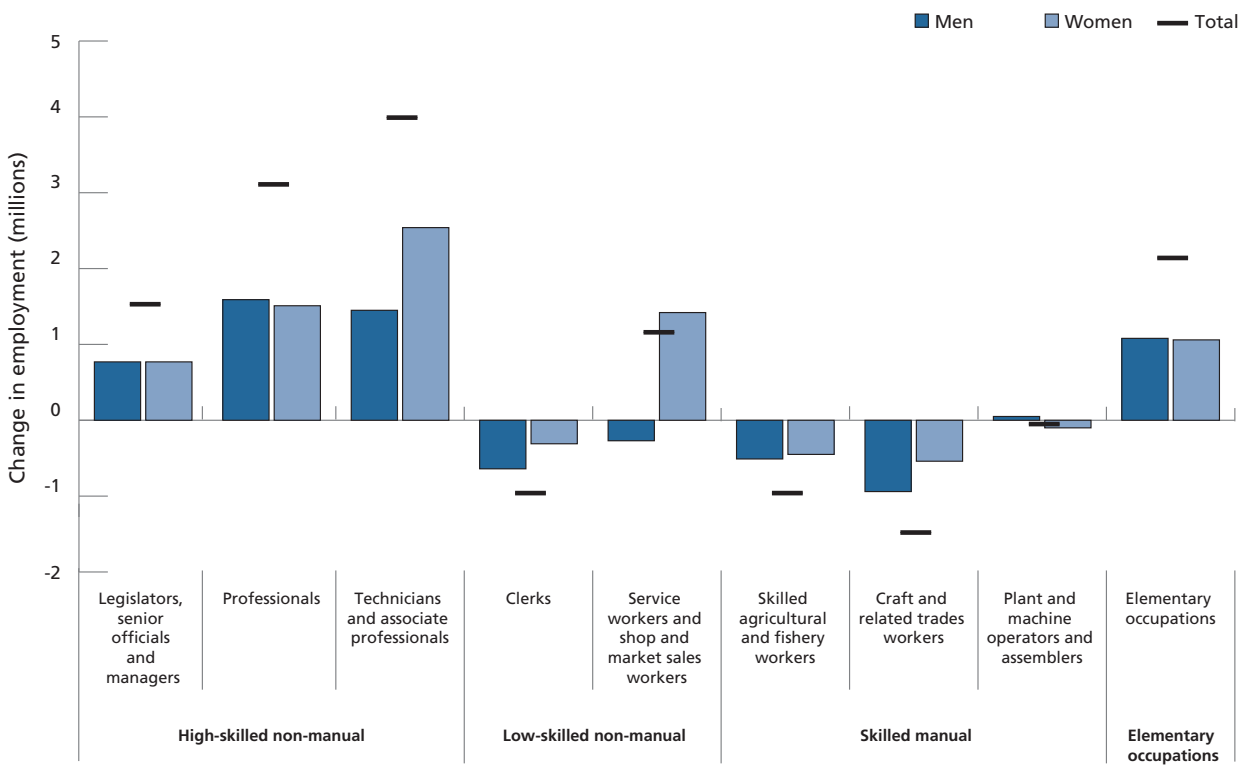
Source: Eurostat, LFS spring results. Note: occupations refer to ISCO major groupings.

Chart 49 **Occupational structure of employment by gender, 2005**
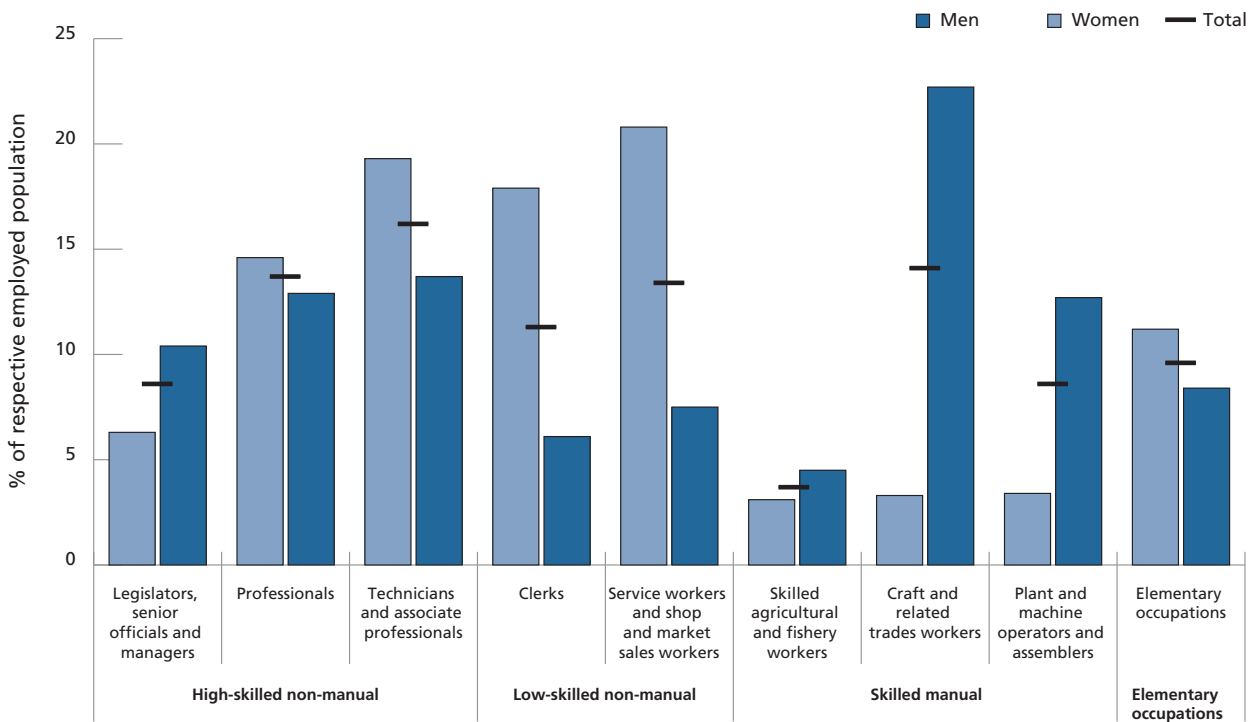
Source: Eurostat, LFS spring results.

Chart 50   **Changes in employment in the EU by main occupational groupings and age between 2000 and 2005**

Legend: ■ Prime age (25-54)   ■ Older people (55-64)   ■ Young (15-24)

Y-axis: Change in employment (millions)

Categories:
- Legislators, senior officials and managers
- Professionals
- Technicians and associate professionals

  High-skilled non-manual

- Clerks
- Service workers and shop and market sales workers

  Low-skilled non-manual

- Skilled agricultural and fishery workers
- Craft and related trades workers
- Plant and machine operators and assemblers

  Skilled manual

- Elementary occupations

  Elementary occupations

Source: Eurostat, LFS spring results.
Note: occupations refer to ISCO major groupings.

these occupations. Similarly, the contraction in employment in the low-skilled non-manual and skilled manual occupations has mainly impacted on prime-age workers, although young people have also been negatively affected, particularly in the "craft and related trades workers" occupations. At EU level young people have only witnessed substantial employment creation in the low-skilled "service workers and shop and market sales workers" occupations, and to a certain extent in "technicians and associate professionals" and "elementary" occupations, which has been more than offset by the reductions in employment in the "clerks" and "craft and related trades workers" occupations. Interestingly, in addition to the high-skilled non-manual occupations, older

workers have experienced employment expansion in all main occupational groupings apart from "skilled agricultural and fishery workers", indicating a rather broad adjustment across occupations in the increasing involvement of older workers in employment.

9. Regional labour market disparities

Concerns over regional disparities have long been a key element of European policies, no less so for employment policy since low performing regions impact on the ability to achieve the overall Lisbon employment targets. A

key objective of the Lisbon Strategy is therefore strengthening territorial cohesion, which calls for determined action to reduce regional disparities in terms of employment, unemployment and labour productivity, especially in regions lagging behind.

In 2004 (the latest year for which regional labour market data are available) regional employment rates still showed quite marked variation within the EU, and also within certain Member States (Chart 51). Despite some improvements in reducing employment disparities[28] among regions since 2000, Italy remains the Member State with the largest variation, with the region of Bolzano-Bozen having the lowest employment rate (43.3%) of all regions in the EU-25[29].

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28   The dispersion of regional (NUTS level 2) employment rates for the age group 15–64, as expressed by the coefficient of variation of regional employment rates, gives a measure of the regional spread of the employment rates 15–64. The employment rates represent annual average figures (except for Germany in 2000 – 2004, France in 2000 – 2002 and Sweden in 2000, for which only spring LFS data are available) and are derived from the quarterly European Union Labour Force Survey (LFS). (In this case the indicator is not applicable for Denmark, Ireland, Luxembourg, Cyprus, Estonia, Latvia, Lithuania, Malta, Slovenia as these countries comprise only one or (in the case of Ireland) two NUTS level 2 regions).

29   Excluding the French overseas departments.

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Chart 51 | **Coefficient of variation of employment rates (of age group 15-64) across regions (NUTS2 level) within EU MS in 2000 and 2004**

	EU-25	EU-15		BE	CZ	DE	EL	ES	FR	IT	HU	NL	AT	PL	PT	SK	FI	SE	UK
2000	13.4	13.4		7.9	5.8	5.7	5.1	10.7	6.9	17.5	9.0	2.2	2.5	6.9	4.3	9.1	6.8	4.5	7.1
2004	12.2	11.1		8.7	5.6	6.2	4.1	8.7	7.1	15.6	9.4	2.3	3.5	6.4	3.5	9.0	5.5	4.4	5.8
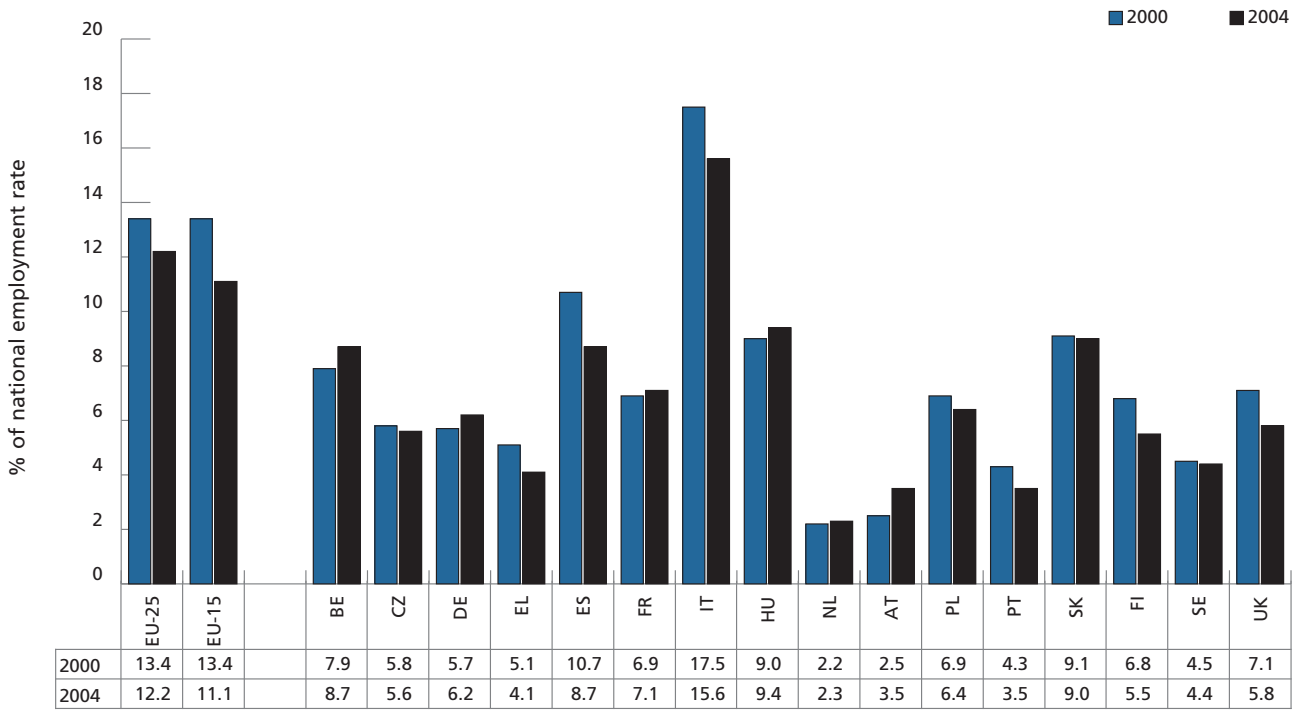
Source: Eurostat, LFS.

Chart 52 | **Employment rates in NUTS2 regions in 2004 (% of population aged 15-64)**

	EU-25		BE	CZ	DE	EL	ES	FR*	IE	IT	HU	NL	AT	PL	PT	SK	FI	SE	UK
Min	43.4		51.8	57.7	55.7	53.3	49.8	50.8	65.2	43.4	50.4	68.5	63.8	47.2	63.3	51.8	60.5	67.2	62.9
Max	78.2		67.0	70.3	70.7	64.0	67.2	66.9	66.7	69.4	62.9	75.7	70.3	57.0	72.1	67.7	76.0	76.4	78.2
Av	63.1		60.3	64.2	64.3	59.4	61.1	62.5	66.3	57.6	56.8	73.1	67.8	51.7	67.8	57.0	67.6	72.1	71.6
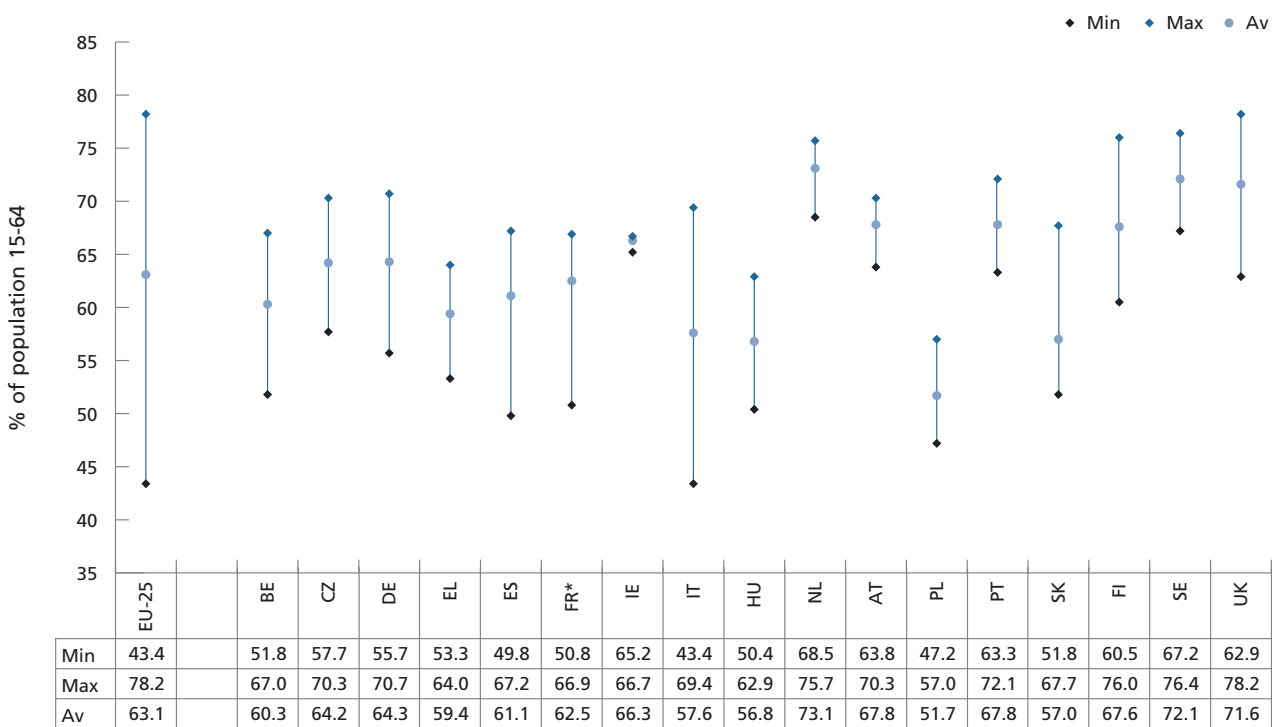
Source: Eurostat, Labour force survey.
Note: *Figures for FR exclude the DOM.

This compares with rates as high as 78.2% in the UK region of Bedford-shire and Hertfordshire, a difference of close to 35 percentage points (Chart 52). While most Member States have witnessed a decline in regional employment rate disparities (at NUTS2 level) since 2000 (this being especially the case in Spain, Italy, Finland and the UK) such disparities have nevertheless increased in several countries, most notably Austria, Belgium and Germany.

The wide variation in employment performance of the regions in Italy has a significant impact on the overall employment rate in the EU. Nine out of the twenty-two NUTS2 regions in Italy have employment rates below 60%, and five of these (Campania, Puglia, Basilicata, Calabria and Sicilia) even have rates below 50%, although these are also among those regions to have registered the largest improvements since 2000. Disparities across regions also remain relatively high in Belgium, Hungary, Slovakia and Spain.

In contrast, Austria, the Netherlands and Portugal have the lowest variation in employment rates across regions, with employment rates above 63% in all regions. In Poland, which has the lowest overall employment rate in the EU, there is less variation across the regions than in many other Member States, suggesting that, in contrast to Italy, the relatively weak employment performance in Poland is a general problem rather than limited to a sub-set of regions.

Focussing on regional disparities from the perspective of underperforming regions (taken here to mean those regions with an employment rate below 90% of the average national employment rate in the Member State in question) gives a broadly similar picture of developments between 2000 and 2004 (Table 14). While in most Member States the number of underperforming regions has remained the same, in some cases (Spain and Italy)

the situation has nevertheless improved slightly since the average rate for the group of underperforming regions has moved closer to the national average.

Table 14 – Regional disparities with respect to underperforming regions, 2000 and 2004

Year 2000	% of regions with E.R. below 90 % of the national average E.R. (number of regions affected / total number of regions)		% of total working age population (aged 15–64) in regions concerned	Extent of divergence of the regions concerned from the national average (average E.R. of regions concerned as a % of national average)
BE	9.1	(1 / 11)	12.3	88.6
CZ	12.5	(1 / 8)	12.6	89.8
DE	5.1	(2 / 39)	3.8	88.2
EL	0.0	(0 / 13)	0.0	
ES	26.3	(5 / 19)	23.4	83.4
FR	13.6	(3 / 22)	11.2	84.8
IT	28.6	(6 / 21)	33.1	76.9
HU	28.6	(2 / 7)	27.4	87.4
NL	0.0	(0 / 12)	0.0	
AT	0.0	(0 / 9)	0.0	
PL	12.5	(2 / 16)	14.7	88.8
PT	14.3	(1 / 7)	2.2	88.0
SK	0.0	(0 / 4)	0.0	
FI	20.0	(1 / 5)	12.9	88.5
SE	0.0	(0 / 8)	0.0	
UK	10.8	(4 / 37)	10.6	88.6
Year 2004	% of regions with E.R. below 90 % of the national average E.R. (number of regions affected / total number of regions)		% of total working age population (aged 15–64) in regions concerned	Extent of divergence of the regions concerned from the national average (average E.R. of regions concerned as a % of national average)
BE	18.2	(2 / 11)	21.9	87.5
CZ	12.5	(1 / 8)	12.4	89.9
DE	7.3	(3 / 41)	3.9	88.5
EL	7.7	(1 / 13)	2.6	89.7
ES	26.3	(5 / 19)	23.0	86.5
FR	9.1	(2 / 22)	4.0	89.3
IT	28.6	(6 / 21)	33.1	79.1
HU	28.6	(2 / 7)	27.6	88.9
NL	0.0	(0 / 12)	0.0	
AT	0.0	(0 / 9)	0.0	
PL	0.0	(0 / 16)	0.0	
PT	0.0	(0 / 7)	0.0	
SK	0.0	(0 / 4)	0.0	
FI	20.0	(1 / 5)	12.5	89.4
SE	0.0	(0 / 8)	0.0	
UK	2.7	(1 / 37)	5.2	87.8

Source: EU-LFS, annual averages.
Note: FR results exclude overseas departments (regions FR91, 92, 93 and 94).

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Furthermore, in France and the UK the situation has improved noticeably. In the former there has been a reduction in the number of underperforming regions, and a strong fall in the associated share of the working age population in such regions, while those regions that remain as underperform-ers have improved the average employment rate substantially. In the UK only one region remained below the 90% employment rate reference level in 2004, compared to four in 2000. Similarly employment rates of underperforming regions have converged relative to the national average in Poland and Portugal, while only Belgium has experienced an increase in the number of underperforming regions.

Table 15 – Population change in 2005 (first estimates)								
	Population on 1.1.2005	Natural increase	Net migration [1]	Total increase	Population on 1.1.2006	Natural increase	Net migration [2]	Total increase
			(1000s)				(per 1000)	
EU-25	459 488.3	327.2	1 691.5	2 018.7	461 507.0	0.7	3.7	4.4
EU-15	385 383.4	409.4	1 628.7	2 038.0	387 421.4	1.1	4.2	5.3
BE	10 445.9	15.0	33.3	48.2	10 494.1	1.4	3.2	4.6
CZ	10 220.6	-5.6	35.6	30.0	10 250.5	-0.5	3.5	2.9
DK	5 411.4	8.5	7.8	16.2	5 427.6	1.6	1.4	3.0
DE	82 500.8	-143.7	98.5	-45.2	82 455.7	-1.7	1.2	-0.5
EE	1 347.0	-3.4	-0.4	-3.8	1 343.2	-2.5	-0.3	-2.8
EL	11 075.7	2.3	34.3	36.5	11 112.2	0.2	3.1	3.3
ES	43 038.0	90.6	652.3	742.9	43 781.0	2.1	15.0	17.1
FR[2]	60 561.2	227.7	102.9	330.5	60 891.7	3.7	1.7	5.4
IE	4 109.2	36.6	47.2	83.8	4 193.0	8.8	11.4	20.2
IT	58 462.4	-28.3	338.1	309.8	58 772.2	-0.5	5.8	5.3
CY	749.2	3.2	20.7	23.8	773.0	4.1	27.2	31.3
LV	2 306.4	-11.3	-1.1	-12.4	2 294.1	-4.9	-0.5	-5.4
LT	3 425.3	-13.7	-10.3	-24.0	3 401.3	-4.0	-3.0	-7.0
LU	455.0	1.8	1.6	3.3	458.3	3.9	3.4	7.3
HU	10 097.5	-39.7	18.1	-21.6	10 076.0	-3.9	1.8	-2.1
MT	402.7	1.1	2.0	3.1	405.8	2.7	5.0	7.8
NL	16 305.5	51.2	-19.1	32.1	16 337.6	3.1	-1.2	2.0
AT	8 206.5	3.0	61.0	63.9	8 270.4	0.4	7.4	7.8
PL	38 173.8	-12.9	-13.0	-25.8	38 148.0	-0.3	-0.3	-0.7
PT	10 529.3	8.3	41.1	49.4	10 578.7	0.8	3.9	4.7
SL	1 997.6	-0.9	7.2	6.3	2 003.9	-0.5	3.6	3.1
SK	5 384.8	1.0	4.1	5.1	5 389.9	0.2	0.8	0.9
FI	5 236.6	9.4	8.8	18.2	5 254.8	1.8	1.7	3.5
SE	9 011.4	4.2	24.7	28.9	9 040.3	0.5	2.7	3.2
UK	60 034.5	122.9	196.3	319.2	60 353.7	2.0	3.3	5.3
BG	7 761.0	-43.6	-13.7	-57.3	7 703.8	-5.6	-1.8	-7.4
HR	4 443.9	-7.4	11.5	4.1	4 448.0	-1.7	2.6	0.9
RO	21 658.5	-44.9	-9.8	-54.7	21 603.9	-2.1	-0.5	-2.5
TR	71 609.0	911.0	0.0	911.0	72 520.0	12.6	0.0	12.6

Source: Eurostat, demographic statistics (First Demographic Estimates, Statistics in Focus 1/2006).

Note:
1) Including correction due to population censuses, register counts etc. which cannot be classified as births, deaths or migrations.
2) Data for France are for metropolitan France.

10. Demographic trends and migration

10.1. Demographic trends

The total population of the EU is estimated to have increased by around 2 million in 2005, bringing the EU population on 1ˢᵗ January 2006 to 461.5 million (Table 15). The increase in population is mainly due to net migration, of which around 1 million was accounted for by Italy and Spain alone. However, for both these Member States the figures are inflated by regularisation programmes, thus including persons who may actually have arrived before 2005.

Overall, the net inflow of international migrants to the EU is expected to show a decrease in 2005 to a level of around 1.69 million people compared to 1.85 million in 2004. The number of live births is expected to have increased slightly from 4.80 million in 2004 to 4.82 million in 2005, while the number of deaths is also expected to have increased, from 4.35 million to 4.49 million. Natural population change (live

births minus deaths) is therefore forecast to show a significant decrease from 0.45 million in 2004 to 0.33 million in 2005.

In 2005 the EU Member States experienced very different rates of population growth. The population of Cyprus grew at over 3.1%, and that in Ireland at around 2.0%, whereas the population changes in Latvia and Lithuania were the most negative. Within the EU, the natural increase in the population was the main component of total population increase only in Denmark, France, Luxembourg, the Netherlands and Finland. For all other Member States (except the three Baltic States and Poland, where net migration was negative), the main driver of population increase was net migration. The latest trends confirm the importance of international migration to population change. This is highlighted in particular by the cases of the Czech Republic, Italy and Slovenia – countries that would otherwise have experienced a reduction in population. Nevertheless, while most Member States experienced overall increases in total population, it declined in Germany, Hungary

and Poland, and particularly so in Estonia, Latvia and Lithuania.

10.2. Migration

After a period of rather strong decline in the 1990s, the net inflow of international migrants to the EU increased to 1.98 million in 2003. For 2005, net migration is expected to have decreased to a level of around 1.69 million people, but remains high by recent historical standards (Chart 53). Spain, Italy, Germany and the United Kingdom together account for around three-quarters of this net inflow, while Cyprus is expected to be the Member State with the highest crude net migration rate in 2005. Overall, the majority of Member States are foreseen to have experienced a decline in their net migration rates in 2005.

According to official national statistics and Eurostat estimates, the total number of non-nationals living in the EU in 2004 was around 25 million, equivalent to just below 5.5% of the total population. In absolute terms the greatest numbers of foreign citizens reside in France, Germany, Italy, Spain and the

Chart 53 — **Net inflow of international migrants to the EU (in millions)**
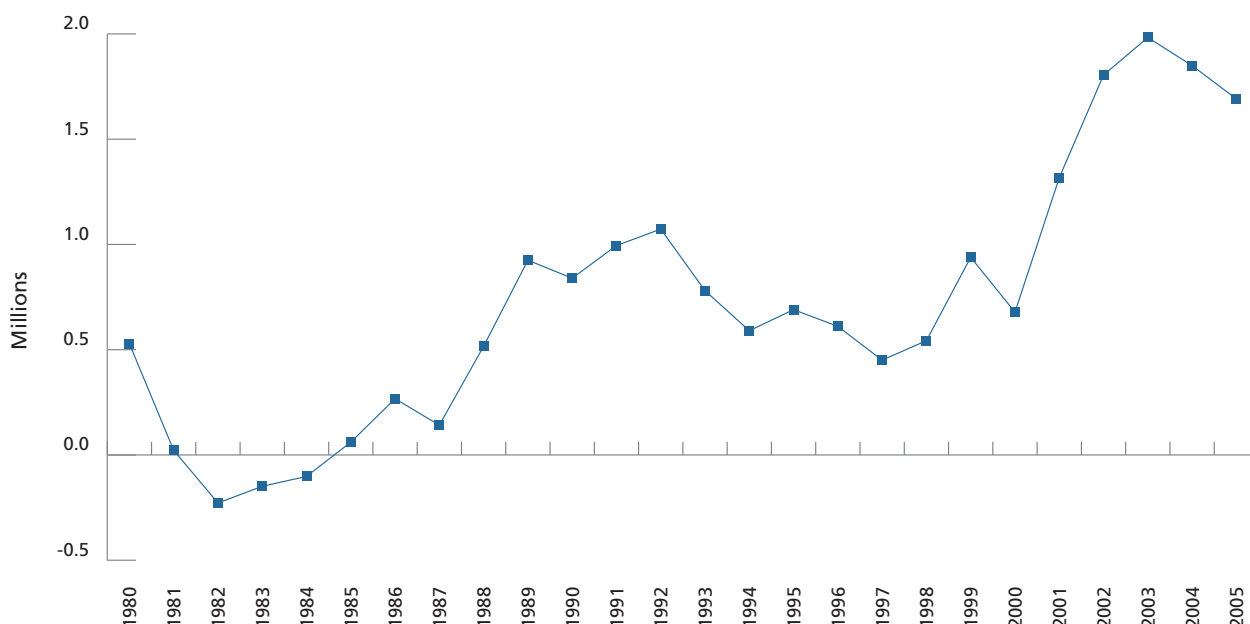
Source: Eurostat, demographic statistics. Note: Figures include corrections due to population censuses, register counts, etc. which cannot be classified as births, deaths or migration.

UK. In all Member States other than Belgium, Cyprus, Ireland and Luxembourg the majority of foreigners are citizens of non-EU countries.

The citizenship structures of the foreign populations in EU Member States vary greatly (Table 16). As well as geographical proximity, the composition of the non-national population in each country strongly reflects their history, in particular historical labour migration trends, recent political developments and historical links. For example, the largest non-national groups include Turkish citizens in Germany, Denmark and the Netherlands; citizens of former colonies in Portugal and in Spain; migrants from Albania in Greece; citizens from other parts of the former Yugoslavia in Slovenia and citizens from other former Soviet Union countries in Estonia, Latvia and Lithuania. In general, the non-national population accounts for between 2–8% of the total population in the majority of Member States, but for over 8% in Austria, Belgium, Cyprus, Estonia[30], Germany, Greece, Latvia and Luxembourg. In contrast, non-nationals account for less than 2% of the population in the Czech Republic, Hungary, Lithuania, Poland and Slovakia.

10.3. Labour market situation of non-EU nationals

At EU level[31], the labour market outcomes for non-EU nationals are substantially worse than those for EU-nationals. While their participation rate (67%) was somewhat similar to that of EU nationals (71%) in 2005, their employment rate was substantially lower (55%, compared to 65% for EU nationals) (Chart 54). This was reflected in unemployment rates that were almost twice as high for non-EU nationals (17%) as for EU nationals (9%) (Chart 55).

Table 16 – National and non-national populations in the EU Member States around 2004					
	Year	Nationals (1000)	Non-nationals (1000)	Non-nationals %	Largest group of non-nationals (country of citizenship)
BE	2004	9 536	860	8.3	Italy
CZ	2004	10 016	195	1.9	Ukraine
DK	2004	5 126	271	5	Turkey
DE	2004	75 190	7 342	8.9	Turkey
EE	2000c	1 096	274	20	Russia
EL	2004e	10 149	891	8.1	Albania
ES	2004	39 426	2 772	6.6	Ecuador
FR	1999c	55 258	3 263	5.6	Portugal
IE	2002c	3 585	274	7.1	United Kingdom
IT	2004	55 898	1 990	3.4	Albania
CY	2002c	625	65	9.4	Greece
LV	2004	1 804	515	22.2	Russia
LT	2001c	3 450	34	1	Russia
LU	2004	277	174	38.6	Portugal
HU	2004	9 987	130	1.3	Romania
MT	2004	389	11	2.8	United Kingdom
NL	2004	15 556	702	4.3	Turkey
AT	2004	7 375	765	9.4	Serbia and Montenegro
PL	2002c	37 530	700	1.8	Germany
PT	2003p	10 169	239	2.3	Cape Verde
SL	2004	1 951	45	2.3	Bosnia and Herzegovina
SK	2004	5 350	30	0.6	Czech Republic
FI	2004	5 113	107	2	Russia
SE	2004	8 500	476	5.3	Finland
UK	2003	55 636	2 760	4.7	Ireland

c - Census data; e – Estimated figures; p – Provisional data.

Source: Eurostat, demographic statistics (official national statistics and Eurostat estimates).

30   The figures for Estonia and Latvia include citizens of the former Soviet Union permanently resident in these countries who have not taken the citizenship of the host country since the break-up of the Soviet Union.

31   Results for the EU aggregate exclude Italy due to non-availability of data with breakdowns by nationality.

Chart 54 **Employment rates of EU nationals and non-EU nationals, 2005**

■ EU-25 nationals   ■ Non-EU-25 nationals

% of working age population (15-64)

	BE	CZ	DK	DE	EE	EL	ES	FR	IE	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK		EU-25
EU-25 nationals	61.7	64.7	76.2	66.6	65.6	59.7	62.5	63.5	67.4	68.0	63.0	62.6	63.9	56.7	53.4	74.1	68.4	52.2	67.5	66.1	57.4	69.4	73.5	72.0		64.9
Non-EU-25 nationals	35.2	71.2	51.1	47.9	61.8	70.5	70.5	44.5	56.9	76.7	64.3	72.8	56.0	66.2	62.9	41.2	57.5	44.4	72.7	53.2	68.3	45.2	44.9	57.9		55.3
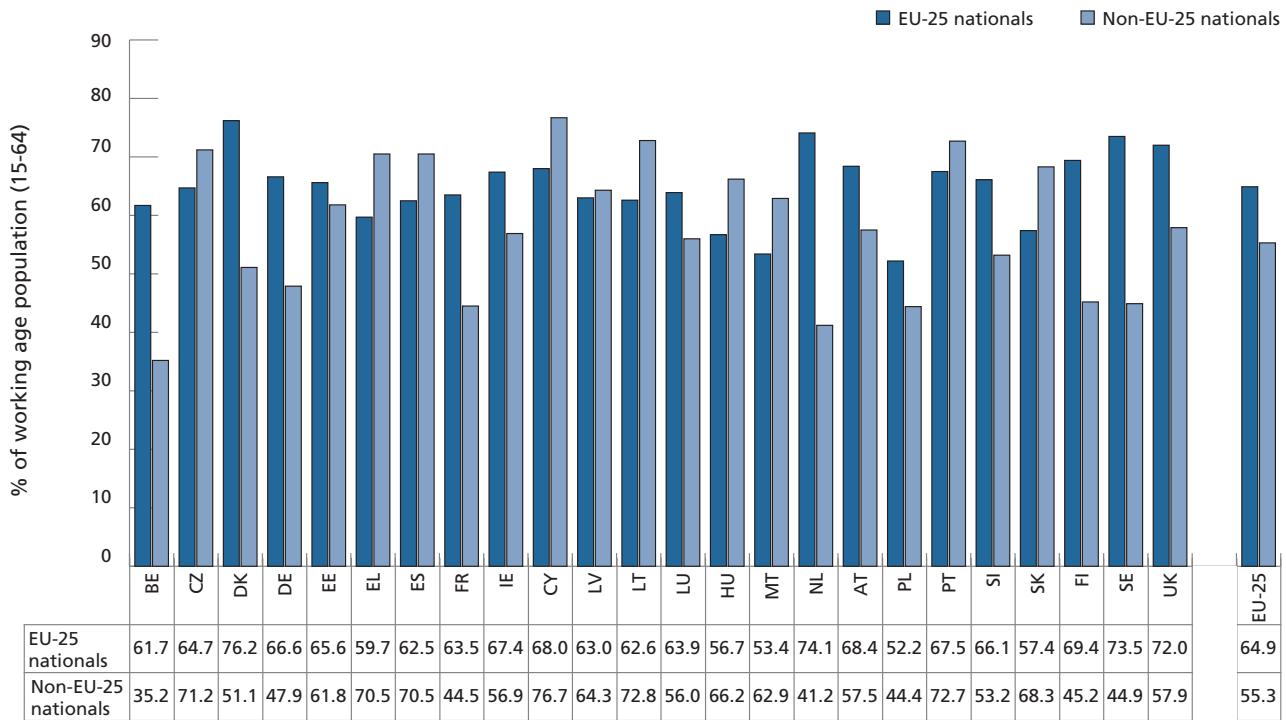
Source: Eurostat, LFS spring results. Note: *No data for IT.

Chart 55 **Unemployment rates of EU nationals and non-EU nationals, 2005**
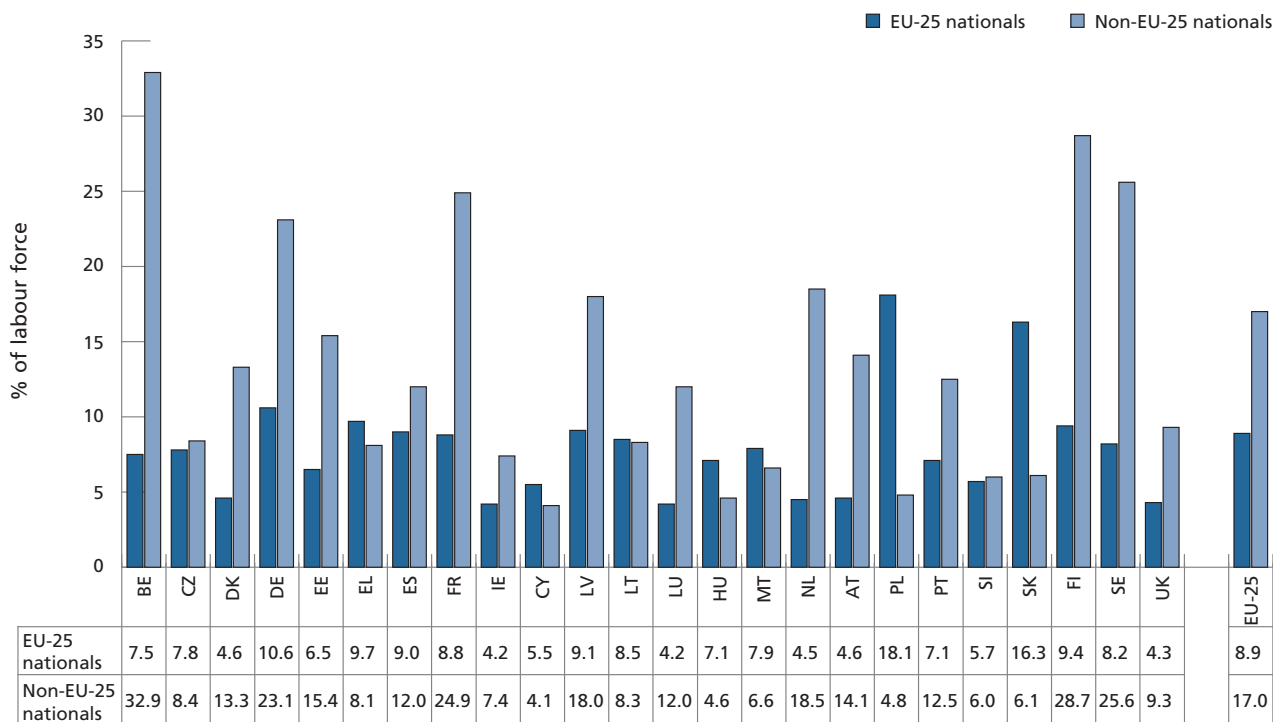
■ EU-25 nationals   ■ Non-EU-25 nationals

% of labour force

	BE	CZ	DK	DE	EE	EL	ES	FR	IE	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK		EU-25
EU-25 nationals	7.5	7.8	4.6	10.6	6.5	9.7	9.0	8.8	4.2	5.5	9.1	8.5	4.2	7.1	7.9	4.5	4.6	18.1	7.1	5.7	16.3	9.4	8.2	4.3		8.9
Non-EU-25 nationals	32.9	8.4	13.3	23.1	15.4	8.1	12.0	24.9	7.4	4.1	18.0	8.3	12.0	4.6	6.6	18.5	14.1	4.8	12.5	6.0	6.1	28.7	25.6	9.3		17.0

Source: Eurostat, LFS spring results. Note: *No data for IT.

Table 17 – Employment rates of EU nationals and non-EU nationals by skill level and gender, 2005						
	Men		**Women**		**Total**	
	EU-25 nationals	Non-EU-25 nationals	EU-25 nationals	Non-EU-25 nationals	EU-25 nationals	Non-EU-25 nationals
Low skilled	55.2	59.3	38.3	34.5	46.5	46.4
Medium skilled	75.0	70.6	62.9	54.4	69.1	63.1
High skilled	86.4	74.7	80.1	58.8	83.3	66.7

Source: Eurostat, LFS spring results.

Notes: Low (ISCED 0-2: lower secondary), Medium (ISCED 3-4: upper secondary), High (ISCED 5-6: tertiary); UK: GCSE levels included under "medium".

However, it is not universally the case among Member States that employment rates for non-EU nationals are below those of EU nationals. In many of the new Member States as well as Greece, Spain and Portugal, the employment rate of non-EU nationals was above that of EU nationals in 2005. Nevertheless, in most Member States labour market integration of non-EU nationals remains a significant problem, and especially so in Belgium, Denmark, Finland, the Netherlands and Sweden, where differences in employment rates compared to EU-nationals exceed 20 percentage points and there are generally strong disparities in unemployment rates. Among the latter group, the difference in employment rates is as high as 33 percentage points in the Netherlands, while Belgium has the lowest actual employment rate for non-EU nationals at only 35%.

At EU level, the difference in the labour market situation of EU and non-EU nationals is even more striking for the high-skilled population, and suggests a strong under-utilisation of important human capital. The employment rate for high-skilled EU nationals (i.e. those having completed tertiary education) was around 83% on average in 2005, while high-skilled non-EU nationals had a much lower rate of only 67%. Differences in employment rates for the medium skilled (69% versus 63%) and the low skilled (around 46% for both groups) are much less pronounced at EU level.

In terms of gender, female non-EU nationals face particular difficulties compared to their EU-national counterparts. Employment rates are lower for all skill levels, and the disparity is particularly pronounced for high-skilled females where the difference between employment rates for non-EU and EU nationals exceeds 20 percentage points.

11. Conclusions

Labour market conditions in the EU improved in 2005, although the overall improvement in employment performance was moderate. Employment growth picked up moderately even though economic growth temporarily slowed during 2005. At Member State level, employment performance for the year as a whole was generally positive, with negative employment growth in only a very few cases (but including the large Member State of Germany). Nevertheless, the pace of employment growth remains well below that recorded in the latter part of the 1990s and has now been below the 1% level for four consecutive years. In addition, there was a generalised (though moderate) decline in labour productivity growth in 2005, in contrast to the increase in 2004, which was a cyclical rebound, and the EU continues to under-perform relative to the US both in terms of employment growth and productivity growth.

As a result, progress towards the overall Lisbon employment rate target for 2010 has continued to be slow and reaching this target is becoming extremely challenging, although recent progress towards the female and older people's targets is rather more encouraging. Much of the weak employment performance of recent years has been due to the relatively poor labour market performance in Germany and Poland, although recent figures indicate that the situation may finally be turning around in those two Member States. At the same time, many of the southern EU Member States remain far from the common EU employment targets, and still exhibit large gender differences in labour market outcomes, together with large disparities in the performance of labour markets at regional level.

With regard to the expansion in employment in 2005, growth continued to be faster for women than for men, although a notable development was the upturn in the employment rate of prime-age males after several years of decline. The continuation of the positive trend in the employment of older workers, and the noticeable rise in the share of part-time employment and of employment under fixed-term contracts, were also notable developments. At the same time there has been an ongoing improvement in the skill structure of the working age population, which is reflected in the substantial rise in employment in high-skilled non-manual occupations compared to 2000. However, one area where further strong efforts are necessary is in the labour market integration of migrants, as disparities in labour market outcomes for EU nationals and non-EU nationals remain substantial in many Member States.

2 Flexibility and security in the EU labour markets

1. Introduction

In recent years, a number of developments have intensified competitive pressures and increased the pace of structural change in many economies. In particular the following factors are highlighted:

• The rapid pace of international economic integration – a phenomenon loosely described by the term "globalisation";

• The emergence of new key economic players on the world scene rich in labour resources;

• The rapid development and introduction of new technologies, particularly in the information and communication areas;

• The considerable ageing of European societies, together with relatively low employment rates on average, which (assuming unchanged policies) are projected to eventually put at risk the financial sustainability of social protection systems;

• The development of segmented labour markets, where both relatively "protected" and "unprotected" sectors coexist, partly reflecting both the political economy difficulties of conducting comprehensive (labour) market reforms, and the consequent resort to reform strategies that concentrate on loosening the stringency of regulations applying to the "unprotected" sectors (i.e. reforms at the "margin"), as well

as the significant weight of undeclared work in some Member States.

While the processes of globalisation and structural change are overall beneficial to growth and employment, they can also bring transformations that are disruptive to workers and enterprises. On the one hand, enterprises must become more flexible to respond to unanticipated changes in demand patterns, and must adapt to new technologies and organisational methods to foster innovation and remain competitive. On the other hand, workers need to acquire skills to create and use new technologies, and to adapt to new working practices.

This all-pervading challenge to adapt requires, among other things, a more flexible labour market combined with satisfactory levels of security to simultaneously respond to the needs of both employers and employees. This should also help to prevent the emergence of segmented labour markets, with the risk of making jobs more precarious, damaging sustainable integration in the labour market and limiting the accumulation of skills.

In recent decades, a number of atypical forms of labour contracts have proliferated in some Member States[1] (e.g. temporary work, labour agencies), bringing with them enhanced flexibility for the adjustment of labour levels by firms, but at the expense of reduced employment and income security, and poor career prospects, for the large majority of workers hired under such contractual arrangements.

Based on these developments, large segments of the public seem to have come to the conclusion that there is an irreconcilable dichotomy between, on the one hand, firms' quest for increased flexibility in the labour market and, on the other, workers' interest in having stable incomes and satisfactory career prospects. Public perceptions are "…*often dominated by anxieties concerning job losses and downward pressures on wages and working conditions*"[2] (i.e. a kind of "race to the bottom").

This perceived dichotomy has generated a growing interest in the promotion and implementation across Member States of "flexicurity" principles, which aim to combine, within an appropriate social insurance model, sufficiently flexible work contracts with effective policies to support labour market transitions, and lifelong learning. Consequently, Member States with particularly favourable labour market outcomes and a proven tradition of successfully balancing the requirements of flexibility and security, such as Denmark and the Netherlands, have recently come under close scrutiny by both academics and policy-makers in the EU.

The European Employment Strategy (EES) calls for labour market institutions to adopt "flexicurity" principles. Specifically, Guideline No. 21 of the Integrated Guidelines for Growth and Employment for the period 2005-2008 calls on Member States to "…*promote flexibility combined with*

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1   These new forms of labour contracts have gained weight, particularly in countries with restrictive employment protection legislation for regular contracts.

2   *EU Economy 2005 Review* "Rising International Economic Integration, Opportunities and Challenges", European Commission, November 2005.

employment security and reduce labour market segmentation […]". Equally, the Annual Progress Report (APR), adopted by the Commission in January 2006 within the framework of the re-launched Lisbon strategy, also calls on Member States to "*...seek convergence of views on the balance between flexibility and employment security (i.e. flexicurity)*" and emphasises that the Commission is committed to present a report aimed at facilitating an agreement, by the end of 2007, on a set of common principles on flexicurity. The 2005/06 Joint Employment Report (JER) states that those principles should comprise the following four elements:

• The availability of contractual arrangements, providing adequate flexibility for both workers and employers to shape the relationship according to their needs.

• Effective active labour market policies supporting transitions between jobs, as well as from unemployment and inactivity to jobs.

• Credible lifelong learning systems enabling workers to remain employable throughout their careers, by helping them to cope with rapid change, unemployment spells and transitions to new jobs.

• Modern social security systems combining the need to facilitate labour market mobility and transitions with the provision of adequate income support during all absences from the labour market.

Moreover, in the first half of 2006, the Council put flexicurity at the centre of the EU political agenda[3].

The Chapter

The main aim of this chapter is to present a preliminary characterisation of the balance between flexibility and security across Member States – to reflect their current institutional setting – and, on that basis, to propose a taxonomy of countries in a reduced number of "flexicurity" systems. This should be seen as preliminary work leading to the Commission's report on flexicurity scheduled for the end of 2007, which, in addition to describing the current situation, will also present a number of "typical" pathways built around the above-mentioned four principles, that Member States could select in order to improve their balance between flexibility and security.

The analysis of this chapter builds on a long tradition of work carried out within past editions of *Employment in Europe* (see *EiE* 2001, 2002, 2003 and 2004). This work focused on issues such as job quality, labour market flexibility, employment security and labour market transitions and advancement. In this context extensive empirical evidence as well as a number of indicators (see below) have been provided. However, while those previous chapters were focused on outcome indicators[4], this current one focuses on institutional/policy differences across countries.

The chapter initially covers the concept of flexicurity, as currently understood in the context of the Danish and Dutch models, presented together with other policy proposals with a similar objective of improving the balance between flexibility and security in the labour market. The purpose is not to give a thorough description of the Danish and

Dutch models of labour market policy, but just to illustrate the definitions of "flexicurity" which authors have put forward drawing from the experience of these two approaches.

The two following sections focus, respectively, on one dimension of flexibility and one dimension of security. Admittedly, such an approach significantly limits the extent of the discussion, but it allows for a more in-depth analysis of these more narrowly selected aspects of flexicurity within the scope of this chapter.

The dimension of external numerical flexibility is characterised using the OECD's indices of employment protection legislation (EPL) for regular and temporary work, together with a number of measures of labour market flows, such as labour turnover and average tenure of employment. This section discusses the issue of labour market segmentation, particularly in the context of labour market reforms that increase flexibility only at the margin, which may have negative effects, not only on the individual employees concerned, but also on the macro-economic performance of the labour market as a whole. However, the related issue regarding the effects of undeclared work on individual employment paths as well as overall labour market performance is not considered in our analysis.

Next, the dimension of (income) security is discussed in a thorough review of the various features of unemployment benefit (UB) systems and their interaction with Active Labour Market policies (ALMPs), especially in the context of activation strategies. This is followed by a number of illustrative calculations of

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3   The informal Employment, Social Policy, Health and Consumer Affairs (EPSCO) Council held in Villach (19–21 January 2006) under the Austrian Presidency.

4   Such as self-reported job satisfaction or probabilities of transitions between employment statuses or different contractual arrangements.

the budgetary costs that would be incurred by adopting the expenditure intensity (per unemployed) on labour market policies of the high spending countries, some of which are traditionally considered as benchmarks for the "flexicurity" model. This then leads into a discussion on the trade-off between EPL and UB for the provision of insurance against labour market risks.

The following section brings together the range of quantified indicators on the various dimensions (though some important ones are left out of the analysis for a number of reasons, see Section 3) of flexicurity in order to allocate Member States into distinct labour market systems. This means identifying the main dimensions/axes characterising flexicurity systems, and correlating those axes with selected measures of labour market performance and other socio-economic indicators. Then, political economy constraints in the setting of labour market institutions in general, and in the implementation of flexicurity reforms in particular, are briefly discussed. Finally, the chapter concludes by summarising the main findings of country mapping, highlighting the diversity of labour market systems, the challenges in terms of both fiscal costs and political feasibility of improving on current flexicurity models, and the main shortcomings of the taxonomy analysis of labour market systems carried out in this chapter. The latter calls for further work on a number of areas, including explicit coverage of labour market segmentation, consideration of the important (and now missing) dimension of functional and internal (i.e. within the firm) flexibility (see Section 2.1) and, finally, an analysis along the "flexicurity" dimensions of the employment features and prospects of more disadvantaged groups of workers (like women, youth and older workers).

2. Definitions of "flexicurity"

The concept of "flexicurity" is primarily based on the idea that the two dimensions of flexibility and security are not contradictory, but mutually supportive, particularly in the context of the new challenges – such as globalisation – faced by developed economies.

Flexicurity is a new term, which was first coined in the Netherlands in the aftermath of the labour law reform of 1999, the "Flexibility and Security Act" (Wilthagen and Troos, 2004). For this reason, the relevant literature is still developing and there is no single definition of the concept that is currently universally accepted. In fact, two definitions, partly overlapping, are generally offered. The main elements characterising these two definitions are summarised below.

2.1. Wilthagen's definition: the flexibility-security nexus

The first definition mainly applies to the Netherlands (Wilthagen and Rogowski, 2002), and describes flexicurity as a policy strategy that attempts, *synchronically and deliberately*, to enhance the flexibility of labour markets, work organizations and labour relations, on the one hand, and employment and income security, notably for weaker groups in and outside the labour market, on the other. In principle, this definition rules out (labour market) reform strategies that consider flexibility and security separately, or (indirectly) promote labour market segmentation through an increase in flexibility only at the margin (e.g. temporary contracts).

An alternative and more comprehensive version of this definition maintains that flexicurity is "*…a degree of job, employment, income and combination security that facilitates the labour market careers and biographies of workers with a relatively weak position and allows for enduring and high quality labour market participation and social inclusion, while at the same time providing a degree of numerical (both external and internal), functional and wage flexibility that allows for labour markets' (and individual companies') timely and adequate adjustment to changing conditions in order to maintain and enhance competitiveness and productivity*" (Wilthagen and Tros, 2004).

This latter definition thus identifies four elements for the flexibility dimension (Wilthagen et al., 2003; Wilthagen and Tros, 2004):

- *External numerical flexibility* – the difficulty/ease of hiring and firing employees and the extent to which fixed-term employment contracts can be used;

- *Internal* **(i.e. within the firm)** *numerical flexibility* – the difficulty/ease of changing the quantity of labour used in a firm without having recourse to either hiring or separations (i.e. through changes in working hours, use of part-time or overtime work, etc.);

- *Functional flexibility* – the difficulty/ease of changing the working organisation or the ability/inability of workers and enterprises to adapt to new challenges (multi-tasking, job rotations etc.);

- *Wage flexibility* – the degree of responsiveness of wage costs to economic conditions.

The following four elements are also identified with the security dimension:

- **Job security** – the expectation regarding the job tenure of a *specific* job;

- **Employment security/employability security** – the expectation regarding remaining in work (not necessarily with the same employer);

- **Income security** – the degree of income protection in the event that paid work ceases;

- **Combination security** – the ability/inability to combine paid work with other private or social activities.

These elements can be considered as sub-dimensions of the flexibility and security axes. Gaard (2005) proposed using the resulting matrix as an analytical tool to classify national labour market systems/models into distinct country groups or clusters characterised by certain commonalities, in terms of the combination between flexibility and security that they realise (see Table 1).

In this approach, flexicurity is seen as a general analytical framework/tool to compare national labour market systems (Bredgaard et al., 2005), rather than as a concept describing the Dutch or Danish labour markets[5] (see Section 2.2). This approach also appears to be more in line with EU policy, namely the general recommendation to improve the balance between flexibility and security (EU Integrated Guideline No. 21). The main thrust of the EU recommendation on flexicurity is to encourage a shift from job security towards employment security[6].

2.2. The Danish "Golden Triangle"

The second definition to consider has been initially developed for Denmark. In fact, its comparatively favourable labour market outcomes over recent years have put Denmark at the centre of much international attention (Madsen, 2005).

Bredgaard et al. (2005) describe the Danish flexicurity model as a "golden triangle". The sides of the triangle consist of:

1. Relatively loose legislation for employment protection;

2. Generous social safety net for the unemployed;

3. High (intensity) spending (per unemployed) on ALMPs.

Figure 1 gives a stylised presentation of the Danish "golden triangle". The arrows signal the high degree of mobility in and out of employment and between jobs, which is a key feature of the Danish model. On average, close to a quarter of all workers pass through unemployment every year at least once (Breedgard et al., 2005). However, the transition rate to employment is relatively high for the vast majority of unemployed, reflecting the overall dynamism of the Danish labour market. After a certain period, the unemployed who are unable to find a job can benefit from Public Employment Services (PES) referral to one of a comprehensive set of ALMPs[7], which aim to upgrade skills or to facilitate adaptation to economic change, thereby supporting individual transitions and career development[8]. This is also supported by an

Table 1 – The "flexicurity matrix"				
Flexibility/security	Job security	Employment security	Income security	Combination security
Numerical-external				
Numerical-internal				
Functional				
Flexible pay				
Source: Wilthagen, (2003).				

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5   As an analytical framework, flexicurity is closely related to another well-known labour market concept, namely the idea of Transitional Labour Markets (TLM) (Schmid, 1998; Schmid and Gazier, 2002). This theory emphasises that globalisation and increasing social differentiation of individual employment paths makes the model of continuous full employment during an average working life increasingly outdated. The new model goes in the direction of discontinuous work biographies, whereby workers experience more frequent transitions between employment and non-employment, and between different kinds of employment. These transitions can be either positive or negative for the individual, depending on his/her adjustment capacity. Good transitional labour markets provide a supportive environment for successful management of these transitions.

6   Given the apparent political economy trade-off between (numerical) flexibility and income stability, this shift could be facilitated by enhancing spending on income support to job losers, the provision of more efficient re-employment services, and offering programmes for vocational training and skills upgrading of the unemployed. In particular, investing in human capital is vital both to improve the long-term employment prospects and the employment security of the individual, and also to enhance the competitiveness and adaptability of the labour force (OECD, 2004).

7   For instance job training and education.

8   Chart 1 emphasises two effects of LMPs: a) a qualification effect, which raises the skills of employees that take part in those programmes; and b) a motivational effect, reflecting the accrued intensity of job search when an unemployed person approaches the start of the activation phase/expiry of benefits.

efficient education and training system, which includes well-developed schemes for continuous training of the workforce and life long learning. In particular, Danish employees have the opportunity to regularly improve their skills and competences through participation in adult vocational training programmes (Andersen and Mailand, 2005). However, it would be incorrect to portray Denmark as a country with "free firing". In fact, Denmark has relatively strict rules on advance notifications to workers in the event of collective dismissals (ETUC, 2006). This represents an important 'flexicurity' element for two reasons. First, it gives workers an adequate amount of time to look for a new job and, if necessary, to engage in retraining (thereby acting as a kind of "early-warning" system).

Secondly, PES and the staff from the social partners assist the worker in his/her job search efforts from the moment redundancies are announced.

Using Wilthagen's categorisation, the Danish flexicurity model combines high external numerical flexibility, high levels of income security, and high levels of employment security.

Empirical results suggest that generous unemployment benefits have not been an obstacle to labour supply in Denmark, partly due to the offsetting effect of ALMPs that are integrated in comprehensive activation strategies which condition receipt of UB on participation in ALMPs or compliance with job search requirements.

2.3. Beyond the Danish system: other proposals

2.3.1. Layoff taxes to internalise the social costs of dismissals

Based on the long established practice in North American countries of experience-rating[9], a number of leading researchers in the field of labour economics (e.g. Blanchard and Tirole, 2003, 2005; Cahuc and Zylberberg, 2005) have recommended setting up a structured layoff tax system in order to make employers internalise the social costs of layoffs[10] (see Section 5.3.1). The rationale for this proposal resides in the fact that the social value of a job exceeds its private value by the cost of unemployment to society

Figure 1 **The Danish flexicurity model**

The main axis of the flexicurity model

Flexible labour market

The qualification effect of the LMP

Generous welfare schemes

Active LMP

Motivational effect of LMP

Source: Madsen (2006).
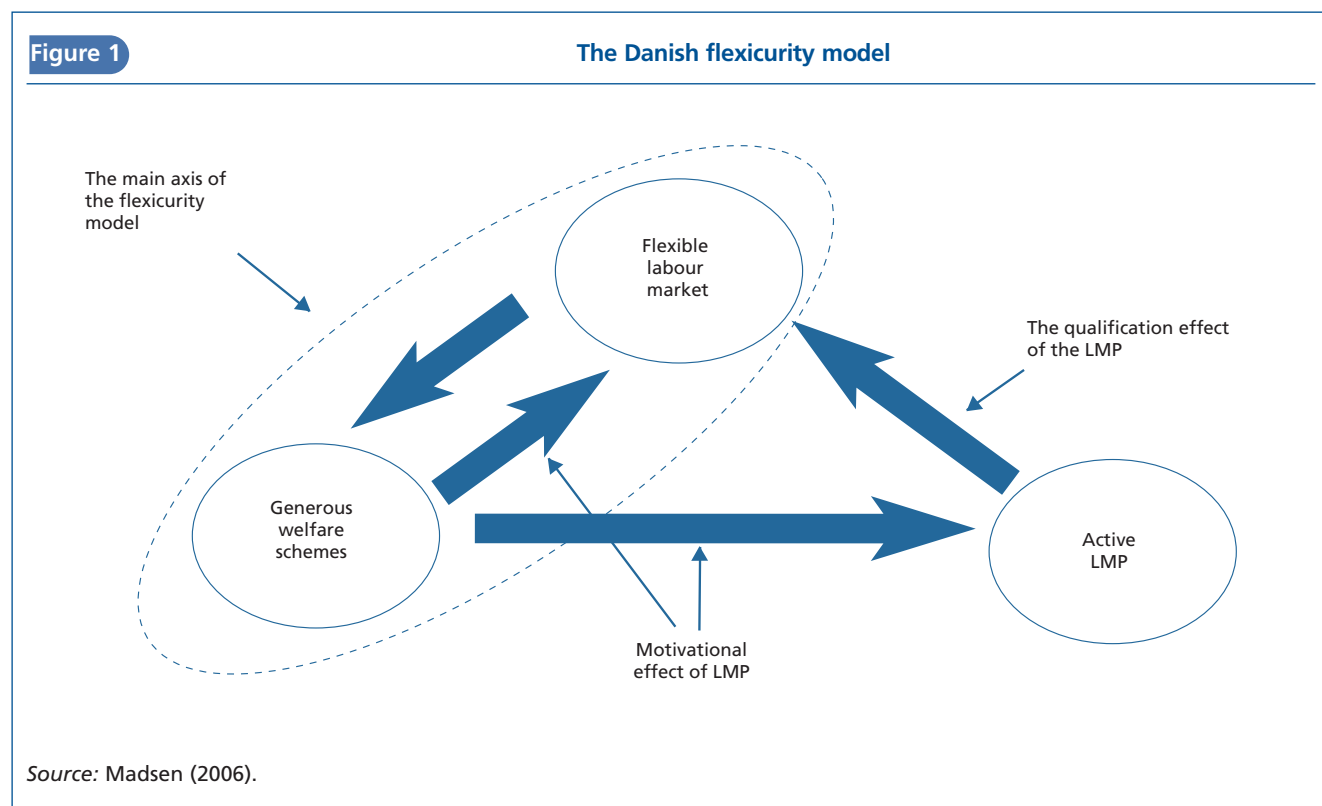
9   In the US, the experience-rating system is state based. In a majority of states, each firm runs an imputed account balance with the social security system, where social contributions appear as credits, and unemployment benefits paid to workers laid off by the firm as debits. Firms can accumulate transitory debts on their imputed social security account, although they are required to keep a balanced account over the long-term. Experience-rating is an original feature of North American countries being alien to the UB systems of other OECD countries, which are financed by payroll taxes paid by employers and employees, and by government contributions (Holmlund, 1998).

10   One example is provided by the "Delalande" contributions in France, which penalize firms for dismissals of older workers. If a worker over 50 is fired the firm has to pay a contribution (variable according to the employee's age) to the agency paying unemployment benefits. See Blanchard and Tirole (2003).

(i.e. lower taxes and social security contributions plus unemployment and/or social assistance benefits)[11]. In an efficiency wage model that explicitly considers the budget constraint for the unemployment benefit system, Albrecht and Vroman (1999) compare the workings of a UB system financed by a payroll tax with another financed by a layoff tax (i.e. a tax on dismissals). They find that the latter is favourable to employment, wage and production for any level of unemployment benefits[12].

2.3.2. Individual unemployment accounts

Brown et al. (2006) propose a far-reaching reform of the unemployment benefit (UB) system in an effort to increase the overall efficiency of the mechanisms protecting against labour market risk. The point of departure of their analysis is the finding that current UB systems fail to provide appropriate incentives for the unemployed to take full account of the social costs of unemployment when searching for a job[13]. They suggest replacing UB systems by individual unemployment accounts, thus sharing some features with the 2003 reform of the Austrian system of severance payment, which is, though, part of the EPL system rather than of UB[14]. Workers would make obligatory contributions to individual unemploy-

ment accounts when employed, while being allowed to make withdrawals during unemployment periods. The incentive mechanisms built into individual unemployment account systems tends to foster job search intensity, reducing – all else being equal – the equilibrium level of unemployment. Furthermore, an individual unemployment account system can be made compatible with any redistributive choice[15].

2.3.3. A single type of employment contract to counter labour market segmentation

In a report produced for the French government, Cahuc and Kramarz (2004) proposed a set of reforms to improve the functioning of the French labour market, including measures to reconcile the requirements of flexibility and employment stability. If implemented, the proposed set of reforms would bring about significant changes in the current institutional setting, although it remains to be seen to what extent it can be applied to national labour markets which are different from the French one. The main proposal of the report is to replace the current regular and temporary labour contracts by a single new type of regular contract.

Cahuc and Kramarz (2004) argue that establishing a single regular labour

contract would end labour market segmentation and the adverse treatment of certain disadvantaged groups particularly affected by the excessive use of temporary contracts, such as youths and women. A coherent reform package should consequently include a number of additional measures. Firstly, loosening the EPL mainly to avoid the unpredictable judicial and administrative costs of a dismissal. Secondly, discarding the reclassification obligations imposed on firms in the event of a dismissal[16], preferring recourse instead to a highly professional and efficient PES. PES can operate better where the following principles are applied: a) one-stop-shop for the unemployed to attend for all their needs; b) systematic profiling to establish priorities and optimise treatment; and c) setting incentives for quasi-market private brokerage services. Thirdly, the introduction of predictable severance payments in order to protect workers against excessive job turnover. Finally, creating a layoff tax to help finance the reintegration of the unemployed. The interaction of all these reforms is expected to work in favour of labour mobility, career progression, labour market transitions and actual and perceived employment stability, ultimately yielding lower structural unemployment.

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11 Other social costs associated with unemployment could also be taken into account, such as the depreciation of (social) human capital, and higher criminality.

12 In an efficiency wage model with layoff taxes, firms are induced to raise wages in order to reduce layoffs related to shirking.

13 Under the current UB system, *"…when unemployed people find jobs, their benefits generally are withdrawn (in whole or in part) and taxes are imposed. Consequently, such a system 'rewards' people for being unemployed (through unemployment benefits) and penalises them for being employed (through taxes). The UB system thereby creates an externality, distorting the incentives to work and save"*, (see Brown et al, 2006).

14 OECD (2006c) reports on Austria's 2003 reform of its system of severance payments. The reform consisted in replacing a conventional severance payments system with a system of individual savings accounts. Under the old system (i.e. severance payments), in the event of contract termination, workers where entitled to a severance payment based on the length of the expired employment relationship, as long as they had worked for the employer for at least three years. Under the new system (i.e. individual savings accounts), employers contribute a fixed percentage of the payroll to the worker's individual account. In the event of dismissal, the worker has the option of receiving a severance payment drawn from his/her savings account or can take his/her accumulated balance to the next job. In a life-cycle perspective, individual savings accounts can be seen as a form of (compulsory) retirement savings. From the perspective of employers, a savings accounts system has the advantage of converting the unpredictable dismissal costs (at the time of hiring) into predictable costs (at the time of firing); while, from the standpoint of the worker, it reduces job mobility costs because workers do not lose their entitlement to severance payment in the event of changing jobs.

15 *"To achieve its equity objectives in an unemployment account system, the government can make balanced-budget interpersonal redistributions among the unemployment accounts, taxing the accounts of higher-income people and subsidising those of lower-income people"*, (see Brown et al, 2006).

16 I.e. in case of layoff the obligation to check alternative employment possibilities for the workers involved would no longer fall to the firm itself, but on PES.

3. Flexibility: Employment Protection Legislation and segmentation

The balance between flexibility and security is largely determined by a wide range of policies and institutions, including labour market, social and education policies, together with their interactions, and by the macro-economic performance of the economy as a whole.

However, this chapter does not cover all the dimensions of flexibility and security as identified in Wilthagen's "flexicurity" matrix (see above), which would allow for a richer characterisation of labour market systems. The data requirements of Wilthagen's matrix are too demanding, going beyond the scope of this chapter. For example, lack of: a) appropriate (composite) indicators on internal and functional flexibility, b) indicators on various aspects of unemployment and social assistance systems, such as on their eligibility and enforceability rules; and c) lack of data covering all EU Member States, such as on the degree of real wage flexibility, prevented this chapter from carrying out a more comprehensive analysis of flexicurity systems. Progress will undoubtedly require the preliminary calculation of a number of composite indicators, such as on internal and functional flexibility, together with indicators on workers' perceived security based on survey data.

The chapter will therefore focus on external numerical flexibility (OECD's EPL), and income/employment security and on those policies which have a direct impact on these dimensions, namely EPL, UB and ALMPs. So, in Section 3.1 employment protection is discussed using the OECD's EPL indicators and reviewing the evidence linking employment protection to a number of indicators based on the Labour Force Survey (LFS), characterising labour market dynamism and flexibility. It is important to underline, though, that rules for employment protection can be provided by both labour legislation and collective or individual bargaining agreements. Moreover, the application and enforcement of those rules in practice, may deviate from what foreseen in written laws/contracts[17] and the extent of coverage of EPL may also be an important issue (e.g. exclusion of SME). The OECD's EPL indicator "…*is mainly based on legislative provisions, but it also incorporates some aspects of contractual provisions and judicial practices. Nevertheless, […] their role is likely to be somewhat understated […]*"[18], therefore our analysis is subject to some caveats and limitations. Using survey data, the correlation between EPL and workers' perceived security is also evaluated. Finally, Section 3.2 covers labour market segmentation.

3.1. Employment Protection Legislation

3.1.1. Strictness of EPL differs widely across the EU

EPL considers legal and administrative constraints on worker dismissals, as well as severance payments paid to dismissed employees. All other things being equal, external numerical flexibility tends to be higher in countries with relatively loose EPL[19] and/or a labour law that facilitates recourse to fixed-term contracts.

The OECD (1999, 2004) calculated a summary indicator of the overall stance of employment protection legislation as a weighted average of three sub-indicators on dismissal regulations, covering: a) regular employees[20]; b) temporary employees[21]; and c) collective dismissals[22]. The summary indicator ranges from 0 to 6 and increases with the strictness of EPL.

Chart 1 suggests the existence of large differences in EPL across EU Member States. Anglo-Saxon countries have the least stringent dismissal regulations (UK and IE), while southern countries tend to have the most stringent ones (EL, ES and PT). Although EPL is just one among a series of indicators that can be used to characterise external numerical flexibility, the wide range of this indicator across EU Member States (from 1.1 in the UK to 3.5 in PT) strongly suggests that EU Member States have adopted overall legal systems that provide for significantly different degrees of external numerical flexibility.

3.1.2. EPL does not seem to significantly affect total unemployment…

A considerable amount of research has been carried out to evaluate the impact of employment protection legislation on aggregate labour market

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17   In this respect, judicial practices and court interpretations of EPL should be taken into account.

18   OECD (2004), *Employment Outlook*, Chapter 2, p. 64. See, also, pp. 65-70 for a detailed discussion of the inclusion of contractual provisions/judicial practices in the EPL indicator.

19   The intended aim of EPL is to increase the volume and stability of employment at the cost of raising firing costs for firms. Theoretical analysis suggests that *"…firing costs do indeed reduce job destruction, but they also exert a negative effect on job creation, so the [net] effect on employment is ambiguous"* (Cahuc and Zylberberg, 2004). Much empirical research has been carried out to measure the impact of EPL on labour market outcomes. Their results suggest that firing costs may increase the stability of jobs directly shielded by EPL, but usually at the cost of raising the instability of unprotected jobs, such as temporary work.

20   This indicator sums up three main regulatory aspects concerning regular contracts: difficulty of dismissal, procedural inconveniences the employer faces when starting the dismissal procedure and notice and severance pay provisions (OECD Employment Outlook 2004, Chapter 2).

21   This indicator measures restrictions on the use of temporary employment by firms, with respect to the type of work for which these contracts are allowed and their duration/renewal possibilities.

22   The following weightings are used: 0.4 for regular contracts, 0.4 for temporary contracts, and 0.2 for collective dismissals.

Chart 1   **Overall strictness of EPL in 2003** (scale 0-6)

■ EPL regular   ■ EPL temporary   ■ EPL collective dismissals

Source: OECD (2004).
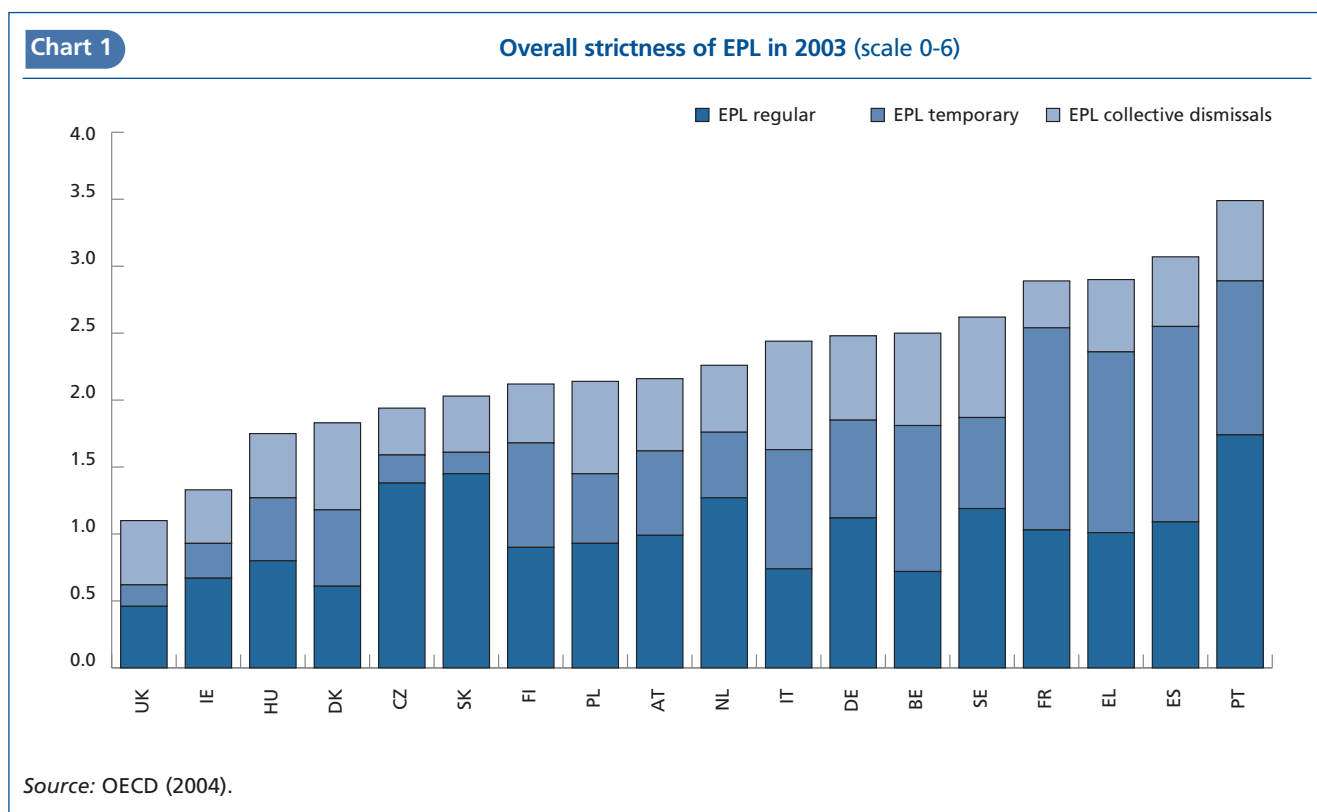
variables[23]. However, econometric results tend to be subject to the caveat of being essentially based on statistical correlations between EPL and those variables, so that in many cases causal relationships cannot be robustly inferred. This caveat, therefore, applies to most of the results as well as to the graphical analysis discussed in this section. Nevertheless, calibration exercises on theoretical models[24] and empirical studies[25] consistently arrive at one major finding, that the impact of EPL on aggregate unemployment rates is weak with an ambiguous sign. The main explanation of this result (see, among others, OECD, 2004 and 2006c and 2006d; Nickell and Layard, 1999) is that strict

EPL has two opposite effects. On the one hand it tends to reduce the separation rate from employment into unemployment and, on the other, it decreases the exit rate from unemployment into work, since firms, anticipating future costs on labour force adjustment, become more cautious about hiring. These effects may, in principle, offset each other.

3.1.3. ...and its impact on total employment is modest

Another line of research has used individual and firm level data to analyse differences in regulation within countries, either over time or across space. This provides for a large

degree of variation which, in turn, allows for more accurate testing of the causal effects of EPL relative to what is normally possible with macroeconomic data.

Dertouzos and Karoly (1992) and (1993), Miles (2000) and Autor et al. (2005) evaluate the strengthening of EPL strictness which has been introduced in different US states at various times[26]. Autor et al. (2005) find a negative but modest impact of those changes on the total employment of corresponding states; which becomes stronger, in the short term, in the case of female, youth and less educated workers (see below 3.1.4).

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23   The impact of EPL on labour market outcomes also depends on the nature of other institutions in the labour market and their interaction.

24   Using either a general equilibrium matching model (e.g. Mortensen and Pissarides, 1999) or a partial equilibrium labour demand model with adjustment costs (e.g. Bertola, 1999), calibration exercises suggest that the impact of dismissal costs on unemployment is weak with an ambiguous sign, although they significantly reduce labour mobility.

25   Panel estimates of the determinants of structural unemployment generally do not find EPL to have a significant effect on the level of unemployment (e.g. Nickell et al., 2003), although EPL seems to make the effects of shocks on unemployment more persistent (e.g. Blanchard and Wolfers, 2000).

26   In fact, during past decades in many US States, courts have adopted doctrines aimed at giving employees protection against "wrongful-discharge", weakening the very flexible, so-called "employment at will", US model, in which "…workers can be fired at will – that is, for any time and for any reason, good or bad", (see Autor et al., 2005).

Garibaldi et al. (2003) and Schivardi and Torrini (2005) exploit the fact that in Italy, dismissal regulations for regular employees become more stringent as the firm's size goes above the threshold of 15 employees[27]. These authors analyze the impact of this differential treatment on the size distribution and on the hiring behaviour of Italian firms. They find a statistically significant, though quantitatively modest, 'threshold effect', i.e. firms close to the threshold are more reluctant to hire further workers. They conclude that size-contingent EPL negatively affects (albeit to a very limited extent) average employment[28].

3.1.4. …but it may harm employment prospects of weak groups…

However, there is ample evidence that stringent EPL tends to worsen the employment prospects of those groups that are most subject to problems of entry in the labour market, such as young people, women and the long-term unemployed. In fact, Lazear (1990) and Nickell and Layard (1999) found a negative correlation between EPL and employment rates, that is basically driven by low female participation in those labour markets with higher dismissal costs. Similarly, OECD (2004) and (2006d) find a negative impact of EPL on youth employment rates.

Algan and Cahuc (2004) argue that employment protection favours insiders, who are predominantly prime age males, and is detrimental to the employment opportunities of outsiders, who are more frequently part of other groups (women and youth). Hence, across Europe, EPL tends to be stricter in countries where there is stronger

support for the male breadwinner model (Chart 1).

3.1.5. …tends to increase unemployment duration…

Moreover, stricter EPL, by reducing both hiring and firing, tends to lead to:

• Lower re-allocation of labour between jobs

• Lower unemployment in- and out-flows

• Higher unemployment durations, with high long-term and low short-term unemployment respectively (see Chart 2).

• High average job tenure.

In countries with high EPL, unemployed workers find themselves in a particularly disadvantaged situation given the low inflow rates into employment, which may increase the expected average duration of unemployment spells and, hence, increase the cost of unemployment.

3.1.6. …and to slow down labour re-allocation

In other words, stringent EPL contributes to make labour markets more stagnant and, conversely, to make employment more stable and employment relationships more durable (see Boeri et al., 1999; Blanchard and Tirole, 2003; OECD, 2006a and 2006c).

These stylised facts can be illustrated calculating a number of indicators that are frequently used as proxies for employment stability (Auer and Cazes,

2003; Auer, 2005; Gazier, 2006; Boeri et al., 1999). In previous editions of *Employment in Europe* (see *EiE* 2001, 2002, and 2004) extensive evidence of such indicators has been provided, with a view to capture labour market (numerical) flexibility in the EU and the capacity of EU labour markets to ensure access to employment as well as career progress. In particular EiE has an established tradition of computing probabilities of transition of individual workers, both across employment statuses (employment, unemployment and inactivity) and between different kinds of employment (e.g. part-time vs. full-time, temporary vs. regular contracts, low pay vs. high pay or low quality vs. high quality) as well as analysing their determinants (see *EiE* 2002, Chapter 3 and EiE 2004, Chapter 4). These have been used to assess to what extent the higher pressure for flexible working arrangements over recent years have gone hand in hand with successful and durable integration of workers in the labour markets.

In this chapter the focus is on policy variables, hence, evidence on employment stability and flows is far more limited and meant to give a basic illustration of the effects of EPL and (see Section 5.3.1) to characterise different "flexicurity regimes" in terms of labour market dynamism. Therefore, no indicator on transitions is provided here but one is included among the outcome indicators in the regime analysis below. Evidence is limited to data on employment tenure[29], building up on previous evidence of this kind provided in EiE 2001 (Chapter 4), and on labour turnover, which is a standard flow indicator in the literature together with transitions.

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27   Article 18 of the "Statuto dei Lavoratori" only applies to firms with more than 15 employees and states that those firms are obliged to reinstate workers whose dismissal has been judged unfair by a court and to compensate the worker with the foregone wages for the time elapsing between the dismissal and the court's ruling. Provisions for unfair dismissals applying to smaller firms are substantially looser.

28   Schivardi and Torrini (2005) underline that firms' employment policies change discontinuously at the threshold. In fact, data lend some support to the hypothesis that firms growing bigger than 15 employees use to a larger extent more flexible labour contracts (e.g. fixed-term) as a way to avoid the more stringent rules on regular employees. This would partly explain why the threshold effect on the firms' size seems to be modest.

Employment in Europe 2006

Chart 2 — **EPL and Long Term Unemployment**

Sources: OECD for the EPL indicator and Eurostat for long-term unemployment rates.
Notes: the discussion in the main text indicates that strict EPL does not significantly affect total unemployment but tends to increase unemployment duration. Therefore, the share of long-term unemployed *over total unemployment* (and not over total labour force) is used to illustrate this fact.

Using data for 2003, Chart 3 draws the OECD's EPL indicator against the average employment tenure calculated using LFS data. The graph shows a positive correlation between these two variables[30], which suggests that countries with stringent EPL tend to have more durable or stable jobs.

Auer and Cazes (2003) and Auer (2005) also reviewed evidence on the evolution of job tenure over time, in the 1990s and until 2002 across a number of countries. They show that long-term employment relationships are still the norm in advanced economies. This also suggests the relative importance of employment protection legislation, which exhibits a fair degree of inertia over time. Chart 4 plots the average employment tenure across a number of EU countries for both 1995 and 2005, suggesting that the average job duration in Europe has been relatively stable over the last ten years, despite a widespread perception of a marked reduction in employment stability due, among other things, to globalization pressures[31]. In the EU-15, average job tenure has remained relatively stable in the last ten years, even increasing slightly from 10.2 years in 1995 to 10.5 in 2005[32]. On the other hand, cross-country comparisons reveal the existence of significant differences across Member States, with jobs in the Baltic and Anglo-Saxon countries and Denmark being of shorter average duration, and jobs in Slovenia, Portugal and Greece being of the highest duration.

Several studies (Auer, 2005; Auer and Cazes, 2003; Bertola et al., 1999; and Employment in Europe 2001, Chapter 4) have also looked at the distribution of employment across different job dura-

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29   Employment tenure is defined as the length of time a worker has been continuously employed by the same employer.

30   Similar evidence is provided in Auer and Cazes (2003), Auer et al. (2005) and Boeri et al. (1999).

31   The main exceptions are Ireland and the Netherlands, which show a significant reduction/increase in average job tenure respectively.

32   However, other factors, besides EPL, may have an impact on employment tenure, such as the age distribution of the workforce (a relatively older labour force should exhibit longer average tenure) and the business cycle (research tends to show a counter-cyclical behaviour of tenure, see Auer and Cazes, 2003, for details). In fact, Auer and Cazes (2003) perform econometric analysis of the recent evolution of employment tenure across OECD countries in order to control for the effects of those two factors. Hence, they find that some decline has taken place (affecting mainly young workers) but this does not challenge their overall conclusion that employment relationships remained relatively stable in industrialized countries. On the other hand, average figures may 'mask' different trends for specific categories of workers: Auer and Cazes (2003) point to an increasing female tenure coupled with a slight decline in men's tenure across OECD countries in the 1992 – 2000 period.

Chart 3 **EPL and employment tenure**

Sources: DG-EMPL calculations using LFS data (for tenure) and OECD data (for EPL).

Chart 4 **Average emloyment tenure (years)**

Source: LFS
Notes: countries below the line are the ones for which tenure decreased between 1995 and 2005.
For Estonia, Czech Rep., Poland, Hungary and Slovenia the figures refer to 1997 rather than 1995.
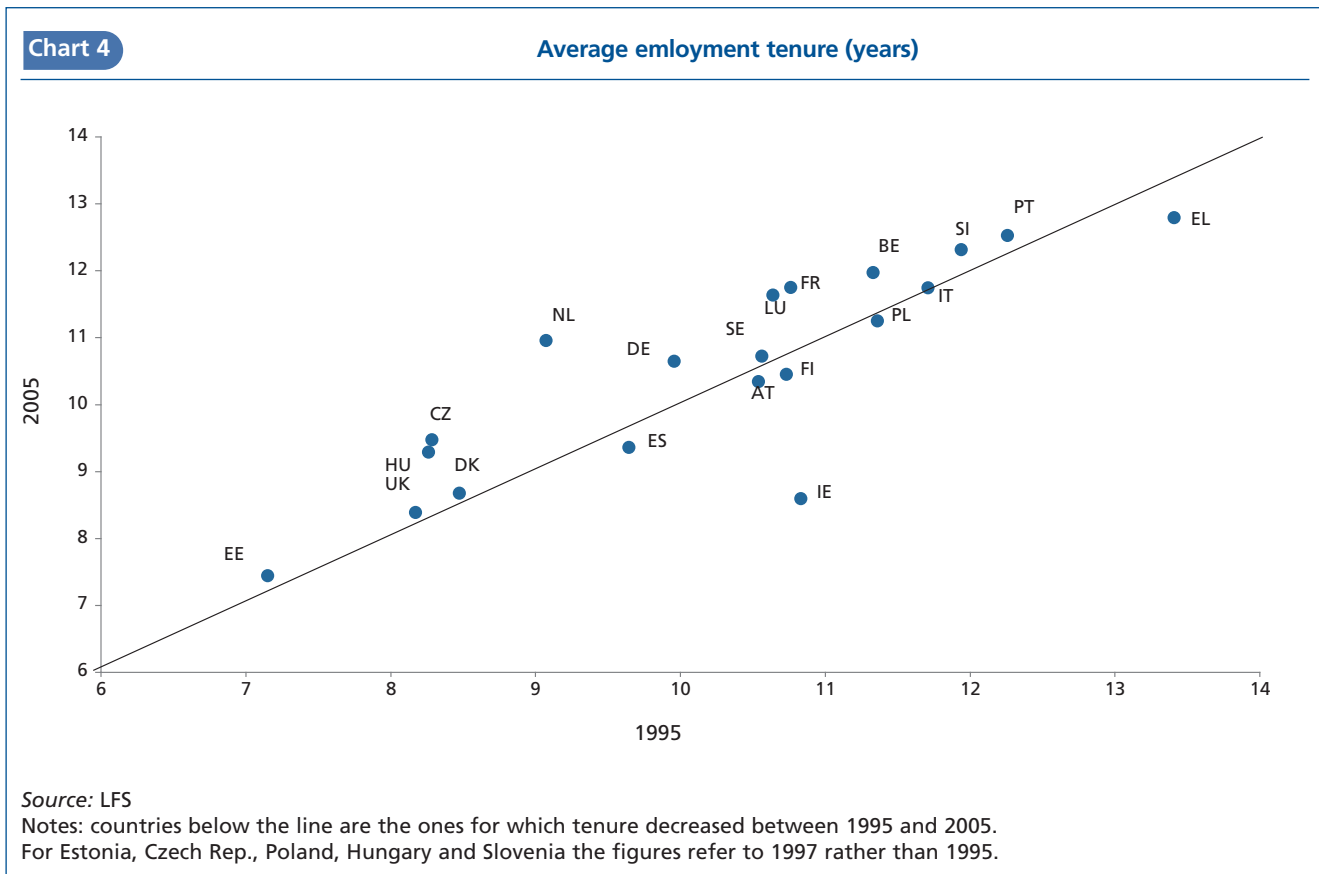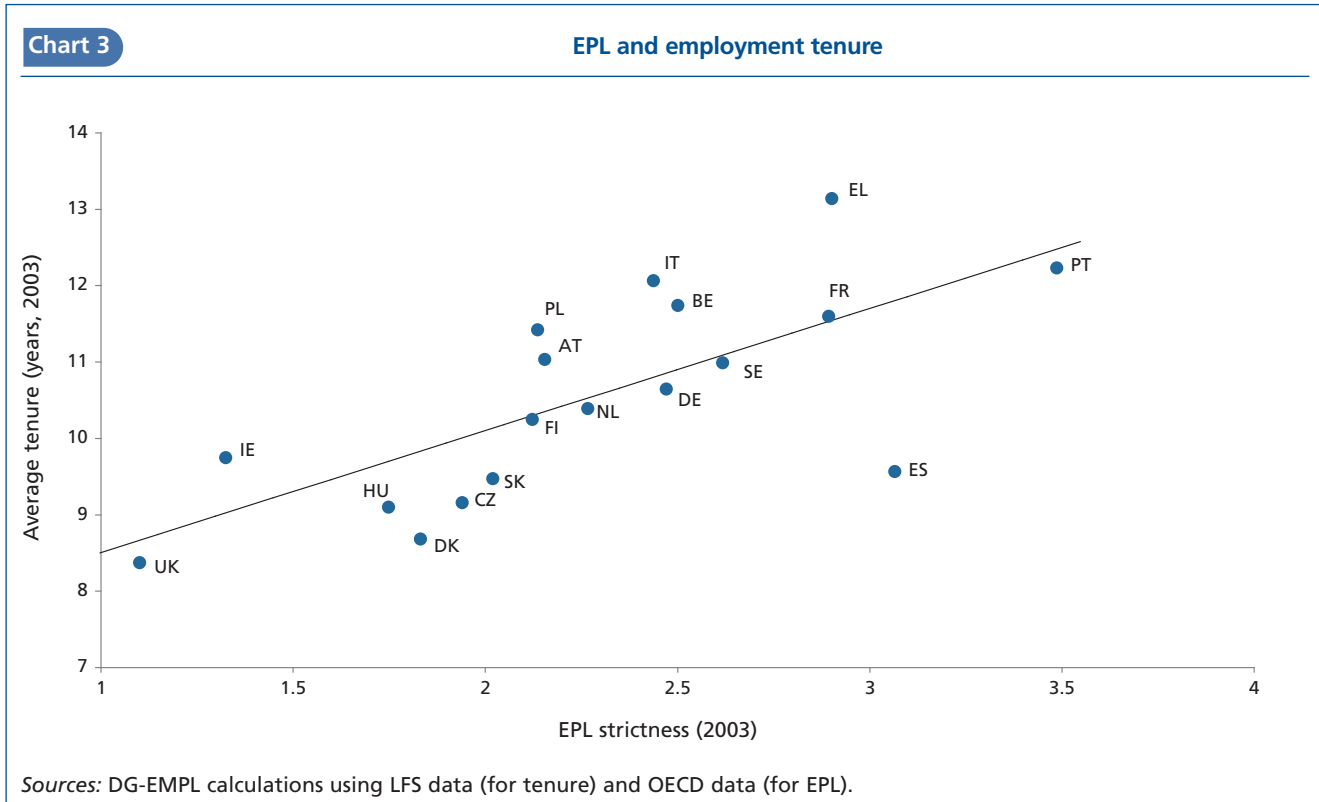
Employment in Europe 2006

Chart 5 — Strictness of EPL and share of workers with more than 10 years tenure (2003)
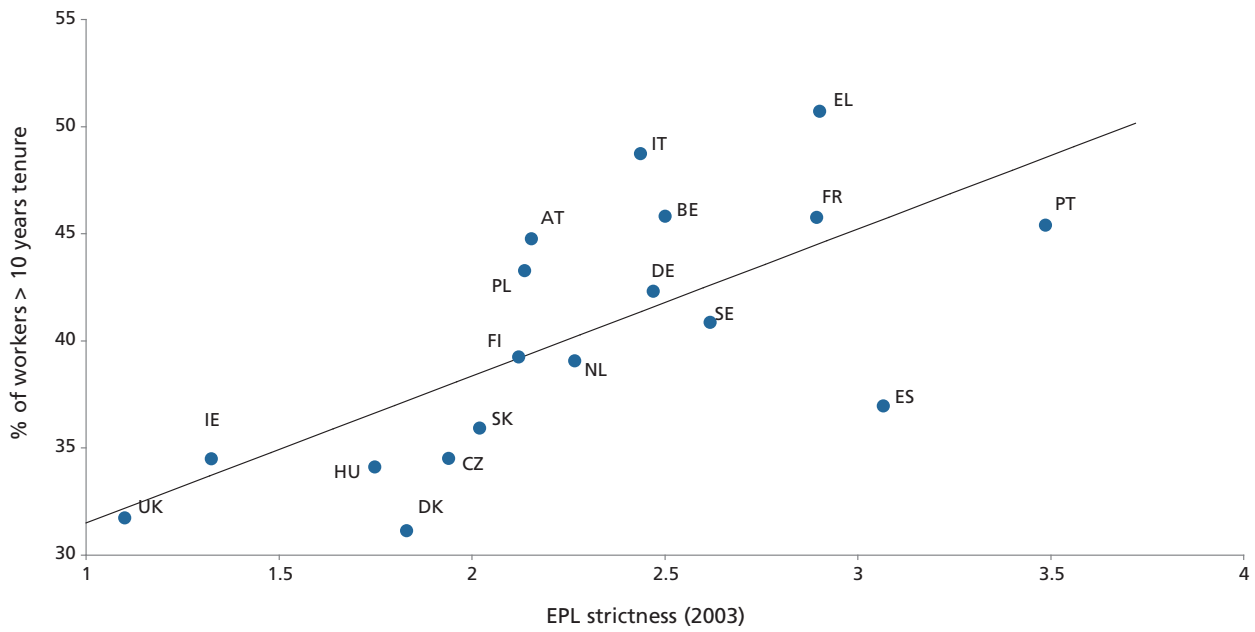
Sources: DG-EMPL calculations using LFS data (for long tenure) and OECD data (for EPL).

Chart 6 — EPL and labour turnover
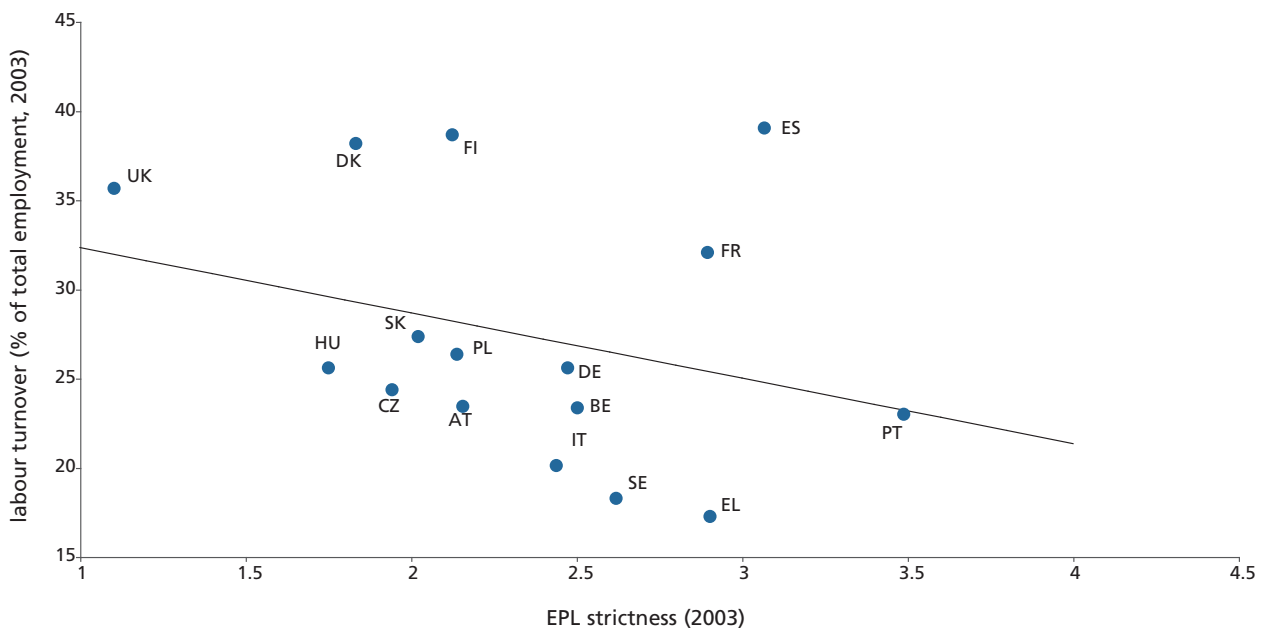
Sources: DG-EMPL calculations using LFS data (for labour turnover) and OECD data (for EPL).

tions. Following on from this, Chart 5 plots the EPL indicator and the proportion of workers having a job lasting for more than ten years. The graph suggests that EU Member States with stringent EPL tend to have a relatively higher share of long-term jobs.

Indicators of *labour turnover* and *job turnover* are also commonly used to capture the degree of labour market dynamism (Davis and Haltiwanger, 1992; Davis et al., 1996; Cahuc and Zylberberg, 2005; Albaek and Sorensen, 1998). Labour turnover measures gross flows of workers in and out of employment and corresponds to the sum of the number of separations (quits or layoffs) and hires which take place between two points in time. Job turnover, on the other hand, is the sum of jobs created and destroyed[33] in a labour market between two points in time.

EPL has a different impact on these two measures of turnover in the labour market. On the one hand, the empirical literature suggests that EPL has a negative impact on labour turnover; whereas, on the other hand, stringent EPL does *not* seem to be systematically associated with lower job re-allocation (Blanchard and Tirole, 2003). This lends support to the hypothesis that EPL may reduce labour adjustments considered to be only temporary by firms, but does not seem to prevent permanent adjustments, which are condi-

tions for firms to adapt to demand and technological change. This finding also suggests that EPL is unlikely to represent a major (or an insurmountable) obstacle to adapting an economy to technology or demand shocks, and thus be responsible for slowing down economic growth (see Section 3.1.7).

Chart 6 suggests that a negative correlation exists between stringent EPL and labour turnover[34] lending some support to the assertion that the former slows down the process of labour re-allocation. A similar plot for job turnover cannot be provided in this chapter since this would require firm level data, which are not available in the LFS.

3.1.7. …although this has mixed effects on productivity and growth

The impact of the lower labour reallocation, which seems to be associated with stringent EPL, on productivity and growth has been much debated by researchers. On the one hand, Hopenhayn and Rogerson (1993)[35] have argued that EPL slows down the pace of labour re-allocation from old and declining sectors to new and dynamic ones, thereby lowering productivity and economic growth. However, the lack of a clear impact of EPL on the size of job re-allocation (see Section 3.1.6) brings this argument into question.

Moreover, it has also been argued that stricter EPL can help redress a number of market failures that hinder the provision of optimal levels of training. By lengthening average job tenure, employment protection favours investment in (firm-specific) human capital or skills that would otherwise remain at sub-optimal level, thereby having a positive effect on productivity and growth. Longer employment relationships, resulting from stringent EPL, encourage firms to provide and workers to undergo (firm-specific) training. This, in turn, is the precondition for building up firm-specific human capital and raising labour productivity (Auer et al., 2004; Nickell and Layard, 1999; Lazear, 1979)[36].

Firing costs may also push firms to upgrade the skills of their workforce as a way to avoid as much as possible to have to recourse to dismissals and, so, to incur those costs. Therefore strict EPL could be an incentive to respond to external change by innovation and internal and functional flexibility instead of layoffs (Marinescu, 2006)[37].

Moreover, evidence also suggests that more stable employment relationships enhance the cooperation of employees and their personal initiative at work, thereby contributing to productivity enhancements (Levine and Tyson, 1990; Ichniowski et al., 1996).

Other contributions (Bélot et al., 2005) point to an "optimal" level of EPL

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[33] Job creation is due to openings of both new firms and employment expansion of existing firms over a certain period. Job destruction is due to closures of firms or employment contraction of existing firms. The net employment change is equal to job creation minus job destruction (see Bertola et al., 1999; and Davis and Haltiwanger, 1992).

[34] Following Bertola et al. (1999, box 1), Madsen (2003), Bingley et al. (1999) we calculated the hiring rate as the percentage of workers who have less than one year's tenure at time t, over total employment at time t-1 (which corresponds to the share of positions where at least one hire has been made during the year). The separation rate corresponds to the share of people unemployed, inactive or employed with less than one year's tenure at time t, who were employed at time t-1, over total employment in t-1 (which corresponds to the share of workers for whom at least one separation took place). Total labour turnover is the sum of the two shares.

[35] They calibrate a general equilibrium model and find that a layoff tax equivalent to one year's wages would reduce consumption by 2%, mainly due to the fall in average productivity following the inefficient allocation of resources.

[36] According to the theory of human capital, firm-specific capital requires a minimum job tenure period to recoup the investment. Auer et al. (2005) refer to the theory of firm-specific capital according to which firms invest in on-the-job training specific to the firm. Returns to training in terms of higher labour productivity can be reaped by the employer only if the worker remains with the firm for a sufficiently long time. Lazear (1979) suggests that the optimal wage structure implies that the worker's wage is lower than his/her marginal product at the career's beginning, while it increases with job tenure. The firm postpones wage rises in order to discourage employees from quitting the firm. Empirical studies (Osterman, 2003; and Appelbaum et al., 2000) have also suggested that job stability favours innovation and productivity enhancements.

[37] Marinescu (2006) looked at the UK 1999 reform which shortened probationary periods (at the end of which an employee acquires the right to sue his employer for unfair dismissal) from two to one year. She shows that this seems to have triggered an increase in firms' recruitment efforts (thereby improving the quality of job matches) as well as a higher supply of training to workers with lower tenure.

resulting from the trade-off between the increase in the investments of workers in firm-specific skills with more stable jobs, on the one hand, and the efficiency costs due to lower labour adjustment, on the other.

3.1.8. The perceived insecurity paradox

The discussion so far suggests that employment protection tends to have a negative impact on labour re-allocation (i.e. it reduces labour market flexibility), although this does not necessarily imply negative effects on growth and productivity.

However, another important question is whether EPL actually provides workers with a feeling of security, but a number of recent contributions to the debate show that this may *not* necessarily be the case. OECD (2004) and Postel-Vinay and Saint Martin (2004) provide evidence, based on survey data, of a negative correlation between the strictness of EPL and workers' perception of employment security[38]. Furthermore, the evidence suggests that this negative correlation persists even after controlling both for a number of individual characteristics of the job and for the macro-economic performance of the local labour market.

The apparent paradox that emerges from the analysis of survey data is that workers seem to have a perception of higher insecurity in countries with the most stringent EPL. This finding need, though, is to be taken with some caution given that EPL indicators underestimate the role of actual implementation and effective coverage of rules (see above, beginning of Section 3). Chart 7 presents the scatter data for EPL and perceived security[39] drawing on the empirical evidence.

This broad finding is corroborated by evidence from other sources, such as Auer and Cazes (2003) and Auer (2005). They show that stable employment, which, as discussed above, tends to be associated with stricter EPL, does not necessarily result in workers' perceived security[40].

Auer and Cazes (2003), Auer (2005), and Auer et al. (2005) put forward a number of explanations for this paradox. For example, the perceptions workers have of their job security may be affected by the publicity surrounding the downsizing and restructuring

Chart 7 — **EPL strictness and perceived security**

Sources: OECD for EPL and Postel-Vinay and Saint Martin (2004) for indicators on perceived workers' security based on ECHP

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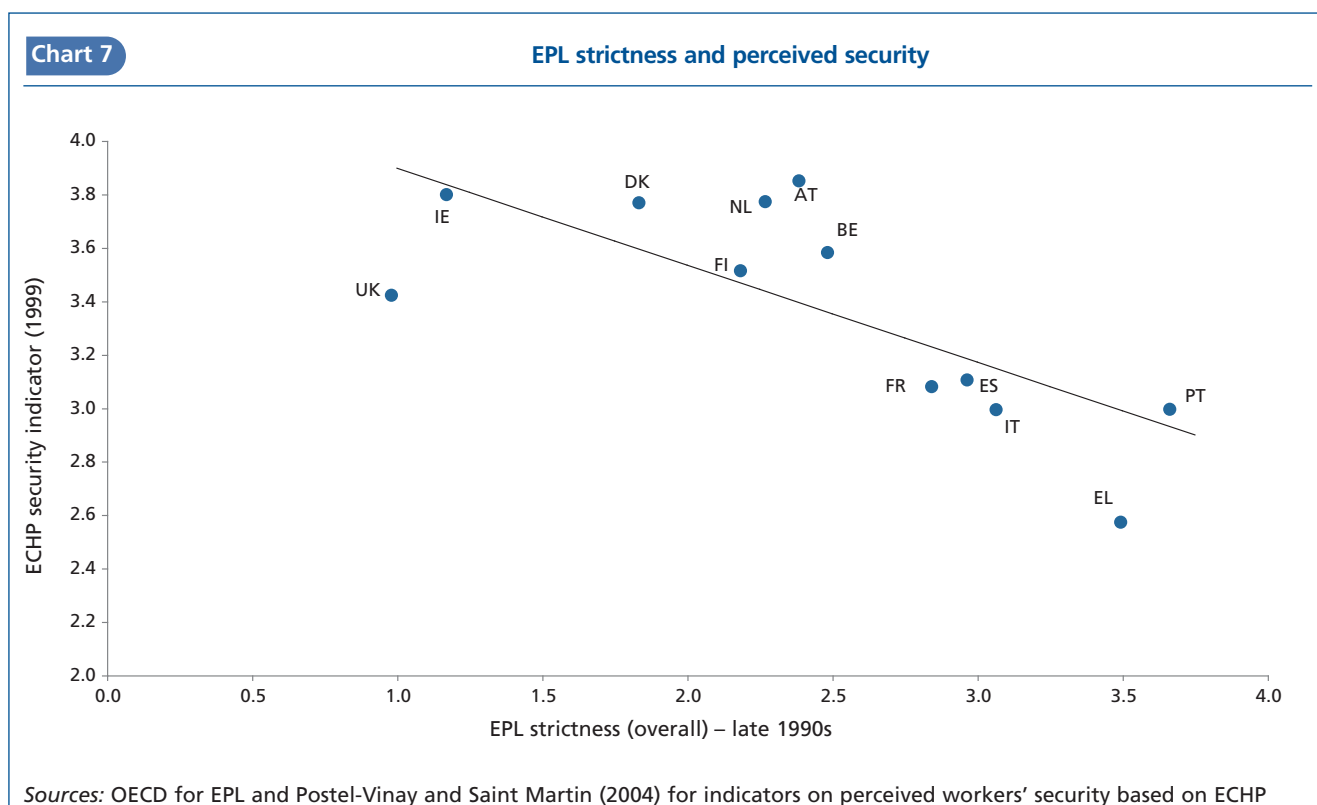
[38] The International Social Survey Programme (ISSP, 1997), and the European Consumer and Household Panel (ECHP, 1999).

[39] Data from Postel-Vinay and Saint-Martin (2004).

[40] Across a number of OECD countries, these authors find a statistically insignificant correlation between average tenure and the ISSP perception of security.

activities of firms[41]. Labour market segmentation (principally the excessive recourse to temporary contracts, see Section 3.2), combined with low transitions into regular jobs, may also play a major role in creating a feeling of insecurity. Postel-Vinay and Saint Martin (2004) suggest that, given that EPL simultaneously lowers the risk of job loss and the chance of re-entering employment once unemployed, then the latter effect may take precedence over the former.

3.2. Flexibility at the "margin": labour market segmentation

3.2.1. EPL loosening has mainly affected temporary work...

Time-series data on the EPL indicator (OECD, 2004) show an overall declining trend for the stringency of dismissal regulations, with most of the changes occurring in the 1990s. However, in most cases easing regulations on temporary employment have predominantly driven changes in the summary indicator[42]. This has paved the way, together with other factors, for the expansion of temporary employment as a way to circumvent stringent rules on regular contracts, given the political deadlock in many countries regarding the possibility

of loosening EPL for regular jobs. This situation has contributed to labour market segmentation, high turnover rates for temporary employment and precarious attachment to the labour market, with many workers holding various temporary jobs before eventually obtaining a regular contract (OECD, 2004; and Blanchard and Landier, 2002).

Chart 8 suggests that stringent rules on regular contracts may indeed tend to increase the incidence of temporary work.

3.2.2. ...leading to labour market segmentation

Partial loosening of EPL (i.e. involving only temporary contracts) can yield a dual labour market, where

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Chart 8 — **Strictness of EPL and incidence of temporary work**

Sources: OECD for EPL of regular employees and Eurostat for temporary employment

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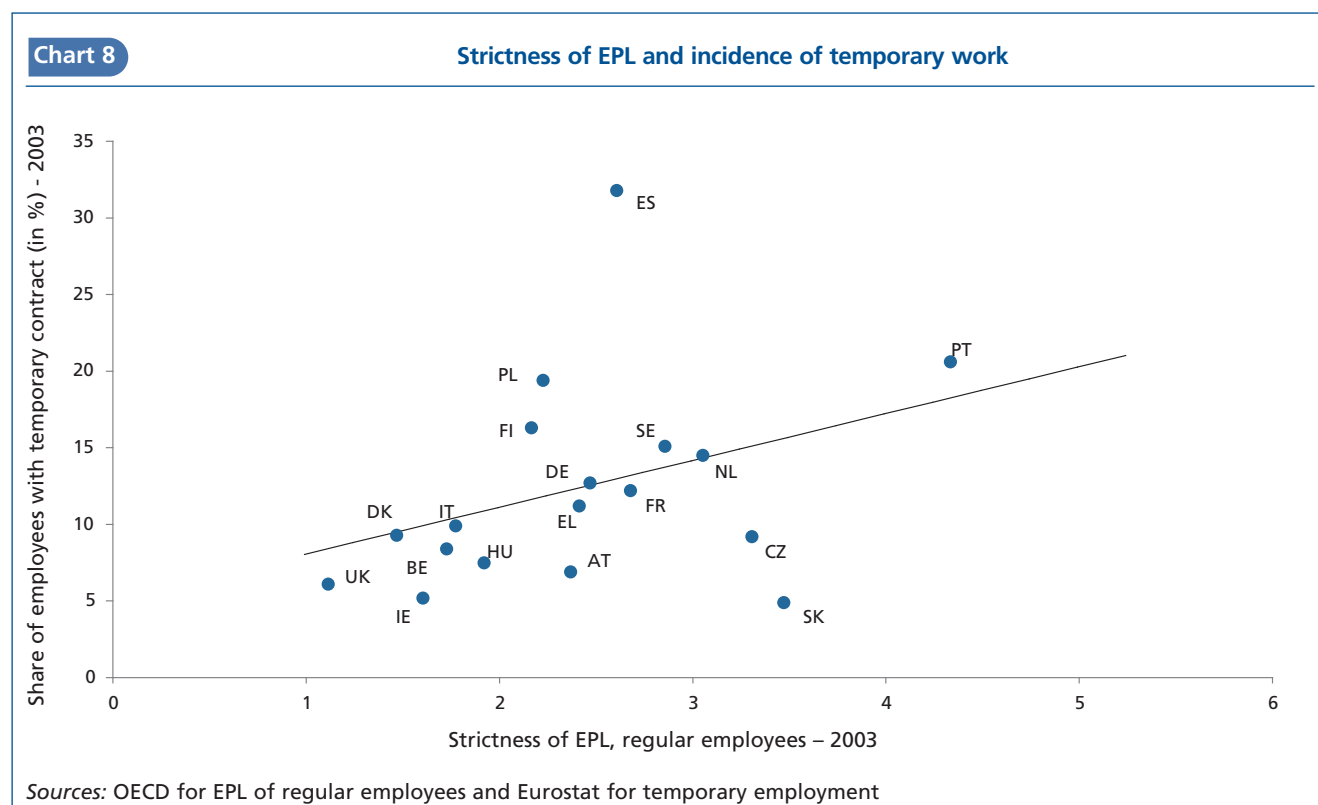
41   _Good news is no news._

42   Particularly in Italy, Belgium, Greece, Germany and Denmark (OECD, 2004). This has been basically done by facilitating the use of fixed-term contracts and through recourse to workers hired through temporary work agencies. The main exception to this general trend was Spain, where, after the accentuated segmentation that occurred in the 1980s and 1990s, national authorities took measures to reduce the EPL gap between regular and temporary labour contracts (see Section 3.2.4).

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insecure temporary jobs coexist with highly protected or inflexible regular jobs. Such a situation runs counter to the application of flexicurity, efficiency and equity principles, and would suggest the need for policy that puts the emphasis on employment/career protection rather than on job protection *per se*, coupled with a fairer redistribution across all categories of workers of the "costs" of securing a sufficiently flexible labour market overall.

Past analyses of transition probabilities across employment statuses and types, and of indicators of job quality, all carried out in past editions of *Employment in Europe* (see *EiE* 2001, 2003, 2004) have also highlighted the existence of a two-tier labour market in Europe, with "insiders" benefiting from a high level of employment protection and good career opportunities and "outsiders" recruited under flexible forms of contracts[43].

3.2.3. This has "perverse" macro-economic effects…

A number of researchers (e.g. Blanchard and Landier, 2001; and Cahuc and Postel-Vinay, 2001) argue that partial reforms of EPL may have unintended, ultimately undesirable macro-economic effects. Loosening EPL for fixed-term contracts, while maintaining stringent EPL for regular

jobs, creates two opposing effects. On the one hand, firms become more willing to hire new workers under temporary contracts, thereby increasing job creation. On the other hand, maintaining high firing costs for regular jobs lowers the share of temporary jobs transformed into regular jobs, thereby leading to more job destruction (at the end of temporary contracts). Hence, the inability to let EPL systems (for temporary and regular contracts) converge might actually increase unemployment as well as lower productivity and output[44].

Regarding the introduction of flexibility "at the margin", Spain is a case of particular interest. The Spanish government liberalised the use of fixed-term employment contracts in 1984, particularly when compared with the conditions applied to regular contracts. This encouraged a rapid increase in employment in the late 1980s and a steady improvement in the labour market throughout the 1990s[45]. The Spanish case triggered a number of theoretical and empirical studies (e.g. Dolado et al., 2001) on the consequences of using fixed-term employment contracts on such a large scale and the research suggested the following major macro-economic effects:

- a large increase in labour turnover and a decrease in average unemployment duration;

- a drop in on-the-job training provided by firms, with negative effects on labour productivity[46];

- an increase in wage pressures if regular workers are the insiders in the wage setting process[47];

- a decline in regional labour mobility;

- a decline in the fertility rate.

- a more difficult access to housing and financial markets for fixed-term employees.

Developments in the Spanish economy confirm that dual labour markets can bring about mixed effects. On the one hand, the lower firing costs associated with fixed-term contracts have contributed to employment growth but, on the other hand, there have been less desirable effects on employment and growth such as inadequate investments in human capital, higher wage pressures, lower labour mobility and higher wage dispersion.

3.2.4. …but may trigger easing of rules for regular work

In response to these adverse outcomes, a series of labour market reforms have been implemented in Spain since the mid-1990s. Their main aims were: a) to loosen employment protection for regular workers, while at the same

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43   "Employees under fixed-term contracts have a higher risk than other employees not only of losing their jobs and of being excluded from the labour market but also of receiving lower wages and of not benefiting of an equally good training as permanent employees with identical job tasks and qualification levels" *Employment in Europe* 2003, p.152.

44   Cahuc and Postel-Vinay (2001) perform model calibrations to assess the macroeconomic effects of the combined use of firing restrictions on regular jobs and flexible fixed-term contracts, showing that the effect on job destruction prevails for a typical European labour market. Blanchard and Landier (2001) perform a similar exercise and come up with similar conclusions. Moreover, looking at the labour market participation among young workers in France since the early 1980s, they conclude that reforms making the use of fixed-term contracts easier have increased labour turnover without reducing unemployment duration for this group.

45   The share of temporary employees in total employment almost doubled in a few years, going from 15.6% in 1985 to 30% in 1990, and has remained at over 30% ever since.

46   Dolado et al. (2001) argue that the expansionary phase in Spain in 1986–1990 was marked by both high employment growth based on the massive use of fixed-term contracts and a very low productivity growth (about 1% per year).

47   Bentolila and Dolado (1994) argue that the large incidence of temporary employment increases the bargaining power of regular employees, since the latter can shift the burden of employment adjustment, following excessive wage claims, on temporary employees who act as a sort of "buffer". However this effect may be offset by the negative impact on wages of a higher share of workers with low job tenure (which is the result of extensive use of temporary contracts).

time tightening the use of temporary contracts; and b) to facilitate the transformation of temporary contracts into regular contracts through employment subsidies[48]. Data analyses (e.g. Garcia-Perez and Munoz-Bullon, 2003; Dolado et al., 2001) suggest that these reforms contributed to a reduction in labour turnover rates during the 1990s[49], and to a fall by 4 percentage points in the share of temporary employment in the private sector. However, in the same period the share of temporary employment in the public sector increased by a similar amount, meaning that the total proportion has not declined significantly since 1997.

This two-step reform process[50], involving, first; loosening of rules on temporary contracts and, then, the easing of regular employment rules, could be explained by political feasibility arguments (OECD, 2006c). Increasing the share of fixed-term employment in the economy lowers the political clout of "insiders", thereby paving the way for further reforms.

4. Security: Unemployment benefits (UBs) and activation strategies

Together with the description of EPL regimes, an evaluation of UB systems is equally important to characterise the overall flexicurity nexus in a country. This section highlights the main features of unemployment insurance systems and reviews their impact on labour market outcomes[51]. Particular attention is given to the known trade-off between the strictness of EPL and the generosity of UB in providing protection against the risk of unemployment. Finally, reference is made to the impact of UB on perceived security of workers.

4.1. The effects of UBs and ALMPs

Unemployment insurance and welfare assistance systems affect both the degree of income security and labour market flexibility. In the event of a job loss, eligibility for and the generosity of welfare systems determine benefit payments, while job search rules, the quality of the PES, and possible referrals to ALMPs can have a potentially significant impact on re-employment and future income prospects. Also, the complex interactions between welfare systems, job search rules and job brokerage services, and ALMPs, can all affect labour market equilibrium, particularly through the wage bargaining process.

4.1.1. High and long-lasting benefits increase unemployment…

The impact of UB and welfare assistance systems on labour market outcomes has been extensively investigated. The positive[52] impact of a benefit with a high replacement ratio[53] on unemployment is well documented, both theoretically and empirically (see Scarpetta, 1996; Nickell and Layard, 1999; OECD, 2006c and 2006d)[54].

An important feature of any UB system is the duration of benefit entitlement. A robust finding from the empirical literature is that long-lasting benefits are associated with longer spells in unemployment and, *ceteris paribus*, with a higher rate of unemployment (e.g. Nickell and Layard, 1999).

Unemployment insurance basically acts through two channels: firstly, by discouraging job search intensity and secondly by affecting the wage setting behaviour of the social partners through an increase in workers' reservation wage. These combined effects tend to put upward pressures on wages, ultimately increasing the unemployment rate (Boone et al., 2001).

The OECD calculates indicators of average replacement ratios of unemployment benefits for a number of Member States[55]. Chart 9 shows the value of this indicator in 2003[56].

Similar to EPL, large cross-country variations exist in the size of transfers to the unemployed, with the Netherlands, Denmark and Belgium being the most generous three countries and Greece and the UK the least generous. However, on average, EU Member States chose to provide far higher income security to the unemployed than the US and Japan.

48   See Garcia-Perez and Munoz-Bullon (2003) for a description of the 1997 Spanish labour law reform which tightened regulations on the use of temporary employment and created a new, more flexible, form of regular contract.

49   Using labour market data for youth in Spain, Garcia-Perez and Munoz-Bullon (2003) show that the exit rate from employment for temporary workers has declined since 1997, while the exit rate from unemployment to employment has increased slightly since 1997.

50   Portugal pursued a similar reform path, see OECD (2006c).

51   For more details, see Chapter 3, Section 5.

52   A rise in the replacement ratio tends to increase the unemployment rate.

53   I.e. the ratio of unemployment and related welfare benefits over previously earned labour income.

54   However, the evidence on the impact on labour inputs and employment is less robust and inconclusive. Nickell and Layard (1999) find little impact on the employment rate and suggest that this may be due to the fact that high benefits may lead to both higher unemployment and higher participation, since a generous unemployment benefit makes labour participation (which is often an eligibility condition) more attractive.

55   For more details see Chapter 3, Section 5.1.

56   The last year for which data are available.

Chart 9[57] **Unemployment benefit: average gross replacement rate (% of previous wage) – 2003**

Source: OECD
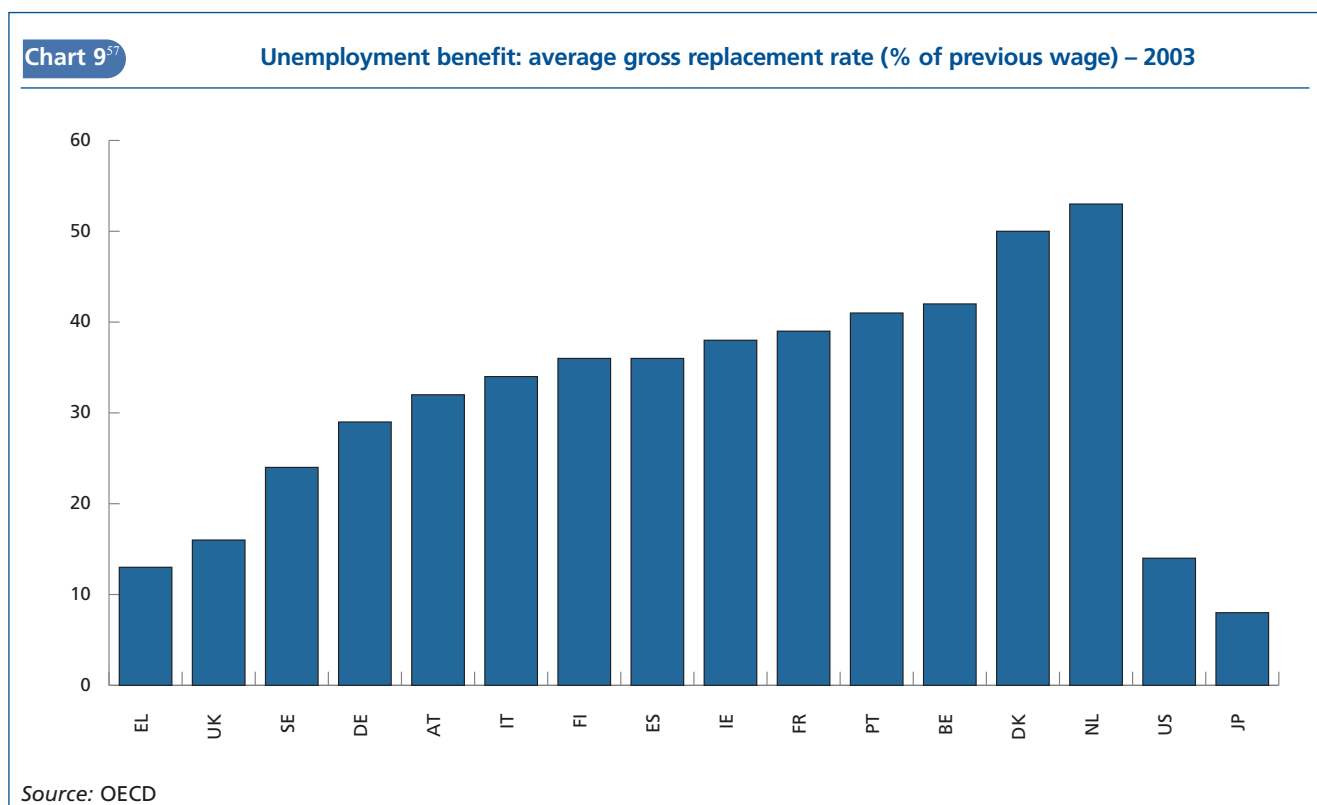
4.1.2. …but are not necessarily harmful for productivity and welfare

It is commonly argued that moral hazards prevent the private sector from providing unemployment insurance (e.g. Chiu and Karni, 1998). However, UB can potentially improve the quality and duration of job matches[58]. The latter effect could, in principle, outweigh the moral hazard problems (i.e. the reduced incentive to job search) in terms of raising total output, despite the likely higher unemployment rate.

4.1.3. Monitoring and sanctions can offset adverse incentives…

In addition to the replacement rate and the entitlement duration, UB systems are characterised by other important factors and all such relevant dimensions have to be taken into account to enable a thorough assessment of their impact on labour market outcomes to be made.

The requirements set for the unemployed to qualify for benefit receipt[59] and the corresponding sanctions for non-compliance play an important role.

Several recent papers have analysed the issue of the optimal design of a benefit system that aims to provide an adequate level of insurance, while minimising any adverse incentive effects.

Governments can (partially) monitor the job search efforts of an unemployed person and so impose sanctions ranging from partial to total withdrawal of benefits. In fact, most unemployment insurance systems in OECD countries condition benefit payments on some degree of performance criteria, such as "availability for work" or evidence of "active job search", monitored by the

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57   This indicator is calculated as the average of gross replacement rates over 2 earnings levels, 3 family types and 3 unemployment duration categories. Source: OECD, Tax-Benefit Models, www.oecd.org/els/social/workincentives. It should be taken with some caution. E.g. the figure for Sweden is underestimated due to the way the rate is constructed, (see Houmann Frederiksen et al., 2004, Figure 8a). The reader is referred to the same source for data on the net replacement rates both in the initial phase of unemployment and for long-term unemployed people, disaggregated by different family types and earning levels. See, instead, OECD (2006), *Economic Policy Reforms: Going for Growth* for average measures of the net replacement rates. For further details, see OECD (1994), The OECD Jobs Study (Chapter 8) and Martin (1996).

58   Acemoglu and Shimer (2000) show that economies with moderate UBs can have higher output and welfare than those without unemployment insurance, because unemployment insurance encourages workers to look for higher productivity, although riskier jobs. For more details, see Chapter 3, Section 5.

59   This mainly concerns rules on job search, on the suitability of job offers an unemployed person should accept, and on participation in active programmes. Sanctions for lack of fulfilment of any of those requirements normally imply partial or total withdrawal of unemployment benefits.

PES (Grubb, 2001)[60]. However, such monitoring can be costly and so raises the question of whether a benefit system with adequate monitoring and sanctions represents a welfare improvement for society. Theoretical analyses of this issue have been carried out by, for example, Fredriksson and Holmlund (2001), and Boone et al. (2001). Using models where job search behaviour is not perfectly observable, a monitoring and sanctions system designed to encourage search effort yields an overall welfare improvement set against the costs of doing so[61].

The literature (e.g. Boone et al. 2004; and Lalive et al., 2002) distinguishes between the *ex post* and *ex ante* benefits of setting up a monitoring and sanctions system. *Ex post* benefits refer to the stimulus of job search resulting from the actual imposition of a sanction, while *ex ante* reflects changes in behaviour brought on by a sanctions system *per se*. Empirical work in the Netherlands (Abbring et al., 1997; and Van den Berg et al., 2002), Denmark (Jensen et al., 1999), and the US (Benus et al., 1997) finds that sanctions regimes tend to significantly raise the exit rate from unemployment into work[62]. Lalive et al. (2002) and Boone et al. (2004) find that the *ex ante* effect of a sanctions system is also substantial (i.e. for the non-sanctioned job seeker, the exit rate from unemployment is higher the stricter the monitoring and sanctions regime)[63].

Overall, the literature strongly suggests that having unemployment benefits of limited duration, relatively strict job search requirements, monitoring of job search intensity efforts and quality job brokerage services tend to speed up transitions out of unemployment[64].

A successful flexicurity strategy therefore has to balance carefully the income insurance function of the UB and related welfare assistance systems, with an appropriate "activation" strategy designed to facilitate transitions into employment and boost career development.

4.1.4. …and so can effective Active Labour Market Policies

Unemployment benefits often interact with ALMPs and the basis for this relationship is discussed below in the context of a brief examination[65]. ALMPs aim to assist the unemployed back into the labour market in various ways (Boone and Van Ours, 2004). To illustrate the scope of ALMPs, Eurostat distinguishes between six main categories as follows: a) training/retraining; b) job rotation and job sharing; c) employment incentives; d) integration of the disabled; e) direct job creation; and f) start-up incentives.

OECD (2006c) suggests that existing macro-econometric studies have found

that ALMP spending is associated with lower aggregate unemployment[66], although this is subject to a number of caveats. In particular, the evidence suggests (Boone and Van Ours, 2004; and OECD, 2006d) that training has the largest positive impact on both unemployment and employment, while spending on PES seems to lower unemployment but not to affect employment. Micro-econometric evaluation studies generally find considerable differences in the impact across different programmes and across different groups of workers, with many existing policies having rather small or non-significant effects on job finding rates (e.g. Martin and Grubb, 2001)[67].

There is ample evidence of significant interaction between ALMPs and UB expenditures (Nickell and Layard, 1999; OECD, 2006c and 2006d; Lalive et al., 2000)[68]. A major finding is that the known moral hazard problems linked to UB systems can be largely offset by adopting and implementing appropriate ALMPs.

The policy implication that can be derived from this analysis – in line with the principles of flexicurity – is that activation strategies need to be fostered if synergies are to be fully exploited between the administration of UB (see Section 4.1.3) and the adequate provision of ALMPs. However, the emphasis should be put on improving the design and effectiveness of ALMPs, rather than on increasing spend-

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60   Grubb (2001) argues that job search requirements show substantial variations across countries, as does the frequency with which sanctions are applied.

61   In Boone et al. (2001), monitoring costs have to be above 5% of GDP for this conclusion not to hold.

62   The two studies for the Netherlands find that the job finding rate doubles after a sanction is imposed. Moreover, it is the "shock" of getting a sanction rather than the size of the benefit cut which raises the job search intensity.

63   Lalive et al. (2002) evaluate the *ex ante* effect of different sanction regimes across regional public employment services in Switzerland, a country that relies more heavily on close monitoring and sanctions than most other OECD countries.

64   For additional details, see Chapter 3, Section 5.

65   The reader is referred to Chapter 3 of the report for a more detailed description of ALMPs and their effects on labour market outcomes.

66   A rise in aggregate ALMP spending lowers the unemployment rate.

67   Boone and Van Ours (2004) highlight the different results between micro and macro studies. As regards training programmes, macro evaluations tend to be more favourable than micro ones. They argue that this largely reflects the short time periods of the data used in micro evaluations. In particular, the time span of data used to evaluate training programmes tends to be too short to capture the improvement in the quality of job matches, which tends to reduce job separation probabilities and, *ceteris paribus*, to lower the aggregate unemployment rate.

68   Lalive et al. (2000) assess the effect of a policy reform enacted in Switzerland in 1997, which made unemployment benefit payment conditional on ALMPs programme attendance after 7 months of unemployment.

ing levels. The PES should provide better job brokerage services[69], including individual counselling, together with the requirement of both regular contacts with the PES and compulsory participation in programmes after a certain period of unemployment has elapsed. A more professional and efficient PES is essential to raising the intensity and efficiency of the job search efforts of the unemployed, and thus leading to higher exit rates out of unemployment.

4.2. The trade-off between UB and EPL in providing insurance against the risk of unemployment

A number of authors (Boeri et al., 2003 and 2004) have drawn attention to a negative correlation between the size/coverage of the UB system and the relative strictness of EPL. Chart 10 suggests that this trade-off still holds when plotting the most recent figures on EPL (2003) and the gross replacement rate of UB[70], calculated by the OECD for a number of EU Member States[71].

The UB system and EPL are two (to some extent) alternative ways of protecting individuals against labour market risk and the cross-country evidence points to some degree of substitutability.

4.2.1. Flexicurity calls for loosening EPL and more ALMPs…

The stronger competitive pressures brought about by globalisation might shift the balance in favour of UB protection, because it can facilitate labour re-allocation and mobility, but only provided that economies can bear the higher costs for public budgets involved in managing an overall protection system based predominantly on higher UB. A flexicurity approach is consistent with moving along this trade-off by loosening EPL to some extent in exchange for more generous UB and higher spending on ALMP.

However, this shift may prove very difficult to realise in practice due primarily to major political economy constraints. In fact, political economy explanations have been proposed for the observed trade-off between EPL and the UB across European countries. These explanations highlight (Boeri et al., 2003) that the combination of EPL and UB prevailing in a country may depend on the skill structure of the population, meaning that reforms focused on "trading" more flexible EPL with more generous UB should become politically more feasible where educational attainments of the workforce are relatively higher[72].

4.2.2. …but UB-ALMPs may imply high fiscal costs…

A protection system based on UB also implies higher budgetary and fiscal costs, particularly so because it also involves significant spending on ALMPs. In this respect, research has outlined some economic challenges that flexicurity models similar to the Danish one (see Section 2.2) will face in the future (Madsen, 2006; Bredgaard et al., 2005).

Firstly, the demographic changes leading to fewer people of working age and, hence, to a lower labour supply (from traditional sources), challenge the future ability to finance a system characterised by generous UB, a broad range of ALMPs and a comprehensive welfare system in general[73]. Secondly, the highly mobile Danish labour market suggests that, at times of higher competitive pressure and technological progress, a large part of the potentially active population will be continuously tested for their productivity and work potential and thus a large number of workers may gradually be excluded from the labour market, and become recipients of long-term welfare transfers. This trend is illustrated by the sharp increase, between 1960 and 1999, in the share of the Danish population aged 15–66 receiving transfer incomes[74].

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69 Which, according to micro studies, is a relatively low-cost policy and seems to deliver good results in terms of job finding rates (Martin and Grubb, 2001).

70 The UK has been taken out of Chart 10 because it is an outlier in terms of both EPL and the gross replacement ratio. However, this Chart is supposed to give just a simple illustration of the trade-off, see Boeri et al. (2003) and (2004) for a thorough discussion and quantitative measurement of the UB-EPL trade-off, where the UK is also included.

71 Boeri et al. (2003) mention that this trade-off can also be detected for the new Member States, with, for instance, Hungary having more generous benefits and less stringent EPL than Poland, the Czech Republic, Slovakia and Estonia.

72 Boeri et al. (2003) suggest that different EPL-UB combinations may be the result of national political economy equilibriums, which correspond to different skills and age compositions of insiders (employed) versus outsiders (unemployed). In this framework, low-skilled employed people are less productive than high-skilled and thus at higher risk of job loss. Hence, they favour strict EPL, rather than generous UB, as a way to protect their jobs. This means that, *ceteris paribus*, a country with a majority of low-skilled insiders would favour low benefits and high EPL.

73 The Welfare Commission set up by the Danish government claims that over a lifetime an average Dane will receive more benefits and services from the public sector than he/she contributes in taxes. As a result, the Commission's conclusions point to more means testing in the granting of welfare benefits as an unavoidable response.

74 See Madsen (2005), p. 32.

Chart 10   **The unemployment benefits – EPL trade-off in 2003**

Source: OECD.
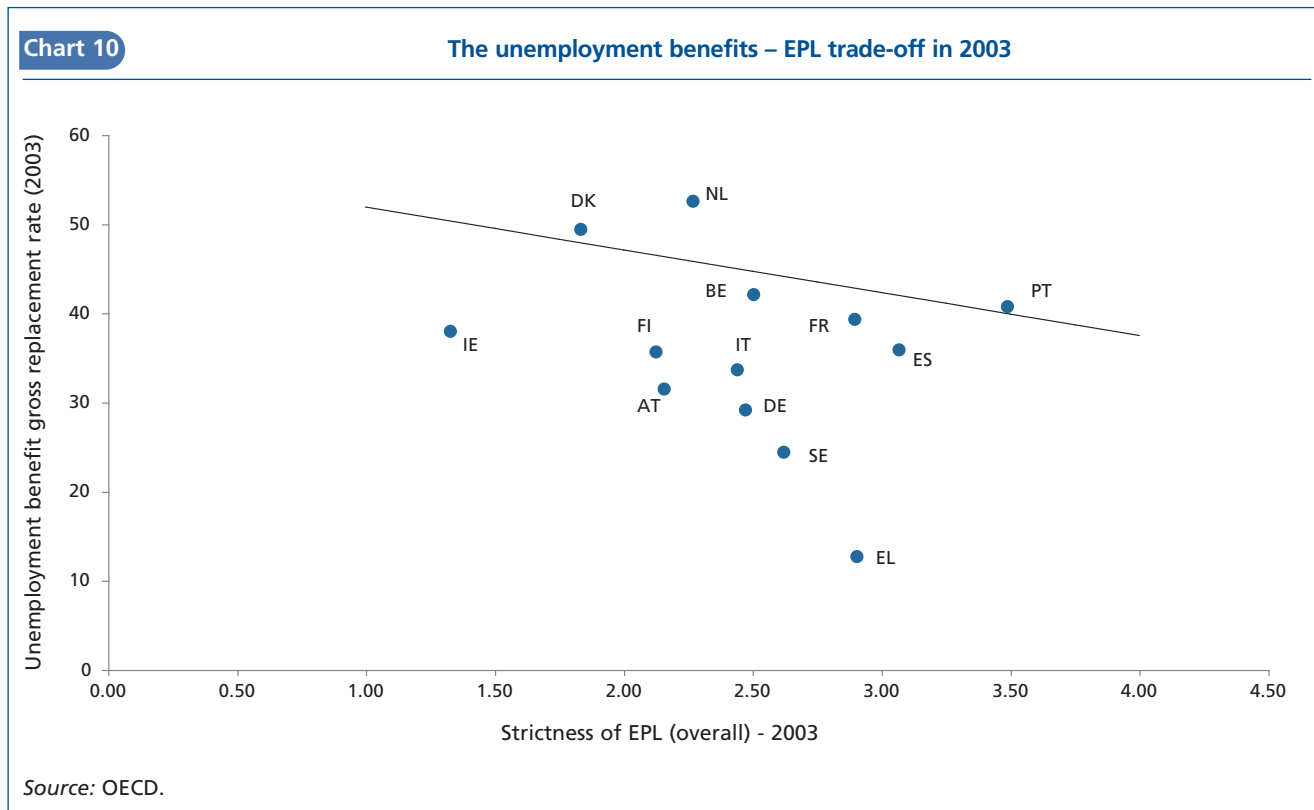
A stronger focus of public expenditure towards both general education and adult vocational training and lifelong learning would be a possible answer to upgrade the skills and qualifications of the workforce, thereby limiting the risk of labour market exclusion for disadvantaged groups (and with it the corresponding financial burden). Furthermore, Danish labour market policy has shifted towards a more active profile in a period of economic upturn so that whenever an unfavourable cyclical phase materialises, the budgetary cost of an ambitious activation policy would increase – together with unemployment – at a time of decreasing revenues. This may exert political pressure to scale down labour market programmes.

4.2.3. …rendering adoption in many Member States problematic

A simple quantitative exercise illustrates the large financial implications of adopting a comprehensive/generous system of labour market policies, similar to that in the highest spending EU countries. Charts 11 and 12, respectively, show average spending on active and passive labour market policies across EU countries, for the period 1997–2004.

Chart 13 evaluates the implied increase in ALMP spending across EU countries that would result from the adoption of the spending intensity (per unemployed) of the three higher spending countries

(DK, NL and SE, Chart 14)[75]. The unweighted increase in ALMP expenditure across the EU would amount to 1.6 percentage points of GDP.

Chart 15 evaluates the implied increase in PLMP spending that would result from the adoption of the spending intensity (per unemployed) of the three higher spending countries (NL, DK and BE, Chart 16). The unweighted increase in PLMP expenditure across the EU would amount to 2.7 percentage points of GDP.

The implied average increase in total spending on labour market policies as a percentage of GDP[76] would therefore amount to over 4 percentage points. Increases in government expen-

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75   The following formula is used to calculate spending intensity per unemployed: $\dfrac{EXP}{U} \Big/ \dfrac{GDP}{P}$. Where EXP is spending on ALMPs or on PLMPs, U is the number of unemployed, GDP is output, and P is the population.

76   In order to match the three EU countries with the highest spending intensity per unemployed.

diture would be particularly large in new and Southern European Member States. The magnitude of the resources involved clearly indicates that models with high spending on UB/ALMP cannot easily be transplanted to other Member States without undergoing significant adjustments.

However, some important caveats must be raised when drawing conclusions from this illustrative exercise. Part of the increase in spending shown in Charts 13 and 15 is due to the higher levels of unemployment in some EU countries compared to the low levels registered in the benchmark countries. Adoption of the Danish-style models, with their focus on monitoring and activation, could help to bring high unemployment rates down[77]. However, even discounting for the differences in unemployment, adoption of high intensity spending models would still involve substantial increases in government expenditure.

Secondly, one should also take into account the full range of macro-economic costs/benefits of a certain policy model, and not just those concerning the public budget. Hence, the benefits from changing the flexicurity mix, in terms of higher macro-economic efficiency and adaptability to change, with respect to an existing

model, may more than offset the higher fiscal burden that the new model implies.

4.3. Higher unemployment benefits enhance workers' feeling of security

Evidence suggests that UB, besides facilitating labour re-allocation, is also positively correlated with perceptions of job security of workers. OECD (2004), Clark and Postel-Vinay (2005), and Postel-Vinay and Saint Martin (2004) find that, contrary to EPL, the generosity of UB systems is positively correlated (Chart 17) with indicators of the perceived job security of workers (see Section 3.1.8) across a number of EU and OECD countries. Similarly, Auer (2006) finds a positive relationship between perceived job security and expenditures on Labour Market Policies. In particular, Postel-Vinay and Saint Martin (2004) strongly suggest that the negative correlation between security indicators and EPL strictness, on the one hand, and the positive correlation between security indicators and the generosity of UB, on the other, are not simply due to the trade-off between EPL and UB; they also reflect the higher efficiency of UB in providing insurance against labour market risks.

4.3.1. …but they may lead to excessive layoffs

However, shortcomings in current unemployment insurance systems have also been highlighted. For example, Cahuc and Zylberberg (2005), and Blanchard and Tirole (2003; 2004) have stressed that UB financed entirely through payroll taxes result in too many lay-offs from the economic efficiency perspective, since employers fail to internalise the social costs of dismissals[78].

4.3.2. …leading to proposals for setting layoff taxes in exchange for loosening EPL

The main argument is that governments should introduce a new policy instrument in order to make firms internalise the social costs of dismissals. Based on the long-running system of rating experiences in North America, a number of authors have suggested the introduction of layoff taxes (see Section 2.3.1). The proposal to introduce layoff taxes is usually set in the context of loosening EPL for regular contracts. Such a proposal can be seen to reconcile efficient labour turnover with employment security, thereby being consistent with flexicurity principles, particularly if accompanied by efficient active and lifelong learning policies (OECD, 2006a).

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77 Although this would be a long-term process.
78 Cahuc and Zylberberg (2005) identify these costs with the benefits provided to the unemployed plus his/her reduced contribution to the public budget through lower tax payments and social contributions.

Chart 11

ALMP spending in percentage of GDP (averages 1997 – 2004)
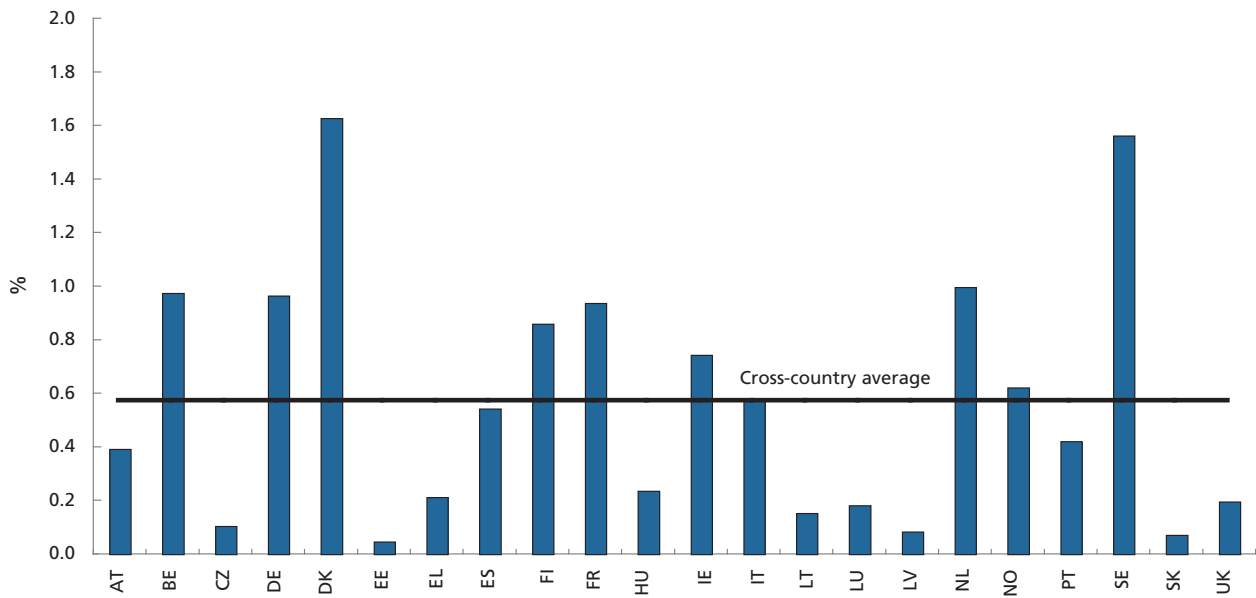
Sources: Eurostat, LMP database.

Chart 12

PLMP spending in percentage of GDP (averages 1997 – 2004)
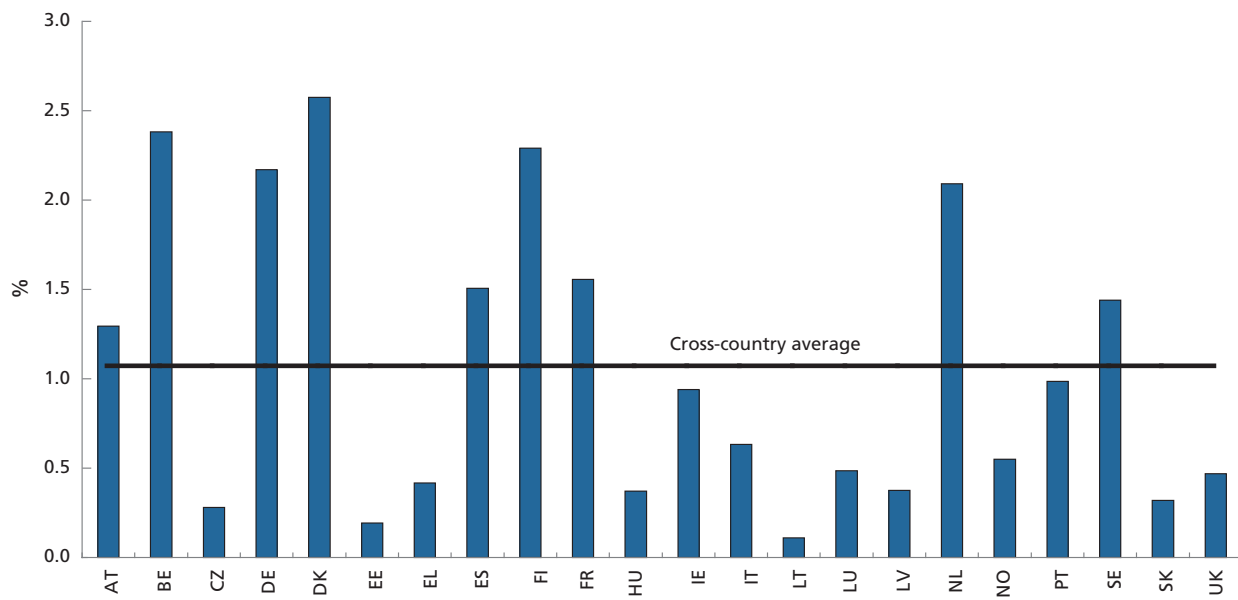
Sources: Eurostat, LMP database.

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Chart 13 **Increase in ALMPs spending resulting from adopting the average expenditure intensity (per unemployed) of the three higher intensity spending countries (DK, NL and SE) (averages 1997 – 2004)**
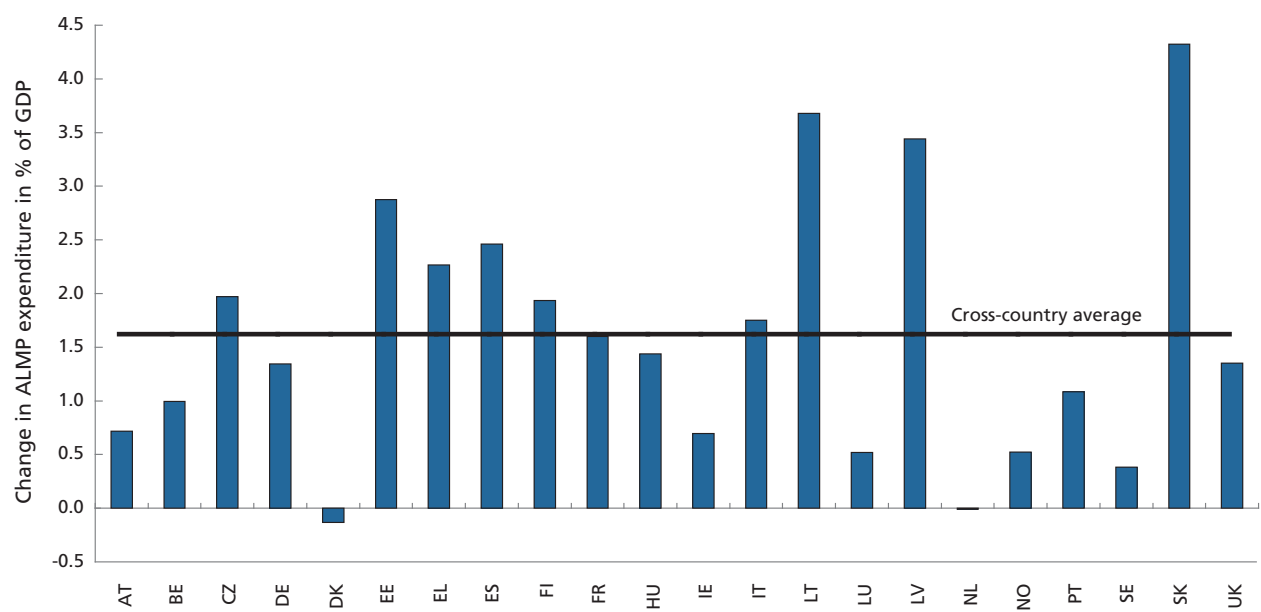
Sources: Eurostat, LMP database.
DG-EMPL calculations.

Chart 14 **Index of the expenditure intensity per unemployed in ALMPs, average 1997 – 2004 100=(DK, NL and SE)**
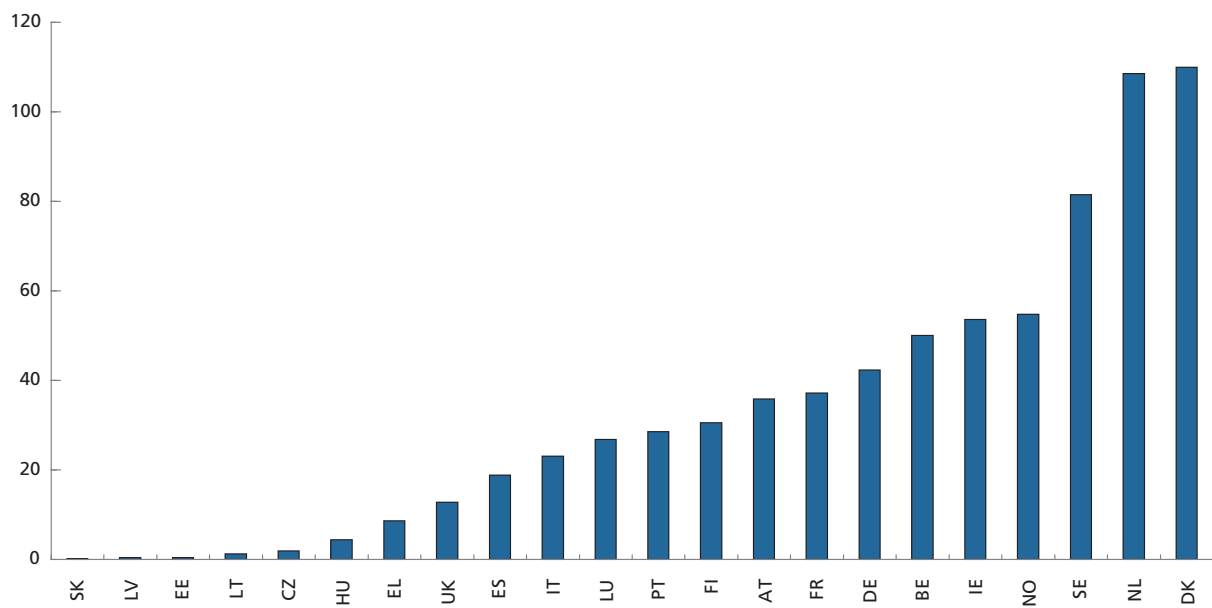
Sources: Eurostat, LMP database.
DG-EMPL calculations.

Chart 15 **Increase in PLMP spending resulting from adopting the average expenditure intensity (per unemployed) of the three higher intensity spending countries (NL, DK and BE) (averages 1997 – 2004)**
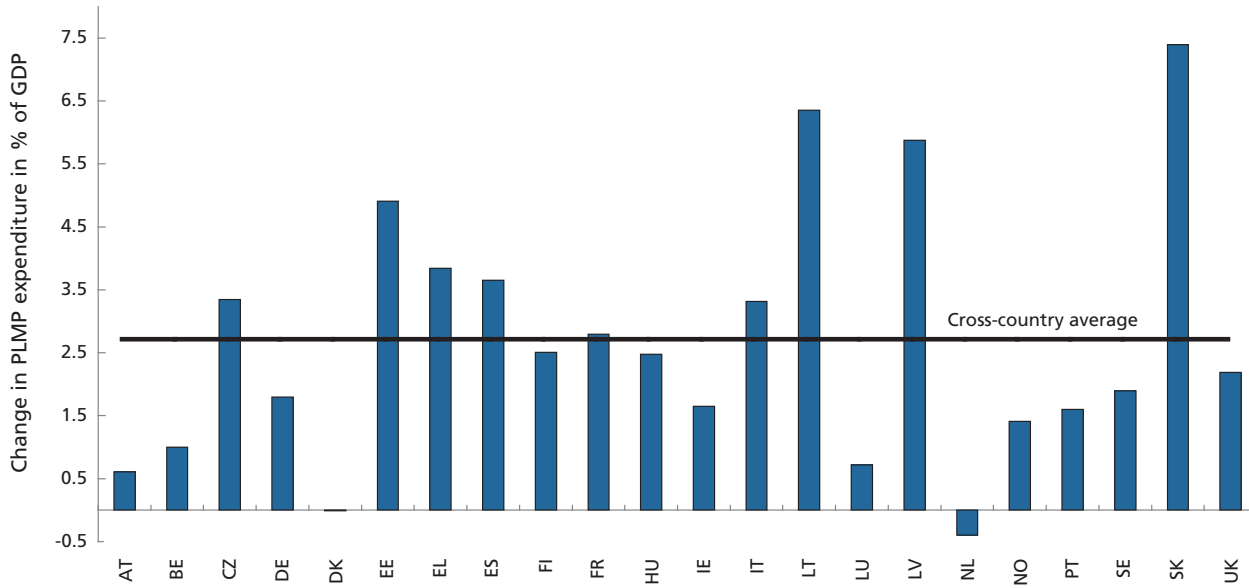
Sources: Eurostat, LMP database.
DG-EMPL calculations.

Chart 16 **Index of the expenditure intensity per unemployed in PLMPs, average 1997 – 2004 100=(NL, DK and BE)**
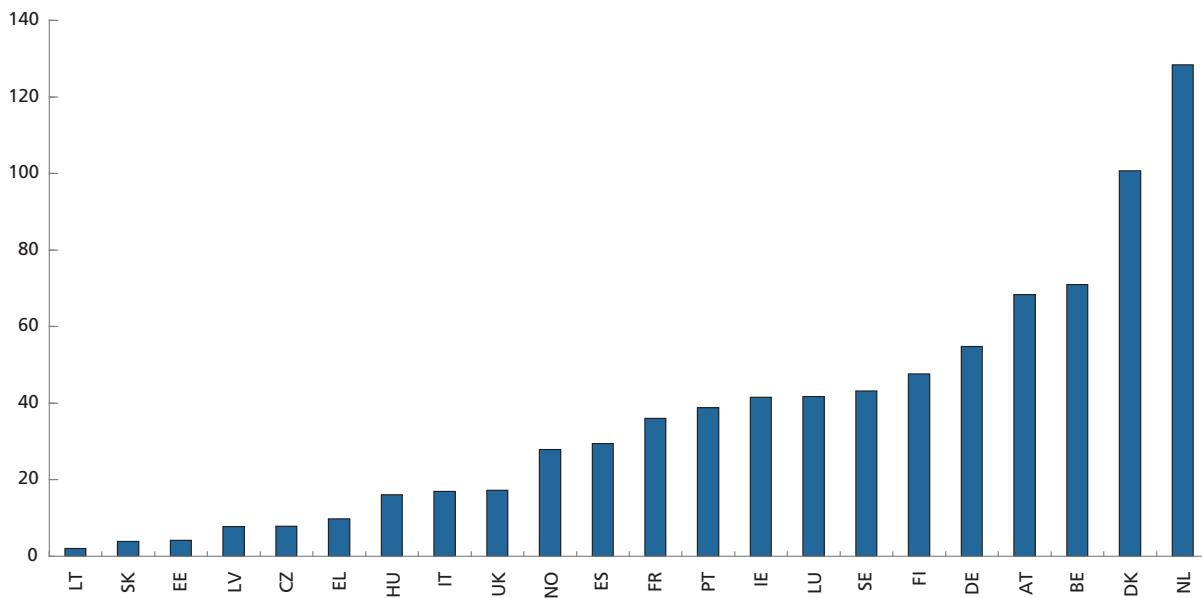
Sources: Eurostat, LMP database.
DG-EMPL calculations.

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Chart 17   **Unemployment benefits and feeling of security (1999)**
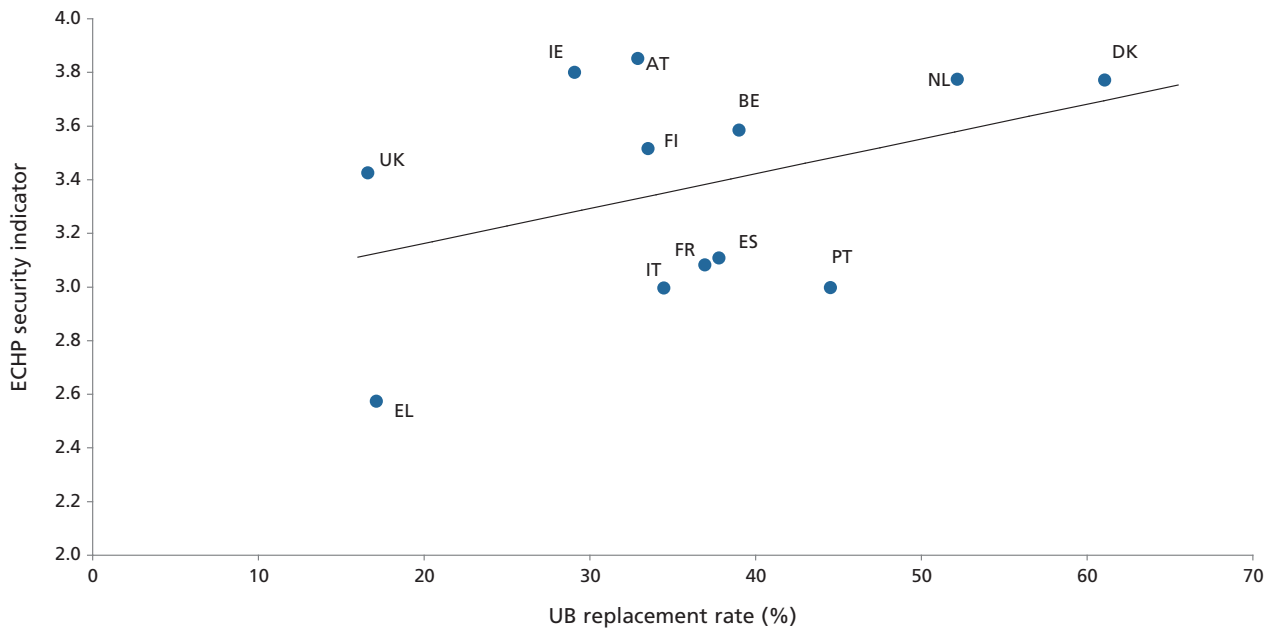
Sources: OECD for the average gross replacement rate of the unemployment benefit and Postel-Vinay and Saint Martin (2004) for indicators on workers' perceived security based on ECHP.

Chart 18   **Unemployment benefit and labour turnover (2003)**
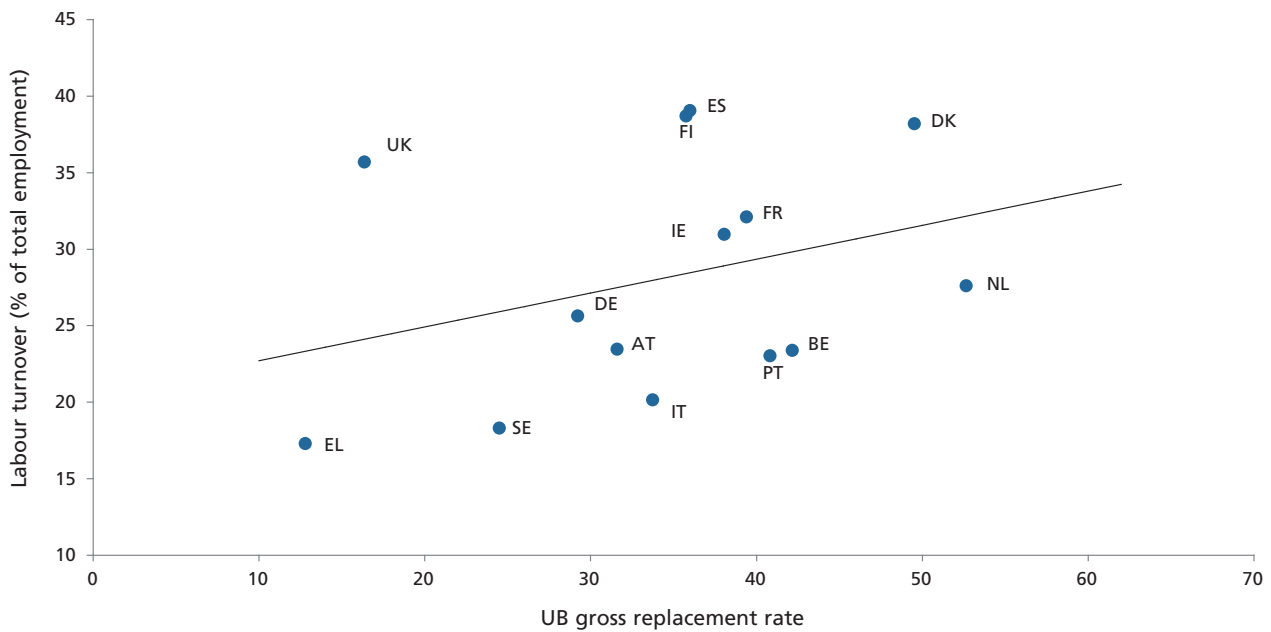
Sources: DG EMPL calculations from the LFS for labour turnover, and OECD for data on unemployment benefits.

5. Mapping different "flexicurity" systems/models in Europe

5.1. Interactions between institutions play an important role…

The analysis in this chapter has focused so far on the impact of individual policies/institutions on labour market outcomes. However, there is ample evidence of the importance of interactions between different labour market policies and institutions (Coe and Snower, 1997). The effects of certain combinations of policies/institutions on labour market outcomes may actually be re-inforced or weakened relative to the effect that each policy/institution would have separately. Empirical studies find two particularly significant interactions (OECD, 2006c and 2006d):

• The negative effect on employment of generous and longlasting UB is statistically insignificant in countries that invest greatly in ALMPs.

• The detrimental impact of the tax wedge on unemployment is increased when the minimum wage is high[79].

There is also evidence that the impact on employment of a reform concerning a single policy/institution is lower when all other institutions taken separately have an adverse impact on employment. As a result, comprehensive reform packages should yield greater employment gains than reforms involving a single institution[80].

Furthermore, the interactions between labour market policies and institutions and product market regulation (PMR) have also been emphasized. In fact, empirical investigations (Nicoletti and Scarpetta, 2005; OECD, 2006c and 2006d) suggest that regulations restraining competition in product markets have a significant negative impact on labour market performance across OECD countries. The existence of some degree of cross-country correlation between the strictness of PMR and rigid labour market policies (in particular EPL) has also been documented (Nicoletti et al.; 2000[81]). This triggered investigation on possible complementarities between PMR and labour market policies and between reforms in those two areas. There is evidence that product market deregulation tends to precede labour market reforms (Brandt et al., 2005; Høj et al., 2006[82]). This may be due to political economy reasons (see

also below Section 6). In fact, increasing competition in product markets stimulates entry of new firms, decreases prices and, so, reduces product market rents. This in turn may decrease support for policies like EPL which allow capturing those rents[83] thereby paving the way for labour market reforms (Høj et al., 2006; Nicoletti and Scarpetta, 2005; Blanchard and Giavazzi, 2003[84]). Moreover, the stimulus to economic activity and employment opportunities as a result of higher product market competition may lead to lower pressure to protect jobs through strict EPL/rigid labour market policies (Høj et al., 2006; Ebell and Haefke, 2003).

OECD (2006c) identifies the different labour market policy packages prevailing across western countries and hints to the fact that different degrees of policy 'interventionism' may be compatible with equally good employment outcomes, as long as policies predominantly act on the supply side, rather than on the demand side. So, the Danish/Dutch flexicurity models, characterized by both relatively lax product market regulations and EPL deliver a labour market performance equally satisfactory than more "liberal" regimes like the UK or the US.

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79   This is consistent with the fact that when the minimum wage is binding, the tax wedge cannot be shifted onto labour, thereby magnifying the depressing effect the tax wedge has on labour demand.

80   OECD (2006c) suggests complementarity between taxes, union density, unemployment benefits and product market regulation. The Secretariat simulates the additional gains that would be obtained by jointly undertaking reforms on two of the above-mentioned four areas that would each reduce unemployment by 1 percentage point if implemented separately. All possible combinations of two such reforms (keeping an unchanged policy stance as regards the remaining two areas) yield a total unemployment reduction of between 2.25 and 2.37 percentage points for the average OECD country, instead of 2 percentage points when interactions are not taken into account.

81   Nicoletti et al. (2000), set up summary indicators of product market regulations and Employment Protection Legislation. The former include aspects such as economic regulations concerning market access, the use of inputs, output choices, pricing and barriers to international trade and investment as well as administrative regulation concerning the means for communicating regulatory requirements to the public and compliance procedures. They show correlations between the two summary indicators and conclude that restrictive product market regulations tend to go hand-in-hand with strict EPL across OECD countries.

82   Høj et al. (2006) perform regression analysis on the determinants of synthetic indicators of labour and product market policies and find that the lagged indicator of product market regulation has a positive impact on the change in the overall indicator of labour market policies lending some support to the idea that product market liberalization can trigger reforms increasing flexibility of the labour market.

83   Nicoletti and Scarpetta (2005) label this as "political complementarity" between labour and product market regulations.

84   Blanchard and Giavazzi (2003) argue that product and labour market regulations are complementary in driving employment outcomes. In their framework product market regulations create rents while labour market regulations increase bargaining power of workers and, so, shift the allocation of those rents in favour of workers by creating a gap between wage and productivity. In this way product market deregulation triggers higher employment gains when labour markets are more rigid than when they are more liberal, since in the former case there is not only the positive effect due to lower rents but also the reduction of the wage-productivity gap. Nicoletti and Scarpetta (2005) find empirical support to this conclusion.

5.2. …which triggered the analysis of economic systems

A growing body of the economic literature assesses the existence of different economic/employment systems, which can be identified according to prevailing combinations of policies and/or institutions, thereby defining commonalities across countries. In this context, Esping-Andersen (1990) presented a particularly influential taxonomy of capitalist systems/models, the so-called "three worlds of welfare capitalism", identifying the liberal, the social-democratic, and the conservative welfare systems. Amable (2003) classifies OECD countries into different economic systems/models based on indicators drawn from five institutional areas, including the labour market. Hall and Soskice (2001) analyse which differences in political economy configurations are more relevant for macro-economic performance, concluding that different regimes are equally compatible with economic success. Muffels et al. (2002)[85], Wilthagen (2004) and Auer (2005) characterise different employment and economic systems/models along two axes that can be broadly interpreted as representing flexibility and security in the labour market.

Following this broad approach, presented here is a preliminary taxonomy of European flexicurity systems/models based on the well-known tandem approach (Nardo et al., 2005). With this approach, firstly, a Principal Component Analysis (PCA) is carried out on a selected number of labour market indicators to identify the main dimensions/axes that characterise flexicurity systems; secondly, the factor scores or the coordinates of the PCA (corresponding to the axes that explain most of the overall variation in the data) are then used as a basis for clustering countries into different groups/systems.

5.3. The Principal Components Analysis (PCA) followed by the Clustering Analysis (CLA)

The objective of this tandem approach is to classify EU Member States into groups based on flexicurity systems/models. Member States are classified in a particular group/system according to an overall measure of "distance" (between countries) reflecting the scores obtained for the principal dimensions (identified in the PCA analysis) that characterise flexicurity systems (e.g. security, flexibility, etc.).

PCA is a multivariate analysis technique that aims to evaluate how different variables are associated with each other. This is achieved by transforming correlated variables into a new set of uncorrelated variables (the principal components), using a covariance matrix or its standardised form – the correlation matrix (Nardo et al., 2005). The (country) scores obtained along the principal components that account for most of the overall variation in the data can then be used either as an input into a classification method, such as K-clus-

tering or hierarchical clustering, or for a graphical representation of the original data (see Box 1 for technical details).

However, before describing in details the analysis and its results, a word of caution is warranted on the validity and robustness of this type of exercise. PCA and CLA respectively identify the linear correlations that better explain the variation in the data, and then use the country scores to propose a taxonomy based on some measure of "distance". Often the results are sensitive to the methodology and the particular parameters chosen for the clustering method (e.g. the initial cluster partition, see below and box 1). Moreover, as far as the impact of different flexicurity systems on labour market performance (see below, 5.3.1) is concerned, one has to bear in mind that this methodology is based on correlation coefficients and so does not necessarily provide indication of any causal relationship. Finally, the taxonomy obtained in this chapter is preliminary since further work is necessary to consider a number of crucial elements of flexicurity systems, such as labour market segmentation and others such as internal and functional flexibility that, due to insufficient data, could not be considered at this stage.

The combined PCA/CLA analysis is carried out for 18 countries[86]. Labour market/flexicurity systems are described using four (active) variables[87] and all the active variables characterise one *policy/institutional* feature or another[88], chosen in order to take on board, as far as possible, the four principles of flexicurity set out in the 2006 APR[89].

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85   For example, Muffels et al. (2002) classify employment systems/models in Europe into four types: social-democratic, continental-corporatist, liberal and Southern-Mediterranean. The classification is basically determined by the indicators on the transitions between different employment statuses and different contractual arrangements.

86   EU minus Luxembourg, Cyprus, Malta, Slovenia, Lithuania, Latvia and Estonia. The analysis carried out in this chapter considers the new Member States for which data are available, namely, CZ, HU, PO and SK. Other known analyses of labour market systems (e.g. Frederiksen et al., 2004; Gaard et al., 2005) did not include the new Member States.

87   Annual averages for the 1997–2003/2004 period are used. Period averages are preferred to point-in-time observations (e.g. the most recent year available), because of possible lagged effects of policies/institutions on labour market outcomes (see 5.3.1).

88   As opposed to labour market outcomes, such as employment, labour market turnover, etc. *Outcome* variables are included as supplementary variables, helping to interpret the principal components (alongside the active variables).

89   a) Modern labour laws allowing for sufficiently flexible work arrangements; b) Effective active labour market policies supporting transitions between jobs, as well as from unemployment and inactivity to jobs; c) Credible lifelong learning systems enabling workers to remain employable throughout their career, by helping them to cope with rapid change, unemployment spells and transitions to new jobs; and d) Modern social security systems combining the need to facilitate labour market mobility with the provision of adequate income support during all absences from the labour market.

The number of active variables considered in the analysis was limited by technical considerations to a maximum of between 3 and 4 to 6[90]. The variables considered are:

- The strictness of EPL[91] as a proxy for numerical flexibility.

- Expenditure on labour market policies as a percentage of GDP (i.e. the sum of passive/unemployment benefits and ALMPs)[92].

- Percentage of participants in lifelong learning programmes[93].

- Average tax-wedge[94] as a proxy for the distortions created by the tax system.

The three principal components account for 92% of the overall variability in the data. Using the correlation coefficients between the active variables and the three principal components (Table 2 and Figures 2 and 3), it is possible to interpret them as capturing the following three dimensions of labour market/flexicurity systems: a) income/employment security; b) numerical external flexibility/employability; and c) tax distortions.

Table 2 allows for the following interpretation of the principal components. The first principal component (D1) can be interpreted as representing "security", because of its positive correlation with LLL and LMP. The second principal component (D2) can be interpreted as representing "flexibility"/"employability" because of its negative correlation with EPL and positive correlation with LLL. The third principal component (D3) can be interpreted as representing tax distortions given that it has very high correlation with TWED. The correlations between active variables and the principal component axes are also plotted using "unitary circles" (Figures 2 and 3).

Figures 4 and 5 plot the country scores along the three principal components (after varimax[95] rotation of the axes). After rotation, the security and flexibility/employability axes each account for about 1/3 of the overall variability of the data, while the tax distortion axis represents about 26% (Table 2).

The K-means clustering method is used to classify countries using, as inputs, the factor scores corresponding to the three principal components. The resulting taxonomy identifies five flexicurity/labour market systems (Table 3).

The five clusters can be characterised as follows[96]:

- **The Anglo-Saxon system** comprising the UK and Ireland – a *high degree of flexibility* (i.e. looser employment protection legislation), relatively *low security* (i.e. intermediate-to-low spending on Labour Market Policies), and *low taxation*.

- **The Continental system**, including Germany, Belgium, Austria and France – *intermediate-to-low flexibility, intermediate-to-high security*, and *intermediate-to-high taxation*.

- **The Mediterranean system**, including Spain, Portugal and Greece – *low flexibility*, *relatively low security*, and no clear pattern on *taxation*.

Table 2 – Main Results of the PCA (after Varimax rotation)

	D1	D2	D3
Variability (%)	33.3	32.6	26.1
Cumulative %	33.3	65.9	92.0
Correlations between variables and factors (after Varimax rotation)			
EPL	0.03	-0.93	0.22
LLL	0.66	0.64	0.01
TWED	0.15	-0.16	0.98
LMP	0.93	-0.04	0.21

Sources: DG EMPL calculations from Eurostat and OECD figures.
In colour the correlations larger than 0.5 in absolute value; see Box 1 for further details on the methodology.
Notes: EPL = Employment Protection Legislation, LLL = LifeLong Learning, TWED = Tax Wedge, LMP = Labour Market Policies (expenditures).

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90 The "Handbook on Constructing Composite Indicators: a Methodological and User Guide", (Nardo et al., 2005), recommends that the countries-to-variables ratio should be between 3 and 5 in order to avoid carrying out multivariate analysis if the sample is small compared to the number of indicators since then results will not have known statistical properties.

91 The overall OECD indicator, excluding its collective dismissals component, for which no data are available covering the period 1997-2003/2004.

92 Source: Eurostat's Labour Market Policy Database.

93 Percentage of population aged 25–64 participating in education or training programmes (source: Eurostat).

94 The tax wedge is defined as the wedge between the labour cost to the employer and the corresponding net take-home pay of the employee. Following the approach of the econometric analysis contained in OECD (2006c), we express the average tax wedge as the sum of income taxes plus employee's and employer's social security contributions less cash benefits, as a percentage of total labour costs, for a one-earner family with two children earning 100% of the Average Production Wage (APW). Source: OECD (2005), *Taxing Wages: 2004/2005*.

95 Varimax rotation is a technique used to maximise the correlation of a number of original variables with principal components.

96 The results obtained in this chapter are qualitatively similar to those obtained in the literature (e.g. Frederiksen et al., 2004; Gaard, 2005). They report four regimes (new Member States are not included) with similar characteristics to the flexicurity systems identified in this chapter.

Figure 2   Interpretation of PCA axes: security and flexibility/employability
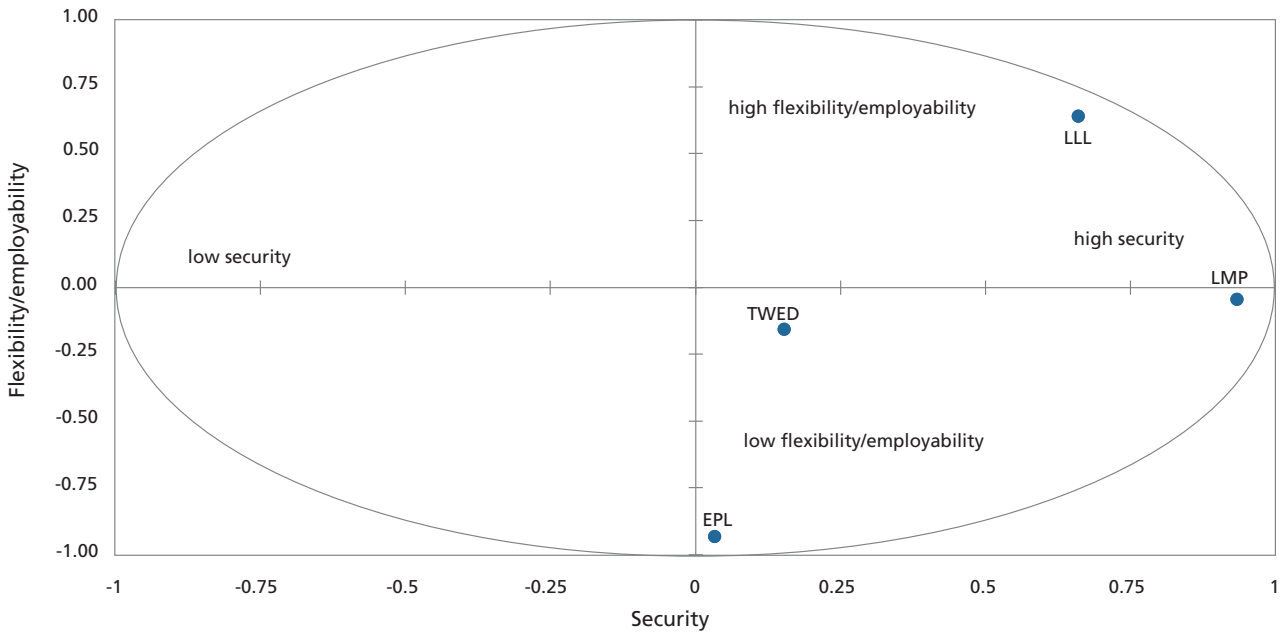
Sources: DG EMPL calculations from Eurostat and OECD figures.
Notes: A variable close to the unitary circle has a high correlation with a linear combination of the two principal components being considered, hence it is well represented by one (or both) of them.
The chart plots the correlation coefficients between the four active variables and the principal components associated with respectively the "security" and "flexibility"/"employability" axes.

Figure 3   Interpretation of PCA axes: security and distortions
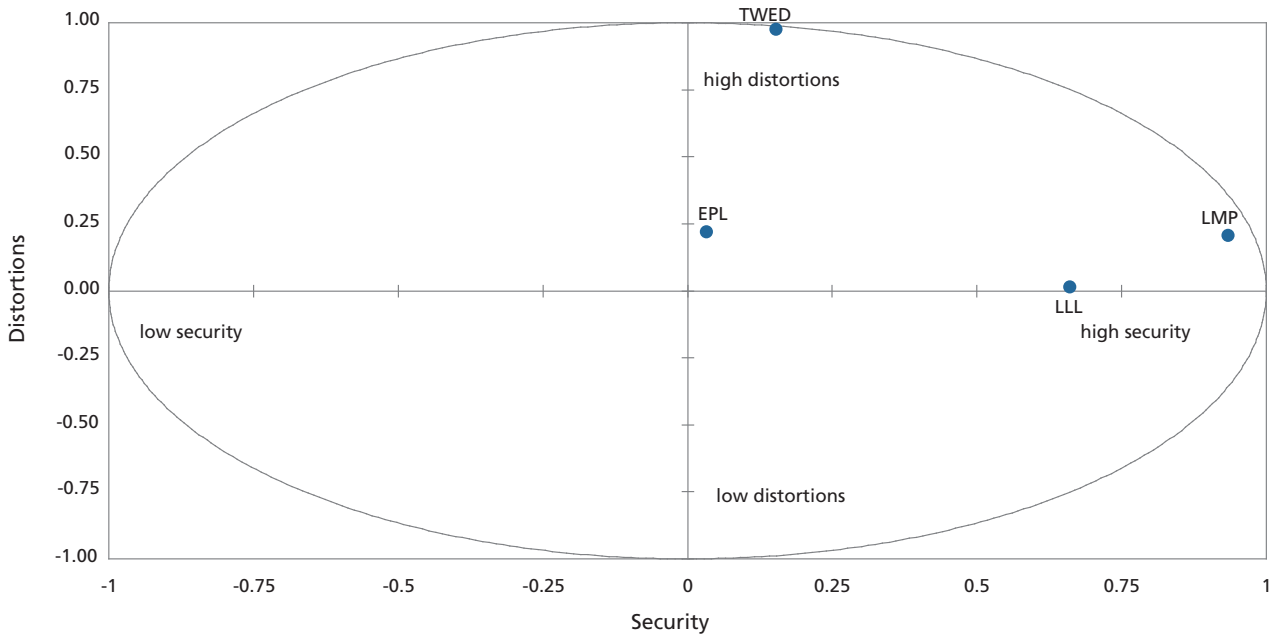
Sources: DG EMPL calculations from Eurostat and OECD figures.
Notes: A variable close to the unitary circle has a high correlation with a linear combination of the two principal components being considered, hence it is well represented by one (or both) of them.
The chart plots the correlation coefficients between the four active variables and the principal components associated with respectively the "security" and "distortions" axes.

Figure 4   **PCA: Country scores along security and flexibility/employability**
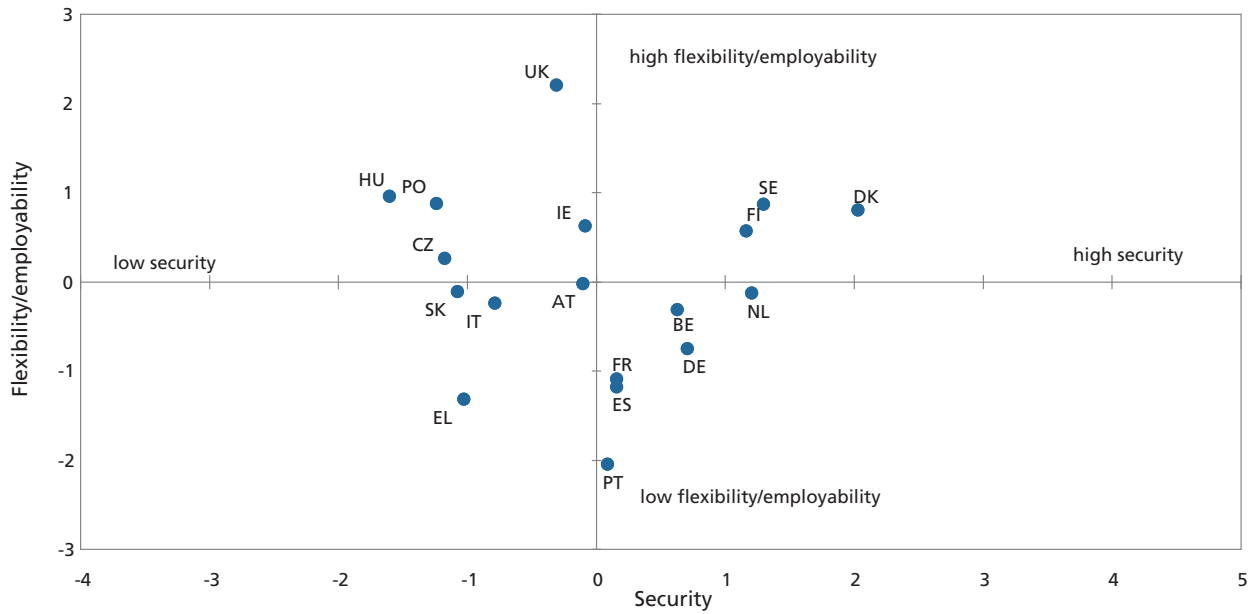
Sources: DG EMPL calculations from Eurostat and OECD data.

Figure 5   **PCA: Country scores along security and distortions**
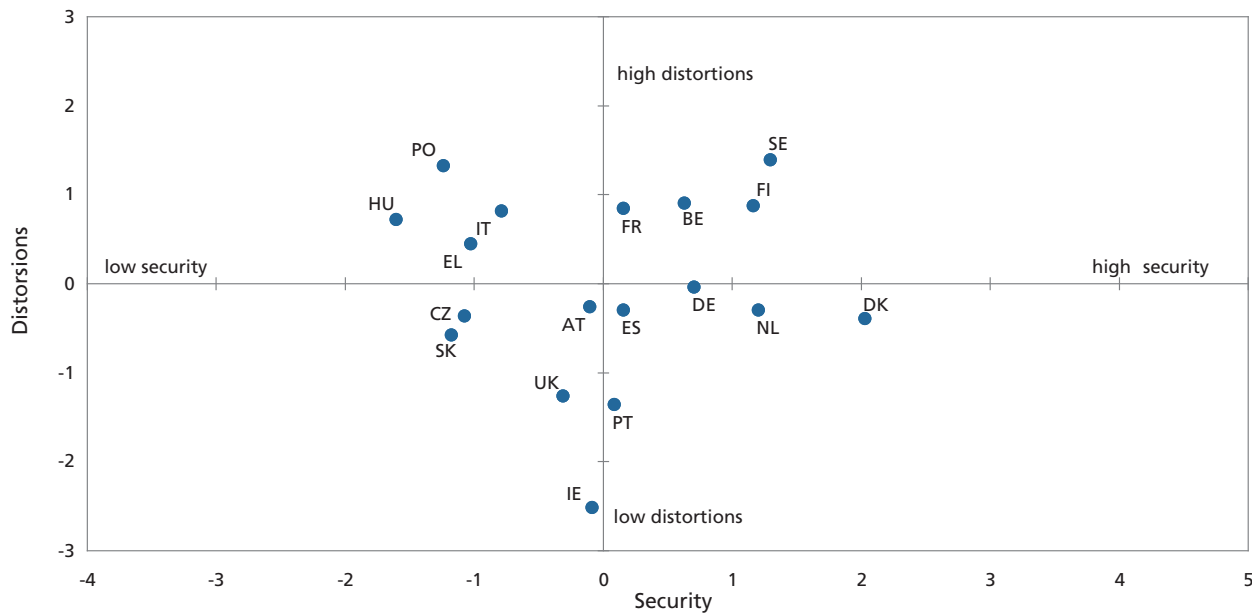
Sources: DG EMPL calculations from Eurostat and OECD data.

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Figure 6 — **PCA: Country scores along security and flexibility/employability**

Sources: DG EMPL calculations from Eurostat and OECD data.

Figure 7 — **PCA with 6 active variables**
Country scores along the security and flexibility/employability axes

Sources: DG EMPL calculations from Eurostat and OECD data.
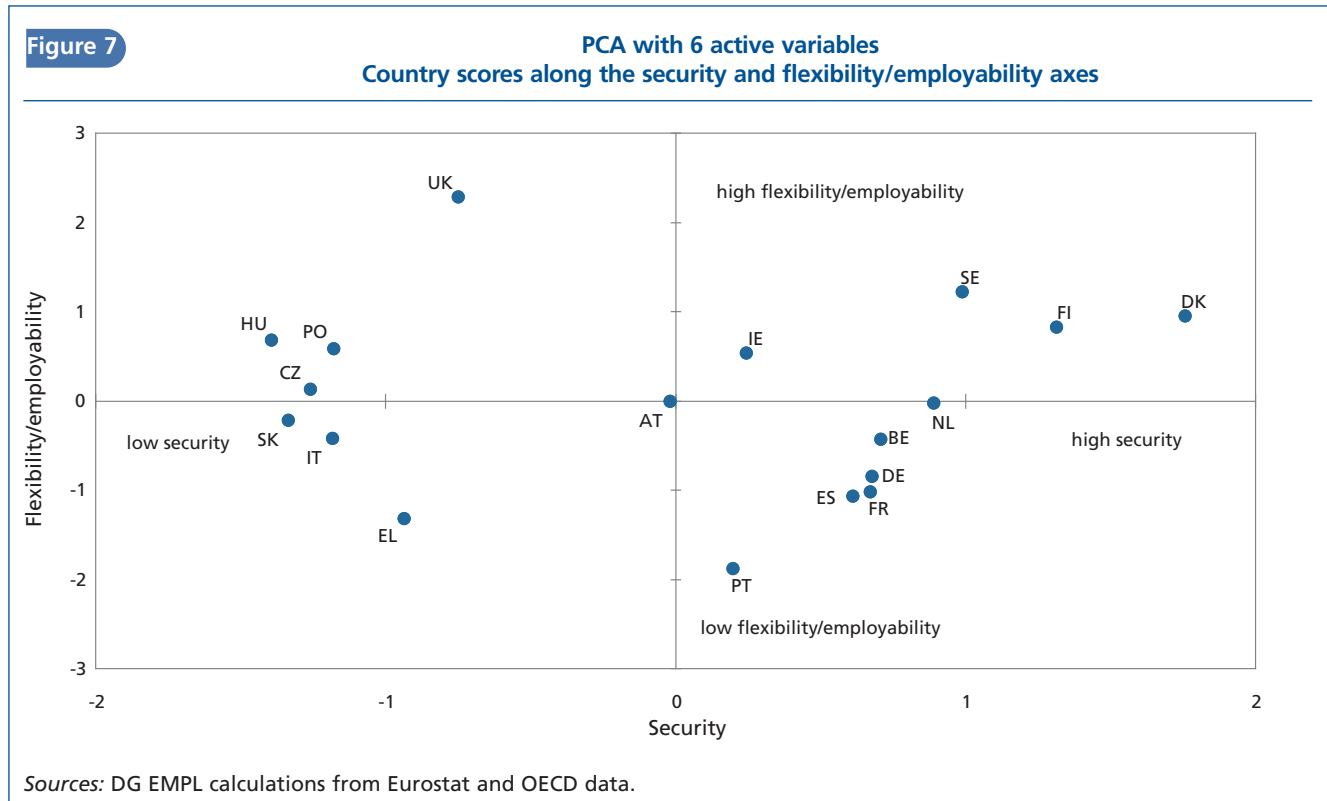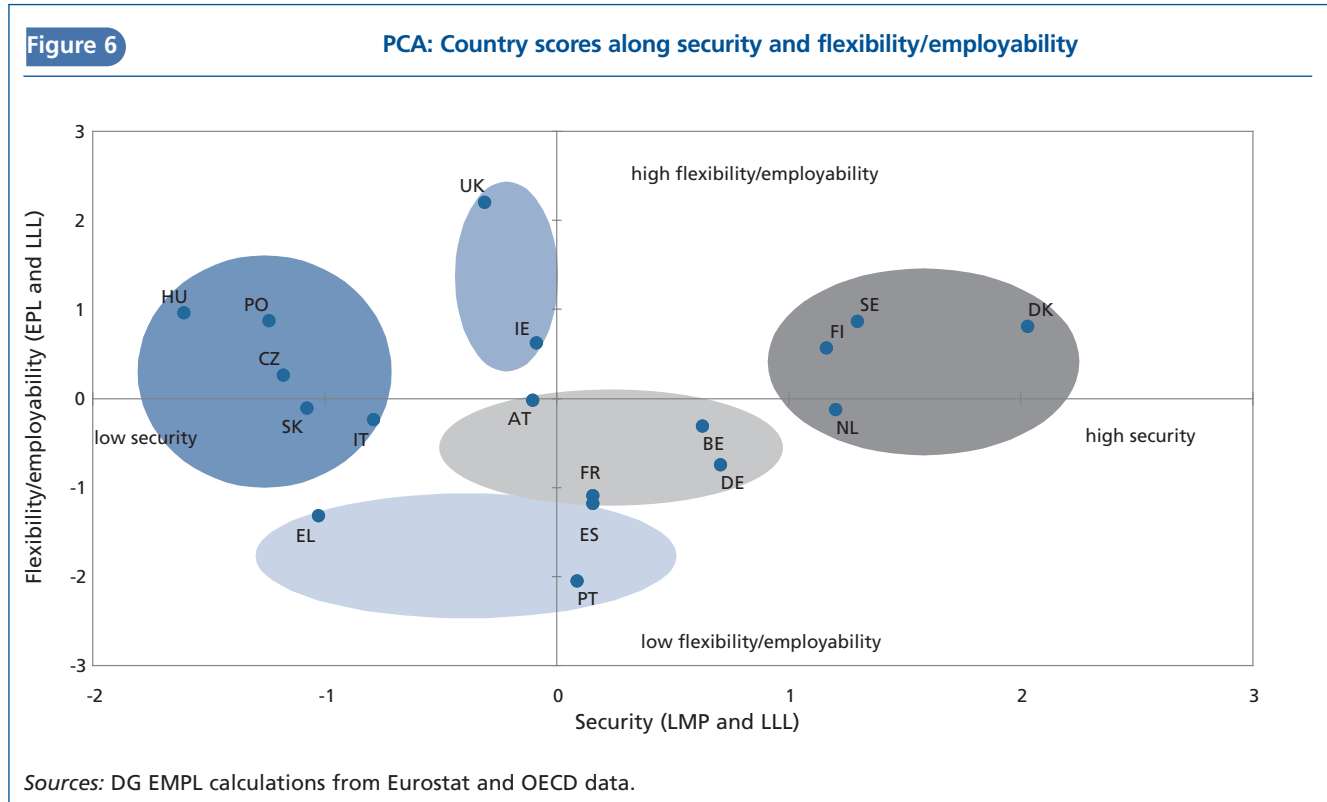
Table 3 – Results of the clustering analysis, using the K-means method				
Continental	**Eastern**	**Nordic**	**Mediterranean**	**Anglo-Saxon**
AT	CZ	DK	EL	IE
BE	HU	FI	PT	UK
FR	IT	NL	ES	
DE	PO	SE		
	SK			

Sources: DG EMPL calculations from Eurostat and OECD data.

• ***The Eastern European (plus Italy) system*,** including Italy[97], Poland, Hungary, the Czech Republic and Slovakia – *insecurity,* intermediate-to-high *flexibility*[98], and intermediate-to-high *taxation*.

• ***The Nordic system*,** including Denmark, the Netherlands, Sweden and Finland – *high security*, *intermediate-to-high flexibility,* and intermediate-to-high *taxation*.

The basis for the clustering results can be inferred by grouping the countries according to the scores obtained on the dimensions of security and flexibility (Figure 6), giving a graphic illustration of "flexicurity" systems in the EU.

The "tandem-analysis" has also been carried out on a larger set of policy indicators (i.e. six instead of four) rendering two main differences as follows:

• The single indicator on Labour Market Policies is split between its Passive and Active components.

• An indicator is included for the change in the relative strictness of EPL for regular employment versus temporary employment[99]. This indicator intends to measure the extent to which EPL reforms have created a dual labour market, stemming from the loosening of temporary employment legislation, while keeping stringent rules for regular employment. Hence, it intends to assess to what extent EPL reform strategies have contributed to labour market segmentation (Section 3.2).

The PCA results corresponding to six policy indicators broadly coincide with those obtained using only four policy indicators. Moreover, the country scores along the security and flexibility axes (Figure 7) do not change significantly relative to the previous case, while the clustering analysis delivers the same country groups as before. In the six policy indicators case, the three main axes remain as before, namely *security* is positively correlated with active and passive

labour market policies, and lifelong learning, while the *flexibility/employability* and *taxation* axes can be identified as before. The main difference now is the emergence of a fourth axis, capturing the evolution – since the mid 1980s – of the relative strictness of EPL on regular versus temporary employment. However, this axis does not seem to have any meaningful association with measures of labour market segmentation[100].

5.3.1. Labour market outcomes in different flexicurity systems

In the jargon of the PCA, the four policy indicators used to classify countries are called "active variables". It is also common to consider supplementary variables – usually outcome variables representing several dimensions of national labour markets and welfare systems, used in order to characterise the different labour market systems in terms of overall socio-economic performance[101]. The factor scores thus obtained for supplementary variables are then correlated with the principal components in order to better characterise the different labour market/flexicurity systems.

The supplementary variables can be broadly divided into three categories:

• *Employment/unemployment rates*, both overall and for particular groups at risk of marginalisation in the labour market and/or social exclusion[102].

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97 Italy is frequently considered as an inflexible country. However, it has significantly deregulated the use of temporary contracts over recent years (late 1990s and early 2000s), yielding a reduction in its overall EPL indicator. This mainly drives the classification of Italy in a group with an intermediate level of flexibility.

98 An intermediate level for Italy, the Czech Republic, Slovakia, and a higher level for Poland and Hungary.

99 This indicator is based on the following ratio: $\dfrac{EPL_{REG} - EPL_{TEMP}}{EPL_{total}}$, which is the relative strictness of EPL for regular employment versus EPL for temporary employment, normalised by the overall strictness of EPL. The indicator is then calculated as the difference between the average of this ratio for the period 1997–2003 and its value in the first year for which EPL figures are available (1985 for the EU-15 and the early 1990s for the new Member States). OECD (2004) calculated a similar indicator as a way to evaluate the extent to which reforms of EPL have created dual labour markets and hence favoured labour market segmentation.

100 No significant positive correlation is identified between this axis and the share of temporary employees over total employment (or its change over the period considered).

101 Unlike active variables, supplementary variables do not play any role in the taxonomy of countries. This is an important distinction to avoid mixing policies (causes) with labour market outcomes (effects). Supplementary variables are also calculated as annual averages over the 1997–2003/2004 period.

102 The groups considered at risk are women, youth, older workers, long-term unemployed and temporary employees (source: Eurostat, LFS).

Table 4 – Correlation coefficients between (factor scores of) supplementary variables and the principal components			
	security	flexibility/employability	tax distortions
Employment rate	**0.79**	0.25	-0.25
Unemployment rate	**-0.45**	-0.15	**0.39**
Long-term unemployment rate	**-0.57**	-0.23	**0.34**
PISA	**0.44**	**0.56**	0.03
Reduction in the poverty risk	**0.48**	**0.44**	0.05
GINI coefficient on income inequality	**-0.46**	**-0.41**	**-0.40**
Women employment rate	**0.75**	**0.38**	-0.11
Youth employment rate	**0.64**	**0.30**	**-0.48**
Older workers employment rate	**0.63**	0.19	-0.24
Job tenure	-0.08	**-0.64**	**0.40**
Labour turnover	**0.36**	**0.27**	**-0.29**
Transitions from unemployment to employment	0.00	0.03	**-0.40**
Share of employees with job tenure lower than 1 year	**0.42**	**0.35**	-0.12
Share of employees with job tenure higher than 10 years	-0.11	**-0.64**	**0.46**

Sources: DG EMPL calculations from PCA on Eurostat and OECD data.

• Measures of *external numerical flexibility* in the labour market, including job tenure[103], labour turnover; and the transition from unemployment to employment[104].

• Measures/indicators on *education*[105] and *poverty*[106].

Table 4 lists the supplementary variables with correlation coefficients higher than or close to 0.5 in absolute terms in relation to one of the three main principal components.

Security and flexibility/employability are complementary dimensions

A major fact emerging from the PCA analysis is the following. There does not seem to be any trade-offs between the security and flexibility/employability dimensions. For example, improvement on both axes seems to be good for employment (total, women, youth and older workers), lowers unemployment, reduces income inequality, and increases labour turnover. It is reassuring that the breakdown of "flexicurity" into its two main dimensions of "flexibility" and "security" (which are independent by construction in a PCA) does not seem to result in the emergence of trade-offs involving any major socio-economic outcomes.

Security and low tax distortions reduce unemployment rates

A high score on the security axis is negatively correlated with both total and long-term unemployment, while a high score on the tax distortion axis seems to have a positive impact on both variables.

Flexibility/employability makes the labour market more dynamic…

High flexibility is negatively correlated with both average job tenure and the share of long-term jobs, while being (more weakly) positively correlated with labour turnover and the share of short-term jobs.

…and so does lower tax distortions…

Tax distortions seem to have a detrimental effect on labour market flexibility by slowing down turnover *and*

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103 Three indicators on job tenure are considered: a) average job tenure; b) the share of workers with job tenure lower than one year; and c) the share of workers with job tenure higher than ten years (source: DG EMPL calculations based on Eurostat's LFS data).

104 There is extensive empirical literature on individual transitions between different employment statuses (employment, unemployment, and inactivity), differentiating national labour markets with respect to how effective they are in enabling workers to enter, remain and improve their position in the labour market (e.g. Auer and Cazes, 2003; Auer, 2005; Cahuc and Zilberberg, 2005; Muffels et al., 2002). *Employment in Europe* (*EiE*) also addressed this issue in past editions (see above). In this chapter, transition rates from unemployment to employment are calculated, depending on data availability, between 2004 and 2005 or 2003 and 2004 (source: DG EMPL calculations based on Eurostat's LFS data).

105 These indicators cover only 2003. They include the average PISA (Programme for International Student Assessment) score in reading, mathematics and science; and the share of the population with at least secondary education in the 25–34 and 45–54 age brackets (source: OECD, 2006b, *Economic Policy Reforms: Going for Growth*).

106 The indicators considered are: a) the GINI coefficient as a proxy for the inequality of income distribution; and b) an indicator for the reduction in the poverty risk due to the impact of public tax/transfer systems. It is equivalent to the percentage difference between the risk of poverty rate (defined as the share of persons with an equivalised disposable income below 60% of the national median equivalised disposable income) before and after social transfers, (source: DG EMPL calculations from Eurostat figures, see also *Employment in Europe 2005*, chapter 2, table 40).

transitions to employment, while increasing the share of long-tenure jobs and decreasing that of short-tenure jobs.

...while security does not hinder labour market flows

Security does not seem to hinder labour market flows. On the contrary, a high score on the security axis is positively correlated with labour turnover and with the share of short-term jobs, while not having a significant correlation with average job tenure and labour market transitions.

Security reduces income inequality but may require higher taxation

Security also seems to reduce both income inequality – reflected in the GINI coefficient – and the poverty risk, but reduction of income inequality may come at the price of increased tax distortions.

Both security and flexibility/employability favour high PISA scores

A high score on the security and flexibility/employability axes is positively correlated with better outcomes from the education systems (i.e. higher PISA scores).

Box 1 – The Methodology of Principal Components (PCA) and Cluster (CLA) analyses

The methodology used in this chapter is based on Nardo et al. (2005), "Handbook on Constructing Composite Indicators: Methodology and User Guide", OECD Statistics Working Papers N°3. This Handbook is a collaborative effort between the Joint Research Centre (JRC) of the European Commission, and the OECD Secretariat. It proposes a "tandem analysis" for carrying out clustering or classification analysis, which involves two steps. Firstly, a Principal Components Analysis is carried out; secondly, a clustering algorithm is applied on the scores of individual objects or cases (countries in our analysis) with respect to the first few components. The Handbook gives very specific advice on how to implement this two-step approach using a number of (largely arbitrary) rules of thumb, such as that the cases-to-variable ratio should be between 3 and 5. In the analysis carried out in this chapter, the number of cases/countries considered is 18, and the number of variables is four or six, i.e. broadly in line with the above guidance rule.

PCA is a multivariate technique that attempts to explain the variance of the observed data through a few linear combinations of the original data (i.e. the principal components), based on the covariance or correlation matrix of the original variables. The objective is to select a few principal components that preserve a "high" amount of the cumulative variance of the original data. The value added of PCA is its ability to "reduce" large datasets to a few variables; the linear combinations of which should be able to account for a high amount of the total variation in the original data. A very useful property of PCA is that the principal components are uncorrelated and thus they can be seen as representing different "statistical dimensions" of the original dataset. However, it must be stressed that PCA cannot always reduce a large number of variables to a small number of transformed variables. In fact, a significant saving in reducing the dimensionality of the data set can only be obtained when the original variables are highly correlated (either positively or negatively). PCA is of no value if the original variables are uncorrelated.

The criterion used to decide on the number of principal components is to consider the minimum necessary to account for at least 90% of the total variance in the original dataset. To enhance the ability to interpret the results, a standard procedure in the literature is to "rotate" the principal components in order to maximise their correlations with a number of the original variables. The rotation method used in this chapter is the common "varimax" method (see Nardo et al., 2005 for details).

Cluster analysis (CLA) is a collection of algorithms to classify objects into classes. The classification aims to reduce the dimensionality of the dataset by exploiting a measure of "distance" between classes. There are many measures of distance available and hence different classifications can be obtained for the same dataset. Therefore, CLA techniques may not be robust and need to be interpreted with caution. Moreover, in the case of the "K-means method" (see below), the final assignment of objects can to some extent depend on the initial partition chosen (or randomly set).

CLA techniques can be divided in two main groups: a) hierarchical methods, if the classification has an increasing number of nested classes (e.g. tree clustering), or b) non-hierarchical methods, if the number of clusters is decided ex-ante (e.g. K-means clustering, where K stands for the number of clusters set *a priori*). The K-clustering method is useful when the objective is to divide the sample into K clusters of greatest possible distinction. In this chapter the K-means clustering method is used, assuming five user-defined clusters chosen in accordance with principal component analysis[i], and the determinant method for the clustering algorithm. The algorithm starts with K user-defined clusters and then moves the countries in and out of the clusters with the aim of a) minimising the variance of elements within the clusters, and b) maximising the variance of the elements outside the clusters.

(i) PCA country scores across the two main axes of security and flexibility account for two-thirds of the total variance in the original data.

6. Building consensus for reforms

6.1. Social dialogue

The discussion has focused so far on the impact of different policy/institutional settings on labour market outcomes. However, the recurrent political difficulties (and associated social turmoil) faced by many governments when attempting to introduce labour market reforms has prompted a growing body of literature on the political constraints and the historical and institutional barriers that condition reform implementation, with particular emphasis on the role of social dialogue and, therefore, on the involvement of social partners in policy changes.

The prevalent model in a country that regulates industrial relations seems to play a central role in the political economy of reforms. In this respect, the Danish and Dutch flexicurity models seem to have emerged from a particular set of favourable historical circumstances, namely corporatist systems of collective bargaining, with a long tradition of cooperation, coordination and mutual trust between the social partners and the government[107] (Madsen, 2006; Bredgaard et al., 2005; Wilthagen and Tros, 2004). Consequently, the historical circumstances underlying the development of the Danish and Dutch models might not be easily replicated in other countries, where a system of corporatist

industrial relations, and the resulting high degree of mutual trust between the social partners, is lacking. However, in other Member States social partners have contributed to internal numerical flexibility, functional flexibility and/or wage flexibility through, for example, so called opening clauses in collective agreements, company level agreements or the promotion of training and innovation in exchange for a job, employability and/or combination security.

An important element that facilitates the building of a social consensus is the existence of a broad agenda for collective bargaining, going well beyond wages and working hours. A broad agenda facilitates the reaching of compromises, which are thought to be paramount in the building of sustainable flexicurity models (Wilthagen and Tros, 2004). Progress on flexibility and security, together with the resources needed to implement comprehensive activation and lifelong learning policies, requires a well-developed tripartite social dialogue[108].

Empirical analysis by the OECD (2006) lends some support to the theoretical[109] argument that corporatist bargaining systems can moderate wage claims, by taking greater account of (or internalising) economic-wide conditions, thereby yielding better labour market outcomes.

Algan and Cahuc (2006) stress the role of culture and values in shaping labour

market institutions across countries. They argue that the Danish flexicurity model is unlikely to be transposable to countries displaying weaker levels of civic attitudes, because of the substantial (even insurmountable) moral hazard problems posed by extensive UB systems in those countries[110].

6.2. Sources of political resistance to reforms

The literature lists a series of factors that can explain the political/social resistance to economic reforms in general, and to labour market reforms in particular, which can largely explain the so-called "status-quo" bias against reforms. Labour market institutions have large potential distributional effects. For example, employed workers (i.e. the so-called "insiders", according to the literature on political economy), benefiting from EPL, have a vested interest in resisting reforms aimed at easing access to jobs for the unemployed (i.e. the outsiders). Saint-Paul (1998; 1999) argues that institutions are basically rent-seeking mechanisms, with a limited role in correcting distortions or market failures. Furthermore, labour market institutions display a high degree of complementarity (Coe and Snower, 1997), such that reform packages tend to be more beneficial/harmful than isolated reforms.

The literature on political economy assumes that "insider" groups define the political agenda[111] and/or are

107   The Danish corporatist system (or negotiated economy) has a very long tradition. It finds its roots in the 1899 *September Compromise* when the foundations for a system of industrial relations were laid down.

108   For a review of systems of social dialogue, coordination, collective bargaining, and concertation in EU Member States, see European Commission (2004), *Industrial Relations in Europe 2004*, Employment and Social Affairs DG, Brussels, p. 29–54.

109   Calmfors and Driffil (1988) developed the so-called "hump-shaped" theory of the optimal degree of wage bargaining coordination/centralization. According to this theory, both decentralised bargaining (at firm level) and highly centralised or coordinated systems (at national level) seem to prevent excessive wage claims, thereby supporting high employment.

110   Algan and Cahuc (2006) set up a model where the government sets unemployment insurance and employment protection. Unemployment insurance is more costly in countries where civic values/attitudes make it more acceptable to receive benefits without due entitlement. In equilibrium, this leads the government to provide less generous unemployment benefits and more stringent employment protection. Furthermore, they use individual surveys on civic values across countries, which show a correlation with the design of labour market institutions: countries with stronger civic attitudes tend to have higher unemployment benefits, lower employment protection, and higher participation rates.

111   Meaning that the median voter is an insider.

better organised than "outsiders", thereby being in a better position to block reforms[112]. This may lead policy-makers to try and bypass this obstacle by introducing reforms at the margin, while keeping existing arrangements for insiders largely unchanged. A good example of this strategy is the recurrent focus on EPL reform of temporary contracts, while keeping unchanged the stringent employment protection legislation for regular employees, so creating de-facto "dual" labour markets (Saint-Paul, 2000; Dolado et al., 2002; Cahuc and Postel-Vinay, 2001).

Another possible reform strategy is to try and buy out resistance to reforms by implementing compensatory schemes for the "losers" (Bean, 1998). Denmark implemented reforms that offset a reduction in the generosity of unemployment benefits by increasing the scope and effectiveness of ALMPs.

The sequencing and timing of reforms also plays an important role in determining their political feasibility. For example, the potential benefits resulting from labour market reforms are often concentrated in the medium to long runs and are diffused across interest groups, while the costs are usually incurred in the short-term and can be largely attributed to particular groups (IMF, 2004). Therefore, in order to weaken the political/social resistance to reforms, a number of commentators have proposed that they should be accompanied by a loosening of the policy-mix stance. The lags between the expected costs and benefits of reforms tend to give them a contraction effect in the short term (OECD, 2006; Bentolila and Saint-Paul, 2000)[113].

A recent stream of literature (Castanheira et al., 2006 and Høj et al., 2006) investigates the factors that drove cross-country differences in depth, scope and timing of structural reforms in product and labour markets as well as in the welfare state. They also conclude that political economy factors played a major role in that respect. In particular, Castanheira et al. (2006) apply a case study analysis to different national reform experiences. Thus, they highlight that policy-makers need to build coalitions in order to reach the required degree of consensus which makes those reforms feasible. However the extent of the consensus needed depends on a series of country-specific 'framework conditions' (e.g. the system of political representation) which identify the main social actors which can affect the reform process and, so, define the government's room for manoeuvre. Therefore, those political requirements have an impact on the kind and scope of successful reform packages in different countries[114].

7. Conclusions

EU labour markets are increasingly faced with major challenges such as the rapid pace of international economic integration and technological progress, the increased diversity of individual working and life paths, as well as the ageing of European societies. These factors call for flexible working arrangements in order to allow for swift adaptation to change and to increase labour force participation. On the other hand, evidence of increasing labour market segmentation between regular jobs enjoying job security and good training and career prospects, and precarious forms of employment, characterised by a high risk of exclusion from the labour market, highlights the need to ensure that more flexible labour markets do not contribute to a systematic erosion of employment security and job quality.

A consensus is, therefore, emerging among stakeholders, international organisations, and the academic community that countries should adopt institutional configurations in the labour market that better combine the requirements of flexibility and security – in other words "flexicurity". This implies that, in an environment where workers experience more frequent transitions between employment and non-employment, and between different kinds of employment, policies need to put in place the right conditions for individuals to successfully manage these transitions, thereby ensuring sustainable integration and progress of individuals in the labour market.

Both flexibility and security can take different forms in different labour markets. Flexibility can, for instance, take place either externally or within the firm and it can concern either the size

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112 The example of loosening EPL for regular employees is illustrative. Incumbent employees with regular jobs are expected to lose from such a reform, because it involves a higher risk of job loss. In contrast, unemployed people would gain due to the higher probability of being hired, but because they are less organised or are not represented by the "median voter", they are not powerful enough to overcome the political resistance of the incumbent group.

113 OECD (2006c) and Bentolila and Saint-Paul (2000) highlight the fact that lower structural unemployment, as a result of reforms reducing labour market rigidities, triggers wage and inflation reduction, which in turn lead to higher external competitiveness – but also to higher real interest rates. The latter effect would delay output and labour market improvement (especially in large countries which may be less open to trade). A reduction in interest rates (as inflation falls) would therefore speed improvement in the economy.

114 Castanheira et al. (2006) provide the example of countries with a majoritarian political system (UK), where governments can count on larger and more homogeneous parliamentary majorities and, so, can afford a more confrontational strategy and realize more sudden and radical reforms. On the other hand, in 'consensus democracies' like Denmark a wider base of consensus is needed and so reforms have to be targeted to 'buy out' opposition by unions and other social actors.

of labour, working time, tasks or wages. This chapter did not tackle all the different forms but instead focused on those policy tools that impact on external numerical flexibility (i.e. the adjustment of the quantity of labour used by firms) and on the income/employability security of workers: EPL and UB/activation strategies for the unemployed, respectively.

Evidence shows that EPL and UB are, to a certain extent, alternative ways of insuring workers against the risk of job loss. However, their effects on labour market performance are not equivalent. Strict EPL, while having an ambiguous impact on total unemployment, may be detrimental for the employment prospects of people at a higher risk of labour market exclusion (youth, women, older workers) and tends to slow down workers' movement between different jobs, although it apparently does not affect job creation and destruction by firms. This, in turn, implies (together with the positive impact of stable employment relationships on firm-specific human capital) that EPL is not necessarily a major obstacle to structural change of an economy.

On the other hand, a generous UB tends to increase unemployment, but this can be offset by a limited duration of entitlement and by an effective "activation" strategy with monitoring of job search efforts, participation to ALMPs and provision of effective assistance to the unemployed. Finally, UB/ALMPs designed along those lines do not hinder labour market adjustment and seem to perform better than EPL in enhancing workers' perceived security. This discussion suggests that reform packages adopting "flexicurity" principles should assign a greater weight to carefully designed UB/ALMPs and less importance to EPL.

This chapter carries out a classification of EU countries in a number of "flexicurity" models using the dimensions of spending on (active and passive) labour market policies to characterise the security axes and EPL and LLL to characterise the flexibility/employability axis. The major fact emerging from this analysis is that the dimensions of flexibility and security in the labour market are *complementary*, meaning that progress on each or both does not necessarily result in the emergence of trade-offs between any major socio-economic variables.

However, the results need to be considered as tentative and preliminary. In fact, further dimensions of flexibility and security need to be included in order to have a more solid characterization of national models. In particular the extent to which flexibility *within the firm* (through changes of working hours or tasks carried out by employees) can substitute for external flexibility remains an open issue and may bring into question our national classification. The issue of ensuring a greater work-life balance should also be included.

Discussions should not just be limited to the effects of different policies on labour market outcomes. The recent experience of several EU countries highlights the fact that reforms often need to overcome major problems of political feasibility. The concept of "flexicurity", by calling for appropriate combinations of policies rather than individual reforms, can be a response to those problems. In fact, comprehensive reform packages broaden the scope of negotiations, thereby making agreements among stakeholders easier. This would help to avoid the systematic postponement of less consensual reforms (like softening EPL for regular workers) and, hence, to minimise the risk of eventually introducing flexibility

only "at the margin" thereby worsening labour market segmentation. However, a policy shift that simultaneously trades-off lower EPL for higher publicly-provided UB/ALMPs implies increased budgetary costs which may make it problematic – particularly in the context of population ageing, a relatively low labour supply or negative cyclical phases with growing unemployment.

Moreover, different combinations of UB and EPL may be the result of different political economy equilibriums resulting from different skill and age compositions of the workforce. This implies that improving the average skills of workers may be a pre-condition to "flexicurity" policy shifts.

The prevailing system of industrial relations plays a crucial role in the implementation of comprehensive reform packages, with evidence pointing to the desirability of tripartite co-operation and negotiations at national level, together with a high level of trust between negotiating parties.

Notwithstanding the limitations of the analysis, the message remains that the policy focus should be shifted from individual policy tools to reform packages that encompass several approaches simultaneously in order to, on the one hand, exploit well documented policy interactions that enhance the benefits of reforms on labour market performance, and, on the other hand, to make policy change politically and socially more acceptable. This has to be weighed, though, against increased complexity of the policy-making process with respect to single item reforms. Furthermore, different institutional configurations can deliver equally good labour market outcomes, but certain national models existing in the EU seem to lead to comparatively poorer results on all the relevant dimensions.

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Chapter 3
Effective European Active Labour Market Policies

1. Introduction

The aim of this chapter is to provide an overview of the results of evaluations of the effectiveness of active labour market policies (ALMPs). ALMPs are selective policies targeted at certain sub-groups on the labour market. In general, the main findings of the analyses suggest that well-designed programmes, particularly focused on training, public employment services (PES) and employment subsidies, are likely to be the most effective.

In the last 10–15 years there has been an increasing focus on ALMPs as an instrument of employment policy, with international organisations generally recommending shifting resources from passive to active measures and taking fuller account of how they interact with tax and benefit systems. In more recent years, under the pressure of budgetary constraints, the ageing of European populations and the challenges posed by phenomena such as globalisation, innovation and new organisational models, the emphasis has shifted to making programmes more effective in improving participants' prospects in the regular labour market.

In the context of the European Employment Strategy (EES), ALMPs are policy instruments targeted on fostering, *inter alia*:

a) *A lifelong approach to work* (Integrated Guideline No. 18);

b) *Identification of needs, job-search assistance, guidance and training as part of personalised action plans* (Integrated Guideline No. 19);

c) *The matching of labour market needs* (Integrated Guideline No. 20);

d) *Investment in human capital* (Integrated Guideline No. 23); and

e) *The adaptation of education and training systems to new competence requirements* (Integrated Guideline No. 24).

ALMPs have an important role facilitating a rapid return to work by the majority of the unemployed and creating the right conditions for some inactive workers to join the labour force, as well as tackling the problems faced in the labour market by disadvantaged workers. The final objectives of ALMPs should not only be to improve employment outcomes, lower inactivity rates and decrease benefit dependency rates, but also to contribute to increase the quality and productivity of jobs and strengthen social cohesion. Obviously, there are policies in many other areas, such as the management of aggregate demand, education, labour market regulations and tax and benefit systems, that could also play an important role in promoting the socio-economic objectives of the EES.

This chapter is organised as follows. Firstly, the two major (macro) databases available on labour market policies (LMPs), containing data comparable across countries on both active and passive measures, are briefly presented.

Secondly, the role of active measures is discussed within a general equilibrium matching model that includes transaction costs and externalities. PES can improve the efficiency of the process of matching up unemployed persons and vacant jobs. At the same time, public intervention in training is justified in order to stimulate private spending and

take it above the insufficient levels generated by a decentralised equilibrium.

Thirdly, the two macro databases are matched up to construct long-term series for expenditure variables with the aim of identifying long-term trends in spending patterns. This allows assessment of the extent of any significant reallocation of resources from passive to active policies and expenditure shifts within the range of active measures.

The fourth section of this chapter reviews the extensive literature on programme evaluations by main type of measure, including recent research drawing on the results of more than 100 programme evaluations conducted in Europe. This enables the identification of the types of programme and implementing conditions most closely associated with favourable outcomes. The same section also covers a number of macro-econometric evaluations of ALMPs. It ends by attempting to reconcile the apparently conflicting results from micro- and macro-econometric evaluations.

The fifth section covers both theoretical and empirical results that highlight the importance of considering the interactions between active and passive LMPs. These interactions mean that any disincentive effects associated with over-generous unemployment benefits (UB) can be, at least partially, counteracted by adopting well-designed ALMPs. Following the guidelines set in the EES, EU Member States have developed "activation" strategies to coordinate public UB administration with expenditure on ALMPs. This section also addresses the political economy of reforms and the lessons that can be learned from this type of analysis for the design of successful reform strategies.

Finally, the chapter concludes by focusing on the need for a culture of programme evaluation in Europe as a basis for improving the design and effectiveness of future programmes, leading to the reallocation of resources to those most effective in terms of their labour market outcomes.

2. What are labour market policies?

LMPs are essentially public interventions in the labour market that are targeted towards particular groups in the labour market. In this respect, they differ from general employment policies which, by definition, are not targeted at any particular group[1]. Therefore, certain important policies, such as measures that lower labour costs, for example through non-targeted reductions in taxes and/or social security contributions, are not considered LMPs but fall into the category of "general" employment policies. LMPs are generally grouped into either active or passive measures.

Taking the former first, active labour market policies (ALMPs) basically aim to increase the likelihood of employment or improve income prospects for the unemployed persons/groups who find it difficult to enter the labour market[2]. By contrast, the main aim of passive labour market policies (PLMPs) is to provide income support to unemployed people or early retirees, without, *a priori*, attempting to directly improve their labour market performance.

2.1. The "old" OECD LMP database

OECD's "old" LMP database covers the period 1985-2002. Its methodology was not sufficiently developed to guarantee an adequate level of consistency in the process of data collection and validation across countries.

The main types of programmes under OECD's "old" classification are listed in Box 1.

Box 1 – Classification in the "old" LMP database

In the "old" OECD LMP database, data on programmes are broken down into the following categories:

Active measures

1. **Public employment services (PES) and administration.** This includes the following services: placement; counselling and advice on vocational training; job-search courses; and support for geographic mobility and similar costs in connection with job search and placement. All administrative costs of labour market agencies, including unemployment benefit agencies, and administrative costs of other labour market programmes are also included.

2. **Labour market training.** This covers training measures related to labour market policies that are not targeted at youth and the disabled. It is broken down into two parts: (i) training for unemployed adults and those at risk; and (ii) training for employed adults.

3. **Youth measures**. This includes only special programmes for youth in transition from school to work and is broken down into two parts: (i) measures for unemployed and disadvantaged youth; and (ii) support for apprenticeship and related forms of general youth training.

4. **Subsidised employment.** This includes targeted measures to promote employment for unemployed individuals (other than youth or the disabled) and is broken down into three components: (i) subsidies for regular employment in the private sector; (ii) support for unemployed persons starting enterprises; and (iii) direct job creation (in public or non-profit organisations).

5. **Measures for the disabled.** This includes only special programmes for the disabled, involving two types of policies: (i) vocational rehabilitation; and (ii) work for the disabled.

Passive measures

7. **Unemployment compensation.** This covers all forms of cash benefit to compensate for unemployment,

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1 According to the methodological definitions for Eurostat's Labour Market Policy (LMP) database, they include measures taken by general government which involve expenditure, either in the form of actual disbursements or of forgone revenue. The LMP database is also limited to labour market measures which are explicitly targeted in some way at groups of people with difficulties on the labour market, referred to as "target groups", therefore excluding general employment policies.

2 ALMPs work basically by changing the attractiveness of a job seeker to an employer (e.g. increasing the skill level through training; lowering wage costs through employment subsidies).

Box 1 – Classification in the "old" LMP database (cont.)

except early retirement. In addition to unemployment insurance and assistance, it includes publicly funded redundancy payments and other compensation to workers made jobless due to permanent or seasonal shutdown.

8. **Early retirement for labour market reasons.** This involves special schemes in which retirement pensions are paid to individuals who are out of work or for other labour market policy reasons. It covers

only subsidised early pensions as opposed to funded schemes within regular pension plans (e.g. by actuarially calculated reductions of the amounts paid).

2.2. The "new" Eurostat/OECD Labour Market Policy (LMP) database

The "new" LMP database aims to provide comparable data (across countries) on labour market expenditure and participants to allow certain aspects of the Employment Guidelines to be followed up.

The "new" LMP database has been developed as a module of the European System of Integrated Social Protection Statistics (ESSPROS) and also in close cooperation with the LMP-OECD database in order to build on previous work. The "new" LMP database focuses on collecting information from administrative sources on public expenditure and on participants, both as stocks and

flows. It also includes much qualitative information to describe the actions taken and to facilitate analysis (Eurostat, 2005a).

Policy measures are classified in two ways: by type of action (e.g. placement services, employment incentives, etc.) and by type of expenditure (e.g. transfers to individuals) (Eurostat, 2005b).

Box 2 – Classification in the "new" LMP database

Classification by type of action

Labour market policy services

1. **Labour market services.** These include all services and activities undertaken by public employment services (PES) together with services provided by other public agencies or any other bodies contracted under public finance, which facilitate the integration of unemployed and other job seekers in the labour market or assist employers in recruiting and selecting staff. They can be broken down into two main components:

1.1 **Client services.** Services provided by PES or other bodies which facilitate the integration of the unemployed and other job seek-

ers in the labour market or which assist employers in recruiting and selecting staff.

1.2 **Other activities.** These basically include the administrative costs of active and passive measures, plus all other services, activities and general overheads of the PES, which are not covered in any other category of the LMP database.

Active measures

2. **Training.** This covers training measures which aim to improve the employability of the unemployed and other target groups through training and which are financed by public bodies. This type of measure

should include some evidence of classroom teaching or, if in the workplace, supervision specifically for the purpose of instruction.

3. **Job rotation and job sharing.** This includes measures that facilitate placement of an unemployed person or a person from another target group in work by substituting hours worked by an existing employee.

4. **Employment incentives**. These include measures that facilitate the recruitment of unemployed persons and other target groups or help to ensure the continued employment of persons at risk of involuntary job loss. The employer normally covers the majority of the labour cost.

Box 2 – Classification in the "new" LMP database (cont.)

5. **Integration of the disabled.** This covers measures that aim to promote integration *of disabled* persons into the labour market. Disabled means persons registered as disabled in line with the national definitions.

6. **Direct job creation.** This includes measures that create additional jobs, usually of benefit to the community or of a socially useful nature, in order to find employment for the long-term unemployed or persons otherwise difficult to place. The majority of the labour cost is normally covered by public finance.

7. **Start-up incentives.** These include measures that promote entrepreneurship by encouraging the unem-ployed and target groups to start their own business or to become self-employed.

Passive measures

8. **Out-of-work** income maintenance and support. This includes measures that aim to compensate individuals for loss of wage or salary by providing cash benefits.

9. **Early retirement.** This covers measures that facilitate the full or partial early retirement of older workers who are assumed to have little chance of finding a job or whose retirement facilitates placement of an unemployed person or a person from another target group.

Classification by type of expenditure

1. **Transfers to individuals:** public expenditure transferred directly to individuals and paid in cash or through a reduction in obligatory levies.

2. **Transfers to employers:** public expenditure transferred directly to employers and paid in cash or through a reduction in obligatory levies.

3. **Transfers to service providers:** public expenditure transferred directly to producers of goods and services that are provided to individuals or to employers as benefits in kind.

The main types of programmes under this classification are listed in Box 2.

2.3. Main differences between the two LMP classifications

In order to have longer time series, it is necessary to match up the two classifications. Annex 1 presents the results of a simple exercise. There are basically two major differences to consider. Firstly, in the "old" classification, expenditure on PES could not be separated from administrative expenditure, including the administration of UB[3], while in the "new" classification it is possible to identify these two types of expenditure. Secondly, youth measures are now classified on the basis of the type of measure involved, and Eurostat strictly insists on excluding general purpose measures for apprenticeships, because they do not comply with the general principle of selectivity (or targeting) which is required before a measure can be classified as a LMP[4].

At this stage, the matching up of the two classifications is no more than illustrative. In principle, it is not possible to split up total expenditure in category 1 of the "old" classification between PES and administrative expenditures as in the "new" classification[5]. In addition, at least for the moment, it has not been possible, using detailed programme data, to re-allocate spending on youth programmes across the "new" classification categories.

2.4. Analysis of selected active labour market policies

This section covers some basic theoretical aspects related to major ALMPs, such as job-search assistance, labour market training, employment subsidies and job creation in the public sector. The aim is to rationalise public interventions. The (general equilibrium) matching model is a particularly useful tool to assess how different ALMPs can contribute to greater efficiency in the process of filling vacancies (or job reallocation).

The matching process takes place in the presence of externalities and involves transaction costs[6]. To the extent that pub-

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3   Sometimes benefit administration costs more than the entire placement service.

4   Another potential area of difference is in measures for training employed people, which were sometimes included in the "old" OECD LMP database, but which are only included in the "new" Eurostat/OECD LMP database for persons employed at risk – i.e. under immediate threat of job loss due to restructuring or similar.

5   Obviously, this is only a drawback to the extent that one would like to build longer series for spending in PES.

6   The former aspect is detailed below. Transaction costs result from the imperfect information (or asymmetric information) available to the two sides in the market.

lic interventions can reduce those costs and/or correct for those externalities, the matching process could be made more efficient, shifting the Beveridge curve that links the unemployment and vacancy rates inwards, which, in the long term, would correspond to a fall in the structural unemployment rate. In the absence of ALMPs, the unemployed would tend to allocate insufficient resources to job-search activities, while firms would face higher costs to fill their vacancies, with fewer jobs being offered as a result.

The matching process is usually represented by a (matching) function, indicating the number of job hires as a function of the number of unemployed persons and vacancies. This function is marked by positive inter-group externalities (e.g. an unemployed person can benefit from the opening of more vacancies) and negative intra-group externalities or congestion effects (i.e. it is in the interest of a job seeker or a firm posting a vacancy that the number of job seekers or open vacancies be as low as possible, see Cahuc and Zylberberg, 2004, Chapter 9).

2.4.1. Job-search assistance

Job-search assistance includes a range of different activities, such as job brokerage and counselling. In many cases, such services are combined with increased monitoring and enforcement of the job-search requirements that condition receipt of UB (Martin and Grubb, 2001).

The matching model can be used to analyse the role of job-brokerage agencies, whether public or private. Yavas (1994) showed that such agencies can increase the efficiency of the process of matching up unemployed persons and job vacancies. However, this efficiency gain comes at the (fixed) cost of having to set up a large network(s) of placement agencies, although the marginal cost of filling a job might be low.

Economic theory also suggests that due to the fixed costs of setting up PES, either the "market" for placement services should be regulated or public agencies should hold the monopoly. Otherwise, unregulated competition could lead to inefficient provision of placement services in the form of either under- or over-provision, potentially leading to oligopolistic structures on the placement market.

In all EU Member States, specialised public agencies provide placement services, but certain Member States have authorised private organisations to operate alongside the public agencies. However, because of the fixed costs and potential moral hazard[7] problems, public authorities have had to regulate the creation of a "quasi-market"[8] for the provision of placement and brokerage services. In practice, there are various models to organise "quasi-markets" for PES. It has been advocated that a number of conditions must be met for successful organisation of a "quasi-market", namely: i) effective competition between service providers, including performance incentives and leeway for job seekers' choice; ii) avoid the risk of moral hazard or "creaming off"; and iii) sufficient government guarantees, for example, about the continuity of the tender system used so that market players are willing to invest (Struyven, 2004)[9].

2.4.2. Labour market (re)training

Labour market (re)training is one of the most costly measures and represents a high proportion of total expenditure on ALMPs in many countries. Its aim is to alter the skills of the job seeker to reflect the needs of the labour market more closely, with the result that employment rates and/or earnings improve for programme participants. By raising labour productivity, (re)training is also expected to improve the quality of job matches, securing more stable relationships (i.e. lower separation rates), thereby strengthening the incentives for further investment in (re)training (i.e. the "Mathew effect", see Heckman and Carneiro, 2003).

However, such public intervention is only justified when individual choices lead to sub-optimal levels of (re)training which fall short of what is really needed for society as a whole (i.e. the social optimum). To effectively discuss the grounds for public intervention in this area, revisiting the distinction introduced by Becker (1964), between *general training* and *specific training*[10] is instructive.

In the absence of public intervention, *general training* – raising productivity in any subsequent job held after receiving training – would have to be financed entirely by the worker, because she/he could make no credible commitment to share the proceeds of such an investment with their current (or any future) employer. According to a number of authors (see, for example, Cahuc and Zylberberg, 2004, Chapter 11), both workers and employers tend to underinvest in *general*

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7   In the absence of public regulation, private placement agencies will tend to concentrate on the most easily placed unemployed persons (i.e. "creaming off"). Although in some circumstances the intrinsic motivation of case workers may counterbalance "creaming off" effects. Heckman et al. (1996) present empirical evidence from the Job Training Partnership Act (JTPA) that strongly suggests a preference (among case workers) for disadvantaged applicants.

8   In a "quasi-market", the government contracts provision of the services to private or non-profit organisations, while usually leaving the unemployed person some leeway over the choice of service provider. In a well managed (or regulated) quasi-market, the placement outcomes of different service providers are regularly evaluated and under-performing providers should be systematically driven out of the market.

9   "In general, it seems that quasi-competitive mechanisms can provide efficiency gains, as compared with rigid bureaucratic organisations which lack clear measures of performance and effective mechanisms for replacing the management of inefficient employment offices" (OECD, 2005).

10   "*General training*" means investments that enhance the productivity of an individual for all jobs, while "*specific training*" means investments that enhance an individual's productivity for only one particular type of job.

training compared with the socially optimal level. This is because of the existence of a number of market failures, such as lack of complete contracts[11], friction in the matching process (i.e. the cost of filling vacancies), the monopsony power of employers[12] and the imperfection of credit markets. The last point, in addition to efficiency considerations, also raises concerns over social equity as the lack of adequate funding tends to have a proportionately greater effect on individuals from disadvantaged backgrounds.

According to a number of authors (e.g. Acemoglu, 1997), underspending on general training could create a kind of "vicious circle". On the one hand, firms prefer technologies making intensive use of low-skilled labour when workers have little (general) training, while on the other hand workers have little incentive to invest in training when the demand for skilled labour is weak.

The presumption that a decentralised equilibrium results in under-investment in training is stronger for *general training* than for *specific training*. In the latter case, a decentralised equilibrium could yield the socially optimal amount of investment if employers and workers could sign long-term, non-renegotiable contracts ("complete contracts"). However, it is unlikely that such conditions will prevail in practice, amongst other reasons, due to the limitations imposed on contractual freedom by existing laws and regulations.

The empirical evidence on (the sign of the difference between) the social and private returns to education is ambiguous[13]. On the one hand, "*if schooling has signalling[14] value in addition to raising productivity, or if some other factor of production is inelastically supplied*" (Acemoglu and Angrist, 1999), the social return to education/schooling is lower than the private return. "*On the other hand, the value of education to society may exceed the private return because of positive social returns due to changes in relative wages, or human capital externalities from a more educated labour force*". The limited empirical evidence available seems to suggest that private and social returns to education/schooling are of the same order of magnitude.

The theoretical arguments set out above suggest that public intervention in training is largely justified in order to narrow the gap between the private and socially optimal levels of expenditure. However, the available overviews of the effectiveness of training programmes, based on micro-econometric evaluations, have revealed low rates of return for participants in terms of their effects on employment and/or earnings (Martin and Grubb, 2001). Therefore, public intervention has to be appropriately designed if it is to enhance the labour market prospects of participants and be cost-effective.

In the context of education and (re)training activities, the EES emphasises the need to enhance *participation in continuous and workplace training throughout the life-cycle*. Box 3 briefly addresses this subject.

Box 3 – Lifelong learning

The European Employment Strategy (EES) is built around three major priorities for action: *a) attract and retain more people in employment, increase labour supply and modernise social protection systems; b) improve the adaptability of workers and enterprises; and c) increase investment in human capital through better education and skills.* Priority c) has been especially addressed in Integrated Guidelines/Employment Guidelines No 23 and No 24 for 2005-2008[a)].

In 2006 the Commission presented the first Annual Progress Report (APR) to assess the progress made towards achieving the Lisbon growth and employment objectives and to evaluate the macro-economic policy strategies of Member States as described in their National Reform Programmes (NRPs) (Commission, 2006).

In the first year for which NRPs have been set, Member States paid widespread attention to increasing investment in human capital through better education and skills. However, the policy response to the objective of investing more in education and training has concentrated on qualitative reforms in the education system, while the efforts on setting up comprehensive lifelong learning strategies have been less visible. *Member States are making a range of in-depth reforms to support more effective lifelong learning. However, the development of truly coherent and comprehensive lifelong*

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11   A contract is said to be complete when it is possible, *at the time of signing*, to foresee all eventualities that could arise while it is in effect and to set out verifiable clauses covering each of them.

12   If the worker's investment in general training is to pay off, she/he must be able to apply to different employers so that they can bid up their wages to reflect the higher level of productivity after training.

13   As regards to the return on the resources invested in education, "*the literature distinguishes two rates of return: the private rate of return and the social rate of return. The private rate of return relates the resources invested by those obtaining the education (the opportunity cost as well as direct costs) to the private benefits of education. The social return includes the public cost of education in these calculations. Notice that the social return […] does not account for possible externalities*" (Fuente and Ciccone, 2002).
      Moretti (2004) has found evidence of spillovers from college education. In particular, "*a rise in the portion of better-educated workers has a large positive effect on less-educated workers, but also generates a smaller rise in wages for the best-educated group*".

14   If the productivity characteristics of individuals are unobservable, education may be regarded as a signalling activity/device, leading to "over-education". However, "*empirical studies suggest that signalling activity, although non negligible, does not play an overwhelming role in the education process*" (Cahuc and Zylberberg, 2004).

Box 3 – Lifelong learning (cont.)

learning strategies by 2006 remains a challenge for many countries.

The employment guidelines set three quantified targets in order to improve human capital/skills: a) an EU average of no more than 10% early school-leavers; b) by 2010 at least 85% of 22-year olds in the EU should have completed upper secondary education; and c) average EU participation in lifelong learning should be at least 12.5% of the adult working-age population (25 to 64 age group).

As regards human capital formation, the APR notes that although some Member States have adopted targets and benchmarks linked to the objectives set for the EU as a whole, *more needs to be done to raise participation in lifelong learning and the skill and competence levels of the population, especially among the less-advantaged.* The APR adds that participation in lifelong learning varies con-

siderably across countries, largely reflecting the lack of a comprehensive approach in a number of Member States. The culture of lifelong learning needs to be further developed and delivery systems modernised in a majority of countries if the EU is to achieve the 12.5% overall target. In fact, the average lifelong participation rate in the EU of 10.8% in 2005 is largely due to the good performance of a few Member States (DK, FI, NL, SE, SI, and the UK), although an upward trend can be noted in a majority of countries.

A simple analysis suggests that there is a positive and significant correlation between spending on training ALMPs and the percentage of the population aged 25 to 64 participating in education and training (see Chart 1).

The European Centre for the Development of Vocational Training (Cedefop)[b)]

recently presented a meta-study, based on 19 national reports on the reforms of vocational education and training (VET) systems that have taken place over the last 10 years (Cedefop, 2004). The main aim is to evaluate how the reform of VET systems can influence the outcomes of education and training at macro level. VET systems cover multiple forms of activity, ranging from vocational preparation in schools to full-scale initial vocational training (IVT) programmes, continuing vocational training (CVT) at work, retraining, etc.

The lessons that can be learned from the best practices for VET in general and CVT in particular are especially relevant in the context of lifelong learning. However, research on/evaluation of VET reforms across EU countries ranges from a minimalist approach to a fully fledged practice combining an evaluation culture with the process of reform of VET systems.

Chart 1 — **Lifelong learning (a) and spending on the category of training of ALMPs as a percentage of GDP**
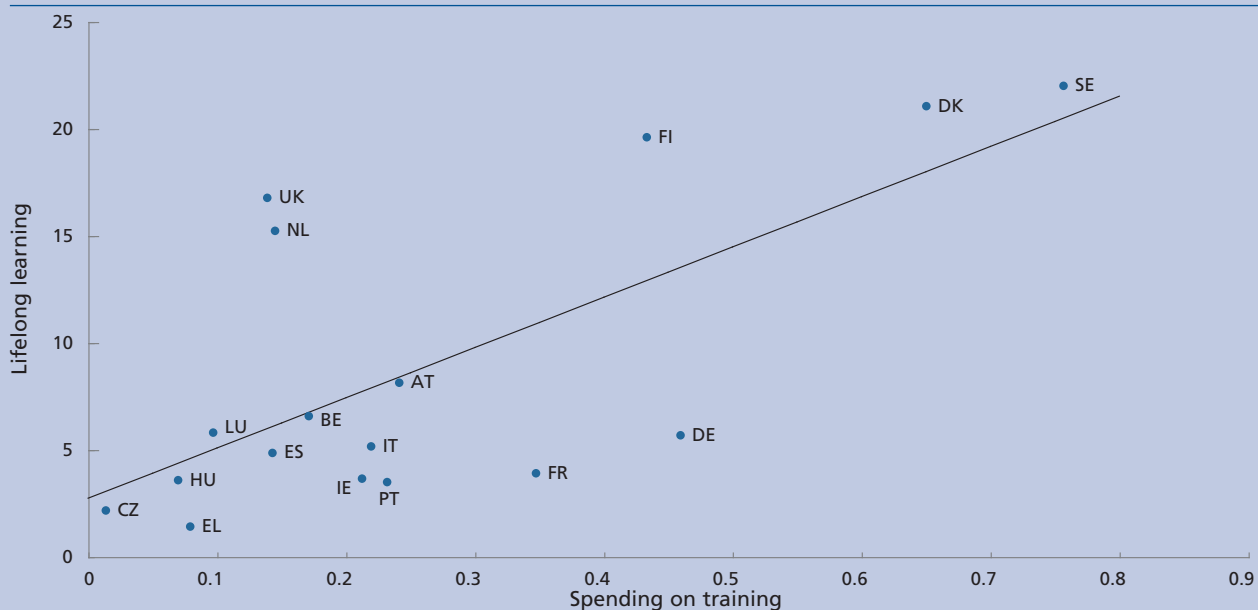
(a) Percentage of the population aged 25-64 participating in education and training over the four weeks prior to the survey.
Source: Eurostat.

a)   Council Decision of 12 July 2005 on Guidelines for the employment policies of the Member States (2005/600/EC).

   Guideline No. 23: *Expand and improve investment in human capital through …[inter alia] efficient lifelong learning strategies […] with a view to enhancing participation in continuous and workplace training throughout the life-cycle, especially for the low-skilled and older workers.*

   Guideline No. 24: *Adapt education and training systems in response to new competence requirements by …[inter alia] easing and diversifying access for all to education and training and to knowledge by means of working time organisation, family support services, vocational guidance and, if appropriate, new forms of cost sharing.*

b)   Cedefop was established in 1975 by Council Regulation (EEC) No. 337/75. Its aims are to provide information on and analyses of vocational education and training systems, policies, research and practice.

2.4.3. Employment subsidies

This section briefly covers a number of theoretical aspects that are relevant to programmes, classified by type of action as either *Employment Incentives* or *Start-up Incentives*. These ALMPs basically consist of various types of subsidies for private-sector jobs, where the largest share of the labour costs is still paid by the employer[15]. Besides creating extra jobs, employment subsidies may also help particular groups at risk (e.g. the long-term unemployed) to keep in contact with the labour market, thereby maintaining their motivation and skills (Martin and Grubb, 2001).

The efficiency of employment subsidies (in terms of *net* job creation) is limited by the upward pressure they exert on wages (Cahuc and Zylberberg, 2004, Chapter 11)[16]. The (labour market) matching model predicts that the employer might only partly benefit from the employment subsidy, despite being the legal recipient. Under certain circumstances, such as risk neutrality, UB (perfectly) indexed to wages and a negotiated wage above the minimum wage, the wage bargaining process in a matching model would result in the employee receiving the entire subsidy initially paid to the employer[17]. In this borderline case, the employment subsidy does not change the cost of labour and, therefore, cannot create employment. Moreover, simple (but straightforward) calculations suggest that, if applied to a large proportion of the labour force, employment subsidies are very costly and do not pass a cost-benefit analysis[18].

Conversely, both economic theory and evaluations of employment subsidy programmes suggest that employment subsidies targeted at particular groups (e.g. low-skilled workers) can raise *net* employment in the economy[19]. A number of authors (Drèze and Malinvaud, 1994; Drèze and Sneessens, 1997) have suggested that it would be possible to raise aggregate employment by attaching employment subsidies to low wages (or reducing the associated social security contributions) financed by higher taxes (or higher social security contributions) on high wages. Such a policy would harness the higher labour demand elasticity for low-skilled labour in order to increase aggregate employment in the economy.

2.4.4. Direct job creation

Direct job creation usually takes place in the public or non-profit sectors and is mainly publicly financed. In OECD countries this type of active measure was used especially during the 1970s and early 1980s, but more recently there has been a marked trend away from it, reflecting the general conclusion reached in many evaluations that this type of intervention has not been very successful in helping unemployed people to secure permanent jobs on the (open) labour market (Martin and Grubb, 2001).

However, in countries with severe unemployment problems, such as Germany after reunification, these programmes actually make it possible to create jobs within a short timeframe and to partly compensate for the effects of cyclical economic downturns when aggregate demand is depressed and there are few vacancies. Furthermore, this type of intervention – when short in duration – can be justified as a stepping-stone for those who have difficulty entering the (open) labour market or simply as a means of helping the most disadvantaged groups of unemployed to regain contact with the labour market.

One major issue linked to the direct creation of jobs (in the public sector) is the net impact on total employment, in particular the evaluation of possible crowding-out effects in the private sector. It turns out from the matching model that, by increasing the exit rate from unemployment[20], direct jobs created (in the public sector) tend to exert upward pressure on the bargained wage and, thereby, could end up crowding-out private sector employment[21]. However, the increase in public sector employment raises the average efficiency of the matching process in the economy[22]. The latter effect counters the crowding-out effect on private sector jobs with the result that the actual effect on the unemployment rate for the whole economy is ambiguous.

Overall, both back-of-the-envelope calculations combined with the outcomes of

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15 Although there are some cases (particularly in the new Member States) where public expenditure can cover the majority of costs (even 100%) for a limited period.

16 In case of low elasticity of labour supply (particularly relevant for prime-age men), the shift in labour demand due to an employment subsidy might basically lead to a wage rise and have little impact on employment.

17 The argument linking the effectiveness of employment subsidies to the characteristics of the unemployment benefit system clearly illustrates the general principle of complementarity between different employment policies (e.g. Coe and Snower, 1997; Pissarides, 1998).

18 See Cahuc and Zylberberg (2004), chapter 11, pp. 663–664.

19 Employment subsidies targeted at low-skilled jobs are more cost-effective in creating *net* jobs, basically for two reasons: firstly, the demand elasticity for low-skilled labour is likely to be higher than that for medium or high-skilled labour and, secondly, for workers paid the minimum wage, an employment subsidy always creates employment because it effectively reduces labour costs. Targeting employment subsidies also has some drawbacks, namely it lowers the take-up rates for these programmes and might "stigmatise" participants as participation in such programmes might convey a negative signal to potential employers.

20 Based on the assumption that the matching process is perfectly efficient in the public sector (i.e. the state recruits its employees from the unemployed at random).

21 See Cahuc and Zylberberg (2004), chapter 11, pp. 664–668.

22 "An increase in public sector employment also leads to a downward shift of the Beveridge curve, so it is equivalent to greater efficiency in the matching process", Cahuc and Zylberberg (2004).

many programme evaluations suggest that the systematic use of generalised employment subsidies or the direct creation of jobs in the public sector are not cost-effective and could ultimately have a very limited impact after consideration of general equilibrium effects. As a result, such measures should be used sparingly and selectively to combat unemployment, targeting low-skilled workers, individuals at risk of exiting the labour force or individuals facing social exclusion.

3. Expenditure on ALMPs

This section combines data from the OECD and Eurostat/OECD LMP databases to build long-term series for expenditure variables. The aim is to identify long-term trends in spending patterns, in particular the extent of any significant resource reallocation from passive to active policies, and expenditure shifts within the range of active measures.

Two indicators on the intensity of spending on LMPs are calculated: a) total spending on LMPs per unemployed person expressed as a percentage of GDP per capita[23]; and b) spending on LMPs expressed in PPP[24] divided by the number of persons wanting to work[25].

For a more detailed description of LMPs, in terms of both expenditure levels and number of participants, reference should be made to various Eurostat publications (for example, Eurostat, 2005b, 2005c, 2006a).

3.1. Has the balance between active and passive measures shifted?

Average spending on LMPs, including PES, in EU Member States totalled just over 2% of GDP during the period 1985-2004 (see Table 1). There is wide variation across countries in the share of government expenditure on LMPs, ranging from a low of under 0.5% in the Baltic countries, the Czech Repub-

lic and the Slovakia to a high of 4.4% in Denmark in 2004. In a typical EU Member State expenditure on active measures accounts for approximately one-third of total spending on LMPs (see Table 2).

In 2004 spending on active measures, excluding PES, averaged 0.5% of GDP in the EU, down on the maximum average spending of close to 1% registered in 1995 (see Table 3). Den-

Table 1 – Total spending on LMPs, including PES (as % of GDP)					
	1985	1990	1995	2000	2004
AT	1.2	1.2	1.7	1.7	2.0
BE	4.5	3.7	4.0	3.4	3.6
CZ	-	0.4	0.3	0.5	0.5
DE	1.8	1.9	3.6	2.9	3.5
DK	-	5.3	6.2	4.3	4.4
EE	-	-	-	-	0.2
ES	2.4	2.4	2.7	2.0	2.1
FI	1.7	1.7	5.2	3.0	3.0
FR	3.0	2.7	3.0	2.5	2.7
EL	0.2	0.5	0.8	0.7	0.6
HU	-	2.8	1.3	0.8	0.7
IE	4.3	3.8	4.4	1.6	1.6
IT	-	-	-	0.7	1.4
LT	-	-	-	-	0.3
LV [(b)]	-	-	-	-	0.5
LU	1.2	0.7	0.8	0.5	0.9
NL	5.1	3.7	3.9	2.7	3.7
PT	-	0.8	1.6	1.4	2.0
SE	3.0	2.5	6.5	3.0	2.5
SK	-	-	-	-	0.5
UK	2.9	1.5	1.7	0.7	0.8
EU average [(a)]	2.6	2.2	3.0	1.9	1.8

Sources: OECD and Eurostat's LMP.

a) Unweighed arithmetic average of countries for which data are available.
b) 2003.

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[23] It is common practice in empirical studies to express indicators of spending intensity as a percentage of GDP per capita in order to ensure cross-country comparability (e.g. Scarpetta, 1996; Nickel, 1998; Nickell and Layard, 1999; Boone and Van Ours, 2004).

[24] Purchasing power parity (PPP) is a theoretical exchange rate that equalises purchasing power levels between countries. The PPP exchange rate between two currencies equals the ratio of their countries' price levels calculated for a common basket of goods. PPP exchange rates are used to make comparisons of living standards between countries.

[25] The population wanting to work is a measure of the population not in work but who would like to work and who might need help through ALMP interventions and which is comparable between countries (source LFS). The population wanting to work is the sum of the unemployed plus the labour reserve. The labour reserve is a concept developed by the Employment Committee indicators group (Document IND/23/02/EN "Measuring time-related unemployment and the labour reserve") and covers inactive persons who would like to work but who do not qualify as unemployed either because their method of job search is not active or because they are not immediately available for work.

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mark, the Netherlands and Sweden recorded the highest expenditure-to-GDP ratios in 2004 of over 1%, with Germany, Belgium, Finland and France between 0.75% and 1%. Active spending was below 0.25% of GDP in the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Slovakia and the UK.

In 2004 spending on training stood at about one-third of total expenditure on active measures[26], a figure that has remained relatively stable since the early 1990s (see Chart 2). In recent years the main changes in the structure of active spending have been as follows: employment subsidies increased from close to 9% of total active spending in 1995 to above 16% in 2004, while expenditure in connection with direct job creation declined from 23% in 1995 to about 13% in 2004.

The EES[27] calls for the strengthening of spending on ALMPs and enhancing their effectiveness (e.g. Integrated Guidelines No. 19 and No. 20). However, over the last decade European countries have not made any significant progress on shifting resources from passive to active measures, in contrast to government's declared intentions. In fact, the share of active spending has moved mainly in line with the cycle, dropping to a trough in the 1993–1995 recession and only recently returning to its 1989 peak level[28]. This relative failure may be "…*related to doubts about the effectiveness of much of this spending*" (Martin and Grubb, 2001).

Table 2 – Active spending, excluding PES (as % of total spending on LMPs, excluding PES)					
	1985	1990	1995	2000	2004
AT	15.3	17.4	14.1	24.7	23.6
BE	25.4	28.4	29.6	31.5	27.7
CZ	-	28.5	26.1	31.7	33.8
DE	24.1	42.5	32.1	34.3	26.9
DK	-	19.1	28.6	41.2	36.3
EE	-	-	-	-	18.7
ES	8.2	23.4	15.1	32.8	26.9
FI	38.5	43.7	26.2	26.8	27.4
FR	18.4	27.0	39.2	42.4	29.7
EL	22.6	39.6	42.0	37.4	27.0
HU	-	17.2	24.8	37.7	35.3
IE	27.7	32.9	34.2	50.3	35.4
IT	-	-	-	83.8	41.8
LT	-	-	-	-	58.6
LV b)	-	-	-	-	18.5
LU	20.1	22.3	13.7	11.3	20.4
NL	21.6	29.6	25.5	14.9	33.4
PT	-	59.1	43.0	30.0	29.5
SE	68.1	62.6	48.1	53.0	43.2
SK	-	-	-	-	18.4
UK	21.7	31.3	17.2	30.6	36.0
EU average a)	26.0	32.8	28.7	36.1	30.9

Sources: OECD and Eurostat's LMP databases.
a) Unweighed arithmetic average of countries for which data are available.
b) 2003.

3.2. Indicators of spending effort on LMPs

There is a correlation between expenditure on both active and passive measures and the unemployment rate (see Chart 4)[29]. However, the slope of the passive curve is steeper than the active curve (Martin and Grubb, 2001), because entitlements to UB tend to follow cyclical fluctuations more closely than active policies, which are more discretionary and take longer to implement.

3.2.1. Spending per unemployed person expressed as a percentage of GDP per capita

This indicator of spending effort on LMPs suggests a downward shift in the intensity of expenditure on both active and passive measures in the EU (see Chart 5), particularly since the mid-1990s and mainly in high-spending countries (see Chart 6). As regards passive measures, Martin and Grubb (2001) argue that this may reflect "…*a shift in the policy stance towards greater activation and a tightening of the eligibility rules for benefit receipt*".

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26   Including PES.
27   As well as the OECD Jobs Strategy.
28   The share of active spending is pro-cyclical, reflecting the stabilisation role of unemployment benefits that move counter-cyclically. After controlling for the cycle (e.g. as expressed by the unemployment rate), no general trend emerges, indicating that no shift from passive to active spending has occurred in the EU during the period 1985–2004 (see Table 2 and Chart 3).
29   Strong in the latter case, weak in the former.

Table 3 – Active spending, excluding PES (as % of GDP)					
	1985	1990	1995	2000	2004
AT	0.2	0.2	0.2	0.4	0.4
BE	1.1	1.0	1.1	1.0	0.9
CZ	-	0.1	0.0	0.1	0.1
DE	0.4	0.7	1.1	1.0	0.9
DK	-	1.0	1.8	1.7	1.5
EE	-	-	-	-	0.0
ES	0.2	0.5	0.4	0.7	0.6
FI	0.6	0.7	1.3	0.8	0.8
FR	0.5	0.7	1.1	1.0	0.7
EL	0.0	0.2	0.3	0.3	0.2
HU	-	0.5	0.3	0.3	0.2
IE	1.2	1.2	1.4	0.8	0.5
IT	-	-	-	0.6	0.5
LT	-	-	-	-	0.2
LV b)	-	-	-	-	0.1
LU	0.2	0.2	0.1	0.1	0.2
NL	1.0	1.0	0.9	0.4	1.1
PT	-	0.4	0.6	0.4	0.6
SE	1.9	1.5	2.9	1.5	1.0
SK	-	-	-	-	0.1
UK	0.6	0.4	0.3	0.2	0.2
EU average a)	0.7	0.6	0.9	0.7	0.5

Sources: OECD and Eurostat's LMP databases.
a) Unweighed arithmetic average of countries for which data are available.
b) 2003.

3.2.2. Spending on LMPs divided by the number of persons wanting to work

The country rankings resulting from calculating indicators on the intensity of spending based on the unemployed (see Section 3.2.1) or on the number of persons wanting to work (i.e. the unemployed plus the labour reserve) are broadly similar (see Tables 4 and 5 and Chart 7). This indicator (on the intensity of spending) is based on the work done by the Employment Committee indicators group.

Chart 2   **Breakdown of active spending, including PES – EU average 1985 – 2004**

Source: OECD and Eurostat's LMP databases.

Chart 3 — **Spending on active measures as a percentage of total LMPs, excluding PES, and unemployment rates – EU average 1985-2004**

Source: OECD and Eurostat's LMP databases.

Chart 4 — **Spending on active (excluding PES)/passive measures and unemployment rates – EU average 1985-2004**

Source: OECD and Eurostat's LMP databases.

Chart 5 — Intensity of spending on active (excluding PES)/passive measures and unemployment rates – EU average 1985-2004
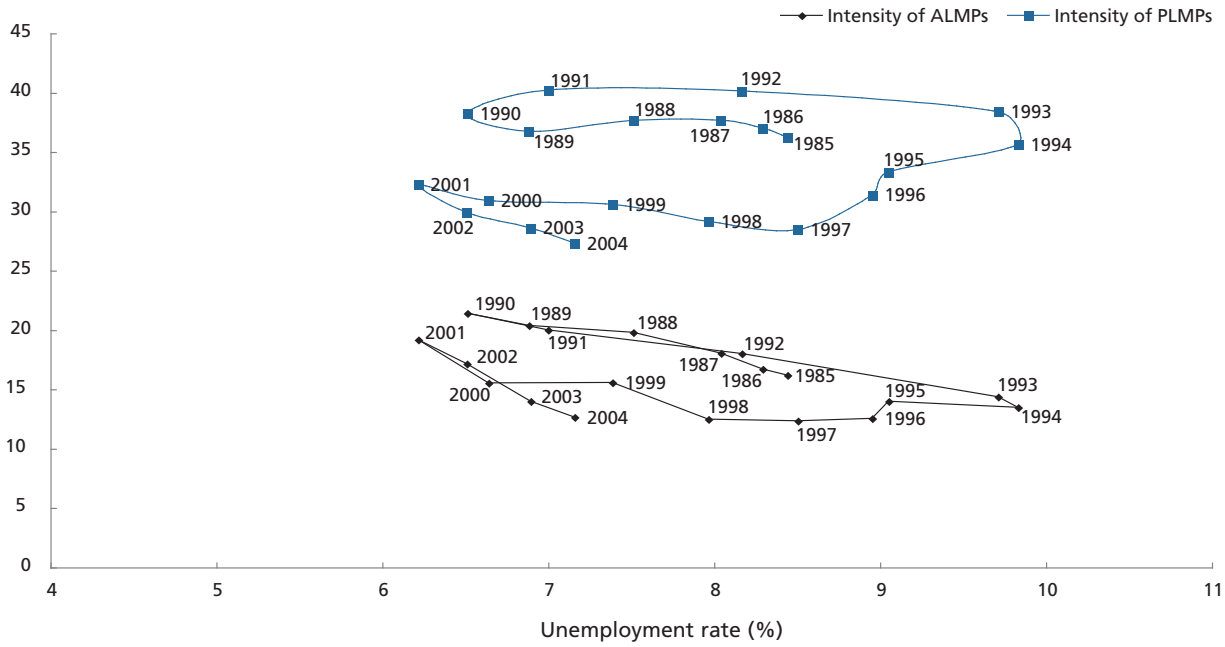
Source: OECD and Eurostat's LMP databases.

Chart 6 — Spending on active (excluding PES)/passive measures and unemployment rates – DK, FI, NL and SE average 1985-2004
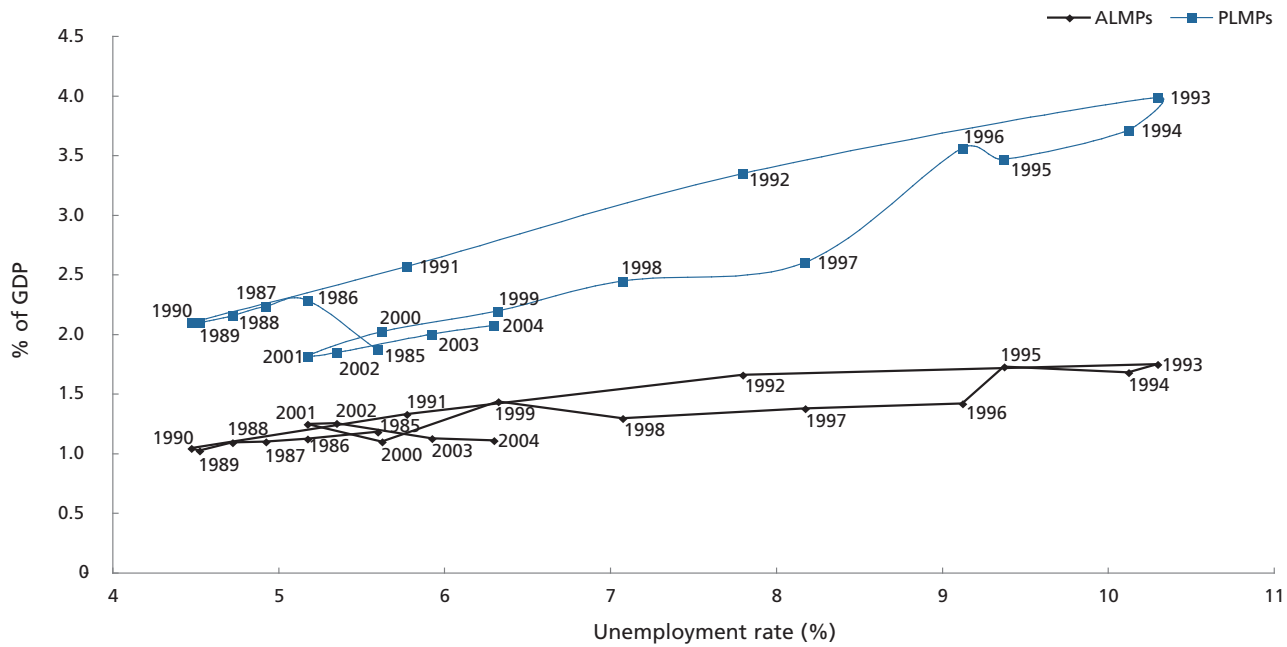
Source: OECD and Eurostat's LMP databases.

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Table 4 – Spending on ALMPs (expressed in PPP) divided by the number of persons wanting to work [a]												
	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AT	-	-	2.2	1.0	1.0	1.3	1.8	1.8	2.3	2.3	2.7	1.5
BE	2.8	5.3	4.0	4.5	3.6	3.7	4.9	6.3	5.7	4.8	4.9	5.1
CZ	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1
DE	1.9	5.3	5.1	4.9	3.2	3.8	4.4	4.4	4.2	4.4	3.6	3.2
DK	-	4.9	7.8	8.0	8.9	9.7	13.2	12.8	13.9	15.6	12.6	12.5
ES	-	0.8	0.3	0.3	0.3	0.5	0.8	1.0	1.1	1.1	1.1	1.2
FI	-	-	2.4	2.8	2.3	2.1	2.3	2.2	2.3	2.3	2.5	2.8
FR	1.5	2.8	4.2	4.3	3.4	3.5	3.9	4.5	4.8	4.8	4.2	3.6
EL	0.0	0.3	0.4	0.4	0.4	0.2	0.4	0.4	0.5	0.4	0.2	0.3
HU	-	-	-	0.0	-	-	-	-	-	-	0.2	0.2
IE	1.2	1.9	2.0	2.6	2.1	2.9	3.8	4.5	5.2	4.9	4.8	4.8
IT	-	-	-	0.5	-	0.8	0.9	1.0	1.4	1.5	1.7	1.3
LU	2.7	5.5	2.0	3.2	3.7	3.0	3.5	3.8	4.8	4.7	5.8	6.5
NL	2.8	3.9	2.3	3.1	2.3	1.6	2.5	4.0	7.2	7.4	8.0	6.5
PT	-	0.6	0.8	1.0	0.5	0.9	0.8	1.1	1.5	1.3	1.3	1.4
SE	-	-	13.3	-	9.7	10.8	11.7	12.0	11.5	12.0	13.0	10.8
UK	1.0	1.3	0.4	0.4	0.5	0.5	0.6	0.8	0.6	0.7	0.6	0.8
EE	-	-	-	-	-	-	-	-	-	-	0.0	0.0
LT	-	-	-	-	-	-	-	-	-	-	0.0	0.1
LV	-	-	-	-	-	-	-	-	-	-	0.0	-
SK	-	-	-	-	-	-	-	-	-	-	-	0.0

Sources: DG EMPL calculations based on data from the OECD, Eurostat and Ameco (DG ECFIN).

a) The sum of the unemployed plus labour reserve. Labour reserve is made of inactive persons who would like to work but do not qualify as unemployed.

Chart 7   **Rankings of two indicators on the intensity of spending on ALMPs in 2004 [a]**

Ranking of spending on ALMPs per unemployed as % of GDP per capita (by decreasing order)

Ranking of spending on ALMPs divided by the number of persons wanting to work (by decreasing order)
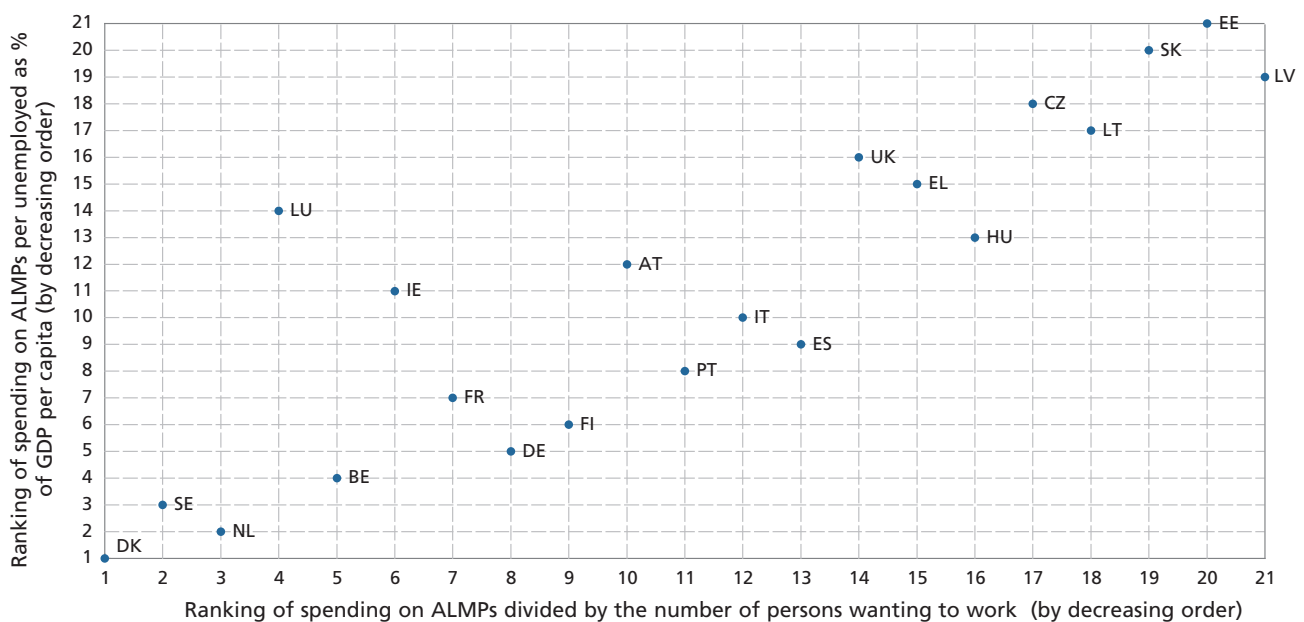
Source: DG EMPL calculations.
(a) Latvia 2003

Table 5 – Spending on PLMPs (expressed in PPP) divided by the number of persons wanting to work [a]												
	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AT	-	-	13.6	5.6	5.2	5.9	6.1	6.0	6.6	7.3	8.8	5.3
BE	8.2	13.2	9.5	9.7	10.4	8.4	11.4	13.6	12.9	12.7	12.3	13.3
CZ	-	-	-	-	-	-	-	-	-	0.2	0.2	0.2
DE	5.9	7.2	10.8	10.3	9.3	9.0	9.1	8.8	9.0	9.4	9.1	8.8
DK	-	20.5	19.4	19.9	15.9	17.4	18.5	18.3	19.2	21.9	22.1	21.9
ES	-	2.6	1.8	1.7	1.7	1.8	1.9	2.1	2.5	2.8	2.9	3.2
FI	-	-	6.9	6.5	5.8	5.2	5.9	5.9	6.4	6.7	7.1	7.3
FR	6.9	7.6	6.6	6.5	5.6	5.8	6.0	6.3	7.4	8.4	8.9	8.6
EL	0.1	0.4	0.5	0.6	0.7	0.5	0.6	0.7	0.7	0.7	1.0	1.0
HU	-	-	-	0.1	-	-	-	-	-	-	0.2	0.3
IE	3.1	3.9	3.9	4.4	-	4.5	4.8	4.5	5.0	6.1	7.2	8.7
IT	-	-	-	1.5	-	0.9	1.1	1.0	1.4	1.5	1.7	1.8
LU	10.8	19.0	12.7	13.5	7.8	6.0	12.0	11.4	12.9	12.9	17.8	16.0
NL	10.0	9.2	6.8	8.5	7.6	7.8	8.1	13.3	15.4	14.4	14.3	13.8
PT	-	0.4	1.1	1.1	1.2	1.8	2.1	2.6	3.2	3.5	3.1	3.4
SE	-	-	14.3	-	10.4	10.7	11.5	11.8	9.2	9.7	15.3	14.2
UK	3.7	2.9	2.0	1.8	2.1	2.0	2.1	2.1	2.0	1.8	1.6	1.6
EE	-	-	-	-	-	-	-	-	-	-	0.1	0.1
LT	-	-	-	-	-	-	-	-	-	-	0.0	0.0
LV	-	-	-	-	-	-	-	-	-	-	0.1	-
SK	-	-	-	-	-	-	-	-	-	-	-	0.1

Sources: DG EMPL calculations based on data from the OECD, Eurostat and Ameco (DG ECFIN).

a) The sum of the unemployed plus labour reserve. Labour reserve is made of inactive persons who would like to work but do not qualify as unemployed.

4. Evaluation of ALMPs

There is an extensive volume of literature on the evaluation of individual programmes. There are also studies on the macro-economic (or general equilibrium) effects of total spending on ALMPs and of its composition by main types of intervention[30]. Evaluating the effects of ALMPs, together with monitoring their implementation, are important steps in the process of improving policy design in order to achieve better results.

Evaluation of individual programmes commonly uses micro-econometric techniques to measure the impact of participation in the programme on subsequent employment and/or earning prospects. Labour economists and econometricians have developed highly specialised tools for programme evaluation (Heckman et al., 1999). The objective of such evaluation is to identify the effects of participation in the programme on participants (Kluve and Schmidt, 2002). This involves the estimation of the difference between the outcome from programme participation

(an observable) and the outcome that participants would have achieved had they not participated in the programme (a counterfactual). Given that it is not possible to observe an individual simultaneously in two different states, estimating the counterfactual state is the crux of the "evaluation problem" (see Annex 2).

However, assuming adequate data availability, use of a general equilibrium framework is preferable to a micro-econometric approach in order to assess the effectiveness of ALMPs. Regret-

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30   The European Commission has done some work on the macro-economic effects of ALMPs. Chapter 2 of *Employment in Europe* 2004 ("Key Determinants of Labour Market Performance", http://ec.europa.eu/employment_social/employment_analysis/employ_2004_en.htm) looked at the impact of spending on ALMPs and its composition on the total unemployment and employment rates, and the interactions between various labour market institutions and types of ALMPs. The EU Economic 2004 Review (Chapter 3, "Labour markets in the EU: an economic analysis of recent performance and prospects", http://ec.europa.eu/economy_finance/publications/european_economy/the_eu_economy_review2004_en.htm) provided an extensive review of the literature on labour market institutions and labour market performance, which also makes reference to the role of ALMPs. Arpaia and Mourre (2005) provided a more recent review of the empirical macro-economic literature on labour market institutions and employment performance, including the issues of flexibility, security and efficient redistribution (DG ECFIN Economic Paper n°238, http://ec.europa.eu/economy_finance/publications/economic_papers/economicpapers238_en.htm).

tably, the overwhelming majority of evidence available on programme evaluation still comes from micro-econometric analyses, investigating the average effects of participation in a programme on participants and in the process, neglecting general equilibrium effects. In principle, a favourable micro-econometric evaluation of a programme is a necessary, though not a sufficient condition to demonstrate its value. Instead, many authors emphasise the importance of also assessing the "indirect" effects of programmes (in addition to the "direct" effects) and possibly, the aggregate impact on the variables of interest, such as employment-to-population and unemployment rates (Heckman et al., 1999). Calmfors (1994) considers that the following "indirect" effects should be considered in a general equilibrium analysis: i) displacement (subsidised activities may displace other activities in the economy); deadweight (the same result would have been achieved without the programme); creaming (only the most employable of the unemployed benefit from the intervention); substitution (subsidised individuals may displace non-subsidised individuals); and taxation (distortion linked to financing of the measures).

Macro-economic (or general equilibrium) analyses are principally relevant for employment subsidy programmes, which are especially affected by a number of such "indirect" effects.

4.1. Comments on the programme evaluation literature

This section presents some general remarks regarding the reliability and general applicability of the conclusions that can be drawn from the extensive literature on labour market programme evaluation, with the arguments made

closely following those in Martin and Grubb (2001). This section is subdivided as follows: firstly, a review of individual (micro-econometric) programme evaluations by type of intervention; secondly, a review of macro-economic studies; and, finally, an explanation of the apparent contradiction between the outcomes of micro- and macro-evaluations, especially for training programmes (Boone and Van Ours, 2004).

4.1.1. Micro-econometric programme evaluations

There are a number of caveats that have to be expressed about the results obtained in the micro-econometric evaluation literature, as follows:

• The development of an "evaluation culture" for labour market policies does not currently exist in a large majority of EU Member States. This situation contrasts markedly with practice in other countries, such as the US and Canada, where despite lower aggregate spending on LMPs, there is nevertheless a long-standing tradition of programme evaluation. In these countries, programme evaluation is often integral and the continuation of the programme itself frequently depends on the results. However, the situation in Europe is rapidly improving as evaluation studies become more common, and recent studies have been using state-of-the-art techniques and better data sets. There is a strong case that whenever possible, independent policy evaluation is desirable. However, good quality micro-econometric policy evaluation is closely connected to the quality and availability of data.

• Due to data availability problems[31], many programme evaluations tend to monitor participants' outcomes after participation for only a brief period[32],

which may be too short for a comprehensive assessment of the (social) rate of return of many ALMPs. For example, in labour market training programmes (widely regarded as having considerable dynamic effects), the short timeframe is liable to bias the evaluation results downwards. In fact, in terms of employment outcomes, training programmes are usually associated with large "locking-in effects" in the short run (e.g. less intensive job search due to participation in a programme) followed by positive effects in the medium to long run (e.g. higher quality job matches as a result of participation in a programme, yielding low separation rates or longer spells in work).

• In many countries there is a considerable degree of change in the mix of ALMPs in place year-on-year. There is a high incidence of new programmes being introduced and others discontinued, together with frequent changes affecting programme design, rendering the task of programme evaluation extremely challenging.

• The set of "outcome" variables considered in programme evaluations is usually too restrictive, tending to focus on either the (re-)employment or earning prospects of participants. A limited number of studies also weigh the evidence on the social benefits resulting from participation in a programme, such as lower crime, less drug use or better health.

• According to a number of surveys, such as Martin and Grubb (2001), Calmfors et al. (2001) and Kluve and Schmidt (2001), evaluations have rarely addressed the crucial empirical problem of the relationship between ALMPs and job duration. Programme evaluation concentrates on the impact

31 For example, short longitudinal data sets. In a longitudinal data set (a high proportion of) individuals are (is) followed for a number of years. Compared to the early European evaluation studies, which used predominantly cross-sectional data (Heckman et al., 1999), ALMP evaluation in Europe is now based much more on longitudinal data, potentially improving the quality of the estimates of programme effects.

32 Covering at best two years after a person has participated in a programme.

of participation on job finding rates in the period immediately after (or close to) participation. This reflects the lack of suitable data for analysing separation rates, which would require relatively long data sets.

- Based on efficiency criteria alone, a labour market programme ideally should pass a cost-benefit analysis in order to be considered worthwhile implementing. Therefore, in addition to the data and methodological needs of programme evaluation, cost-benefit analysis also requires weighing data on both the direct (e.g. administrative) and indirect costs of the programme (e.g. value of any fallback activity for participants, such as leisure or household production). The data requirements of cost-benefit analysis represent a huge (and often insurmountable) hurdle. In the case of the direct costs of programme implementation, it is particularly difficult to breakdown by individual programmes the overheads of running PES.

- One aspect, often neglected in the literature, is the policy relevance of the micro-econometric findings of pro-

gramme evaluations. Many programmes that have been subjected to rigorous evaluation are small scale or simple pilot projects. In these circumstances, it is uncertain how effective they could be if their scope was extended, because general equilibrium effects could possibly kick in, offsetting (or even reversing) the gains observed for programme participants.

- Although micro-econometric evaluations can give insight into the causal impact of programmes, which is much more difficult or even impossible to obtain using macrodata, macro-economic evaluations are also important especially for relatively large programmes in terms of either spending or participants. Assessment of the general equilibrium (or macroeconomic) effects of ALMPs should be given high priority on the research agenda, because of the potential size that "indirect" effects can have, possibly even leading to a reversal of the initial findings on programme effectiveness based solely on the micro-econometric evaluation. However, extending the use of general equilibrium methods poses a considerable

challenge for both theoretical and data-gathering reasons.

- Current knowledge about the effectiveness of labour market policies is held back not only by the lack of comprehensive and high-quality data, but also by the insufficient co-operation between those designing and implementing policies and those better placed to assess them (Kluve and Schmidt, 2002)[33]. Independent evaluations of new policy initiatives (and ongoing programmes) should be integral, and the results should be seen as highly relevant and used to improve the design of future programmes, placing particular emphasis on the long-term effects[34].

- Programme evaluation aside from concentrating on "*What works and for Whom*", should also examine the causal effects of outcomes to contribute towards optimising programme design.

Box 4 presents the "evaluation problem" of identifying and measuring the effect of participation in a programme on participants, while Annex 2 briefly discusses some commonly used estimators.

Box 4 – The evaluation problem

The objective

The main objective of programme evaluation is to identify and measure the effect of participation in a programme on participants. This box and Annex 2 briefly review some of the methodological issues and the techniques used in the large majority of evaluations, which have looked only at the "direct" effect of labour market policies, neglecting their "indirect" or general equilibrium impact on the economy.

The counterfactual

An individual can either participate in a programme or not. To assess the effect of participation, it is necessary to measure two outcomes: a) the result of participation in the programme (observable); and b) the result that would have occurred had the individual not participated (counterfactual). The evaluation problem is actually a question of missing data. It requires making an appropriate *identifying*

assumption in order to estimate from observable data the counterfactual (missing) data. To solve this problem, an appropriate group for comparison (i.e. a control group) has to be found among the non-participants in the population to match them with the participating group. Moreover, in general the gains from participation in a programme vary between workers, with the distribution conditional on a number of (both observable and unobservable) factors. Restricted data

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33   In Europe, there is a need for better communication between policy-makers, who formulate ALMPs, and academic researchers, who have the tools to evaluate them.

34   Policy-makers are often accused (by academics) of resorting to ALMPs without giving due consideration to their long-run effects, instead preferring measures that maximise the short-run impact of reducing open unemployment (Boone and Van Ours, 2004).

Box 4 – The evaluation problem (cont.)

availability and quality, generally mean that only *average* measures of programme participation can be calculated and not the conditional distribution of gains from the programme.

Selection bias

In the case of observational or non-experimental data, this is a major problem for programme evaluation. Even if the *matched* participant and control groups are comparable for all the observable factors, unobservable variables might invalidate the comparison (see Annex 2 for a definition of selection bias).

Experimental and non-experimental data

Researchers prefer to use experimental data to solve the evaluation problem of finding an appropriate control group to cope with the *selection bias*. Experimental data are obtained from randomised control trials or natural experiments, which provide the easiest solution to retrieving the counter-factual data desired. From those willing to participate in an experiment, individuals are randomly assigned to either a participant or a control group. In sufficiently large groups, randomisation implies that, on average, observed and unobserved characteristics will be identical in the two groups. This eliminates selection bias. Differences between the average results of the two groups can therefore be attributed solely to the programme being evaluated. Unfortunately (from the perspective of the research community), experimental studies on social sciences are the exception in Europe, principally due to legal restrictions and ethical considerations on randomised trials.

Although randomised control trials are commonly seen as the gold standard of programme evaluation techniques, Heckman et al. (1999) refer to a number of conditions that still have to be met in order to avoid the *selection bias* problem: a) the random draw should not change the composition of the population agreeing to participate in the experiment; b) no significant drops in the participant group should occur during the experiment (*attrition bias*); and c) no significant proportion of the control group should benefit from a substitute measure/treatment (*substitution bias*). The last two problems are also present in non-experimental evaluations.

In the absence of experimental data, programme evaluation has to be based on observational/survey data. These are subject to *selection bia*s, which econometricians attempt to minimise by carefully selecting the control group and the estimation technique used to calculate the average effect of the programme on the participants.

4.1.2. Job-search assistance and activation programmes

Public Employment Services (PES) usually perform three roles:

- Job-search assistance and career guidance;

- Management of unemployment benefits (in a majority of Member States); and

- Referral of job seekers to ALMPs.

In recent years the development of information technology has allowed PES to provide a whole new range of (self-)services, such as vacancy and curriculum vitae databases. There is also a new trend towards "*activation*". *Activation* polices encourage certain unemployed individuals to step up their job search after an initial spell of unemployment, with a later obligation to participate in various programmes. Eventually, the *activation* principle makes receipt of benefit conditional on participation in programmes, in the process shifting the balance between the rights and obligations of the unemployed[35]. To assess the needs of the unemployed and map the best course of action to take, *profiling* techniques have also been recently adopted, especially at the beginning of a spell of unemployment, for individuals in particularly vulnerable groups, such as the unqualified young and the long-term unemployed. In all OECD countries, PES are public agencies and in some cases have authorised private organisations to compete in "quasi-markets" for job search and placement activities.

A large number of studies are now available on the effectiveness of job-search assistance programmes and the activity of placement agencies (Meyer, 1995). The general finding is that they have a significantly (positive) impact

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35   A theoretical justification for *activation* programmes can be found in OECD (2005). "*For some unemployed, given the costs of job search, it is not worth searching for a job, even though it would be worth accepting a job offer that arrived without search effort. In this case, when an obligation to search is enforced, at the time a job offer arrives the search costs are sunk costs and the job will be accepted*". Also for the purpose of motivating job search, an *activation* strategy might be preferable to a simple cut in unemployment benefits, because it achieves the same outcome with a high level of social protection. Another justification for *activation* policies lies in their potentially large impact on labour market transitions when entitlement to unemployment benefits if of long or indefinite duration.

on the transition of beneficiaries from welfare to work. The evidence suggests that job-search assistance programmes in general and *activation* policies in particular rank high among the more cost-effective ALMPs to help the unemployed to find a job and keep it. Specifically, evaluations of social experiments conducted in several countries (Canada, Sweden, the UK and the US) suggest positive outcomes from PES activities (Martin and Grubb, 2001). For example, compulsory interviews with PES tend to reduce the unemployment rates of beneficiaries significantly over the long term (Dolton and O'Neill, 2002)[36].

However, in the design of *activation* strategies it is particularly important to pay attention to coordinating job search activities with participation in other programmes, such as training, in order to avoid spending too little time searching for a job and, thereby, inadvertently prolonging the spell of unemployment.

Given that PES provide job search assistance, while at the same time monitoring compliance with the job search requirements for receipt of UB, it should therefore not be surprising that evaluations have not been able to disentangle these two effects. Moreover, it is commonly argued that effective PES must carefully balance the *carrot* (i.e. job search and counselling), and *stick* components (i.e. monitoring and sanctions to ensure compliance with job-search requirements). Enforcement of "availability-for-work" requirements and provision of placement services seem to be complementary activities. On the one hand, without enforcement of job search requirements, provision

of placement services produces diminishing returns, while on the other hand, enforcement without properly developed placement services tends to yield poor results (OECD, 2005).

Dolton and O'Neill (1996) have stressed the finding that *activation* policies produce large pre-programme "motivation"[37] effects on job seekers. A significant number of job seekers seem to prefer to become inactive rather than having to participate in certain programmes to comply with *activation* policy requirements. Therefore, a secondary result (or by-product) of *activation* policies could be to check the availability of benefit claimants to work. However, it has also been pointed that imposing a too stringent (or too harsh) set of conditions on job seekers, either in terms of the duration of UB or of programme participation requirements, could eventually reduce the quality of jobs. In fact, putting excessive pressure on job seekers to accept job offers has its drawbacks if it results in them accepting lower re-employment earnings or a low quality job/match which can be expected to be only of short duration.

4.1.3. Labour market (re)training

Labour market (re)training measures aim to improve the employability of the unemployed and other target groups (i.e. raise labour productivity and improve the quality of job matches). As an incentive to participate trainees usually receive an allowance that is slightly higher than the UB they would be entitled to. The training provided may be either general or specific (to an industry or firm). For a LMP to be classified as

training, it should include some evidence of formal training (i.e. classroom teaching). Otherwise, it should be considered "learning-by-doing" and classified as an *employment incentives* measure[38]. Apprenticeship schemes are considered part of the general education and vocational training system and, therefore, are excluded from the LMP database. Significant parts of many youth measures (in the "old" LMP classification) can be regarded as equivalent to labour market training.

Training programmes, many youth measures and lifelong learning schemes[39] usually share common goals, such as: a) to adapt the labour force to changing patterns in labour demand; b) to help fill the gaps in the general education of some individuals who dropped out of the education system prematurely; and c) to encourage changes in poor attitudes to work, especially among disadvantaged youths, in order to enhance their chances of successful integration into a working environment.

Training programmes are the most widely used type of active measure. They are also among the most expensive. Findings on their impact in terms of raising the future employment and earning prospects of beneficiaries are rather mixed. According to Martin and Grubb (2001), training appears to be effective for some target groups (adult women) but not for others (prime-age men and youth). Certain features seem to make programmes more effective, namely: a) small scale; b) targeted at particularly disadvantaged groups; c) close partnership with local employers[40] (i.e. build in as much on-the-job content in the training as possible);

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36 Dolton and O'Neill (2002) found that the compulsory interviews carried out under the Restart programme in the UK in 1989, which lasted for 20 minutes and took place after six months of unemployment, reduced the male unemployment rate five years later by 6 percentage points (which was equivalent to a 15% to 20% reduction in the number of unemployed).

37 Motivation effects arise when benefit recipients step up their job-search efforts (or drop their benefit claims) as the time approaches when benefit levels fall or participation in a programme becomes compulsory.

38 Category 4 in the new LMPs nomenclature.

39 Although lifelong learning schemes are not part of LMPs they are highly relevant for the EES.

40 Acemoglu and Pischke (1999a, 1999b) argue that training directly provided by public institutions is often less efficient than training within firms, because it is not closely related to production.

d) training should be certified, and certificates should be well recognised and valued by the market; e) during participation in a programme availability for work should still be checked to minimise lock-in effects; and f) participation in a programme should not re-establish benefit entitlement (i.e. the "*carrousel effect*"). A recurrent problem with further training in OECD countries is its high (self-)selectivity, especially by level of education. This (self-)selectivity creates the paradox that individuals who already have higher levels of education may be favoured when it comes to further upgrading their skills[41].

For the US, there is a wealth of evidence based on empirical studies – mostly using experimental data[42] – on the effectiveness of training programmes. The overall results are unimpressive. Despite the theoretical arguments that strongly suggest that market mechanisms alone (i.e. without public intervention) yield sub-optimal levels of education/training[43], the evaluations of (public) training or education programmes produce only slight evidence in favour of these policies. Moreover, it should not be forgotten that, without a general equilibrium analysis, establishing a general presumption in favour of public intervention is not sufficient to guarantee the usefulness of any public intervention in practice (e.g. due to "indirect" effects, such as the tax distortions linked to financing it).

Heckman et al. (1999) and Heckman (2000) sum-up the evidence available for the US by saying that the impact of training and education programmes varies considerably, depending on the target population. Evaluations of training and education programmes suggest that they should be targeted at economically disadvantaged adult women[44] or at young children from socially disadvantaged backgrounds and/or whose capacities for social integration are low respectively. Heckman (2000) argues that in order to raise the earning prospects of disadvantaged adult workers it would be preferable (i.e. more cost-efficient) to provide them with employment subsidies rather than training programmes. In fact, an alternative route to enhance human capital can be through learning-by-doing or learning on-the-job. Governments can encourage this alternative route (to training programmes) by granting employment subsidies to specific targeted groups.

Training programmes are the most widely used active measures in Europe, although both expenditure outlays[45] and evaluation practice vary considerably between countries. See Kluve et al. (2005) for a recent survey of ALMPs, the evaluation literature and a meta-analysis[46] of programme evaluations in Europe. The overall assessment of the effectiveness of training programmes shows mixed results, strongly suggesting that they are more likely to have positive effects for specific target groups. In particular, training programmes seem to raise beneficiaries' re-employment rates for: a) those with better labour market prospects; b) women re-entering the labour market; and c) educated migrants (Kluve and Schmidt, 2002).

Extensive research in Sweden – reported in Calmfors et al. (2002) – concludes that in general the effectiveness of Swedish ALMPs is rather limited and, in particular, training programmes show no positive results in terms of employment. In recent years, an evaluation culture for ALMPs has been rapidly developing in Germany. Evaluations in that country find that training measures have considerable dynamics in terms of their employment effects, with negative locking-in effects in the short run and positive ones in the long run. In Denmark most analyses find that training programmes have negative effects by prolonging the duration of unemployment due to substantial negative locking-in effects, but sometimes also due to negative post-programme effects. According to a number of evaluations in France, overall, training has positive effects on re-employment rates. Few evaluations of training programmes exist for new Member States and those countries making a limited use of ALMPs, such as Italy and Spain.

Evaluations of training programmes often find a negative or only small positive effect on participants' outcomes during the first year or two after the programme. However, a growing number of follow-up studies have found evidence of a positive impact after that initial period of two or three years (OECD, 2005). Unfortunately, most of the datasets suitable for programme evaluation have relatively short observation windows that fail to show the long-run impact on employment outcomes of ALMPs in general and of training programmes in particular. Any overall assessment of the effectiveness of training programmes tends to be negatively biased, because it usually disregards the long run effects.

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41   "Skill and ability beget future skill and ability" (Heckman and Carneiro, 2003).

42   Evaluations based on observational (or non-experimental) data are also available. Even between studies using the same dataset, there tend to be considerable divergences in the (qualitative) results, reflecting the difficulty of constructing control groups that account adequately for the heterogeneity in the population (Cahuc and Zylberberg, 2004).

43   Section 2.4.2.

44   The impact of these programmes is generally less favourable for adult men.

45   Section 3.

46   Section 4.1.7.

One significant drawback of the literature on programme evaluation is that there are few studies on the relationships between ALMPs and the duration of job spells (Martin and Grubb, 2001; Calmfors et al., 2002; and Kluve and Schmidt, 2002). Even if training does not significantly affect the job finding rate of participants – hence helping to explain the unimpressive results in the literature on evaluation of training programmes – it may significantly increase job tenure, because of the greater quality of job matches induced by training programmes. Using a search model, Boone and Van Ours (2004) argue forcefully that training programmes work principally by reducing separation rates (i.e. inflows into unemployment), because of their favourable effects on the quality of job matches.

4.1.4. Youth measures

Evaluations of ALMPs targeted at youth[47] have shown disappointing results. This overall negative assessment holds, not only for training programmes, but also for employment subsidies and direct job creation measures as well. Evaluations carried out both in Europe and in the US[48] – using either experimental or observational data – have generally found that active measures for youths have failed to improve their labour market prospects (Stanley et al., 1998; Heckman et al., 1999; and Larsson, 2000)[49].

The evidence from North American evaluations suggests that the best results from programmes targeted at youth can be obtained from early and sustained interventions, going as far back as the pre-school period, that have also involved their social background. Under this scenario, it appears that ALMPs are far from being the *first-best* option to help disadvantaged youths in the labour market, and that early public interventions such as pre-school facilities, measures to reduce early school-leaving, and interventions to improve the basic skills and the relevance of competencies provided by the education system, all seem to pay better dividends. Several authors (e.g. Lerman, 1997) have highlighted the importance of poor attitudes towards work among disadvantaged youths as a major cause behind the poor record of youth measures.

Based on the few successful education and training programmes for disadvantaged youths implemented in the US, Grubb (1999) identified five conditions that seem to improve their effectiveness: a) be market-oriented and targeted at jobs with relatively high earnings; b) offer an appropriate combination of education, occupational skills and on-the-job training; c) provide youths with pathways to further education; d) make available a range of support services adapted to the needs of the youths and their families; and e) monitor outcomes and use this information to improve the quality of programmes.

4.1.5. Employment subsides

Employment subsidies comprise both wage subsidies to private employers and start-up loans to individuals to allow them to become self-employed. Most European countries use a variety of employment subsidies with different features, depending not only on the targeted group(s), but also on the relative conditions of the welfare system. These types of active measure, rather than being used to create additional jobs, are frequently targeted at certain disadvantaged groups, such as the long-term unemployed, to help them retain some attachment to the labour market, thereby preserving work habits, skills and information networks. Evaluations of wage subsidy programmes tend to find positive effects from these measures on the future probability of entry into unsubsidised employment. These encouraging findings, however, have to be qualified since most evaluations tend to disregard "indirect" effects[50], which are generally important in employment subsidy schemes.

Martin and Grubb (2001) report that when programme evaluations take into consideration the reaction of firms to employment subsidies, most schemes yield small net employment gains, especially in the short term due to the relative sluggishness in the adjustment of aggregate demand and vacancies. Specifically, "…*evaluations of wage subsidies in Belgium, Ireland and the Netherlands have suggested combined deadweight and substitution effects amounting to around 90%, implying that for every 100 jobs subsidised by these schemes only 10 were net gains in employment*".

Moreover, relatively simple (but robust) calculations suggest that the systematic subsidisation of private-sector employment (or the creation of jobs in the public sector) would entail a prohibitive cost (Cahuc and Zylberberg, 2004). However, model simulations, evaluations of a number of programmes and theoretical analyses[51]

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47   Many programmes for youths are not precisely targeted, and there is little that distinguishes them from general training programmes.

48   European assessments of youth programmes focus on employment outcomes, while in the US they concentrate instead on the future wages of programme beneficiaries.

49   Only a few programmes showed positive results, such as the US Job Corps for disadvantaged youths. This programme yielded a statistically significant gain in earnings for participants. However, given its high cost, it had to rely on savings from reduced criminal activity among the target group to produce an overall net social benefit.

50   Section 4.

51   In a general equilibrium framework, the analyses by Drèze and Malinvaud (1994) and Drèze and Sneessens (1997) suggest that it is possible to increase total employment by granting employment subsidies to low-skilled workers (for whom demand is relatively sensitive to labour costs) financed by taxes on skilled workers (for whom demand is relatively insensitive to labour costs).

suggest that it is cost-effective (and feasible) to target employment subsidies at special groups[52] among the unemployed, provided the programme ensures a close monitoring of firms' behaviour in order to curb potential misuse. As an example, in a partial equilibrium model using linked employer and employee data, Crépon and Dezplatz (2002) find that payroll tax subsidies contributed significantly to job creation in France over the period 1994–1997[53]. The order of magnitude of the number of jobs created is similar to the estimates derived using general equilibrium models[54].

Some ALMPs aim to help the unemployed start up new enterprises. Specifically, employment subsidies (or start-up loans), together with counselling services provided by PES, can play a crucial role in promoting self-employment and/or the creation of small enterprises (e.g. by helping start-ups to define and develop their business plans).

However, evaluations strongly suggest that this type of measure appears to help only a minority of the unemployed, namely relatively young men[55] – with comparatively high levels of education – who already tend to have the necessary entrepreneurial skills and motivation to survive in a competitive environment.

Auer et al. (2005) report the results of a study on the impact of micro-finance in industrialised countries. According to this study, the small number of (micro-) financing initiatives in favour of self-employment among the unemployed account for a considerable proportion of all new entrepreneurs: 50% in France, 19% in Germany and 40% in the UK (ILO, 2002). According to the same study, business survival rates of new firms resulting from start-up incentives compare well with those of other recently created firms[56]. However, start-up/self-employment programmes involve considerable deadweight costs. For example, 56% of participants in a self-employment programme in Canada would have created their own business ultimately even without help from any ALMP.

4.1.6. Direct job creation (in the public sector)

Direct job creation is usually targeted at the long-term unemployed or youths that face problems of integration into the regular labour market. As a rule, direct jobs are created in the public or the non-profit sectors of the economy and are mainly publicly financed[57].

In general, evaluations on the effectiveness of this type of public intervention rarely reveal positive results, especially when compared with other active measures, such as job-search assistance or employment subsidies. Indeed, direct job creation has not been very successful in raising the post-programme probability of beneficiaries finding (and holding on to) permanent jobs on the (open) labour market (Heckman et al. 1999; Martin and Grubb, 2001; Kluve et al., 2005). The rationale for direct job creation should be based on equity considerations. Consequently, direct job creation measures, when used, should be of short duration (both because of their limited effectiveness and of their typical low marginal product) and targeted at the most disadvantaged (or socially excluded). Under these conditions, direct job creation can have a positive social impact by avoiding discouragement and social exclusion effects among participants[58].

4.1.7. Lessons from a meta-analysis of programme evaluations

Kluve et al. (2005)[59] carried out a *meta-analysis*[60] of the evaluations of European ALMPs to assess their effectiveness in raising employment prospects. The objective was to produce a synthesis of more than 100 evaluations in Europe and to add a new dimension to a number of good surveys of the literature on programme evaluation (e.g.

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52   Martin and Grubb (2001) mention the following problem with close targeting of employment subsidies: a programme with narrow eligibility conditions might reduce take-up rates, because the unemployed may be aware of the "stigma" attached to participation in the programme (i.e. *participation may convey a negative "signal" to potential employers concerning the expected productivity and motivation of the individual job seeker in question*).

53   These authors estimate the number of jobs created or safeguarded between 1994 and 1997 because of tax reductions for low-wage workers at about 470 000.

54   For example, Laffargue (2000) estimates the number of jobs created in the long run at between 116,000 and 440,000, depending on the elasticity of substitution between low-skilled labour and other factors. Audric et al. (2000) obtain very similar results, ranging from 120,000 to 410,000 additional jobs.

55   While evaluations in OECD countries and in transition economies revealed that self-employment programmes cater only for the needs of specific sub-groups among the unemployed (e.g. the highly educated or young men), in developing countries micro- or small-enterprise creation programmes are increasingly seen as an important policy tool for a wide range of the unemployed (Auer et al., 2005).

56   Three-year business survival rates for firms created by former unemployed under a start-up incentive programme were 53% in France, 70% in Germany and 60% in the UK.

57   This type of programme is relatively important in Europe, but is virtually non-existent in the US. In recent years, the unimpressive evaluation results have led to a move away from direct job creation programmes towards other types of ALMPs.

58   In addition, direct jobs can also be used as a work test for unemployment benefit claimants.

59   Research project financed by the European Commission: Directorate-General for Employment, Social Affairs and Equal Opportunities.

60   *Meta-analysis* is a technique for analysing and summarising the results of different studies, each of which answers the same question (in this case, the sign of the impact of a particular ALMP on post-programme employment prospects). In the context of ALMP evaluations, this methodology was first employed by Kluve and Schmidt (2002), who used the outcomes of 53 programme evaluations.

Martin and Grubb, 2001). A large majority of the evaluations included in the *meta-analysis* have been carried out since the 1990s, which means that most of them have employed relatively up-to-date methodologies and better quality data.

The *meta-analysis* assesses the likelihood of obtaining favourable post-programme effects on employment outcomes, depending on a number of variables, such as the type of active programme used, labour market institutions and the economic environment during implementation of the programme. The results show remarkable robustness across two models and various model specifications. Moreover, the findings of the *meta-analysis* are broadly consistent with those reported

in a number of well-known surveys of the literature. The principal results are summarised below and the methodology used presented in Box 5.

Training was found to have a modest likelihood of making a positive impact on post-programme employment rates. Compared with training programmes, employment incentives and PES are associated with significantly better outcomes. In fact, results suggest that the last two types of programmes are 40% to 50% more likely to make a favourable impact than training programmes. By contrast, programmes involving direct job creation in the public sector tend to be 30% to 60% less likely to make a positive impact on post-programme employment outcomes than training programmes. Youth

programmes also seem to be particularly ineffective.

Beyond that, the results of the *meta-analysis* also suggest that there is little systematic correlation between a programme's effectiveness and a number of contextual factors, including where (the country) or when (the time period) it was implemented, the macro-economic environment and the labour market institutions in place. The only institution that appears to have a systematic effect on programme effectiveness is the degree of restrictiveness of employment protection legislation (EPL) which tends to lower programme effectiveness. Consequently, the type of programme seems to be the critical factor determining its effectiveness.

Box 5 – The meta-analysis (Kluve et al., 2005)

Objective

The basic idea of the meta-analysis is to build a data set in which each observation represents the qualitative outcome of each programme evaluation. For each observation in the data set, the outcome of interest is an indicator of whether programme evaluation found a positive, zero or negative effect. The goal of the meta-analysis is to relate this qualitative information to the quantitative information surrounding its implementation, including the institutional framework, the economic environment and the methodology used in programme evaluation.

Methodology

The database built for this meta-analysis includes 137 observations from 95 programme evaluations (i.e. one study can yield more than one observation if, for example, it evaluates both a training and an employment subsidy programme). This is a significant increase on Kluve and Schmidt (2002), who considered the results of only 52 studies.

The analysis uses either a probit model (where outcomes of programme evaluations are classified as positive or not) or a multinomial probit (where evaluation outcomes are classified as positive (a total of 75), zero (33) or negative (29)). ALMPs are classified into one of the following types of programmes: a) training (70); b) employment subsidies (23); c) direct job creation (26); and d) public employment services (21)[a].

In the meta-analysis programme outcomes are related to four broad categories of independent variables, describing: a) the type of active measure; b) the evaluation methodology employed; c) labour market institutions; and d) the economic background in the country at the time of implementation of the programme.

A dummy variable is included for programmes specifically targeting youths (about a quarter of all evaluations)[b]. A dummy variable is included for the evaluation methodology used (e.g. experimental or observa-

tional data). In total, only 9 studies are based on experimental (or randomised) data. Dummies are included for the decade when the programmes were implemented: 4 in the 1970s, 36 in the 1980s, 81 in the 1990s, and 16 in the 2000s. In one specification, dummies are included to distinguish the total sample size available for programme evaluation (N): small (N<1000), medium (1000<N<10000), or large (N>10000). 43% of the studies are based on small, 40% on medium, and 17% on large samples.

A number of variables are used to describe the institutional setting on the labour market, namely: a) the OECD index of EPL; and b) indicators on the proportions of fixed-term and temporary employment in total employment.

Three variables were used to take account of the economic background: a) the unemployment rate; b) the GDP growth rate; and c) ALMPs outlays as a percentage of GDP.

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Box 5 – The meta-analysis (Kluve et al., 2005) (cont.)

Empirical Results

The probit model takes training as the baseline category (i.e. the results of the estimations are reported relative to this baseline). In the first specification of the probit model, which excludes country-fixed effects, estimates show that both employment incentives and PES (ie. Services and Sanctions) are associated with a higher probability of yielding a positive post-programme effect. At the same time, direct job creation in the public sector is associated with a significantly lower probability of showing positive post-programme effects on employment. A highly significant negative relationship also exists between programmes targeted at youths and the probability of displaying positive post-programme effects on employment. As regards the variables describing the institutional setting on the labour market, the results suggest a significant negative statistical correlation between strictness of employment (dismissal) protection legislation and the probability of obtaining a positive post-programme effect on employment. Kluve et al. (2005) interpret this finding as follows: barriers to job dismissal (EPL) are also an obstacle to job creation, because firms plan ahead for the higher adjustment costs that they will have to incur during slowdown periods in the case of a stringent EPL system. As regards the variables describing the economic background, the unemployment rate seems to be positively correlated with positive post-programme effects on employment, which might reflect the fact that during periods of high unemployment, a higher proportion of unemployed are skilled individuals, who, all other things being equal, are associated with better labour market

outcomes. One interesting result of the probit model estimation is that increasing aggregate spending on ALMPs (as a percentage of GDP) does not raise beneficiaries' post-programme employment prospects.

A second specification of the probit model considers country-fixed effects, thereby controlling for unobserved country-specific factors. Sweden is the country omitted and used as the baseline (i.e. country effects are measured relative to Sweden). The results obtained with the second specification of the probit model are generally consistent with the findings from the first. Direct job creation in the public sector is associated with a significantly lower probability of positive post-programme effects on employment than training programmes, while employment incentives and PES display better outcomes than training programmes. As in the specification without country-fixed effects, programmes for youth are particularly unlikely to yield positive post-programme positive effects on employment. In this model specification, there is also some indication that evaluations based on experimental data are less likely to produce positive post-programme effects.

A third model specification is estimated using the probit model, restricting the sample to evaluations carried out since the 1990s. This is because more recent programme evaluations have used more sophisticated methods and the results are therefore likely to be more reliable. The results from this model specification are generally in line with those from the two previous model specifications, although more pronounced in quantitative terms (i.e.

PES remain the most effective type of programme but now by a larger margin over other types of programme).

Finally, some multinomial probit model specifications were also estimated. To interpret the results obtained using this type of model, it is necessary to consider that there are now two margins: a) a margin between a negative versus a zero effect; and b) a margin between a positive versus a zero effect. Results obtained using this type of model tend to confirm those obtained using the simple probit models. Specifically, PES are significantly more likely to yield a higher probability of positive post-programme effects and a lower probability of negative post-programme effects relative to a baseline defined by training programmes. On the other hand, direct job creation in the public sector is associated with a significantly higher probability of negative post-programme effects and a significantly lower probability of positive post-programme effects. For youths, the same pattern holds than for that observed for direct job creation programmes, although the effects are of a lower order of magnitude than in the simple probit model specifications. There is also some indication that experimental studies have a lower probability of yielding positive post-programme effects, that strict EPL is associated with both a higher probability of negative post-programme effects and a lower probability of positive post-programme effects and that higher unemployment lowers the probability of a negative programme effect, while slightly raising the likelihood of a positive impact.

(a)   Actually, Kluve et al. (2005) consider a broader scope for the latter category than the traditional PES. They call it *Services and Sanctions.*

(b)   No dummy variable could be included for programmes specifically targeting disabled individuals because there were only three observations.

4.2. Macro-economic evaluations

Since the second half of the 1990s econometric models have been used extensively to investigate the links between aggregate labour market outcomes (e.g. the unemployment and the employment-to-population rates) and a number of explanatory factors, such as labour market institutions and cyclical conditions. These studies were made possible by the large amount of work carried out – especially by the OECD Secretariat – on constructing several indicators of (labour market) policies and institutions that are comparable both across countries and over time.

The advantage of macro-economic studies over micro-econometric evaluations is that they can give a composite, albeit imprecise, measure of the general equilibrium effects of labour market policies and institutions. However, this analytical framework suffers from a number of drawbacks: a) there are few studies using pooled cross-country/time series data; b) the studies available are based on few observations; c) heterogeneous labour market programmes are lumped together in broadly defined categories; and d) this type of analysis usually involves considerable technical difficulties, such as multicolinearity (of explanatory variables) and simultaneity bias due to the endogeneity of some policy variables, such as spending on ALMPs.

The macro-economic evaluation literature attempts to explain changes in the unemployment rate (or the employment-to-population rate) across countries and over time. Model specifications are estimated using pooled data econometric techniques. The determinants (or explanatory variables) are usually a set of time-varying indicators for (labour market) policies and institutions, such as the degree of generosity of UB[61], the tax wedge, expenditure on ALMPs and a variable controlling for cyclical conditions[62]. Following developments in economic theory, many model specifications also consider a wide range of interactions between policies and/or institutions.

One major finding of the recent review of the OECD Jobs Strategy (OECD, 2006) is that, on average, changes in policies and institutions appear to explain almost two-thirds of the non-cyclical changes in the unemployment rate over the period 1982–2003. In particular, generous UB, high tax wedges and stringent anti-competitive market regulation are found to be associated with increases in the total unemployment rate. By contrast, highly centralised and/or coordinated wage bargaining systems along with some categories of ALMPs (especially labour market training) seem to be associated with lower total unemployment rates. In parallel, extensive sensitivity analysis identified those findings that show a high degree of robustness across a number of dimensions, such as model specifications, datasets and estimation methods.

However, given that policies and institutions affect labour market outcomes not only via their direct impact on aggregate unemployment, but also through their effects on labour market participation, it is also crucial to assess their impact on some disadvantaged groups in the labour market, such as youth, women, older workers and the long-term unemployed. It is commonly argued that the employment-to-population rate is a better overall indicator of labour market performance than the unemployment rate, because *open* unemployment (i.e. the variable used in pooled regressions for the unemployment rate) excludes unemployed individuals participating in ALMPs[63]. Scarpetta (1996) argues that a fall in the aggregate unemployment rate can be misleading, reflecting net inflows of unemployed people into active programmes and, therefore, not representing a genuine improvement in labour market conditions.

In the remainder of this section, selected macro-economic studies that evaluate the effectiveness of ALMPs are briefly summarised, starting with Scarpetta (1996) who used annual data from 17 OECD countries over the period 1983–1993. This study uses expenditure on active measures per unemployed person relative to output per capita as the ALMP variable. In an unemployment

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61   This principally involves two dimensions: duration of eligibility and the replacement ratio (the ratio of unemployment plus related welfare benefits to previous labour income).

62   Inclusion in pooled regressions of a variable for the stance of ALMPs raises the problem of endogeneity, which tends to bias parameter estimates. The solutions to this problem adopted in the literature are not entirely satisfactory. For example, Scarpetta (1996) and Elmeskov et al. (1998) use as a regressor, the average over the sample period of the ALMP variable used as a proxy for the stance of ALMP (public spending on ALMPs per unemployed person relative to output per capita). Consequently, model specifications have to be estimated assuming random effects. In order to investigate the impact of ALMPs by category, Boone and Van Ours (2004) use the shares of various ALMP expenditures in total expenditure, assuming that expenditure shares are independent of cyclical conditions. The OECD (2006) seems to prefer the use of an instrumented ALMP variable, using as instruments various lags of the output gap.

63   An additional argument often heard in favour of using employment-to-population rather than unemployment-based indicators for assessing labour market developments is the need to cope with the expected consequences of population ageing. Ageing-related concerns partly underpin a number of **priorities for action** defined in the 2006 Annual Progress Report on the renewed Lisbon Strategy (http://ec.europa.eu/growthand-jobs/annual-report_en.htm), particularly the policy priority for action to "*attract and retain more people in employment, increase labour supply and modernise social protection systems*".

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rate equation, introduction of this variable as a proxy for the active policy stance is likely to lead to simultaneity bias in the estimated parameters[64]. It found some evidence, albeit inconclusive, suggesting that spending on ALMPs has a positive impact on aggregate labour market variables[65].

Scarpetta's (1996) main findings suggest that although ALMPs appear to have a negative impact on the unemployment rate[66], spending on ALMPs gives rise to large substitution and displacement effects on employment. The results also suggest a significant negative correlation between ALMPs and non-employment rates, which indicates that active policies have a positive effect on labour force participation, keeping otherwise discouraged workers in the labour force.

Elmeskov et al. (1998) used annual data from 19 OECD countries over the period 1983–1995. The variable used to proxy active policies is again public spending on ALMPs per unemployed person relative to output per capita[67]. This study found that ALMP spending has a negative impact on the unemployment rate, though only marginally significant. However, Scarpetta (1996) showed that the presence of Sweden in the pool is crucial for this weak result. Exclusion of Sweden from the pool, on

the grounds that it is an outlier in terms of intensity of active spending[68], significantly increases the magnitude and statistical significance of the estimated coefficient for the ALMPs variable.

Nickell and Layard (1999) used two 6-year averages from 20 OECD countries over the period 1983–1994. The ALMP variable is spending per unemployed person as a percentage of GDP per member of the labour force. This study found that spending on ALMPs has a negative impact on the unemployment rate but no significant effect on the employment-to-population rate[69]. The negative impact of ALMPs on the unemployment rate is stronger than that found in Elmeskov et al. (1998).

Using annual data from 19 OECD countries over the period 1985–1999, Boone and Van Ours (2004) evaluated the impact of different types of active measures on the unemployment and the employment-to-population rates. This study found that expenditure on labour market training has the largest (positive) impact on labour market outcomes. Expenditure on PES appears to be able to reduce the unemployment rate but does not affect the employment-to-population rate. Expenditure on employment incentives seems to be largely ineffective for improving either the unemployment or the employment-

to-population rates. The generosity of UB and labour market training were found to be complementary[70].

As regards the latter result, it is commonly argued that spending on ALMPs provides an incentive mechanism, particularly when part of an activation strategy, mitigating the moral hazard problems caused by high UB replacement ratios. In practice, it is usually found that the threat of referral to ALMPs by the PES tends to deter would-be UB claimants. This incentive/ disciplinary role of ALMPs could partly explain the high correlation between spending on active and passive measures in Nordic countries.

Boone and Van Ours (2004) put forward a different reason for countries to run simultaneously high-expenditure training programmes and have a UB system with a high replacement ratio. If training programmes improve workers' qualifications, an increase in both the quality and duration of job matches should be expected, and consequently a reduction in the frequency and length of future spells of unemployment. Under these circumstances, a high UB replacement ratio might be desirable (i.e. complementary to training programmes), given that it could reduce the incentive of participants to accept job offers prematurely – before com-

64   This occurs when governments react to changes in unemployment with changes in total spending on ALMPs, making it difficult to identify the effect on aggregate unemployment due to spending on active policies.

65   This study considers either the unemployment or the non-employment rates as the independent variable. The pooled data regressions use as explanatory variables both time-varying measures (UB generosity, union density, coordination, centralisation, tax wedge, real interest rate, terms of trade, trade restrictions as a proxy for product market competition, output gap) and time-invariant or period averages (employment protection legislation, ALMPs). This study also considers some policy interactions, namely between union density and coordination/centralisation.

66   A rise in the ALMP variable reduces the unemployment rate.

67   This study considers the unemployment rate as the independent variable. The pooled data regressions use as explanatory variables both time-varying measures (UB generosity, union density, coordination, centralisation, tax wedge, employment protection legislation and output gap) and time-invariant or period averages (ALMPs). The study considers some policy interactions, namely between UB generosity and ALMPs.

68   Calmfors et al. (2001) argue that the rapid growth of expenditure on ALMPs in the 1990s has probably run into the region of diminishing marginal returns, particularly regarding its effectiveness in reducing open unemployment.

69   This study considers the logarithm of either the unemployment or the population-to-employment rates as the independent variable. The cross-country regressions use as explanatory variables period-average measures (UB replacement rate, benefit duration, union density and coverage, coordination, tax wedge, employment protection legislation, instrumented ALMPs and changes in inflation as a proxy for cyclical conditions). The ALMPs variable is instrumented given its highly endogenous nature. The instrument used is active labour market spending as a percentage of current GDP over the period-average unemployment rate. The study does not consider any policy interactions.

70   This study considers either the unemployment or the employment-to-population rates as the independent variable. The pooled data regressions use as time-varying explanatory variables: the generosity of UB; expenditure shares of ALMP categories in total ALMP spending in the fixed effects specification, or period averages of ALMPs spending by category in the random effects model; and changes in inflation as a proxy for cyclical conditions. The study considers some policy interactions, namely between the generosity of UB and ALMPs expenditure shares by category.

pleting their training. This effectively means that "locking-in" trainees into training, until completion of the programme, could pay off in terms of better quality and more stable jobs in the future.

According to the comprehensive analysis carried out during the recent review of the OECD Jobs Strategy (OECD, 2006), including extensive sensitivity analysis of the robustness of the results, the Secretariat's main findings on the effectiveness of ALMPs are: a) no significant effect of aggregate spending on ALMPs could be identified on the total unemployment or the total employment-to-population rates; b) labour market training is the only ALMP category for which a negative (positive) coefficient in the unemployment (employment-to-population) rate equations appears to be statistically significant and robust across a number of model specifications[71]; c) the positive impact of generous UB on the unemployment rate[72] seems to be counterbalanced by high public spending in ALMPs; and d) youth measures are found to exert a positive impact on the youth employment rate, above the effect estimated for training measures[73].

4.3. Reconciling the results from the micro and macro analyses

The results of micro-econometric programme evaluations and of macro-econometric studies are somewhat conflicting. On the one hand, micro-econometric programme evaluations usually find that training programmes have rather mixed effects, but nearly always a statistically insignificant impact on the future employment prospects of participants. On the other hand, macro-econometric studies usually find that training is the only category of ALMP that seems to have a significant positive impact on aggregate labour market outcomes[74].

From this it would appear that extending the observation window of training programmes to post-programme effects could potentially solve this paradox. In fact, even if training programmes were to have an insignificant or even slightly negative impact on the job-finding rate, which would go some way in explaining the relatively poor or mixed results reported in the literature evaluating training programmes, a significant reduction in the separation rate following participation in training could still cause an overall drop in the equilibrium unemployment rate, thus accounting for the favourable macro-economic effects.

Boone and Van Ours (2004) developed a general equilibrium matching model that is capable of solving this paradox. They model separately the effects of different categories of ALMPs, namely training, employment subsidies and PES, constructing a rich model which, after calibration, can make predictions about (the sign and magnitude of) many policy interactions. For example, the model does in fact support the empirical finding that expenditure on training and the generosity of UB are complementary in terms of their effects on the unemployment rate[75].

Boone and Van Ours (2004) found that training has small and ambiguous effects on the job-finding rate, which could explain the mixed results in the micro-econometric evaluation literature, which, in their opinion seem largely to reflect the usually short observation windows for post-programme outcomes. At the same time, in their theoretical model training raises the quality and average duration of job matches, reducing inflows into unemployment (i.e. the job-separation rate), thus yielding a lower equilibrium unemployment rate. The latter effect could explain the significantly positive impact of training found in macro-econometric evaluations.

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71   However, the OECD (2006) warns against drawing hasty conclusions about the relative effectiveness of active policies by main category. For example, "…a decline in the ratio of PES expenditures to GDP could well reflect an increase in efficiency through cuts in administrative costs rather than a decline in the "quality" of services provided to the unemployed. As a result, the lack of significance of ALMP categories other than training programmes does not necessarily imply that these are ineffective".

72   A rise in the generosity of the UB variable increases the unemployment rate.

73   The apparent effectiveness of youth measures in raising youth employment rates, compared with their insignificant impact on aggregate unemployment, suggests significant substitution effects favouring young people.

74   By design, micro-econometric evaluations do not consider "indirect" effects and generally do not take into consideration long run effects, because of the short observation windows available for the post-programme outcomes for participants. For these reasons, OECD (2006) argues that micro-econometric evaluations "…might tend to be overly optimistic as regards programmes involving large potential substitution effects (e.g. employment subsidies) as well as overly pessimistic on programmes that are likely to pay off only in the long run (e.g. training)".

75   For a given generosity of UB, raising expenditure on training tends to lower the unemployment rate.

5. Interactions between active and passive policies

Both theoretical models (e.g. Coe and Snower, 1997; Boone and Van Ours, 2004) and empirical results (e.g. OECD, 2006) suggest that it is very important to consider the interactions between active and passive LMPs in order to increase the effectiveness of active policies (Grubb and Martin, 2001). On the one hand, providing adequate insurance income through UB can have significant disincentive effects on job search, and a negative impact on the wage setting behaviour of employees and employers. On the other hand, ALMPs, particularly when well designed and integrated into activation strategies, can raise future employment and income prospects for participants in programmes. It is therefore important to pay attention to the interactions (or synergies) between ALMPs and UB systems.

The presence of private[76] information may explain why the private sector fails to provide unemployment insurance (Chiu and Karni, 1998)[77]. Since the beginning of the twentieth century, many European countries have created public unemployment insurance systems. Governments also intervene to provide social assistance based on means-tested income. Besides providing income insurance against unem-

ployment, UB is also a subsidy for job-search, potentially yielding an improvement in the quality and duration of job matches. High UB paid over a sufficiently long period can allow unemployed individuals to be more selective about the quality of the jobs they accept.

UB have multiple dimensions (e.g. the level of payments, the duration over which they are paid, the eligibility conditions and the strictness of administration) besides interacting with other labour market policies/institutions, such as ALMPs or wage bargaining (centralisation/coordination). All these interactions call for careful consideration of the potential impact of UB on labour market outcomes. Moreover, UB are usually associated with a number of well-publicised drawbacks, such as lowering job-search intensity and increasing the reservation wage. All other things being equal, these two effects tend to reinforce each other, putting upward pressure on wages, prolonging the duration of unemployment and, thereby, increasing the equilibrium level of unemployment.

5.1. The replacement ratio

A first step towards analysing interactions between active and passive LMPs would be to compare UB with compensation paid to participants in ALMPs. Unfortunately, data are only available for the former, and not for the latter. However, Grubb and Martin (2001)

argue that there is a strong correlation between spending per beneficiary on active and passive measures and that in many countries *"…participants in some active measures are paid unemployment benefits, sometimes with a small top-up"*.

The standard indicator of the generosity of the UB system is the replacement ratio (i.e. the ratio of unemployment plus related welfare benefits to previous labour income). The OECD has constructed both gross and net indicators for the replacement ratio[78]. The gross indicator of UB is defined as the unweighted arithmetic average of separate gross replacement ratios covering two earnings levels[79], three family situations[80] and three durations of unemployment[81] (i.e. the unweighted average of eighteen indicators)[82].

Table 6 presents time-series estimates of the summary gross replacement ratio for every odd-numbered year since 1961. The average for the EU Member States for which there are data suggests that the gross replacement ratio has approximately doubled since 1961. However, Table 6 shows that the summary ratio remained fairly stable or even fell over the same period in Belgium, Germany and the United Kingdom. Gross replacement ratios across EU Member States have not only been rising, but also converging significantly, as indicated by the coefficient of variation.

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76 The presence of private (or asymmetric) information in a market can result in significant market inefficiencies. The classical example of private or asymmetric information is the market for used cars where the seller knows more about the quality of the car being sold than potential buyers.

77 The literature on insurance economics suggests that the presence of private information or aggregate risk may hinder the provision of insurance by the private sector. Unemployment risk is particularly susceptible to market failures, because employees eligible for unemployment insurance are responsible for two types of (hidden) action that give rise to moral hazard: a) the efforts (or the intensity) of search for a new job while unemployed; and b) employees' efforts on the job which affect their job performance and thus the probability of them being laid off.

78 *"There is no such thing as **the** replacement ratio in any (OECD) country, rather there are a myriad of replacement ratios corresponding to the specific personal and family characteristics of the unemployed, their previous history of work and unemployment, and the different structures and entitlements of unemployment insurance and social assistance systems in (OECD) countries and the ways in which these systems interact with tax systems", Martin (1996).*

79 Two different levels of previous earnings in work: a) average earnings and b) two-thirds of average earnings.

80 Single person, married person with a dependent spouse, and married person with a spouse in work.

81 Three different durations of unemployment for a person with a long record of previous employment: the first year, second and third years, and fourth and fifth years of unemployment.

82 In all cases, the replacement ratios refer to a 40-year-old worker since this is considered to be a good approximation to the average situation for an unemployed person.

A joint Eurostat/OECD project has put a considerable amount of resources into calculating net (i.e. after-tax) replacement ratios[83]. For the OECD as a whole, net replacement ratios are around two-thirds higher than the average gross replacement ratio. This is essentially due to the progressiveness of the tax system and income redistribution policies. Although there are no internationally comparable time-series for net replacement ratios going back to the early 1960s, given the strong positive correlation between gross and net ratios, it seems likely that net replacement ratios have also been following a significant upward trend over the past three decades.

Although the United States has a considerably lower summary gross replacement ratio than the EU average (see Table 6), after correcting for the influence of taxation and of income redistribution policies (see Tables 7 and 8), net replacement ratios, which are a preferable indicator for the impact of UB on incentives, unexpectedly turn out to have similar values, particularly in the case of two-earner married couples.

The criticism directed at UB is well-known. It is frequently argued that if the UB system results in an over generous replacement ratio and long entitlement periods then, all other things being equal, UB tend to reduce the incentive to look for a job

Table 6 – OECD's summary gross replacement ratio, 1961-2003

	1961	1963	1965	1967	1969	1971	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
AT	20	18	16	13	22	23	21	21	26	29	29	25	29	28	29	31	27	33	32	33	32	32
BE	42	38	32	30	41	41	46	47	47	46	45	44	43	43	42	42	40	39	40	39	38	42
DE	20	21	19	21	27	34	36	39	44	50	54	56	53	49	52	52	51	65	62	61	51	50
FI	5	5	4	4	6	8	28	24	29	27	24	25	34	36	34	39	38	36	34	34	35	36
FR	25	25	25	25	27	24	23	26	24	24	31	31	34	38	37	38	38	37	37	37	44	39
DE	30	30	30	30	30	29	28	29	29	30	29	29	28	28	28	29	28	26	26	27	30	29
EL	6	6	6	6	6	6	6	6	6	6	6	6	7	8	7	13	13	15	16	17	13	13
IE	17	17	17	18	16	17	16	21	27	28	28	32	28	30	27	29	31	26	29	29	36	38
IT	4	3	2	3	2	2	1	2	1	1	1	1	0	0	3	3	17	19	18	34	34	34
NL	13	13	48	46	48	48	48	48	48	47	48	47	55	57	55	53	53	52	52	52	53	53
PT	0	0	0	0	0	0	0	5	5	7	9	7	22	31	32	34	35	35	35	45	41	41
ES	9	9	19	19	19	12	13	21	21	21	28	28	34	34	32	34	32	39	39	38	36	36
SE	4	4	5	5	7	6	7	22	24	25	25	28	28	30	29	29	28	27	27	24	24	24
UK	24	25	26	28	27	25	24	22	25	24	24	22	21	19	18	18	19	18	18	17	17	16
EU-14 a)	16	15	18	18	20	20	21	24	26	26	27	27	30	31	30	32	32	33	33	35	34	34
EU-14 b)	0.8	0.8	0.8	0.8	0.7	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3
US	7	10	9	10	9	11	11	12	15	12	15	14	15	11	11	11	12	12	14	14	14	14
JP	12	12	12	12	12	13	13	13	9	9	9	9	10	10	10	10	10	10	11	12	9	8

1. The OECD summary measure is defined as the average of the gross unemployment benefit replacement rates for two earnings levels, three family situations and three durations of unemployment. For further details, see OECD (1994), The OECD Jobs Study (chapter 8) and Martin J. (1996), "Measures of Replacement Rates for the Purpose of International Comparisons: A Note", OECD Economic Studies, No. 26.

Source: OECD, Tax-Benefit Models. www.oecd.org/els/social/workincentives.
a) The simple arithmetic average of the preceding 14 EU Member States.
b) The coefficient of variation (i.e standard deviation over the average).

83   The calculation of net replacement ratios results from an on-going joint European Commission (DGs ECFIN, EMPL, TAXUD and coordinated by Eurostat)/OECD project aimed at monitoring the direct influence of tax and benefit instruments on household incomes (see Carone et al., 2004).

Table 7 – Net Replacement Rates for six family types: initial phase of unemployment
2004, different earnings levels (1)

| | 67% of APW | | | | | | 100% of APW | | | | | | 150% of APW | | | | | |
| | No children | | | 2 children | | | No children | | | 2 children | | | No children | | | 2 children | | |
	Single person	One-earner married couple	Two-earner married couple	Lone parent	One-earner married couple	Two-earner married couple	Single person	One-earner married couple	Two-earner married couple	Lone parent	One-earner married couple	Two-earner married couple	Single person	One-earner married couple	Two-earner married couple	Lone parent	One-earner married couple	Two-earner married couple
AT	55	58	80	74	76	86	55	57	76	70	71	82	55	56	72	65	67	77
BE	83	71	83	79	75	85	63	54	71	64	59	74	46	41	59	49	46	63
CZ	50	50	76	64	60	79	50	50	72	64	61	74	50	50	67	57	60	68
DK	84	85	91	90	89	94	61	63	74	76	73	77	47	48	62	65	60	66
FI	73	80	81	88	85	86	60	67	75	80	79	79	48	52	66	65	62	70
FR	77	79	90	90	89	89	73	69	84	77	77	84	67	67	78	67	67	78
DE	62	65	89	82	82	93	61	60	86	75	77	91	62	61	83	69	71	88
EL	71	71	74	81	81	74	48	48	59	55	55	60	34	34	48	38	38	48
HU	58	54	77	70	69	81	43	39	65	53	52	70	34	31	57	44	43	62
IE	42	65	71	63	70	76	30	48	60	60	58	65	23	35	49	47	44	53
IT	50	50	78	54	55	84	54	56	75	60	62	79	46	50	65	56	58	69
LU	84	82	90	90	90	94	85	84	89	89	89	93	87	84	88	93	91	92
NL	81	87	84	85	87	85	71	76	82	80	80	83	59	60	72	64	62	73
PL	75	78	76	76	70	84	52	54	62	81	54	68	35	37	48	56	41	53
PT	81	79	92	93	93	91	78	77	89	87	86	88	84	79	89	82	78	88
SK	61	58	83	59	57	85	64	58	81	62	57	83	49	46	67	49	46	70
ES	76	73	88	77	77	89	69	69	82	75	75	87	48	48	65	60	60	74
SE	82	82	91	92	90	92	77	77	87	88	81	88	55	55	70	67	59	71
UK	63	61	63	71	69	77	45	45	52	65	65	65	31	31	42	50	50	52
EU-19 a)	69	70	82	78	77	85	60	61	75	72	69	78	51	51	66	60	58	69
US	62	61	82	52	51	84	62	62	77	61	59	80	45	45	62	43	43	64
JP	70	69	86	78	68	87	60	59	77	68	59	79	50	50	67	58	51	68

1. Initial phase of unemployment but following any waiting period. No social assistance "top-ups" are assumed to be available in either the in-work or out-of-work situation. Any income taxes payable on unemployment benefits are determined in relation to annualised benefit values (i.e. monthly values multiplied by 12) even if the maximum benefit duration is shorter than 12 months. For married couples the percentage of Average Production Worker (APW) relates to one spouse only; the second spouse is assumed to be "inactive" with no earnings in a one-earner couple and to have full-time earnings equal to 67% of APW in a two-earner couple. Children are aged 4 and 6 and neither childcare benefits nor childcare costs are considered.

Source: OECD, Tax-Benefit Models. www.oecd.org/els/social/workincentives.

a) The simple arithmetic average of the preceding 19 EU Member States.

Table 8 – Net Replacement Rates for six family types: long-term unemployment
2004, different earnings levels (1)

| | 67% of APW | | | | | | 100% of APW | | | | | | 150% of APW | | | | | |
| | No children | | | 2 children | | | No children | | | 2 children | | | No children | | | 2 children | | |
	Single person	One-earner married couple	Two-earner married couple	Lone parent	One-earner married couple	Two-earner married couple	Single person	One-earner married couple	Two-earner married couple	Lone parent	One-earner married couple	Two-earner married couple	Single person	One-earner married couple	Two-earner married couple	Lone parent	One-earner married couple	Two-earner married couple
AT	66	82	51	82	96	74	51	62	47	66	77	71	51	52	47	62	63	67
BE	69	71	75	79	75	77	52	54	64	64	59	68	39	41	53	49	46	57
CZ	44	70	53	70	81	65	30	50	43	57	68	55	21	35	34	42	52	44
DK	81	76	59	84	91	71	59	56	48	71	75	58	45	43	40	61	62	50
FI	67	85	63	75	94	74	49	64	53	64	81	63	36	47	44	50	61	53
FR	55	75	52	80	90	57	40	52	43	61	69	48	28	36	35	43	48	38
DE	81	84	59	92	84	66	60	62	50	72	67	58	54	54	52	61	64	57
EL	0	0	50	5	5	51	0	0	40	3	3	41	0	0	33	2	2	33
HU	35	35	50	46	44	55	25	25	42	34	33	47	20	20	37	29	28	42
IE	71	92	74	64	90	76	51	67	62	60	75	65	39	49	51	47	57	54
IT	0	0	56	0	0	65	0	0	47	0	0	56	0	0	38	0	0	46
LU	71	87	59	85	88	69	51	69	49	61	78	58	37	48	40	47	56	48
NL	82	91	52	79	88	55	61	73	44	67	75	47	40	49	34	47	52	37
PL	44	58	52	57	95	64	30	40	42	61	73	52	21	28	33	41	55	41
PT	35	68	52	84	87	71	25	48	42	61	81	59	18	33	34	45	58	48
SK	29	48	50	49	58	54	21	32	41	36	41	46	14	23	33	26	30	37
ES	35	43	53	54	61	53	25	31	44	39	43	44	18	22	35	28	30	35
SE	76	98	50	68	100	59	52	68	41	58	80	49	37	48	33	44	58	40
UK	63	75	52	71	79	73	45	56	43	65	74	62	31	39	35	50	57	50
EU-19 a)	53	65	56	64	74	65	38	48	47	53	61	55	29	35	39	41	46	46
US	9	16	54	42	48	65	7	11	44	34	39	54	5	8	34	24	28	43
JP	49	71	51	82	87	62	33	48	41	62	71	51	23	33	32	46	50	40

1. After tax and including unemployment benefits, social assistance, family and housing benefits in the 60th month of benefit receipt. For married couples the percentage of APW relates to one spouse only; the second spouse is assumed to be "inactive" with no earnings in a one-earner couple and to have full-time earnings equal to 67% of APW in a two-earner couple. Children are aged 4 and 6 and neither childcare benefits nor childcare costs are considered.

Source: OECD, Tax-Benefit Models. www.oecd.org/els/social/workincentives.

a) The simple arithmetic average of the preceding 19 EU Member States.

(i.e. job-search intensity), to increase the reservation wage and put upward pressure on wage bargaining. All things considered, over generous and long-lasting UB are likely to raise unemployment but, above all, to lengthen spells of unemployment, weakening the attachment of the unemployed to the labour market.

5.2. The coverage rate of unemployment benefits

However, a number of qualifications are necessary, regarding the potential disincentive effects of UB. Firstly, the impact of a given UB system depends largely on coverage rates. A large proportion of unemployed people are not eligible for UB in EU Member States for one of several reasons, such as being new entrants to the labour market or reaching the end of the eligibility period after a long spell out of work[84]. The coverage rates of UB tend to be rather low in southern European countries (see Table 9) compared to other EU Member States. From a theoretical perspective, the ineligibility of unemployed persons for UB tends to reduce their bargaining wage, because of the prospects of becoming eligible for UB in future if they take a job. Therefore, an increase in the replacement ratio should reduce unemployment among ineligible persons but, since it increases unemployment among those eligible, its effect on the total unemployment rate is ambiguous (Cahuc and Zylberberg, 2004).

5.3. Unemployment benefits, productivity and job quality

Besides providing unemployment insurance against the risk of job loss, thereby smoothing consumption fluctuations, UB are a subsidy for job search. Using a general equilibrium model, Acemoglu and Shimer (2000)[85] showed that economies with moderate UB can have higher output and welfare than those with lower levels of unemployment insurance, because unemployment insurance encourages workers to look for more productive, although more vulnerable jobs. Even if UB increases unemployment, moderate UB could increase the quality of job matches and so their productivity, outweighing the effect of the rise in unemployment on output and welfare. This result contrasts sharply with the conclusions drawn from partial equilibrium job search models that empha-

sise the moral hazard effects of unemployment insurance.

5.4. A review of empirical studies

This section gives an overview of the empirical literature (both micro- and macro-econometric) evaluating the impact of UB on labour market outcomes. As regards the macro-econometric literature, particular emphasis is placed on the interactions (or synergies) between UB systems and LMPs or institutions.

5.4.1. Micro-econometric evaluation

Using micro-data, and in particular longitudinal data[86], many empirical studies have investigated the determinants of exit rates from unemployment. This follows the seminal work on job-search models by Mortensen

Table 9 – Percentages of unemployed persons qualifying for unemployment benefits in 1995	
AT	66
BE	81
DK	66
FI	73
FR	45
DE	70
EL	9
IE	67
IT	7
NL	50
PT	27
ES	24
SE	70

Source: Manning (1988, table 1, p. 144; op. cit. Cahuc and Zylberberg, 2004).

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84 A low coverage rate by UB is often associated with high youth unemployment rates, as first-time job seekers typically do not qualify for UB. Unemployed people not covered by UB may, however, receive social assistance.

85 Acemoglu and Shimer (2000) developed a dynamic general equilibrium labour market search model in which workers take decisions on search effort, job applications and savings. The model is calibrated using plausible assumptions about preferences, the unemployment rate and the unemployment insurance system for US workers with a high-school degree. The model performs well in a number of dimensions, including the decline in consumption following job loss and the responsiveness of duration of unemployment and wages to the magnitude and duration of UB. The result that economies with moderate UB have higher output and welfare than those without social insurance is very robust to different parameter values.

86 Longitudinal data refer to the same group of individuals measured repeatedly over time. Longitudinal data contrast with cross-sectional data, which make a single-time observation for each individual.

(1990) and Van Den Berg (1990) that provided the first rigorous study of the impact of UB[87]. In general, empirical studies find that more generous UB systems extend the duration of unemployment. Krueger and Meyer (2002) provide an overview of many studies, particularly for the US, finding that the average estimate for the elasticity of the duration of unemployment to the indicator used to reflect benefit generosity is close to 1[88]. According to the OECD (2006), a number of recent micro-data studies for European countries have obtained similar estimates.

Using experimental data for the US, Moffitt (1985) and Katz and Meyer (1990) suggest that extension of the entitlement period results in a significant increase in the average duration of unemployment. Using US survey data, Meyer (1990) highlights the finding that the exit rate out of unemployment shows considerable discontinuity in the period immediately before UB expires. Dormont et al. (2001) and Van Ours and Vodopivec (2004), using data for France and Slovenia respectively, arrive at similar results, namely a significant spike in the exit rate out of unemployment around the period when benefit expires.

These empirical results suggest that the impact of UB on the average duration of unemployment does indeed follow the theoretical predictions of the job-search model. However, the disincentive effects of UB systems on labour supply tend to be relatively moderate and have to be weighed against the cost of poor quality job matches that might result from over stringent UB systems, together with possible redistribution objectives.

Many OECD countries have adopted policy measures aimed at increasing the intensity and efficiency of job search, and mitigating the disincentive effects of UB on labour supply. These have generally combined a number of moves, such as: a) strengthening counselling and job brokerage assistance; b) measures to check compliance with eligibility conditions and job search requirements; c) financial sanctions to enforce job search obligations and/or acceptance of suitable job offers; and d) payment of in-work benefits upon return to work.

Following the guidelines set in the EES, EU Member States have developed activation strategies to coordinate benefit administration for public unemployment insurance with expenditure on ALMPs. Within this, the "mutual obligations" principle plays a central role in activation strategies. On the one hand, PES should provide quality counselling and job brokerage services, while on the other hand the unemployed should comply with the obligations to actively search for a job and to accept suitable job offers. Both economic theory and empirical results strongly suggest significant interactions between UB and activation policies, meaning that disincentive effects associated with over-generous (i.e. high and long-lasting) UB can be, at least partially, counteracted by the adoption of well-designed ALMPs.

5.4.2. Policy interactions and the political economy of reforms

An overview of macro-econometric evaluations of the impact of LMPs and institutions on labour market outcomes was presented earlier (see in Section 4.2.). In this section attention turns to the interactions between policies and institutions and to the lessons that can be learned from this type of analysis for designing successful reform strategies.

A number of authors have suggested that LMPs and institutions show a large number of interactions (e.g. Coe and Snower, 1997; Orszag and Snower, 1999; Belot and Van Ours, 2004). Theoretical analysis suggests that virtually all interactions across policies and institutions can potentially affect labour market outcomes, therefore requiring empirical assessment in order to identify which ones are actually significant.

Orszag and Snower (1999) argue that major LMPs and institutions "…*are characterised by economic complementarities (in the sense that the effectiveness of one policy depends on the implementation of other policies) and policy complementarities (in that the ability to gain political consent for one policy depends on the acceptance of other policies)"*.

As regards policy complementarities, one strand of the economic literature emphasises political economy arguments (e.g. Saint-Paul, 1996; Saint-Paul, 2000). Labour market inefficiencies, and the

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87   According to Holmlund (1998), rational job search behaviour (by an unemployed individual receiving UB) implies the following. Firstly, that the unemployed individual's reservation wage (i.e. the minimum wage for accepting a job offer) declines as the date when UB expires approaches. Secondly, an increase in UB lowers the reservation wage for those currently ineligible for benefit, because of the prospect of becoming eligible in future if they take a job (i.e. the "entitlement effect"). Thirdly, a rise in the benefit level will cause recently unemployed individuals to increase their reservation wage, while insured individuals approaching the end of the benefit period will reduce their reservation wage.

88   Early estimates of the impact of benefit generosity on unemployment duration pointed to a slightly lower elasticity in the range of 0.2 to 0.9 (Layard et al., 1991). However, Krueger and Meyer (2002) argued that more recent literature provides much more reliable estimates of the causal impact of UB on labour supply than earlier studies due to methodological advances.

difficulty or even inability to carry through reforms, might result from a *status-quo* bias that protects the entrenched interests of "insider" employees as opposed to those of "outsider" groups, such as the unemployed or temporary workers, leading to a segmented labour market epitomised by two-tier policies, institutions and outcomes. Although providing potentially valuable insights explaining labour market policy and institutional landscapes, coupled with the usual difficulty in implementing successful reform strategies, the political economy approach could be considered complementary to the mainstream view that institutions (and their rigidities) may actually enhance economic efficiency, because they have been set-up (presumably) as a second-best policy instrument to correct market failures (Alogoskoufis et al., 1995), or as an income redistribution tool.

A number of researchers have emphasised the importance of not treating differences in policies and institutions across countries as exogenous, but instead viewing them as the outcome of a political process (Hassler et al., 2005). Making political decisions endogenous can produce self-reinforcing mechanisms, leading to multiple equilibria that display a high degree of persistence. Hassler and Rodríguez-Mora (1999) developed a model in which stakeholders vote to determine the UB system. If labour turnover rates

are made endogenous, there can be multiple steady-state equilibria, which can be seen as stylised representations of the US and European labour market and social models respectively[89].

Making policy decisions endogenous can create self-reinforcing mechanisms between, on the one hand, policies and institutions and, on the other hand, labour market outcomes, potentially yielding multiple and stable equilibria. Policies and institutions create their own constituencies, influencing socio-economic behaviour, which in turn feeds back into the political process. The main beneficiaries of a particular measure can often muster strong support for it, even when in the minority, carrying the day against the majority who do not feel particularly strongly about it, because they incur diffuse losses.

Two more studies illustrate the existence of multiple equilibria and their significance in explaining major differences between Anglo-Saxon and continental European countries in terms of labour market institutions and outcomes[90].

Belot (2004) presents a labour matching model where labour migration and EPL are both determined endogenously. The author argues that migration opportunities determine preferences for EPL. If there are no migration opportunities workers will vote for EPL, but if there are migration opportunities work-

ers will prefer their jobs not to be protected so as to facilitate reallocation from low- to high-productivity jobs[91]. Therefore, EPL and migration between heterogeneous regions can be seen as two alternative strategies at the disposal of workers to protect their income.

Hassler et al. (2005) built a dynamic general equilibrium model to explain cross-country differences on labour mobility, unemployment and labour market institutions, where UB are determined endogenously through the political process. Attachment of individuals to their place of residence is assumed to increase with duration of stay. UB will tend to reduce incentives to migrate and so increase the proportion of individuals attached to their place of residence and hence the political support for (a generous) UB system. In this model, making UB endogenous can generate self-reinforcing mechanisms between labour market attachment and political preferences, giving rise to multiple and stable equilibria, which can be taken as approximating the European and US situations of high (low) UB and low (high) migration flows respectively.

According to the OECD (2006), there is robust evidence for two types of interactions between institutions and policies on the labour market, namely: a) UB and activation policies; and b) taxes on labour income and minimum wages[92]. In particular, the negative

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89   On the one hand, high (low) UB cause low (high) labour market turnover, and low (high) turnover causes high (low) political support for UB. The latter because low (high) turnover means that income shocks associated with unemployment are more persistent than when turnover is high (low), requiring a higher (lower) degree of social protection, because resorting to private saving and borrowing becomes less (more) efficient in smoothing income fluctuations.

90   A vast amount of literature exists on the diversity or "varieties" of capitalism (e.g. Hall and Soskice, 2001; Amable, 2003). This theory provides a taxonomy of national economic systems, identifying different "models" characterised by specific complementary institutional features. Amable (2003) argues that "…*continental European economies will most likely stay very different from the market-based economies, and that political strategies promoting institutional change aimed at convergence with the Anglo-Saxon model are bound to meet considerable opposition"*.

91   Belot (2004) points out that although empirical studies fail to identify any significant and robust negative impact of EPL on either employment or unemployment rates, they find that EPL reduces the pace of reallocation on the labour market by lowering both the job-finding and firing rates. Consequently, "…*countries with low migration costs and high economic heterogeneity may prefer no employment protection so that workers can move quickly to better horizons than being maintained in low productive activities"*.

92   Interaction a) because the disincentive impact of high and long-lasting UB can be mitigated through "activation" policies. Interaction b) because high taxes on labour income appear to have a particularly negative effect on employment when contractual wages cannot fall due to binding wage floors.

      The OECD (2006) found that adding to a baseline cross-country unemployment regression a term for the interaction between the average benefit gross replacement ratio and a summary measure of ALMPs spending, yielded significant and robust estimates across a number of specifications and estimation methods. The estimates obtained suggest that the disincentive effects on labour supply of generous UB become statistically insignificant in high ALMP-spending countries, such as Denmark and the Netherlands.

impact of generous UB on labour market variables appears to be counteracted by high government expenditure on ALMPs, particularly when they form part of an activation strategy. A number of recent empirical studies (e.g. Boone and Van Ours, 2004; Kluve et al., 2005) conclude that disincentives for labour supply due to generous UB can be partly offset through benefit administration practices that use (the threat of) financial sanctions to impose and enforce an obligation on the unemployed actively to search for work on the one hand and, on the other, to accept reasonable job offers.

According to the OECD (2006), there is also evidence that expenditure on ALMPs lessens the impact of economic shocks on unemployment and reduces their persistence.

In the OECD (2006) Jobs Strategy review, empirical analyses found that complementary reforms can add up to one-fifth to the unemployment effects of separate reforms. Consequently, well-designed reform packages can yield larger employment gains than piecemeal reforms. In fact, a labour market reform that tends to lower unemployment is likely to complement all those reforms that head in the same direction.

A variety of circumstances, such as political economy arguments, the preferred (or perceived) balance between efficiency and equity considerations, and the nature (or quality) of the social dialogue, can favour the adoption of

different reform strategies or policy packages. Usually, insider employees are the main force opposing reforms designed to lower unemployment (Saint-Paul, 2004). In order to cope with the potential opposition and make reform more politically feasible, governments adopt different strategies, depending largely on the quality of industrial relations[93].

In line with the literature on economic systems (e.g. Amable, 2003), the OECD (2006) concludes that "…*the experience over the past two decades shows that there is no single combination of policies and institutions to achieve and maintain good labour market performance".* Moreover, "*…countries can adopt different reform strategies and yet they have achieved similar outcomes suggesting that there exist different policy packages",* which are functionally equivalent, although "*…in practice there are few feasible policy combinations to achieve employment outcomes. A successful package needs to be coherent and embody a good overall incentive structure*."

According to the OECD (2006), two policy packages have been successful. The first consists of: a) a limited role for collective agreements; b) strong product market competition; c) low levels of welfare benefits and active policies, as well as limited taxation to fund labour market policies; and d) a light labour market regulatory environment (e.g. the UK). The second policy package comprises: a) strong emphasis on collective bargaining and social dia-

logue; b) significant product market competition; c) generous welfare benefits and active policies, while imposing and enforcing strict job search conditions for receipt of benefit in order to activate job seekers; and d) more restrictive labour market regulations than in the first successful policy package (e.g. Denmark).

Both policy packages achieve similar outcomes in terms of high employment and low unemployment rates. The major differences between the two successful policy packages or models in terms of socio-economic indicators are that the first package is associated with relatively high in-work poverty and low budgetary costs for LMPs and, the second with relatively low in-work poverty, albeit achieved at a relatively high budgetary cost.

5.5. The trade-off between EPL and UB

Stringent EPL is often blamed for the unfavourable labour market performance in Europe. A considerable amount of research has been carried out to evaluate the impact of EPL on aggregate labour market variables and labour mobility[94]. Calibration exercises[95] and empirical studies[96] consistently come up with two major findings. Firstly, the impact of EPL on aggregate labour market variables (i.e. employment and unemployment rates) is weak with an ambiguous sign. Secondly, labour market transitions[97], especially between employment and unemployment, are slowed down considerably.

93   For example, the extent to which trade unions and employers' organisations share common views on how the labour market functions, are able to agree on common objectives and have high mutual trust. Blanchard and Philippon (2004) suggest that the quality of labour relations partly explains cross-country variations in unemployment trends in Europe over the past thirty years.

94   The impact of EPL on labour market outcomes also depends on the nature of and interactions between other institutions on the labour market.

95   Using either a general equilibrium matching model (e.g. Mortensen and Pissarides, 1999) or a partial equilibrium labour demand model with adjustment costs (e.g. Bertola, 1999), calibration exercises suggest that the impact of dismissal costs on unemployment is weak with an ambiguous sign, although they significantly reduce labour mobility.

96   Panel estimates of the determinants of structural unemployment generally find that EPL has no significant effect on the level of unemployment (e.g. Nickell et al., 2003), although there seems to be a positive correlation between EPL and the persistence of unemployment to economic shocks (e.g. Blanchard and Wolfers, 2000).

97   In order to analyse the ease of labour reallocation, labour and job turnover measures are usually calculated (Bertola et al., 1999; Blanchard and Tirole, 2003).

Countries with comparatively stringent EPL usually display: a) lower unemployment in- and outflows; b) long duration of unemployment, with high long-term and low short-term unemployment; and c) high average job tenure. In such countries, unemployed workers find themselves at a particular disadvantage given the low inflow into employment, which, all other things being equal, prolongs the expected average spell of unemployment.

Although the overall effects are weak, there is ample evidence to suggest that stringent EPL favours the development of two-tier labour markets, worsening the prospects of certain groups at the "margins of the labour market", such as young people, some women and older people. Political economy arguments can explain the persistent difficulties faced by governments in reducing overall EPL, often leading to the adoption of partial reform strategies that involve lowering EPL for temporary employment only. Employment protection favours insiders, who are predominantly prime-age males, but is detrimental to the employment opportunities of outsiders, who come more frequently from other groups (see Chart 8)[98].

Many studies find that although job dismissals tend to be much more regulated in Europe than in the US, the rates of job creation and destruction (i.e. job turnover) are remarkably similar. The main explanation seems to be that there are other differences between countries that offset job creation and destruction (such as wage compression effects). The evidence is consistent with standard discussions of labour market institutions, which typically identify firing costs and wage compression as amongst the most distinctive characteristics of European and North American economies.

A number of authors (e.g. Hopenhayn and Rogerson, 1993; Bertola, 1994) have suggested that low labour turnover rates (i.e. a symptom of sclerotic labour markets) might have a negative impact on economic growth by slowing down labour reallocation[99]. However, job turnover rates[100] turn out to be remarkably similar across countries despite significant differences in their EPL systems (Nickell and Layard, 1999). Whereas labour transition rates are important as determinants, for example, of the expected duration of a spell of unemployment, economy wide job turnover indicators

are relevant to assess the ease of labour reallocation from low-productivity (or declining) to high-productivity (or expanding) sectors.

A number of ideas have been put forward to explain the paradox of different labour turnover rates but similar job turnover rates across countries, and that a stringent EPL does not seem to be systematically associated with weaker labour reallocation, necessarily yielding low-productivity growth. For example, firms can reduce employment by at least 10% per year just by relying on the normal attrition of labour levels (Nickell and Layard, 1999); Bertola and Rogerson (1997) suggest that the interaction of EPL with wage compression may explain the relative similarity of job turnover rates between European and North American countries[101]; Boeri (1998) presents evidence suggesting that low labour turnover can coexist with large job turnover rates if most job reallocation takes the form of job-to-job shifts, not involving an intervening spell of unemployment[102].

Notwithstanding the rent-seeking role of EPL for inside workers[103], the economic literature provides several argu-

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98   Some authors argue that employment protection across Europe is largely determined by "…*the male breadwinner conception, which is itself largely shaped by religious "values"*(Algan and Cahuc, 2004).

99   Using a calibrated general equilibrium model, Hopenhayn and Rogerson (1993) found that high dismissal costs might potentially induce substantial negative welfare losses, by hindering labour reallocation. They show that a firing tax equivalent to one year's wages would reduce consumption by about 2%. The mechanism which gives rise to consumption losses is the fall in average productivity due to inefficient allocation of resources within the economy.

100   Based on enterprise data, as opposed to labour survey data that are used to calculate labour turnover rates, which basically describe transitions between labour market statuses (e.g. from unemployment to employment) and job-to-job transitions.

101   On the one hand, stringent (lax) EPL in European/North American countries tends to reduce job flows, while on the other, high (low) wage compression/minimum wages in European/North American countries would imply more (less) intense labour shedding (and hiring) in response to labour demand shocks. For example, this interaction can explain similar job destruction rates in France and the US, as the impact of different EPL is roughly offset by different degrees of wage compression/minimum wages (Cahuc and Zylberberg, 2004).

102   Stringent EPL reduces "…*the role of unemployment turnover in gross job creation and destruction and creates a large intermediate labour market status of workers on short-term jobs.[…] Thus, large shifts of workers across short-term jobs or from short-term jobs to posts offering more security are in Europe associated with low unemployment inflows and outflows*" (i.e. a stagnant unemployment pool).

103   EPL benefits insiders on two counts: a) job protection; and b) a stronger wage bargaining position. Usually, outsiders suffer longer spells of unemployment and/or find it difficult to leave the second tier of a two-tier labour market, often typified by a succession of low-quality short-term labour contracts with low transition rates into permanent and better jobs.

Chart 8   Overall employment protection legislation (EPL) and employment rates for different groups in 2003.

EPL and Prime Age Male Employment Rate (25-54)

EPL and Female Employment Rate

EPL and Youth Employment Rate (15-24)

EPL and Older Workers Employment Rate (55-64)
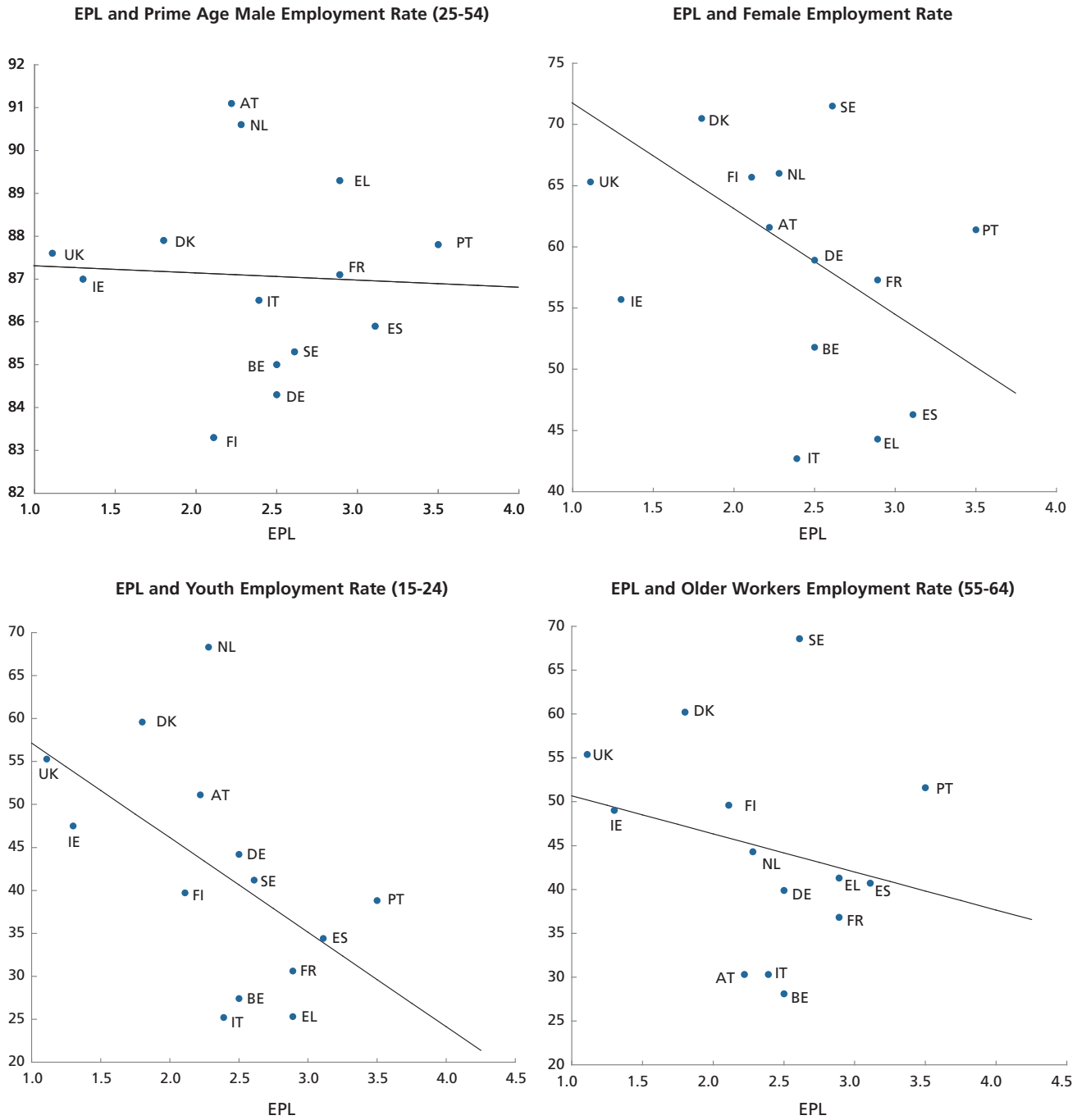
Source: Eurostat and OECD.

ments that support employment protection on efficiency grounds. In the absence of perfect insurance markets[104], Pissarides (2001) argues that there is a role for both severance payments and advance notice of termination of labour contracts. Booth and Zoega (2003) argue that in a world where human capital comprises both firm-specific and general components, firms tend to destroy too many job matches during cyclical downturns compared with the social optimum. In these circumstances, the social optimum can be achieved with positive redundancy payments. Teulings and Hartog (1998) argue that EPL can stimulate investment in firm-specific human capital/skills that would otherwise be sub-optimal because, in the absence of employment protection, workers might instead invest too much in general portable skills[105]. Belot and Van Ours (2005) carried-out an empirical analysis using cross-country panel data that suggested that there is an optimal level of employment protection[106], which can vary across firms and workers.

To provide insurance against labour market risk, a trade-off between EPL and UB is well documented (e.g. Boeri et al., 2003). Table 10 reproduces Table 1 from

Table 10 – Alternative indicators of the trade-off (late 1990s)

EPL correlated with	Working-age population	Male prime-age (25 to 45)
a. UB coverage	-0.63 **	-0.71 **
b. Net replacement ratio	-0.34 *	----
a*b	-0.55 **	-0.66 **

Source: Boeri et al. (2003).

Number of observations 14.

** significant at 99%; * significant at 95%.

Chart 9 **EPL and UB in 2003** (a)
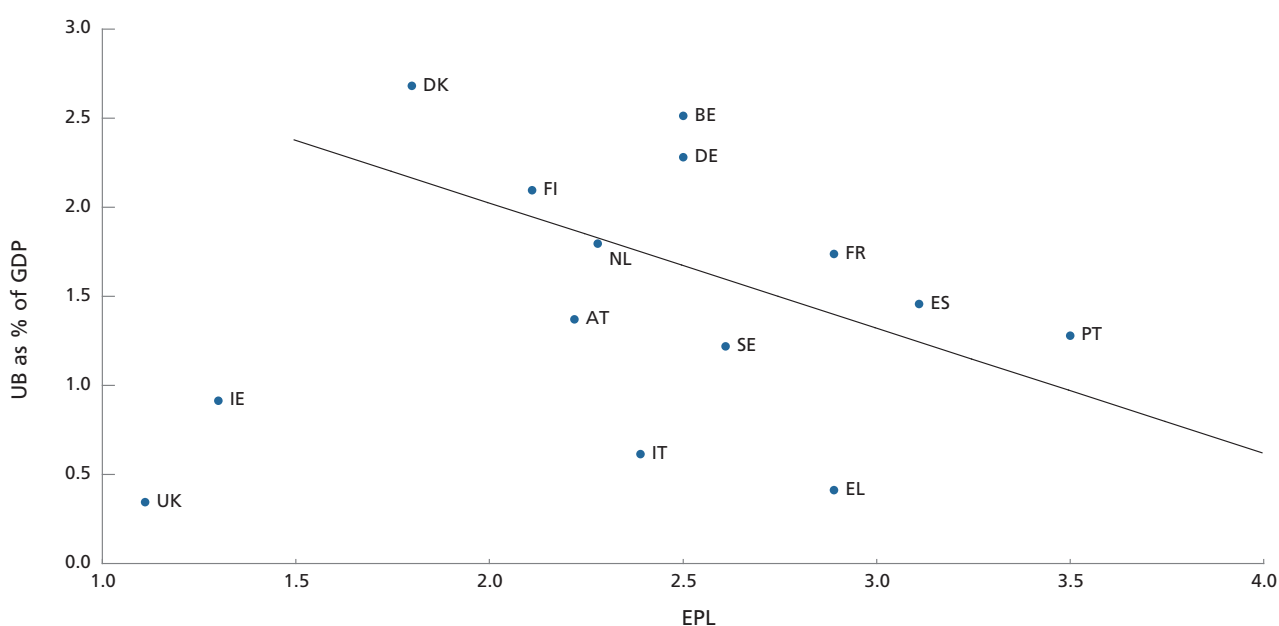
Source: OECD and Eurostat's LMP database.
(a) Latvia 2003

Boeri et al. (2003). It shows the correlations of EPL with UB coverage, the net replacement ratio in the first 12 months of unemployment, and their product[107].

Chart 9 depicts the relationship between EPL and total spending (as a percentage of GDP) on unemployment benefits (i.e. passive labour market policies).

The existence of the trade-off depicted in Table 10 and Chart 9 is implicitly acknowledged in the EU Integrated Guidelines[108] (Guideline No. 21), which calls for adequate balancing between flexibility and employment security requirements on the labour market. In the 2006 Annual Progress Report[109] the Commission stressed that greater attention should be given to creating the conditions for "flexicurity"[110].

Some authors suggest that the actual policy-mix largely depends on the initial choices made regarding EPL and UB, which have crystallised into a stable politico-economic equilibrium[111]. Although countries can choose different points on the EPL/UB curve when setting their labour protection systems from scratch, as in the case of the former centrally planned European economies (Boeri et al., 2003), moving along this curve has proved to be very difficult because of entrenched attitudes and interests.

The alleged growing vulnerability of developed economies to shocks and/or competitive pressure due to a plethora of phenomena, such as globalisation, technological changes and new organisational paradigms, has led several authors to consider that the predominant employment protection model in much of Europe, the "male breadwinners" model, is ill-suited to accommodate the rising demand for labour market flexibility/mobility and macro-economic adjustment (Boeri and Bertola, 2003).

Empirical studies based on surveys suggest that individuals feel better protected by UB than by EPL (Postel-Vinay and Saint-Martin, 2004; Clark and Postel-Vinay, 2005). Econometric analyses of the determinants of perceived or subjective employment security suggest that there is a significant negative correlation with the strictness of EPL, even after controlling for a number of variables[112]. Obviously, this relationship does not necessarily mean that there is a causal link between EPL and employment security. Postel-Vinay and Saint-Martin (2004) suggest that the correlation between employment security and EPL is largely spurious, reflecting certain economy-wide variables, such as the generosity of UB or the intensity of use of temporary contracts (see Chart 10). Given that countries with stringent EPL also tend to spend less on UB, have longer average unemployment spells and a high proportion of temporary jobs, the observed negative correlation (between job security and EPL) might just be reflecting the increased perceived individual risk associated with job loss in countries with high EPL.

A number of empirical studies (OECD, 2006) find that over-stringent EPL has an adverse impact on the employment of certain demographic groups, such as youth, some women and older workers. Therefore, many studies have developed innovative reform proposals to strike a better balance between efficient labour turnover and employment security. One idea frequently advocated is to introduce comprehensive reform packages that combine some loosening of EPL with changes in incentive mechanisms, in exchange for strengthening (both passive and active) LMPs (i.e. a move along the EPL/UB curve, Boeri et al., 2003)

In countries where employment protection rules are over-stringent, there may be efficiency gains in implementing reform packages that exchange reductions in EPL for increases in UB and ALMPs for the unemployed. Flexicurity is a general approach that attempts to combine labour market flexibility with social security for workers (see Chapter 2 of EiE 2006). Flexicurity can also be seen as a general analytical framework to compare national labour market systems (Bredgaard et al., 2005), mapping countries into distinct clusters in terms of the options chosen to balance flexibility and security on the labour market (e.g. Gaard, 2005). Therefore, flexicurity should not be seen as a concept

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107 OECD indicators are used for EPL and the net replacement ratio. Coverage rates of UB are estimated based on the European Community Household Panel (ECHP).

108 http://ec.europa.eu/growthandjobs/pdf/integrated_guidelines_en.pdf

109 http://ec.europa.eu/growthandjobs/annual_report_en.htm

110 "*This consists of a combination of sufficiently flexible work contracts coupled with effective and active labour market policies to support switches from one job to another, a reliable and responsive lifelong learning system, and adequate social protection.*"

111 Boeri et al. (2003) develop a model in which voters decide on both the strictness of EPL and the generosity of UB. Heterogeneity in the labour market is measured in two dimensions: a) insiders versus outsiders; and b) low- versus high-skilled workers. The outcome of the voting model suggests that if there is a majority of low-skilled insiders then the equilibrium is characterised by low UB and stringent EPL; otherwise, voters choose generous UB and lax EPL. The authors also find that, all other things being equal, a larger share of elderly workers tends to increase the demand for EPL.

112 Such as age, gender, occupation, education level, characteristics of the job (i.e. temporary/permanent or part-time/full-time), history of individual unemployment, local market variables, etc.

Employment in Europe 2006

| Chart 10 | Overall EPL and the proportion of employees with temporary contracts |

Source: Eurostat and OECD.
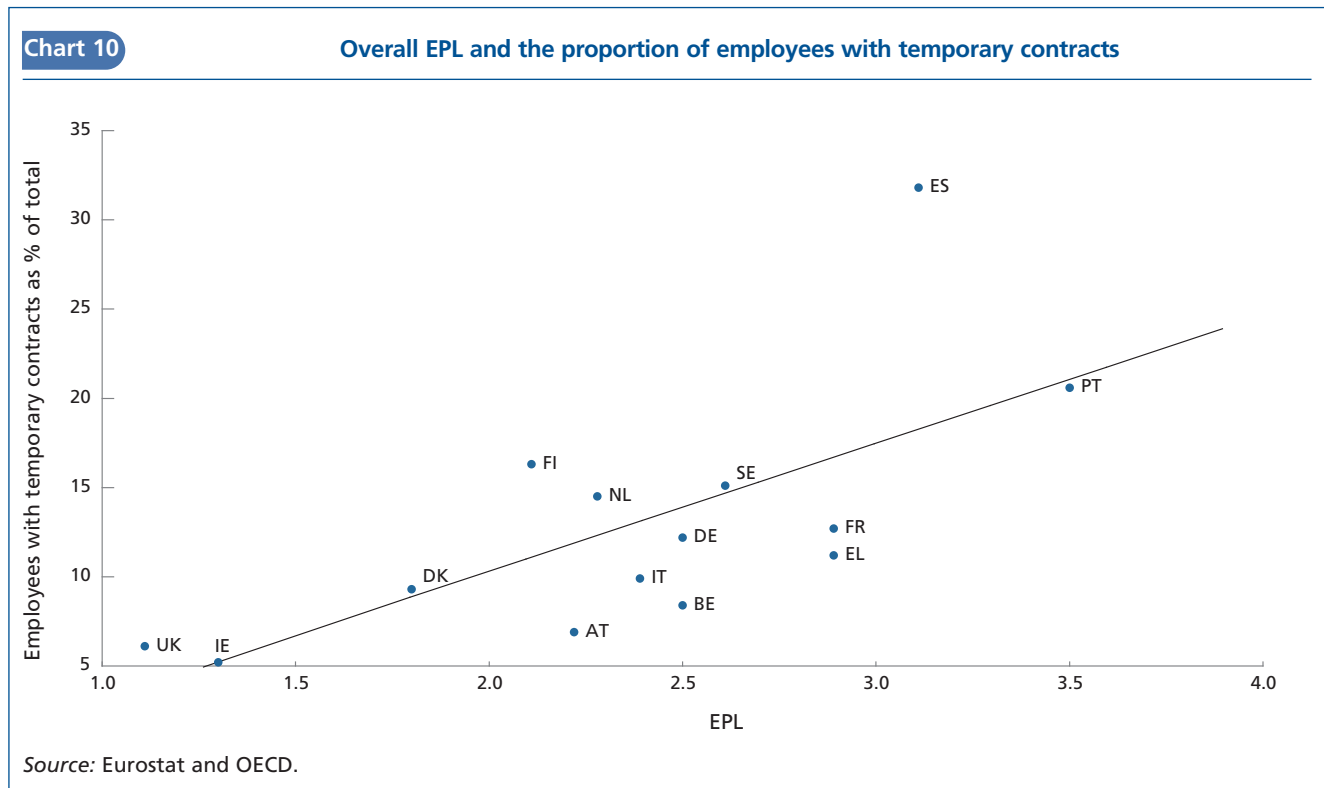
describing predominantly the Dutch or Danish labour markets, but more as a general EU recommendation issued under the *open method of coordination*[113] for improving the balance between flexibility and security (EU Integrated Guideline No. 21), especially by encouraging a shift from job security towards employment security[114]. Given the apparent politico-economic trade-off between flexibility and income stability,

this shift could be facilitated by developing an efficient system of unemployment insurance, providing more efficient re-employment services, and offering programmes for vocational training and upgrading the skills of the unemployed. All stakeholders should participate and take responsibility for this shift.[115]. In particular, investing in human capital is vital both to improve the long-term employment prospects and the

employment security of the individual, and also to enhance the competitiveness and adaptability of the labour force (OECD, 2004).

Chapter 2 of this report presents in some detail the main policy measures that have been introduced in certain Member States or proposed by researchers in order to improve the balance between flexibility and security.

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113 *"The Open Method of Coordination (OMC) is a new approach to EU governance based on "soft law" mechanisms and mutual learning. It has been devised as an instrument to share best practices and increase policy convergence in areas which remain a primary responsibility of national governments but are of concern to the EU as a whole, such as employment, and social security protection systems. In contrast with the traditional "Community method", it aims at coordination rather than harmonisation of national "policies""* (Jassem, 2004).

114 The concept of flexicurity is difficult to define in precise terms. Together with the significant distributional impact of labour market policies, it tends to accommodate quite different preferences on the part of the social partners regarding labour market institutions.

In the literature, at least three different (only partly overlapping) perceptions of the concept coexist: a) as a policy strategy; b) as a state of the labour market; and c) as an analytical concept.

As a policy strategy, Wilthagen (1998) defines flexicurity as: *"a policy strategy that attempts, synchronically and in a deliberate way, to enhance the flexibility of labour markets, work organisation and labour relations on the one hand, and to enhance security – employment security and social security – notably for weaker groups in and outside the labour market, on the other hand".*

As a state of the labour market concept, flexicurity is a stylised description of some fundamental characteristics, such as external numerical flexibility, social security and employment security.

As an analytical frame, flexicurity is closely related to another well-known labour market concept, namely the idea of transitional labour markets (TLMs) (Schmid, 1998; Schmid and Gazier, 2002). The basic assumption of TLMs is that the boundaries between labour markets and various social systems, such as the education system, the unemployment system, the pension system and household activities have become more permeable towards transitional states between paid employment and (productive) activities outside the labour market.

115 As mentioned earlier, moves along the trade-off curve between employment protection and (income) security are difficult to materialise. In this context, Bredgaard et al. (2005) argue that the Danish flexicurity model can be seen largely as a one-off historical outcome: *"…it is not the product of a carefully designed strategy, but a by-product of a long historical and institutional evolution and social compromises in a number of different policy areas. It is therefore difficult to copy or to export the Danish flexicurity model".*

5.6. The importance of an integrated management of benefit systems and active policies – activation strategies

The interaction between tax and benefit systems is considered one of the most important determinants of labour supply, especially for low-skilled/low-paid individuals[116]. A joint EU-OECD project[117] calculated a number of indicators "*…to measure the financial gain when a jobless person living on benefits – either unemployment benefits or other income support – takes up a job, or when a worker decides to work longer*" (Carone and Salomäki, 2005). The indicators calculated are marginal effective tax rates (METRs) on earned income for the transitions from UB to employment income (unemployment trap indicators), from social assistance to employment income (inactive trap indicators) and from low to higher work effort resulting from either working longer or moving to better jobs (low-wage or poverty trap indicators).

Carone and Salomäki (2005) reported the following main findings, based on calculation of various METRs indicators (see Table 11). "*The risk of an unemployment trap for persons entitled to unemployment benefit is particularly high for low-skilled workers when potential re-entry wages are lower than those before unemployment*". This reflects the fact that low-skilled workers face longer and more frequent spells of unemployment than high-skilled workers and are therefore more at risk of losing their attachment to the labour market.

For individuals/households living on social assistance, the risk of being trapped in inactivity is particularly high when the expected wage level is low. "*To some extent, the risk of an inactivity trap may be more worrying than the risk of an unemployment trap, because means-tested social assistance, being a last resort scheme, is usually without any final limit in its duration*".

"The analysis shows that the interaction of tax and benefit provisions results in a risk of a low-wage trap for employed persons in some Member States, especially in those where means-testing of benefits plays an important role".

Using survey data, econometric studies tend to find that generous UB significantly increases the average duration of spells of unemployment (Krueger and Meyer, 2002; Grubb, 2005). Addison et al. (2004) estimated the elasticities of unemployment duration to UB and found a positive cross-country correlation between these and METRs for the unemployed (see Chart 11). They interpreted this as evidence that the higher the tax burden on low-skilled/low-paid workers, the more sensitive workers are to the generosity of the UB system.

Although the interplay of tax and benefit systems is not the only determinant of labour supply, the risk of falling into a number of traps has potentially wide-reaching implications, requiring continuous re-assessment of the disincentive effects related to tax and benefit systems and ALMPs. Reform policies that raise the financial incentives to work are a key part of any overall strategy to increase labour supply[118].

Despite the strong evidence that generous and long-lasting UB tends to increase the average duration of spells of unemployment, they have only marginally been cut, whether in terms of replacement ratios or of the length of entitlement periods. This attitude on the part of national authorities reflects both equity goals and politico-economic considerations. European countries have preferred to counterbalance some of the disincentive effects of UB systems by introducing comprehensive activation strategies that coordinate administration of UB with ALMPs.

An effective activation strategy involves reforms in a number of inter-related areas, such as: a) greater emphasis on work availability conditions and more effective enforcement of job search obligations for the unemployed through benefit sanctions; b) more efficient administration of PES activities (i.e. enhanced counselling and placement efforts); c) increased referrals to ALMPs (e.g. training); and d) setting up of quasi-markets for employment services.

After a period of rising expenditure on ALMPs (see Section 3), in recent years many countries have favoured policies that enhance the effectiveness of ALMPs, while keeping expenditure-to-GDP ratios broadly stable. Integration of ALMPs into a comprehensive activation strategy implies that job seekers have to choose from a menu of activities and programmes after a certain period of unemployment. In line with the targets of the EES, Member States have agreed to offer individual action plans to young people and adults after at least 6 and 12 months of unemployment respectively.

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116   Labour taxes drive a "wedge" between the cost of labour to a firm and the amount received by the worker. An increase in labour taxes has two opposite effects. First, by lowering the opportunity cost of leisure it reduces labour supply (the substitution effect). Second, a tax on wages reduces net income, which encourages people to work more in order to maintain their net income level (the income effect). Given these two opposite effects on labour supply, economic theory cannot predict either the sign or the size of the supply response to tax changes, which becomes an empirical question.

117   Carone et al. (2003).

118   Integrated Guideline No 19: "*Ensure inclusive labour markets, enhance work attractiveness, and make work pay for job seekers, including disadvantaged people and the inactive, through [inter alia]: continual review of the incentives and disincentives resulting from the tax and benefit systems, including the management and conditionality of benefits and a significant reduction of high marginal effective tax rates, notably for those with low incomes, whilst ensuring adequate levels of social protection".*

Table 11 – Indicators of unemployment traps, low wage traps, and inactivity traps measured by marginal effective tax rates (METRs) on earned income				
	Tax wedge 2004	Unemployment trap 2004	Low wage trap 2004	Inactivity trap 2003
AT	38.6	73	70	25
BE	46.4	88	51	46
CY	18.6	57	31	
CZ	41.9	65	45	29
DE	45.4	87	72	50
DK	39.4	89	85	69
EE	38.9	50	54	
ES	33.6	80	20	16
FI	38.6	80	81	34
FR	32.6	82	56	27
EL	34.4	76	16	16
HU	41.5	66	26	18
IE	15.7	73	61	23
IT	41.7	59	9	34
LT	40.0	49	52	
LU	27.5	85	92	34
LV	41.1	87	73	
MT	18.0	67	16	
NL	38.1	87	78	61
PL	41.9	83	78	40
PT	29.6	87	49	30
SE	46.2	87	83	31
SL	39.8	81	31	
SK	38.8	43	31	26
UK	26.4	71	69	38
EU-25	36.4	78	57	
EU-15	36.3	78	57	
US	27.3	71	39	
JP		61	65	

Sources: Eurostat: Key indicators on EU policy, and European Economy Special Report No 2/2005.

Notes: Tax wedge: Tax rate on low wage earners. Unemployment trap: difference between the net income in work and the net income in unemployment divided by gross earnings in work. The low wage trap measures what percentage of the gross earnings is "taxed away" by the combined effects of higher taxes and reduced or lost benefits, when an employed single person moves from 33% to 67% of the average earnings of a production worker (average of two family types). The inactivity trap measures the percentage of gross earnings of a social assistance recipient which is "taxed away" when she/he decides to take up a job (average of two family types).

These individual action plans should offer a mix of counselling, referrals to job offers, job search monitoring, training or other employability measures.

A number of studies indicate that well designed activation strategies have improved labour market performance by enhancing the efficiency of the job matching process and raising the skills of participants in programmes. Moreover, requirements to participate in activation measures can elicit the moral hazard behaviour of some individuals who respond by dropping their benefit claims rather than complying with the requirements to participate in a programme.

In recent years in order to obtain efficiency gains, a number of European countries have set up quasi-markets for the provision of PES[119]. In their comprehensive review of ALMPs in OECD

119   OECD (2005b): "…to implement a quasi-market, the PES has to be split between a public authority (the "principal", here called the purchaser), which determines individual eligibility for benefits and services, assigns clients to a specific provider, and measures outcomes, and multiple service providers or local employment offices (the "agents"), which deliver employment services. The service providers are given near-complete freedom to choose their procedures and programmes, but the purchaser measures the employment outcomes achieved by their clients and in some way ensures that providers are replaced if their outcomes fall systematically below benchmark levels".

Chart 11	**Unemployment duration elasticity and METRs for unemployment.**

Source: Addision et al. (2004), and Eurostat's Stuctural Indicators.
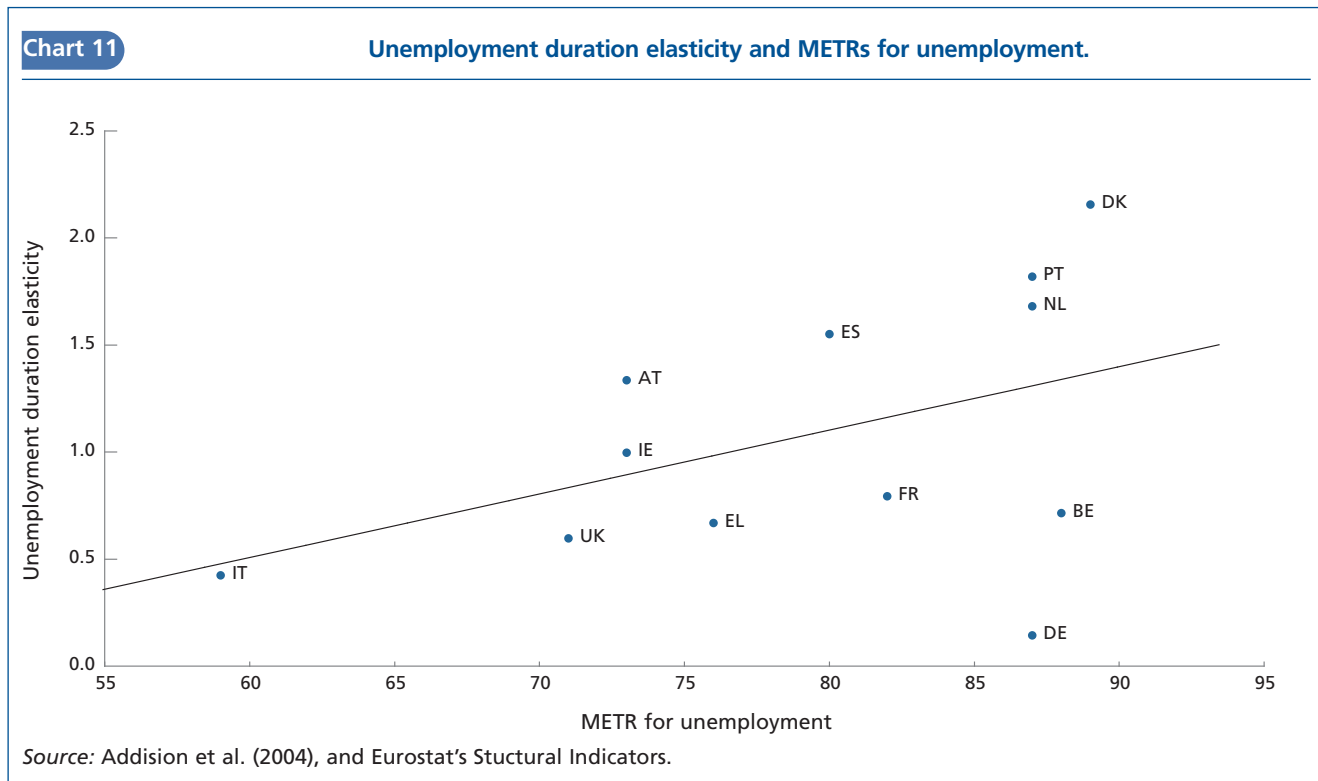
countries, Martin and Grubb (2001) argue that quasi-markets have in general yielded efficiency gains in the provision of PES, mainly as a result of the introduction of clear indicators of performance and mechanisms for replacing the management of inefficient employment offices. However, the same authors also recognise that well managed public employment services can also reap many of the potential benefits associated with quasi-markets.

6. Conclusions – the need for an evaluation culture

There is no doubt that the conduct and use of evaluation studies is becoming more widespread in Europe, thought it could still be argued that the development of an "evaluation culture" for LMPs is still in its infancy in many EU Member States. Evaluating the effects and monitoring implementation of ALMPs are important steps in the process of improving policy design as a way of securing better outcomes.

Only a relatively limited number of evaluations have been carried out in Europe for several reasons, including a) lack of comprehensive and good quality data; b) insufficient cooperation between those responsible for designing and implementing policies and researchers; and c) programme design and continuation are largely independent of evaluations.

Researchers have highlighted the importance of regular independent evaluations of ongoing and new programmes, putting particular emphasis on their long run effects. There is some criticism from the research community that policymakers adopt certain ALMPs without paying full attention to their long run effects, choosing instead those measures that maximise the short run impact of reducing (open) unemployment.

Good overviews of programme evaluations, including the meta-analysis by Kluve et al. (2005) of more than 100 evaluations conducted in Europe, point to the following conclusions. Training/retraining measures are found to have a modest likelihood of making a positive impact on post-programme employment rates. Compared to training programmes, spending on employment incentives and PES is associated with significantly better outcomes.

The evidence suggests that job-search assistance programmes in general, and activation policies in particular, feature highly among the more cost-effective ALMP measures in terms of helping the unemployed to find a job and keep it. Programmes involving direct job creation in the public sector are less likely than training programmes to show a positive impact on post-programme employment outcomes.

Evaluations of training programmes strongly suggest that they are more likely to have positive effects for specific target groups. In particular, training programmes appear to raise the re-employment rates of: a) beneficiaries with better labour market prospects to begin with; b) women re-entering the labour market; and c) educated migrants. One recurrent problem with (re)training in many countries is its high incidence of self-selectivity, particularly as regards the level of education. This means that individuals who already have higher levels of education are more likely to undergo further training.

Despite the policy relevance of conducting micro-econometric programme evaluations, public policy should not be based exclusively (or even primarily) on them, especially when large programmes in terms of expenditure or number of participants are involved. In these circumstances, general equilibrium or macro-econometric analyses of ALMPs should be a research priority, because of the possible magnitude of any indirect effects that might conflict with the policy conclusions drawn from the micro-econometric evaluation. Due both to data limitations and the natural challenges of building general equilibrium models, the overwhelming evidence available on the evaluation of ALMPs still comes from micro-econometric analyses.

The results of micro-econometric evaluations and of the few macro-econometric studies available are somewhat contradictory. On the one hand, the

microeconometric evaluations tend to find that training programmes have rather mixed effects, but nearly always a statistically insignificant impact on the participants' employment prospects. On the other hand, macroeconomic studies tend to find that training is the only category of ALMP that has a significant positive impact on aggregate labour market outcomes.

It appears that this paradox could be solved by extending the observation window to include the post-participation effects of training. In practice, evaluations of training programmes often find a negative or only small positive effect on participants' outcomes during the first year or two after participation. However, after that initial period, a growing number of follow-up studies have found evidence of a positive impact attributable to training. Unfortunately, most of the datasets suitable for programme evaluation have relatively short observation windows that fail to show the long-run impact on employment outcomes attributable to ALMPs in general and to training programmes in particular.

Both economic theory and empirical estimates strongly suggest that it is very important to consider the interactions between active and passive LMPs in order to explore synergies/complementary features and make active policies more effective. Specifically, this means that the well-documented disincentive effects on labour supply associated with over-generous UB can be, at least partially, counteracted by adopting well-designed ALMPs. In recent years EU Member States have usually preferred to counterbalance some of the disincentive effects of UB/welfare systems by introducing comprehensive activation strategies. This attitude on the part of governments reflects both equity goals and political economy considerations.

In accordance with the EES guidelines, EU Member States have developed activation strategies to coordinate

expenditure on ALMPs with UB administration. The "mutual obligations" principle plays a central role in activation strategies. On the one hand, PES should provide quality counselling and job brokerage services, while on the other the unemployed should comply with their obligations to search actively for a job, to accept any suitable job offers or to participate in ALMPs.

A number of studies indicate that well-designed activation strategies have improved labour market performance by making the job matching process more efficient and improving the skills of participants in programmes. Moreover, the requirements for participation in activation measures can elicit the moral hazard behaviour of some individuals who respond by dropping their benefit claims rather than complying with the programme participation requirements.

The principle of policy complementarity is also illustrated by the interaction between tax and benefit/welfare systems in determining labour supply, especially for the low skilled. Although this interaction is not the only determinant of labour supply, the risk of falling into a number of traps has potentially wide-reaching implications, requiring continuous assessment of the disincentive effects related to tax and benefit systems and ALMPs. In accordance with the EES guidelines, reform policies that raise the financial incentives to work are a key part of any overall strategy to increase labour supply.

Annex 1

Crude matching-up of the "old" (OECD) (1985–2002) and the "new" (Eurostat/OECD) (1998 onwards) classifications of LMPs.

"Old" classification (OECD)		"New" classification (Eurostat/OECD)	
Code	Title	Code	Title
100	Public employment services and administration (PESA)	1	LMP services
200	Labour market training	2	Training
300	Youth measures		
410	Subsidies for regular employment in the private sector	3 4	Job rotation and job sharing Employment incentives
500	Measures for the disabled	5	Integration of the disabled
430	Direct job creation (public or non-profit)	6	Direct job creation
420	Support of unemployed persons starting enterprises	7	Start-up incentives
600	Unemployment compensation	8	Out-of-work income maintenance and support
700	Early retirement for labour market reasons	9	Early retirement
910-100	Active measures (1–5; for inflows, 2–5)-PESA	2–7	Total categories 2–7
920	Passive measures (6 and 7)	8–9	Total categories 8–9

Annex 2

Average effect of participation on participants and identifying assumptions

Let 1 denote the state associated with participation in a particular public intervention, and 0 the state associated with non-participation. Let t represent the time index. Let Y indicate the labour market outcome resulting from public intervention (e.g. probability of re-employment or earnings). The population is divided into participants (D=1) and non-participants (D=0) in the programme. X denotes a vector of observable characteristics of the population.

The average effect of participation on participants (or the impact of public intervention) is given by:

$$\alpha_t\ (x;\ D) = E(Y_{1t}\,|\,D = 1,\ X = x) - E(Y_{0t}\,|\,D = 1,\ X = x) \tag{1}$$

where, for example, $E(Y_{1t}\,|\,D = 1,\ X = x)$ is the (conditional) expected value of Y_{1t} for the individuals participating in the programme ($D = 1$) with characteristics $X = x$.

As discussed earlier, the impact of the public intervention cannot be estimated using (1) due to the missing (counterfactual) data. What can be estimated is the difference between the average result for individuals benefiting from the programme and the average result for non-participants (or a control group drawn from non-participants):

$$\theta_t(x) = E(Y_{1t}\,|\,D = 1,\ X = x) - E(Y_{0t}\,|\,D = 0,\ X = x) \tag{2}$$

The impact of the public measure given by $\alpha_t(x;D)$ has in practice to be measured by $\theta_t(x)$. The difference between these two quantities is the selection bias $\beta_t(x)$, given by:

$$\alpha_t\ (x;\ D) = \theta_t(x) - \beta_t(x) \text{ where } \beta_t(x) = E(Y_{0t}\,|\,D = 1,\ X = x) - E(Y_{0t}\,|\,D = 0,\ X = x) \tag{3}$$

It is in the interest of researchers to choose the estimation method (and control group) in order to minimise (in absolute terms) the selection bias. Ideally, the average outcome of the control group should be as close as possible to the average outcome that participants would have achieved had they not actually participated in the programme.

The *selection bias* can be a significant value (either positive or negative). If the observed measure of the causal impact of the programme $\theta_t(x)$ were to be taken as its actual impact $\alpha_t(x;D)$ (i.e. ignore the selection bias, $\beta t(x)$), the effectiveness/value of the programme being evaluated could easily be misjudged. For example, Aucouturier and Gélot (1994) found that a number of studies on the effectiveness of a particular type of active measure ("stages de qualification") in France tended to overestimate the true impact on participants' employment prospects. The positive difference in the measured impact of the public instrument (i.e. $\theta_t(x) > 0$), did not reflect its true effect ($\alpha_t(x;D)$), because of the high proportion of highly able individuals participating in this programme ($\beta_t(x) > 0$).

Main estimators and conditions of validity

In order to assess the effectiveness of a programme (i.e. its average impact on participants), it is necessary to choose an estimator. The choice of estimator depends on the *identifying assumption* made, which should reflect the availability and quality of the data (Cahuc and Zylberberg, 2004). Three commonly used estimators are briefly described below.

The "before-after" estimator

Let A stand for a period after participation, and B for a period before participation. This estimator is frequently used for longitudinal data or for repeated cross-sectional data on the same population. The *identifying assumption* for this estimator is:

$$E(Y_{0A}\,|\,D = 1,\ X = x) - E(Y_{0B}\,|\,D = 1,\ X = x) = 0 \tag{4}$$

This assumption means that the average response of participants in a programme – had they not participated in it – would have been the same before and after the programme.

Substituting (4) for (1) produces the "before-after" estimator for the average gain from participation ($\Delta\alpha_{AB}(x)$):

$$\Delta\alpha_{AB}(x;1) \equiv \alpha_A(x;1) - \alpha_B(x;1) = E(Y_{1A}\,|\,D = 1,\ X = x) - E(Y_{1B}\,|\,D = 1,\ X = x) \tag{5}$$

This estimator can be calculated for longitudinal data or repeated cross-sectional data on the same population. Another advantage of this estimator is that it can be computed even if no data are available for non-participants. However, the *identifying assumption* for this estimator (4) should be rejected if either: a) there is unobserved heterogeneity; or b) the cyclical position of the economy varied considerably between the periods before and after participation in the programme.

The "difference-in-differences" estimator

The identifying assumption for this estimator is:

$$E(Y_{0A} - Y_{0B}\,|\,D = 1,\ X = x) = E(Y_{0A} - Y_{0B}\,|\,D = 0,\ X = x) \tag{6}$$

Condition (6) signifies that the average gain from non-participation would be the same for both participants and non-participants. It basically assumes that there is an underlying common trend affecting the results of both participants and non-participants. Substituting (6) for (1) and using definition (5), the "difference-in-differences" estimator Δ_{DD} can be expressed as:

$$\Delta_{DD} = \Delta\alpha_{AB}(x,1) - \Delta\alpha_{AB}(x,0) \tag{7}$$

The "difference-in-differences" estimator is therefore equal to the difference between the "before-after" estimator for the participating group and the "before-after" estimator for the control group.

The "difference-in-differences" estimator has the advantage of being insensitive to cyclical fluctuations and, in principle, can reduce the biases due to both observed and unobserved heterogeneity. However, the importance of the *selection bias* will ultimately continue to depend on how well the control group represents the population analysed.

The "cross-section" estimator

The *identifying assumption* for this estimator is:

$$E(Y_{0A} \mid D = 1, X = x) = E(Y_{0A} \mid D = 0, X = x) \tag{8}$$

Condition (8) postulates that the average effect of non-participation is the same for participants and non-participants. Substituting (8) for (1), the "cross-section" estimator Δ_{CS} can be expressed as:

$$\Delta_{CS} = \Delta\alpha_A(x,1) - \Delta\alpha_A(x,0) = E(Y_{1A} \mid D = 1, X = x) - E(Y_{1A} \mid D = 1, X = x) \tag{9}$$

The "cross-section" estimator is commonly used with experimental data. However, its *identifying assumption* is unlikely to be satisfied with non-randomised (or observational) data.

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Chapter — # 4 Human Capital, Technology and Growth in the EU Member States

1. Introduction

At the Lisbon European Council held in March 2000, the Heads of State or Government set the European Union (EU) the following goal – "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", to be achieved by the year 2010. Subsequent Council meetings and the mid-term review of the Lisbon Strategy have reinforced these aspirations, leading to the 2005 revised Lisbon Strategy[1] and the subsequent *Integrated Guidelines for Growth and Jobs (2005–2008)* adopted by the Council of the European Union[2], which have placed an even stronger emphasis on the need to invest more in research and development and human capital through better education and skills.

The revised Lisbon Strategy follows recent reports (Sapir *et al.*, 2004; Kok, 2004)[3] that emphasise that the knowledge, skills and other attributes embodied in individuals – what constitutes human capital[4] – are key determinants of economic growth in a knowledge-based economy. In this context, Sapir *et al.* (2004) pointed out, for instance, that one major cause for the relatively slow economic growth in Europe in relation to the United States (US) is low investment in research and development and in human capital, particularly in higher education. Currently the EU allocates approximately 1.9% of its annual Gross Domestic Product (GDP) to Research and Development (R&D) compared with 2.6% in the US, and it invests around 1.2% of its GDP in tertiary education compared with nearly 2.9% in the US.

However, despite this perspective, several recent empirical studies have questioned the positive relationship between human capital (in the form of education) and economic growth. For instance, in recent surveys on education and economic growth, de la Fuente and Ciccone (2003) stated that "…the picture that emerges from [their] review of the empirical evidence is somewhat mixed", while Krueger and Lindhal (2001) found that "…education [is] statistically significantly and positively associated with subsequent growth only for countries with the lowest level of education".

This chapter argues that the somewhat mixed results of the empirical evidence on the growth effects of human capital may be, at least in part, due to an insufficient specification of the role of human capital in economic growth[5] in the standard (*i.e.* the neoclassical) approach (Mankiw, Romer and Weil, 1992) principally because it treats human capital as an ordinary input, alongside physical capital and labour. In this neoclassical modelling approach, growth over a given period is proportional to the growth in the stock of human capital over the same period, the factor of proportionality being the returns to education at the macro-economic level. In other words, growth is primarily driven by human capital *accumulation*. In the long run, it is however necessary to continue accumulating more human capital in order to sustain growth. Moreover, as noticed by Aghion and Howitt (1998), drawing on Nelson and Phelps (1966), the neoclassical approach implicitly considers that "…education affects [an] individuals' productivity equally on all jobs, no matter whether these jobs are already routinised or innovative". Consequently, the marginal product of education (*i.e.* the increase in output generated by each additional unit of human capital) can remain positive even if the rate of technological change is zero because the exact specification of the production function does not concern the workers (Nelson and Phelps, 1966). A major drawback with the neoclassical approach is that it does not explain how changes in government policies

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1 Communication from the Commission (2005), "Working together for growth and jobs. A new start for the Lisbon Strategy", (COM(2005) 24 final).

2 Council Decision of 12 July 2005 on Guidelines for the employment policies if the Member States. Official Journal of the European Union. L 205/21.

3 See also Communication from the Commission (2005), "Mobilising the brainpower of Europe: enabling universities to make their full contribution to the Lisbon Strategy", (COM(2005) 152 final); Communication from the Commission, "More Research and Innovation – Investing for Growth and Employment: A Common Approach", (COM(2005) 488 final).

4 As stressed by de la Fuente and Ciccone (2003), "human capital is a broad and multifaceted concept encompassing many different types of investment in people. Health and nutrition are certainly an important aspect of such investment, particularly in developing countries where deficiencies in these respects may severely limit the population's ability to engage in productive activities. However, in modern economies], the key aspect of human capital has to do with knowledge and skills embodied in people and accumulated through schooling, training and experience that are useful in the production of goods, services and further knowledge". See also OECD (2001).

5 As mentioned by Hanushek and Kimko (2000), "…two issues arise in considering the effect of human capital on economic growth: how should any relationship be specified and how should human capital be measured". This chapter mainly focuses on the first issue, leaving aside the question of the measurement of human capital *per se.*

(*e.g.* increases in subsidies to education) could influence growth permanently. In the neoclassical approach, technological progress is the only determinant of permanent growth in living standards but it remains exogenous.

This chapter adopts an alternative approach to the role of human capital in economic growth that reverts back to Nelson and Phelps (1966) and is associated with the theory of "endogenous growth". This approach models technological progress or the growth of Total Factor Productivity (TFP)[6] as a function of the stock of human capital (and not its accumulation as in the standard approach). The starting point for the analysis is that an educated workforce is better at creating, adopting and implementing new technologies (Benhabib and Spiegel, 1994, 2005; Aghion and Cohen, 2004; Vandenbussche, Aghion and Meghir, 2006) so human capital has an impact on technological progress by creating new technologies (Romer, 1990) and adopting them (Nelson and Phelps, 1966).

The interest of this alternative approach is twofold. Firstly, from a theoretical point of view, such analysis contributes to a better understanding of the sources of technological progress, as it does not assume it to be exogenous as is the case in the neoclassical framework. Secondly, this approach sets out to explain the difference in growth rates between economies not in terms of differences in the rates of *accumulation* of human capital but instead, of differences in human capital *stocks*. The implications of differentiating between the standard approach and the alternative approach to human capital formation are noteworthy. In the former, the benefit of an increase in human capital is its marginal product. Human capital *accumulation* certainly has level effects because it raises the growth rate of an economy temporarily, until a higher level of steady-state output

is reached. In the latter approach, because the stock of human capital affects TFP growth through technology creation and absorption, its benefit could be measured in terms of its impact on all output levels in the future (Benhabib and Spiegel, 2005). However, the distinction between level and rate effects can be difficult to make if the impact of the stock of human capital on a country's ability to generate new technologies is low.

From a policy perspective, this approach is particularly relevant for explaining the key role of education and, more generally human capital, in knowledge-based economies. It does not claim that jobs of a highly routine nature do not necessarily require a substantial level of education, it says more that education is particularly important for jobs requiring adaptation to change and innovation. In this respect, this alternative approach forms a natural framework in which to analyse the view expressed by the European Commission in the Communication *Working together for growth and jobs. A new start for the Lisbon Strategy* that economies endowed with a high-skilled and adaptable workforce are better able to create and make effective use of new technologies and to embrace change[7]. The need for the EU Member States to promote such a high-skilled and adaptable workforce is expressed in the *Title VIII of the Amsterdam Treaty*, article 125.

Drawing on the Nelson-Phelps approach, this chapter shows that across countries the effect which a high-skilled and adaptable workforce can have on the mechanisms driving growth depends on how far a country is from the technology frontier. The technology frontier characterises the best-practice level of technology available at the world level and is measured by the level of TFP of the leader country, namely the US. In countries close to the technology frontier – specifically, in

countries with levels of current TFP close to US level – a high-skilled and adaptable workforce contributes to technological progress by creating new technologies suited to domestic production. In these countries, a high-skilled workforce influences TFP growth or technological progress by determining their national capacity to create new technologies. Such an effect on TFP growth is even greater if the workforce is adaptable. By contrast, in less technologically countries such a high-skilled workforce affects technological progress by adopting new technologies first created abroad. The speed at which these countries "catch up" with those close to the technology frontier is an increasing function of their skilled human capital stocks and is proportional to the distances to the technology frontier.

The remainder of this chapter is organised as follows. Section 2 reviews the literature on the relationship between human capital and growth with a special focus on the various empirical specifications used. The goal of this section is not to make an exhaustive review of the literature, but rather to indicate the key ideas developed by the macro growth literature over recent years. Section 3 extends the Benhabib-Spiegel model (2005) with a basic premise that technological progress or the growth of TFP depends on the high-skilled human capital stock as measured by the fraction of adult population with tertiary education in total adult population. Furthermore, this section introduces in the model the notion of "adaptability" with the assumption that a high-skilled workforce could have a more significant impact on technological progress if it can be adapted in practice. The empirical results are estimates based on a panel data set covering a sample of EU Member States between 1960 and 2000. Finally, section 4 draws conclusions and some lessons for human capital policy in the EU.

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6   Technological progress represents an improvement in the state of technology. In this chapter, technology is synonymous with total factor productivity. It refers to the way inputs (*e.g.* labour and physical capital) to the production process are transformed into output.

7   Communication from the Commission (2005), "Working together for growth and jobs. A new start for the Lisbon Strategy", (COM(2005) 24 final).

2. Measuring the returns to education: from micro-economics to macro-economics

The hypothesis that human capital is a key determinant of productivity growth has received considerable attention in the micro-economic literature since the 1960s. For instance, labour economists have intensively investigated the impact of schooling and labour market experience on individual wages (Mincer, 1974; Psacharopoulos and Layard, 1979; Card, 2001). However, as pointed by Krueger and Lindhal (2001), a drawback of the micro-economic literature on human capital is that it focuses principally on the "private pecuniary return to education" despite the fact that theoretical literature assumes the possibility of positive externalities from education. The possible presence of such externalities motivates much of the macro-economic literature on the relationship between growth and human capital (Aghion and Cohen, 1994). A first attempt to address these concerns was made in the context of the resurgence of the convergence debate stemming from the standard Solow (or neoclassical) model (Solow 1956)[8].

Starting from a few basic assumptions, in particular the assumption that capital is subject to diminishing returns and that technology a public good, this model predicts that economies will eventually converge in terms of income level or growth rate in the long run. Although these convergence predictions have not been fully validated by the data, Mankiw, Romer and Weil (1992) nevertheless showed that the Solow model still remains suitable for analysing convergence in living standards, but only if human capital is included as an ordinary factor of production alongside the two traditional inputs, namely physical capital and (raw) labour[9]. Although this reformulation of the Solow model opened the way for several interesting empirical studies on the growth effects of human capital (Knight, Loayza and Villanueva, 1993; Vasudeva Murthy and Chien, 1997; Hamilton and Monteagudo, 1998), it has not been without criticism. A number of subsequent studies based on the standard approach to the role of human capital in economic growth found rather disappointing results. However, the most recent works suggested that these disappointing results could be attributed to low data quality and to the measurement error bias. Using improved data sets, these works resulted in a significant contribution of human capital accumulation to economic growth.

Nevertheless, the most fundamental critique of the augmented Solow model is from an economic perspective and comes from the work of Benhabib and Spiegel (1994). Based on the Nelson-Phelps approach (1966), these authors suggested that the treatment of human capital in the augmented Solow model may be mistaken. Instead of assuming that human capital is an ordinary factor of production, they proposed an alternative assumption – associated with endogenous theory – which sees technological progress as a function of the stock of human capital. The contribution of human capital to growth is thus indirect since it impacts on technological progress or TFP growth by creating new technologies (Romer, 1990) and adopting them (Nelson and Phelps, 1966).

2.1. The micro-economic returns to education

2.1.1. The Mincerian wage equation and returns to schooling

In his classic book Mincer (1974) showed that, making certain assumptions, the natural logarithm of the real wage could be written as a linear function of the years of schooling, the years of labour market experience and a quadratic in terms of the years of labour market experience. The most important assumptions underpinning the Mincerian wage equation are that the only costs of schooling are the forgone earnings and every year of schooling generates an equal return to the student. In the Mincerian equation, the parameter associated with the years of education is of particular interest as it can be interpreted as the private return to schooling, also known as the "Mincerian return to schooling"[10].

The Mincerian wage equation has been estimated extensively for many countries, especially the US and EU Member States. Several studies (for instance, Harmon, Walker and Westergaad-Nielsen, 2001; Denny, Harmon and Lydon, 2002; Trostel, Walker and Woolley, 2002; de la Fuente and Ciccone, 2003) have pointed out substantial changes occurring in the Mincerian return to schooling in the US and Europe since the 1960s and also that notable differences exist across EU Member States. The Mincerian return to schooling in Europe follows a U-shaped time pattern similar to that in the US. In the 1960s, the Mincerian return to schooling was higher than in the 1970s. In the 1980s, it slumped further before starting to increase again during the 1990s. Such trends in the

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8   See also Swan (1956).

9   The term "raw labour" is used to underline the fact that human capital plays no role in the standard Solow model. The model considers only the total quantity of labour units used in the production process.

10   The "Mincerian return to schooling" is generally different from the "proper" return to education, *i.e.* the return on the resources invested in education, because it does not notably consider the direct costs of education (de la Fuente, 2003).

return to schooling are well documented in the literature on wage distribution and skill-biased technological change. In the 1970s, the supply of high-skilled workers was higher than the demand. This led to a decrease in the rate of return of schooling. In the 1980s, however, the increase in the demand of skilled workers, which is often attributable to an acceleration in the pace of technical change, outpaced supply growth. As a result, the rate of return to schooling rose (EC, 2005). In addition to this time variation in the return to schooling, there is significant variation across EU Member States, with the parameter value ranging from 0.02 to 0.17. In other words the pay-off for an additional year of schooling varies between 2% and 17% in the EU. The United Kingdom and Ireland show relatively large returns, while Austria, Germany, the Netherlands and Sweden have relatively low returns.

2.1.2. Social versus private returns to education

As noted by Krueger and Kindhal (2001), much research on the Mincerian equation has concentrated on how to interpret the parameter associated with the years of formal schooling. In the Mincerian wage equation, this parameter can be interpreted as a measure of the private return to schooling only if the marginal product of labour and the real wage are proportional and if the correlation between education and wages is due to the education enhancing productivity (Becker, 1964). While the first condition is generally satisfied even in the case of imperfect competition (Aghion and Cohen, 2004), the second is more controversial as it has proved problematical in econometric work to isolate the effect of education from other factors (Card, 2001; Krueger and Lindhal, 2001; Temple, 2001; de la Fuente and Ciccone, 2003). To understand these conditions[11],

it must be remembered that education may play not only a productivity-enhancing role but also a role in the selection and allocation of resources in the labour market as well as in transmission of knowledge, so that the private returns to education could differ from the social returns[12].

Education as a signalling device

A human capital-enhancing function of education is not incompatible with theories that consider education primarily as a device to help select individuals for employment, without actually influencing their productive efficiency that they will display at work. Indeed, the productive efficiency of a person may stem from a wide range of factors on which education, however, has little impact, such as innate ability, determination, and family background. Because such factors are not observable by potential employers, education can be used by employees to signal these "productive factors" to them (Spence, 1973). A worker's level of education is therefore correlated with, but not the cause of, high productivity. Put differently, schooling can raise earnings (*i.e.* there is a private return to schooling) without raising productivity (*i.e.* there is no social return). Nevertheless, although this hypothesis is attractive, recent empirical research has failed to reject the human capital explanation against the screening hypothesis (Groot and Oosterbeek, 1994; Chevalier *et al.*, 2003).

Educational externalities

A large theoretical literature underscores the possibility that the social returns to education could be higher than the private returns because education may be a source of positive externalities (for a survey, see Venniker, 2000). According to Venniker (2000), three different types of human capital externalities can be identi-

fied: static, dynamic and non-pecuniary externalities. The idea behind static externalities is that one employee may benefit – in terms of higher productivity and earnings – from another's education without any compensation. Lucas (1988) and others have argued that one person's gain from the better education of another person may also be caused by interactions that take place outside firms. Dynamic externalities cover the effect of human capital on technological change and learning-by-doing. A higher human capital may indeed affect economic growth since growth is, to a large extent, determined by technological progress and better-educated people could increase a country's capacity to produce (Romer, 1990) and adopt ideas (Nelson and Phelps, 1966). In addition, learning is more effective with better-educated people. Finally, education can generate non-economic (*i.e.* non-pecuniary) benefits such as better health, crime reduction, higher civic participation (OECD, 2001; London Economics, 2005).

The possible existence of positive externalities from education is the focus of a large amount of the empirical literature on the relationship between growth and human capital. The empirical microeconomic literature seems less appropriate in addressing the issue of education's return on investment for society. (Krueger and Lindhal, 2001; Harmon, Oosterbeek and Walker, 2003; Sianesi and van Reenen, 2003)[13].

Empirical macro-economic studies on human capital and growth have followed two different approaches (de la Fuente and Ciccone, 2003; Canton *et al.*, 2005): a non-structural approach and a structural approach. The non-structural approach involves the specification and estimation of an *ad hoc* equation that relates growth to a set of economic variables (including non-conventional ones such as political instability) that may affect growth

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11   A detailed discussion on the methodological issues raised by the interpretation of the slope of the Mincerian wage regression is beyond the scope of this chapter. For an overview, see in particular Card (2001), Kruger and Lindhal (2001), Temple (2001) and de la Fuente and Ciccone (2003).

12   The term "social return" is used in the literature on the return to education in various ways. Here, we refer to the overall return on an individual's education from society's point of view rather than the private return simply adjusted for taxation and direct costs of education. A large amount of theoretical literature covers the possibility of positive externalities from education.

13   A few recent empirical micro-economic studies nevertheless attempted to identify educational externalities, especially static ones (Acemoglu and Angrist, 2001; Moretti, 2004a; Moretti, 2004b).

(Barro, 1991). The structural approach involves specification and estimation of a theoretical model built around a production function and, occasionally, an equation describing the determinants of technological progress such as the stock of human capital or R&D expenditure. This chapter will focus on the structural approach, whereby a distinction is made between two assumptions: the standard assumption, associated with the neoclassical framework, which treats human capital as an ordinary input in the production function (Mankiw, Romer and Weil, 1992), and an alternative assumption, associated with the theory of endogenous growth, that sees technological progress as a function of the stock of human capital (Romer, 1990; Nelson and Phelps, 1966; Benhabib and Spiegel, 1994, 2005; Vandenbussche, Aghion and Meghir, 2006).

2.2. The standard assumption: human capital as an ordinary input

2.2.1. From the standard to the augmented Solow model

The framework developed by Mankiw, Romer and Weil (1992) builds on the standard Solow model and is a useful tool for understanding differences in economic growth across countries. However, the model has chiefly been used to estimate the growth effects of human capital.

The standard Solow model: basics and predictions

The standard Solow model envisages the growth of worker output as dependant on physical capital accumulation. It assumes that output is produced using two factors of production – physical capital and labour – and a neoclassical production function with constant returns to scale and diminishing returns to each input[14]. How much output is produced, given these inputs, depends on the current level of technology (or TFP). This aggregate production block is then combined with a physical capital accumulation equation, assuming a constant and exogenous saving rate, to produce a general equilibrium model of the economy.

The standard Solow model predicts that, in the long run, the economy reaches equilibrium (known as steady state) when the output per worker grows at the given exogenous rate of technological progress. Indeed, the assumption of diminishing return to physical accumulation ensures that the economy converges to a steady state where output per worker does not grow without technological progress. In the steady state without technological progress, the level of investment in physical capital equals the amount of investment necessary to keep the per-worker capital stock constant. In the long run, output per worker can grow only if the economy's productive processes are augmented with new technology that produces additional output without additional inputs. The steady-state level of output per worker depends positively on the saving rate and the technology level, and negatively on the rate of population growth, while the steady-state per worker growth rate depends only on the rate of technological progress. This first result answers, from a theoretical perspective, the question why countries with high saving rates tend to be richer, *ceteris paribus,* or why countries with high population growth rates tend to be poorer.

This first result from the standard Solow model does not explain differences in growth rates between countries. More specifically, it does not address the question of why poor countries tend to grow faster than rich countries? However, the Solow model does allow the derivation of another important result in the context of transition dynamics. Although in the standard Solow model permanent growth in output per worker can only be explained by technological progress, temporary or transitional growth can be due to several factors, including shocks affecting the saving rate, the rate of population growth, the depreciation rate and the level of technology.

According to the principle of transition dynamics, the growth rate of an economy is proportional to the gap between the country's current position in terms of output per worker and its (new) steady-state position (Jones, 1997). During the transition to the new steady-state growth path, capital per worker grows more rapidly than normal and hence output per worker also grows more rapidly than normal. However, the growth slows down and stops when the economy reaches its new steady-state because of the diminishing return to physical capital. Shocks affecting the saving rate, the rate of population growth, the depreciation rate and the level of technology therefore have level effects only. Applied to cross-country growth, the principle of transition dynamics imply, from a theoretical point of view, that poorer countries will tend to have higher growth rates when catching up or converging with those with higher standards of living. This notion of convergence can also be understood in terms of either levels or rates of growth (Islam, 1995). The latter is due to the fact that in the Solow model, the steady-state growth rate is determined by the exogenous rate of technological progress. Assuming that technology is a public good, freely available to all economies, the latter can reach the same growth rate in the long run.

Testing the prediction of convergence

The issue of convergence has received considerable attention in empirical work in the past decades (for a survey, see

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14   "Constant returns to scale" means that a proportionate increase in all factors of production leads to an increase in output of the same proportion. A production function shows "diminishing marginal product" if the marginal product of a factor falls as the amount of the factor increases while all other factors are held constant.

Islam, 2003). Baumol (1986), for example, examined convergence among a small sample of industrialised countries by regressing output growth over the period 1870–1979 on a constant and initial income. The results of his regression suggested almost perfect convergence. However, further empirical studies have challenged this finding, at least in its absolute form – namely, the hypothesis that poor economies tend to grow faster per capita than rich ones without conditioning on any other characteristics of economies (for instance, Bradford De Long, 1988; Baumol, Batey and Wolf, 1989; Barro, 1991; Barro and Sala-i-Martin, 1992) – especially when larger samples (including both developing and industrialised countries) are considered.

For this reason, the hypothesis of conditional convergence – where a country's growth is conditioned by its specific characteristics – was gradually developed in the empirical literature (Barro and Sala-i-Martin, 1992; Mankiw, Romer and Weil, 1992)[15]. In any event, the relatively disappointing empirical results have tended to add to the interest in models that go beyond the neoclassical framework with its exogenous technological change. In these "endogenous growth" models, changes in government policy can influence the growth rate permanently and not only transitionally. The latest generation of these models has endogenised technological change (Romer, 1990; Grossman and Helpman, 1991; Aghion and Howitt, 1992, 1998), admitting that the rate of technological progress depends on economic forces and can be influenced by government policy[16].

Augmenting the Solow model with human capital

In their influential paper, Mankiw, Romer and Weil (1992) showed that the neoclassical framework remains appropriate for explaining cross-country dif-

ferences in income and growth rates, when it is augmented to include human capital accumulation. One key feature of this model is that in the augmented production function, human capital is a distinct input along with physical capital and labour, rather than just augmenting labour itself (Jones, 1996; Hall and Jones, 1999; Bils and Klenow, 2000).

At the same time, the augmented Solow model assumes that human capital is accumulated in the same way as physical capital, *i.e.* by foregoing consumption. More fundamentally, the introduction of human capital as an ordinary input in the neoclassical production function leads to "…the implicit assumption that education affects individual's productivity equally on all jobs" (Aghion and Howitt, 1998). This particular way of treating of human capital in the production function of the augmented Solow model is fundamental and has been criticised by a number of authors as discussed below[17].

2.2.2. Estimating the augmented Solow model: mixed results

In order to gauge empirically the growth effects of human capital, a large body of the relevant literature has tried to estimate the value of the parameter reflecting the output elasticity of human capital. This elasticity measures the percentage change in the level of output that results from a 1% change in the stock of human capital. Several techniques can be used to estimate the parameter. During the 1990s, studies on the growth effects of human capital started by estimating the so-called "convergence equation" derived from the augmented Solow model. This equation shows that, around the steady state, the level of output per worker is a function of the determinants of the steady-state level of output per worker and the initial level of output per work-

er. In subsequent years, researchers have directly estimated the augmented production function using new data sets on educational attainment.

Mankiw, Romer and Weil estimated the above mentioned convergence equation of the augmented Solow model[18]. The former equation, based on the assumption that the economies are at their steady state, expresses the level of output per worker in terms of exogenous variables, including the saving rates, the rate of depreciation and the rate of population growth. Applying standard econometric techniques (*i.e.* Ordinary Least Squares), the authors made use of cross-sectional data for the period 1960–1985 for three samples of countries as follows:

• The non-oil sample which includes 98 countries, except countries where the oil industry is dominant;

• The intermediate sample which covers 75 countries, *i.e.* the non-oil producing sample without the poor countries; and

• The OECD sample which consists of 22 OECD member countries.

In this exercise, the rate of investment in human capital is proxied by the fraction of the working-age population enrolled in secondary schooling; the investment and population growth rates which are averages for the period 1960–1985; and the rate of technological progress which is assumed to be common to all countries, while the initial level of technology at the beginning of the period is a constant that varies randomly across them. In practice, the authors included the unobservable initial level of technology in the disturbance term of the equation and presume it to be independent of all other variables. The authors found that an

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15   Abramowitz already addressed this issue in his article published in 1986.

16   See Section 2.3.

17   See Annex 1 for further technical details regarding the augmented Solow model and the different options to estimate it.

18   See equation (A1.11) in Annex 1.

increase in the human capital stock has a significant impact on the level of output for the three groups of countries. In fact, the implied human capital coefficient is 0.23[19]. This result is in line with the positive findings obtained by Barro (1991) on the basis of the *ad hoc* equations. Moreover, the same authors also showed that human capital accumulation slows down the convergence to the steady-state by counteracting the effects of diminishing returns to physical capital accumulation.

Several cross-country growth studies (*e.g.* Lichtenberg, 1993; Vasudeva Murthy and Chien, 1997; de la Fuente, 1998) have built on Mankiw, Romer and Weil's paper to replicate or extend the augmented Solow model in various directions. These studies have more or less corroborated the results obtained by these authors (for a survey, see de la Fuente and Ciccone, 2003; Sianesi and Van Reenen, 2003).

Nevertheless, a number of studies have also criticised the framework developed by Mankiw, Romer and Weil. Only some of the economic problems are discussed below. A discussion of the econometric problems can be found elsewhere[20].

Firstly, Mankiw, Romer and Weil assumed that an economy accumulates human capital in the same way that it accumulates physical capital, that is by foregoing consumption, despite the fact that the mechanisms of human capital accumulation are more complex (Lucas, 1988; Cohen, 1996; Jones 1996; Hall and Jones, 1999; Bils and Klenow, 2000). One example of this

approach is Jones (1996) who, in his extension of the Solow model, followed Lucas (1988) in assuming that individuals spend time accumulating skills[21,22]. In the Lucas model the effort devoted to the accumulation of human capital depends negatively on the rate of time preference (*i.e.* the marginal rate of substitution between current and future consumption) and on the degree of risk aversion and positively on the productivity of schooling. Secondly, the hypothesis that economies have a common rate of technological progress is questionable. Given differences in technology levels, it is natural to assume that rates of technological progress must also vary. Thirdly, the assumption that all economies are close to their steady states and converge on them at the same speed is doubtful from an economic point of view. Moreover, such assumption contradicts the specification of the model. Indeed, in the model, the speed of convergence depends, in particular, on the population growth rate, which varies from country to country[23].

A second generation of empirical studies has addressed these criticisms. These studies benefited from the fact that they were able to use recently created data sets on human capital stocks and educational attainment in a large number of countries over an extended period (for instance, Kyriacou, 1991; Barro and Lee, 1993, 2001; Nehru, Swanson and Dubey, 1995). Using the Barro and Lee data set (1993), Islam (1995) estimated a variant of the convergence equation of the Solow augmented model[24] using a simple cross-section framework on three similar samples of

countries (non-oil, intermediate and OECD) in order to allow comparison of his results with Mankiw, Romer and Weil's. In so doing, he approximated the steady-state level of human capital by applying a value to the stock of human capital at a given time. His results are non-significant for the intermediate sample but they are positive and significant for the non-oil sample. Islam then used panel data methods which allowed him[25] to introduce country-specific level (fixed) effects in order to correct for the variable bias associated with the initial level of technology omitted in the Mankiw, Romer and Weil regression. In particular, these authors assumed that the initial level of technology included in the disturbance term of the regression is uncorrelated with the regressors. However, as this is unlikely to be the case, the estimated coefficients obtained from standard econometric methods (*i.e.* Ordinary Least Squares) tend to be biased. Once country-specific fixed effects are considered, Islam found that human capital has no positive effects on growth. Later, Lee, Pesaran and Smith (1997) extended Islam's exercise to show that time series indicate that the rates of technological progress vary across countries.

As more data sets became available the initial research programme initiated by Mankiw, Romer and Weil attracted even stronger criticism from authors who estimated variants of the structural form of the augmented Solow model, instead of the reduced forms. These new regressions allow these authors to abandon the assumption that economies converge to their steady states and are close to them. For

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19   This means that a 1% increase in human capital stock is associated with a 0.23% increase in GDP.

20   A detailed discussion of the econometric problems associated with Mankiw, Romer and Weil's paper is beyond the scope of this paper. For a detailed discussion on this issue see, for instance, Gurgaud (2000) and de la Fuente and Ciccone (2003).

21   In his specification, $H_t = e^{\theta S_t} L_t$ where S is the time spent on skill accumulation by a representative member of the labour force or years of schooling and θ is the Mincerian rate of return to a year of schooling. One additional year of schooling increases the "effective" labour input by $100\theta\%$ and increases the wage by the same amount. This specification was first suggested by Bils and Klenow in an earlier version of their paper.

22   In order to avoid this type of problems, it may be more appropriate to estimate equation (A1.12) in the annex since it does not express the stock of human capital in relation to its exogenous determinants.

23   In order to avoid this type of problem, it may be more appropriate to estimate equations (A1.8) or (A1.9) in Annex 1.

24   Equation (A1.12) in Annex 1.

25   See also Caselli, Esquivel and Lefort (1996).

instance, Benhabib and Spiegel (1994) estimated a variant of the structural form of the augmented Solow model expressed in growth rates[26] over the period 1965-1985, using the large data set on schooling from Kyriacou (1991). Pritchett (2001) undertook a similar exercise using data on education from Barro and Lee (1993) and Nehru, Swanson and Dubey (1995). The results obtained from these studies showed that increases in human capital resulting from improvements in educational attainment had no positive effect on the growth in output per worker.

Examination of the results obtained from some of the most influential empirical studies on the growth effects of human capital in the framework of the augmented Solow model over the 1990s appears to show opposite results. While those studies that estimated models based on the convergence equation tended to show positive and significant effects of human capital on growth, those that estimated models based directly on the augmented production function revealed no positive effects.

2.2.3. Measurement error in human capital: another perspective on the augmented Solow model

The disappointing results obtained from the empirical studies described above have themselves been widely criticised (for a review, see Temple, 2001; de la Fuente and Ciccone, 2003).

Low data quality on schooling

In particular, several scholars – including, among others, de la Fuente and Doménech (2001) and Krueger and Kindhal (2001) – stressed the existence of measurement error bias as result of

the low quality data on schooling in these studies. In the earlier standard growth regressions, the main consequence of the "noise" introduced by the low quality data on schooling had the main effect of reducing the human capital coefficient. In practice the measurement error implies changes in the measured stock of human capital independent of the level of output per worker. Using improved data sets on human capital, several studies (de la Fuente and Doménech, 2002, 2006; Cohen and Soto, 2001; Bassanini and Scarpetta, 2001) found a positive relationship between human capital and growth in several standard growth specifications. For instance, de la Fuente and Doménech (2006) wrote that "…the true value of the elasticity of output with respect to years of schooling is almost certainly above 0.60, that is, at least twice as large as the largest estimate of reference in the previous studies". These results are remarkable given that, in the studies by de la Fuente and Doménech and by Bassanini and Scarpetta, they are applicable to the OECD countries. Indeed, as noticed by Temple (2001), the bulk of studies on the growth effects of education have focused on large samples of countries dominated by developing countries, whilst their conclusions have often been generalised to developed countries.

The quality of schooling matters too

Although measurement error due to the poor data quality on enrolment rates or years of schooling as a proxy of human capital has reduced the human capital coefficient in many standard growth regressions, the measurement error caused by disregarding differences in the quality of schooling is far greater (Wößmann, 2003). However, an alternative data set that has the potential to

overcome these problems to some extent was created by Hanushek and Kimko (2000). They used direct measures of labour force quality obtained from international tests of cognitive skills in mathematics and science. Their results support the idea that education has a substantial effect on rates of growth. Following up the ideas of Hanushek and Kimko (2000), Coulombe, Tremblay and Marchand (2004) used direct measurements of human capital derived from literacy scores from the International Adult Literacy Survey. Based on a sample of OECD countries, their results indicate that, overall, human capital based on such measurements has a positive and significant effect on transitional growth and in the long run on levels of per capita output.

2.3. An alternative assumption: technological progress as a function of human capital

2.3.1. Human capital, technology creation and endogenous growth

From transitional growth to sustained growth

The limits of the standard Solow model have also given rise to new theoretical growth models grouped under the label "endogenous growth theory". One key feature of this theory is that permanent changes in variables that are potentially affected by government policies, lead to permanent changes in growth rates and not to transitional growth, as is the case in the neoclassical framework[27]. Endogenous growth models cover, *inter alia*, the early "AK" growth models[28] of Romer (1986), Lucas (1988) and Rebelo (1991) as well as the subsequent models of Romer (1990),

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26   See equation (A1.9) in Annex 1.

27   It can also be argued that the distinction between transitional growth and sustained (or permanent) growth is to some extent semantic if the speed of convergence to the steady-state is very slow.

28   The "AK" growth models are endogenous models within which capital accumulation (covering here all the factors of accumulation) is not subject to diminishing returns like in the Solow model. Indeed, there are constant returns to the accumulation of capital. Therefore, the capital stock is always growing and growth in these models never stops. The growth rate of the economy is thus an increasing function of the investment rate. Government policies that increase the investment rate of this economy permanently will increase the growth rate of the economy permanently.

Grossman and Helpman (1991) and Aghion and Howitt (1992, 1998) focusing more explicitly on endogenous technological change. In the endogenous growth theory, human capital plays a predominant role. Aghion and Howitt (1998) indicated that the role of human capital in endogenous growth models can be divided into two classes. The first broadens the concept of capital to include human capital. In these models, permanent growth is due to the accumulation of human capital over time (Uzawa, 1965; Lucas, 1988). The second class of models links growth to the existing stock of human capital, which acts as a factor of technology creation (Romer, 1990). These are often referred to as "R&D-based models of economic growth" (Jones, 1995).

Sustained growth with human capital as a factor of production

Lucas (1988) includes human capital as an additional input in the production function while maintaining the other features of the neoclassical growth model. In the Lucas model, output per worker is a function of the physical capital stock per worker, the proportion of time devoted to production (as opposed to accumulation of human capital), the stock of human capital per worker and the average human capital stock in the economy. The average human capital stock is introduced in the function to allow for the presence of externalities. While physical capital is accumulated in the same way as in the standard Solow model (*i.e.* by foregoing consumption), Lucas (1988) assumed that human capital is acquired by spending time in an educational process. This creates, for the workers, a trade-off between time spent on the production of output and time spent on accumulation of human capital, which will increase their marginal productivity in the future.

Moreover, Lucas also considered that human capital production technology has constant returns, implying that the growth rate of human capital is independent from the level of human capital stock because it depends only on the time spent by individuals on accumulating skills. The constant returns imply that the model exhibits a positive growth rate of output per worker in the steady state, even though physical capital has diminishing returns and there are positive externalities. From this scenario, differences in growth rates across countries are due solely to differences in the rates of human capital accumulation and not to differences in the levels of their human capital stocks.

Compared with the augmented Solow model, the Lucas model gives human capital a much more significant role in economic growth. In the former, human capital can have an impact on growth only during the transition to the steady state, while it can be a source of permanent growth in the latter. In effect, this means that higher human capital accumulation has only a level effect in the augmented Solow model since it can lead to an increase in the level of output per worker, while in the Lucas model it has a rate effect because it can lead to a permanent increase in the rate of growth.

Nonetheless, both the augmented Solow and the Lucas models have similar drawbacks (Aghion and Howitt, 2006). In particular, human capital is treated as an additional input in the production function. Human capital is therefore assumed to have an impact on the productivity of workers whatever their jobs – either routine or innovative. Certainly, education is crucial for routine jobs. However, it is also reasonable to assume that education is particularly central to jobs requiring adaptation to change and innovation, which are increasing in a knowledge-based economy.

Moreover, neither the augmented Solow nor the Lucas models attribute growth to the level of human capital stock, neither to the steady state nor in the steady state itself. As a consequence, it is necessary to keep on increasing the investment rate in human capital to ensure permanent growth or to increase the rate of growth.

Finally, neither the augmented Solow nor the Lucas models explain the mechanism by which growth is actually sustained in the real world. While in the Lucas model permanent growth is attributable only to human capital accumulation, several authors (for example, see Grossman and Helpman, 1994) have pointed out an alternative view that technological progress has been the real force behind the sustained rise in living standards over the past decades. While in the augmented Solow model, technological progress is the only source of sustained rising living standards, it remains exogenous, whereas in the real world the rate depends on economic forces and can be influenced by economic policy.

Sustained growth with human capital as factor of technology creation

The subsequent generation of endogenous growth models typified by the R&D-based models of Romer (1990), Grossman and Helpman (1991) and Aghion and Howitt (1992) adds a new dimension to endogenise technological progress by modelling it as a linear function of the stock of human capital.

Romer (1990) considers an economy where endogenous technological progress is the engine of sustained growth. The Romer economy consists of three sectors as follows: a research sector, an intermediate-goods sector and a final-goods sector. In brief, the research sector uses the existing stock of knowledge and skilled workers employed in that sector to produce new knowledge in the form of new designs for new varieties of capital goods. It then sells the new designs to intermediate-goods firms to produce specific capital goods. The intermediate-goods firms subse-

quently manufacture the capital goods and sell them to the final-goods sector, which in turn produces the output.

In the Romer model (1990), output in the final-goods sector is produced using skilled workers employed in that sector and a number of different capital goods from the intermediate-goods sector. This number of different capital goods is measured by the level of technology or knowledge stock. In that sector, firms are perfectly competitive, as in the Solow model. Romer sets out a crucial assumption about the attributes of knowledge. Knowledge embodied in new designs is assumed to be a nonrivalrous good because it involves a fixed cost of production and zero marginal cost. In other words, once knowledge is produced by a firm in the research sector, it can be used simultaneously by the others without any financial compensation. This implies the presence of positive externalities in the research sector and so new knowledge can therefore be accumulated over time even if the stock of human capital is constant – because the productivity of the high-skilled workers is proportional to the existing stock of knowledge. More precisely, Romer presupposes that the technology for generating knowledge has constant returns and as a consequence, the pace at which new knowledge is produced is proportional to the level of human capital and the existing knowledge stock.

However, under this scenario what would encourage the research sector to produce new knowledge? Since knowledge is nonrival, it cannot be paid at its marginal product under perfect competition without engendering negative profits and therefore there is no incentive for the creation of new knowledge in the research sector. In order to overcome this difficulty, Romer introduces imperfect competition in the intermediate-goods sector and the research sector sells to an

intermediate goods firm the exclusive right to use a design for manufacturing new capital goods. In that respect, knowledge is partially excludable from its free use by intermediate goods firms as the research sector can, to some extent, compensate for its activity.

Sustained growth in the Romer model is driven by the accumulation of knowledge through an expansion in product varieties. The precondition for sustained growth in this model is that the knowledge production technology has constant returns. Since knowledge accumulation drives growth, the size of the skilled labour force in the research sector and its productivity determine the growth rate of output in the steady-state. Moreover, since the model assumes that the human capital employed in the research sector is the same as that for the production of output in the final-goods sector, the rate of output growth is ultimately determined by the stock of human capital employed in the whole economy. This finding is remarkable with regards to the previous specification of the role of human capital in economic growth. In particular, when human capital is considered solely as an input for production (such as in the Lucas model (1988)) output growth can be affected only by different rates of human capital accumulation, but when human capital is considered a factor of technology creation, growth depends on the stock of human capital.

2.3.2. Human capital, technology diffusion and growth

Although the Romer model (1990) shows that growth is sensitive to the stock of human capital when it is considered as a factor of technology creation, several authors have suggested growth could also depend on the stock of human capital when the latter is seen as a factor of technology diffusion.

The idea that education can speed the process of technology diffusion was first put forward by Nelson and Phelps in their seminal article published in 1966. Nelson and Phelps noticed that US farmers with relatively high levels of education, have tended to adopt profitable innovations disseminated by the US Department of agriculture earlier than the farmers with little education. In order to explain this observable fact, the authors rank jobs or functions according to the degree to which adaptation to change or leaning is required. At the bottom of the scale, there are the highly routinised jobs for which adaptation and learning are not crucial. These jobs and functions are often repetitive and characterised by low uncertainty. At the top of the scale, there are innovative jobs for which capacities of adaptation to change and learning are essential in order to keep abreast of technological progress and to assimilate it.

Nelson and Phelps assume that a well-educated workforce is necessary on both sides of the scale. Even the highly routinised jobs demand a high-skilled workforce to master the necessary discrimination among the tasks to be done. However these authors argue that a well-educated workforce is particularly important for the innovative jobs because "…education enhances one's ability to receive, decode and understand information"[29]. Moreover, these authors insist on the fact that the function of keeping abreast of technological improvements is not limited to scientists and engineers but extends to other occupations, in particular managers, within enterprises: "…their education is obviously important; but so too is the education and sophistication of top management which must make the final decision" (Nelson and Phelps, 1966).

Other economists have supported this important feature of education. For

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29   Quoted by Bartel and Lichtenberg (1987).

Welch (1970), "the productive value of education has its roots in two distinct phenomena. Increased education may simply permit a worker to accomplish more with the resources at hand … [or it may] enhance a worker's ability to acquire and decode information about costs and productive characteristics of other inputs, such as a change in education results in a change in other inputs including perhaps the use of some "new" factors that otherwise would not be used"[30]. Welch names the first phenomenon the "worker effect" and the second one the "allocative effect" of schooling. Schultz (1975) argues that education influences "the efficiency of human beings to perceive, to interpret correctly, and to undertake action that will appropriately reallocate their resources" in response to changes in economic conditions which are in general not of their own making. Put differently, education increases the ability of workers to deal with disequilibria and to capture what may be termed "disequilibrium rents". In a Schumpeterian economy, where disequilibria are incessant[31], these rents are typically generated by technical change (Schultz, 1975; Bowles, Gintis and Obsorne, 2001).

Based on the hypothesis that education speeds the process of technology diffusion, Nelson and Phelps (1966) built a simple model to explain technological progress[32]. The model postulates that while the growth of the technology frontier – which is treated as exogenous in the model – reveals the rate at which new technologies are created, the growth of TFP depends on the absorption of these new technologies, and varies positively with the gap between the level of frontier technology and the level of current technology. In addition, the model assumes that the speed at which this gap is closed depends positively on educational attainment. In other words, the growth of TFP or technological progress is an increasing function of the level of human capital and is proportional to the distance to the technology frontier. It is important to note that, in this model, human capital affects the growth of TFP only in the transition towards the technological frontier. As a consequence, the rate effect becomes a level effect in the long run.

Given this particular treatment of the role of human capital in economic growth, Nelson and Phelps conclude: "…the usual, straightforward insertion of some index of education attainment in the production function [like in the neoclassical framework] may constitute a gross misspecification of the relation between education and the dynamics of production".

2.3.3. Distance to frontier, technological progress and human capital

The two sources of technological progress

The two previous sections have presented models of technological progress within which the human capital stock is considered, on one hand, as factor of technology creation and, on the other hand, as factor of technology diffusion. Such assumptions are of particular interest because they make growth sensitive to the stock of human capital and not to its accumulation and at the same time, imply that human capital cannot simply be considered as an additional factor of production. However, taken separately, these two assumptions have a major drawback – they neglect the fact that the source of technological progress is dual. As emphasised by Benhabib and Spiegel (1994) and Acemoglu, Aghion and Zilibotti (2006), among others, technological progress is the outcome not only of technology creation but also of technology diffusion and absorption.

Distance to frontier, technological progress and level of human capital

It is reasonable to assume that the respective contribution of technology creation and diffusion to technological progress depends on the level of technological development of economies. In less advanced economies, technology diffusion and absorption can certainly promote growth because economies at the forefront of technology act as the "locomotive" of growth by expanding the set of attainable knowledge, pulling all others through the "catch-up" effect. However, the strength of this effect with the technology frontier decreases with the level of technological development, to the benefit of technology creation. Indeed, the creation of more advanced technology becomes progressively more important as a country moves closer to the technology frontier because "… catching up with the frontier translates into smaller and smaller technological improvements as a country starts from an initial productivity level that is closer to the frontier technology" (Vandenbussche, Aghion and Meghir, 2006).

Based on these considerations, Benhabib and Spiegel (1994, 2005) built alternative model(s) that allow the level of human capital stock to directly affect the growth of TFP through technology creation and technology diffusion[33]. Following Romer (1990), they assume that the level of human capital

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30   Quoted by Bowles, Gintis and Osborne (2001).

31   According to Schumpeter, capitalism is by nature a form or method of economic change that can never be stationary. Capitalism has an evolutionary character because it is subjected to a process of creative destruction where new innovations destroy old ones.

32   This model is described in more technical detail in Annex 2.

33   Although the basic idea behind these models is the same, the technology diffusion and catch-up processes are slightly different. For instance, in Benhabib and Spiegel (1994), the technology diffusion and catch-up process is a confined exponential diffusion process. In their paper published in 2005, Benhabib and Spiegel introduce an alternative formulation for the technology diffusion and catch-up process in line with the logistic model of technology diffusion. For more technical details regarding these two processes of technology diffusion, see Annex 2.

stock may directly impact on TFP growth or technological progress by determining the capacity of countries to create domestically new technologies. The term "domestically" indicates that the level of human capital stock increases technological progress independently. They also adapt the Nelson-Phelps framework in order to allow the level of human capital stock to speed up the adoption of technologies from abroad, thus fostering technological progress. This is realised by adding to their model a multiplicative term involving the level of human capital stock and "backwardness", measured as a country's distance from the world technology leader, to capture the "catch-up" effect.

In Benhabib and Spiegel (1994), the authors tested their specification on a sample of economies, covering both developing and developed economies over the period 1965–1985. In this article, the technological gap of a country (*i.e.* its backwardness) is proxied by the gap in terms of GDP. For the full sample of 78 economies, they found that the "catch-up" measure of their model emerges positively and significantly, while the "innovation" measure is negative and insignificant.

They also tested the same empirical specification on two smaller samples of economies. In the reduced sample covering the richest countries, they showed that education has a positive impact on the growth of TFP through technological creation. Reciprocally, Benhabib and Spiegel (1994) demonstrated that education has a positive effect on the growth of TFP through technological diffusion in the poorest countries. The conclusions from this alternative model are particularly significant in terms of policy implications. The authors showed that it is the level of human capital stocks rather than their growth rates that affect overall growth. Moreover, because the level of education has positive effects on the

growth of TFP through the creation of new technologies and their absorption, its affects growth permanently – not just transitionally, as is the case in the neoclassical framework. However, it should be stressed that the distinction between level and rate effects can be difficult to make if the impact of the stock of human capital on a country's ability to generate new technologies is low. Indeed, the effect of human capital on TFP growth through technology diffusion will continue to decrease as the country moves towards the technology frontier.

Distance to the frontier, technological progress and high-skilled human capital

Despite the important policy implications suggested by Benhabib and Spiegel, their approach does not make a distinction between the different types of human capital – only the level of human capital stock, as proxied by the average years of schooling, is considered. As a result, this approach implicitly treats primary, secondary and tertiary education as perfect substitutes since countries with similar levels of human capital stock can have different distributions in terms of the types of human capital. This can be shown with a simple example. Consider two economies A and B. Suppose that the cumulative years of schooling for primary, secondary and tertiary education are respectively 6, 12 and 18 in both economies. Suppose also that, in economy A, 30% of the workers have a primary level of schooling, 20% have a secondary level of schooling and finally 50% have a tertiary level of schooling. The average years of schooling in this economy is 13.2. If in economy B, the distribution of the workers between the different levels of schooling is 10%, 60% and 30%, this economy will have the same average years of schooling. Following Benhabib and Spiegel, the impact of education on the growth of TFP will have the same magnitude in economies A and B if they are at the

same distance to the technology frontier, despite the fact that the fraction of high-skilled workers is much higher in economy A.

This drawback of the Benhabib-Spiegel analysis has been emphasised by Vandenbussche, Aghion and Meghir (2006) and Aghion and Cohen (2004). While these authors agree with Benhabib and Spiegel (1994) seeing technological progress as dual, they argue that the creation of new technologies and their absorption require different types of human capital. They assume that a high-skilled workforce is better suited to the creation of new technologies while a low-skilled workforce is more appropriate to their absorption. These authors conclude that economies close to the technology frontier need to focus on the creation of new technologies by concentrating their efforts on tertiary education. Conversely, economies far from the technology frontier should concentrate more on absorption by giving particular importance to primary and secondary education. These conclusions support the view already expressed by Acemoglu, Aghion and Zilibotti (2006) that economies have to be equipped with "appropriate institutions" in relation to their level of development, in order to sustain growth[34].

Distance to frontier, technological progress and adaptable human capital

The idea defended by Vandenbussche, Aghion and Meghir (2006) is particularly interesting because it allows understanding of the role of education in economic growth in industrialised countries such as the EU Member States. In these countries, it is not so much the levels of the human capital stocks that matter since they are characterised by similar average years of schooling. Conversely, what makes the difference is the skill composition of human capital and more precisely, the

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34   This idea of "appropriate institutions" was first expressed by Gerschenkron (1962). According to this author, backward economies have to be equipped with "appropriate institutions" in order to "catch up" faster.

fraction of high-skilled workers in the labour force. Such an idea is in accordance with the European Commission's view, expressed in the Communication *Working together for growth and jobs. A new start for the Lisbon Strategy* and by the EU Member States in the *Title VIII of the Amsterdam Treaty*, article 125.

However both these policy documents refer to the importance of an adaptable workforce as well. The European Commission states that economies endowed with a high-skilled and adaptable workforce are better able to create and make effective use of new technologies and to embrace change in its Communication *Working together for growth and jobs. A new start for the Lisbon Strategy*[35]. The *Integrated Guidelines for Growth and Jobs (2005–2008)* adopted by the Council of the European Union[36] also underline the importance of enhancing the adaptability of workers and enterprises in order for "Europe to improve its capacity to anticipate, trigger and absorb economic and social change". According to these Guidelines, this requires "…employment-friendly labour costs, modern forms of work organisation and well-functioning labour markets allowing more flexibility combined with employment security to meet the needs of companies and workers".

The notion of "adaptability" expressed in these policy documents can be understood here in relation to the ideas developed by Nelson and Phelps (1966) and more generally by Schultz (1975). The adaptability of workers is crucial in order to reallocate resources in response to changes in economic conditions or to economic disequilibria. These authors assume that the capacity to adapt to change or the ability to deal with disequilibria is one of the main features of a well-educated workforce. However, it is also reasonable to assume that the degree of adaptability of the labour force is sensitive to the forms of work organisation

that workers face. In particular there may be forms of work organisation that promote more than others the capacity of high-skilled workers to adapt to changes in economic conditions and their ability to capture "disequilibrium rents" generated in particular by technological progress. Such consideration is significant because it implies that the growth effects of a skilled human capital stock may have different magnitudes depending on whether the work environment is designed to encourage the effective use of the adaptability of the high-skilled workers for technological progress.

Based on the literature on the "high performance work system" which deals with the diffusion of Japanese-style work practices in the US and Europe, and the literature on organisational design and innovation (for a survey of these literatures see Lam, 2004), Arundel *et al.* (2006) – following Lorenz and Valeyre (2005), there developed a set of EU-wide aggregate measures of forms of organisation to explore the relationship between innovation and the organisation of work. In order to map the forms of organisation adopted by firms across the EU, they used the results of the *Third survey on European working conditions* carried out by the European Foundation for the Improvement of Living and Working Conditions. The authors identified four main forms of work organisation as follows:

• "Discretionary learning organisation";

• "Lean production";

• "Taylorism"; and

• "Simple organisation".

According to these authors, "discretionary learning organisation" is distinguished by high levels of autonomy in work combined with high levels of learn-

ing, problem-solving and task complexity. Like "discretionary learning", "lean production" involves problem solving and learning, but is nevertheless characterised by low levels of employee discretion in setting work practices and methods and the work tends to be highly monotonous. However, the use of job rotation and teamwork are much higher and work effort is more constrained by quality norms of production. "Taylorism" is essentially the opposite of "discretionary leaning", with low discretion and low levels of learning and problem solving activities. The work is extremely monotonous. Finally, "simple organisation" involves less complex tasks, being more individualistic than all the other forms of organisation and less monotonous than "lean production" and "Taylorism".

Because "discretionary learning" supports high levels of autonomy in work, combined with high levels of learning, problem-solving and task complexity, this form of organisation may be better suited to reallocate resources in response to changes in economic conditions or to economic disequilibria and to allow high-skilled workers to capture "disequilibrium rents". Discretionary learning may thus speed up technology diffusion because it allows high-skilled workers to deal with new and better production possibilities not of their own making. Such forms of organisation may also accelerate technology creation since it provides the opportunity for high-skilled workers to reallocate resources towards new profitable economic prospects in order to create new disequilibria and in consequence to capture new "disequilibrium rents". As economies move closer to the technology frontier, the creation of new disequilibria, driven by technical change, constitutes the main source of profits, and the payoff to encourage the effective use of the adaptability of the high-skilled workers becomes higher.

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35   See footnote 1.
36   See footnote 2.

Arundel *et al.* (2006) shows that two institutional factors, in particular, promote the use of "discretionary learning", beyond formal education. The first factor is vocational training, which helps employees adapt their skills and knowledge to changes in economic conditions. There is indeed a strong positive correlation between the use of discretionary learning across the EU and the percentage of enterprises providing training for their employees. The second factor is less obvious. The use of "discretionary learning" seems to be more prevalent in those EU countries where unemployment benefits are high. The authors explain such correlation by the fact that, in "discretionary learning organisations", the skills and competencies of employees are continuously subject to change and career paths tend to be less structured than other types of organisations. In that respect, high unemployment benefits increase the feeling of security, which in turn can encourage individuals to engage in discretionary learning organisations despite the increased risk of unemployment[37].

3. Econometric evidence of the growth-effects of human capital through technological progress in the EU Member States

In order to assess the impact of human capital on technological progress through technology creation and diffusion as discussed above, this section presents regressions for a panel data set of 14 old EU Member States for the

period from 1960 until 2000. The first empirical specification is derived from the Benhabib-Spiegel model (2005) within which the level of human capital affects the growth of TFP or technological progress[38]. In the subsequent empirical specification, the Benhabib-Spiegel model is modified by letting technological progress or growth of TFP depend on the fraction of high-skilled and adaptable human capital. However, before examining these specifications, the data are discussed.

3.1. Data

Several sources of data are used to construct the panel data set covering 14 EU Member States observed every five years from 1960 to 2000. These 14 countries consist of the EU-15 except Luxembourg (due to the lack of data on educational attainment for the whole period under consideration). The data set is restricted to the EU before the 2004 enlargement due to data availability.

3.1.1. Measurement of total factor productivity

Total factor productivity (TFP) is derived from a constant return to scale Cobb-Douglas production function, and is that part of the output that can not be explained by the measurable quantities of physical capital and labour (decomposed into both the number of employees and the average hours worked per employee)[39].

Estimates of the annualised five-year average growth rate in TFP for the 14 EU Member States and the US between 1960 and 2000 are shown in Table 1. Most of these countries experienced decreases in the growth of TFP in the 1960s and 1970s but during the 1980s,

they exhibited contrasted trends. While the growth of TFP continued to decline in countries such as Belgium, Finland and Spain it increased in other countries, including, for example, Denmark, Ireland and Sweden. In the 1990s, these latter countries maintained their strong growth in TFP in contrast to Belgium, France, Italy and Spain, where TFP stagnated.

TFP estimates for the 14 EU Member States relative to the US level in 1960 and 2000 are displayed in Chart 1. Not surprisingly, all the EU Member States were closer to the technology frontier in 2000 than in 1960 due to the "catch-up" effect. In 2000, those Member States with the smallest distances to the technology frontier were Belgium, Denmark, France and Germany, while the southern European countries were the farthest from the US level.

3.1.2. Measurement of educational attainment

Data on educational attainment are those of de la Fuente and Doménech (2002). The data set[40] gives series on the distribution of the adult population by educational level (*i.e.* primary schooling; lower and upper secondary schooling; higher education, first cycle or shorter courses and second cycle or full-length courses) in 21 OECD countries covering the period between 1960 and either 1990 or 1995. The data set provides no estimates for France, Portugal, Spain and the United Kingdom for 1995. In order to complete the data set, we apply trend extrapolation of the distribution of the adult population by educational level to 1995. In our empirical specifications, the fraction of high-skilled human capital is the share of adults with higher education in total adult population.

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37   For further discussion on the relationship between flexibility and security, see Chapter 2.

38   See Annex 2 for a brief technical description of this model.

39   ln A=log$Y$-0.35ln K-0.65ln L, where A is the level of TFP or the Solow residual, Y is real GDP in 2000 prices, K is the net (physical) capital stock in 2000 prices, and L is labour input which is decomposed into both the number of employees and the average hours worked per employee. Observations for average working hours are retrieved from the AMECO database and the database of the Groningen Growth & Development Centre. Data for the other variables are from the AMECO database. In this exercise, the growth of total factor productivity is defined as the annualised 5 years growth rate. The capital and labour elasticities are calibrated on the basis of the income share of capital and labour. The HP (Hodrick-Prescott) Filter is applied to the productivity series in order to reduce the influence of short-run variations in the form of business cycle effects and other processes.

40   The complete data set is available at http://iei.uv.es/~rdomenec/human/human.html.

Table 1 – Estimates of annualised five-year growth rates of total factor productivity, 1960 – 2000								
	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-00
AT	0.0379	0.0341	0.0226	0.0122	0.0104	0.0127	0.0123	0.0104
BE	0.0347	0.0303	0.0231	0.0148	0.0121	0.0110	0.0088	0.0084
DE	0.0248	0.0229	0.0171	0.0100	0.0076	0.0133	0.0154	0.0125
DK	0.0243	0.0177	0.0083	0.0054	0.0080	0.0109	0.0157	0.0146
EL	0.0688	0.0504	0.0269	0.0043	-0.0083	-0.0030	0.0058	0.0179
ES	0.0545	0.0376	0.0247	0.0143	0.0119	0.0090	0.0050	0.0024
FI	0.0234	0.0253	0.0224	0.0171	0.0159	0.0153	0.0193	0.0225
FR	0.0377	0.0290	0.0196	0.0148	0.0142	0.0132	0.0104	0.0089
IE	0.0214	0.0235	0.0217	0.0162	0.0168	0.0260	0.0329	0.0324
IT	0.0431	0.0336	0.0212	0.0128	0.0100	0.0119	0.0102	0.0059
NL	0.0245	0.0237	0.0178	0.0094	0.0078	0.0103	0.0108	0.0096
PT	0.0629	0.0496	0.0329	0.0185	0.0150	0.0193	0.0141	0.0078
SE	0.0253	0.0173	0.0077	0.0028	0.0066	0.0094	0.0142	0.0182
UK	0.0202	0.0181	0.0136	0.0114	0.0147	0.0143	0.0147	0.0146
US	0.0229	0.0151	0.0092	0.0068	0.0089	0.0104	0.0111	0.0123

Source: DG EMPL calculations based on AMECO and Groningen Growth & Development Centre databases.

Chart 1 — **Distance to the technology frontier, 1960 and 2000**
TFP level relative to US (US = 1)
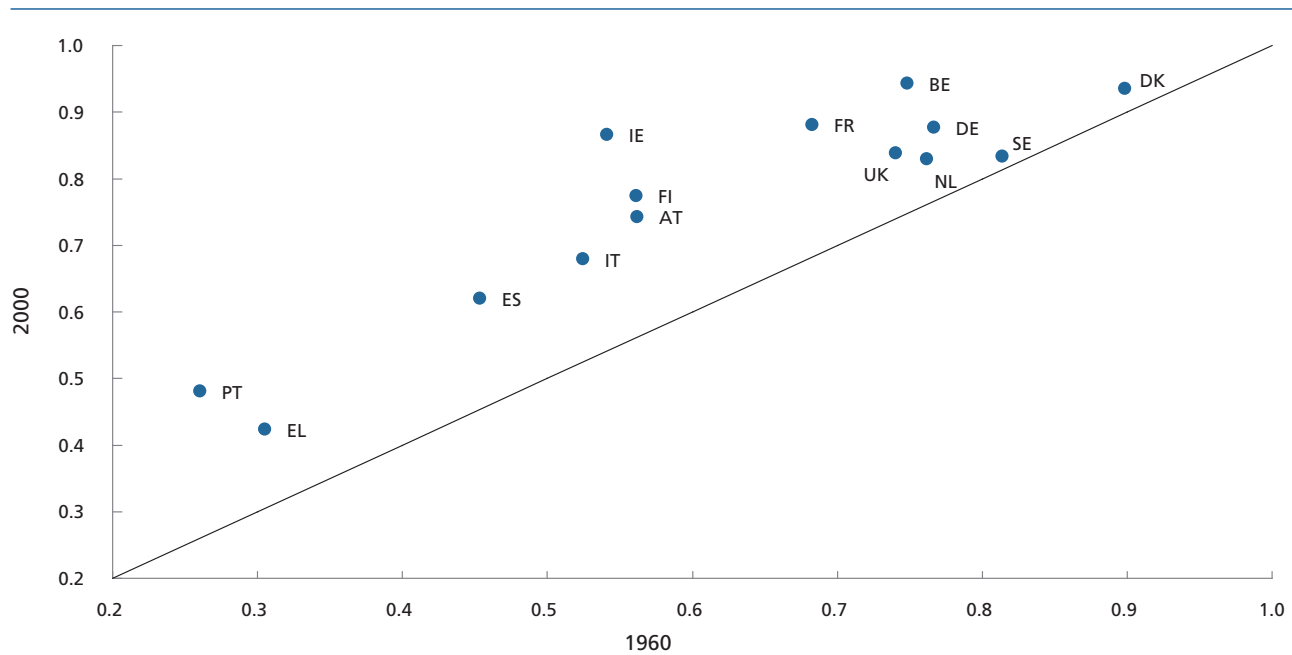
Source: DG-EMPL calculations based on AMECO and Groningen Growth & Development Centre databases.

Chart 2	Share of adult population with tertiary level of education in relation to total adult population, 1960 and 1995

■ 1960   ■ 1995

Source: de la Fuente and Doménech (2002).
Note: ES, FR, PT, UK: 1990
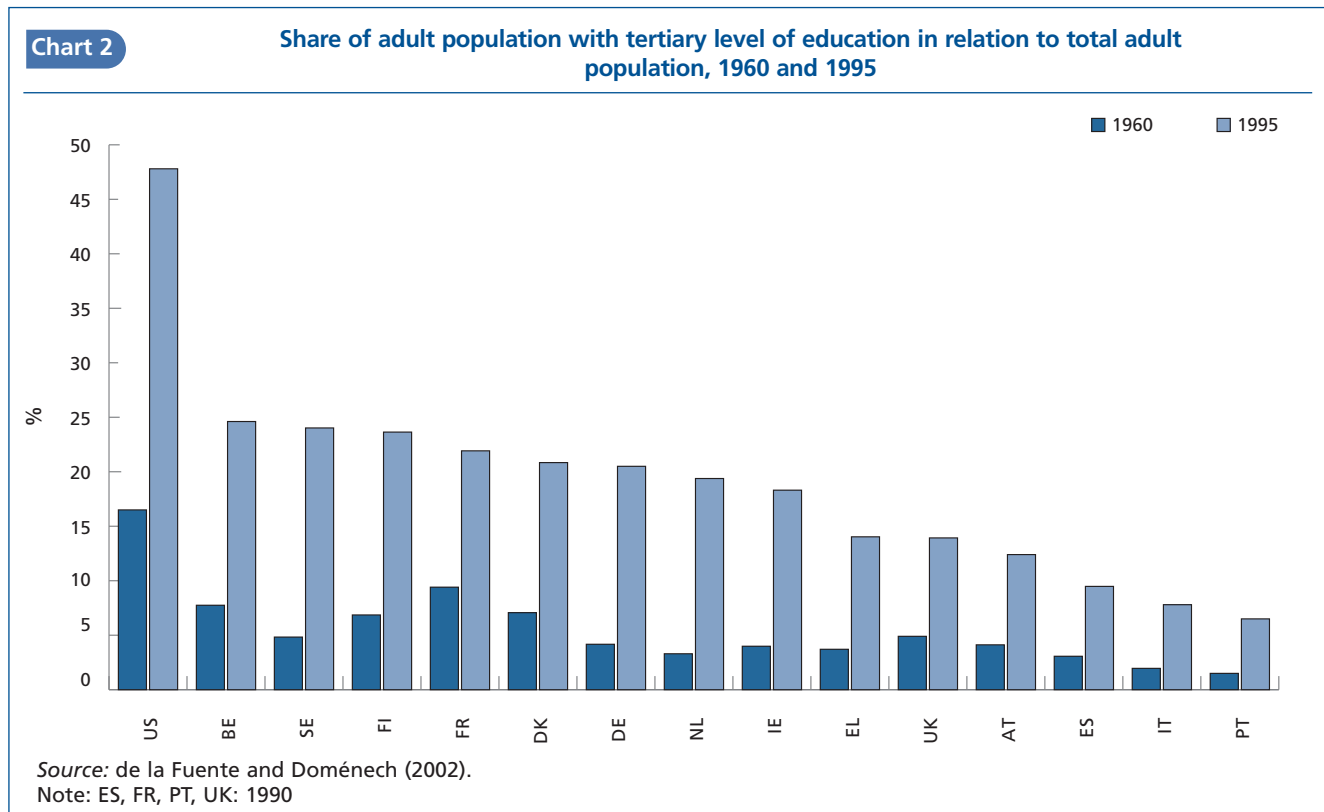
The shares of the adult population with tertiary level of education in relation to total adult population for the same countries in 1960 and 1995 are shown in Chart 2. This share rose in all these countries between 1960 and 1995, although the US showed the most dramatic increase in the share. Among the EU Member States, Belgium, France and Sweden exhibited the highest proportion of the adult population with tertiary education in 1995 – albeit well behind that of the US.

3.1.3. Measurement of adaptability

Data on adaptability is derived from the Arundel *et al*. (2006) study and corresponds to the fraction of employees involved in "discretionary learning organisations" in the 14 EU Member States[41].

In order to obtain the figures for the EU Member States, Arundel *et al.* (2006) used the *Third survey on European working conditions* of the European Foundation for the Improvement of Living and Working Conditions to construct 15 binary variables associated with the different work practices identified in the literature. They then undertook a factor analysis combined with a cluster analysis, to identify the relationships that exist among these variables and to assign employees to four clusters corresponding to distinct groups of work systems: "discretionary learning organisation", "lean production", "Taylorism" and "simple organisation". These results were then used by Arundel *et al.* to examine the national differences in forms of work organisation, (*i.e.* the distribution of employees by country and work organisation cluster).

Six EU Member States covered by the data set have a percentage of employees involved in discretionary learning organisations higher than the EU-15 average – Austria, Denmark, Finland, Germany, the Netherlands and Sweden (Chart 3). These countries constitute the group with high adaptability from the empirical analysis, while the others are included in the group of countries with low adaptability.

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41   See Section 2.3.3. for a justification of the choice of this form of work organisation. As discussed earlier, "discretionary learning organisation" is characterised by high levels of autonomy in work in conjunction with high levels of learning, problem-solving and task complexity.

| Chart 3 | Share of adult population with tertiary level of education in relation to total adult population, 1960 and 1995 |

■ % of employees   — EU-15 average
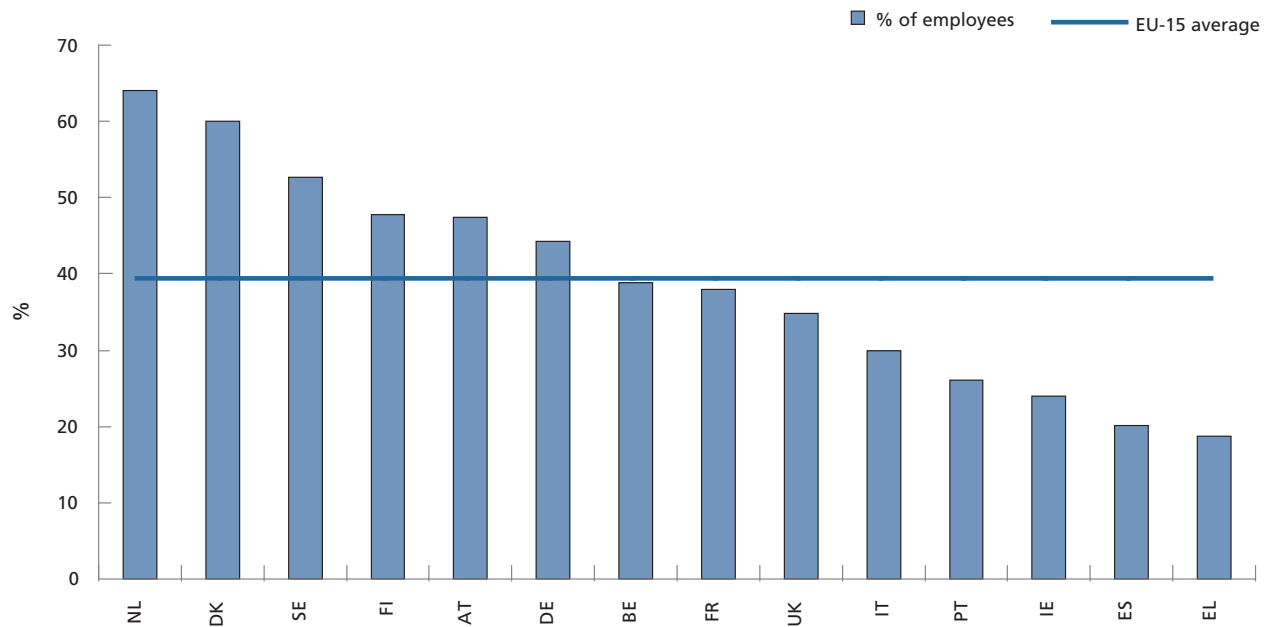
Source: Arundel *et al.* (2006) based on the *Third survey on European working conditions*, European Foundation for the Improvement of Living and Working Conditions.

3.2. Model specifications

3.2.1. First empirical specification: fraction of high-skilled human capital

The first empirical specification derives from the logistic form of technology diffusion[42] of the Benhabib-Spiegel model (2005). Following Vandenbussche, Aghion and Meghir (2006) the stock of high-skilled human capital, as measured by the fraction of adult population with tertiary education in total adult population, is introduced into the specification instead of the level of human capital stock as it is the case in Benhabib and Spiegel (2005)[43]. The specification corresponds to the following equation:

$$(1)\ \Delta \log A_{it} = b + g * FH_{it\text{-}1} + c * FH_{it\text{-}1} (1 - (A_{it\text{-}1} / A_{USt\text{-}1})) + \varepsilon_{it}$$

where $\Delta \log A_{it}$ represents the average annual growth rate in TFP of an EU Member State i between t and t-1, $FH_{it\text{-}1}$ the fraction of adult population with tertiary level of education in total adult population in country i at period t-1, $A_{it\text{-}1}$ represents the TFP in country i at period t-1, $A_{USt\text{-}1}$ is the level of TFP in the US at period t-1, which is the world technology frontier, and ε_{it} is an i.i.d. disturbance term.

From this equation, the growth of TFP in country i can be decomposed in the following three terms: i) a constant term $g(.)$, that captures some exogenous technological progress, b; ii) a second term, $g(.)$, that captures the ability of country i to domestically create new technologies (the stock of high-skilled human capital independently increases technological progress); and iii) a third term, $c(.)$,

that measures its ability to absorb technologies developed abroad. This ability is an increasing function of the stock of high-skilled human capital and proportional to the distance to the technology frontier, $(1 - (A_{it\text{-}1} / A_{USt\text{-}1}))$.

The expectation is that a high-skilled human capital stock has a positive impact on the ability of an EU Member State i to absorb technologies developed by the US. This implies that the coefficient c should be greater than zero. It is also expected that this stock enhances the ability of an EU Member State i to create domestically new technologies. This means that the coefficient g should be positive[44].

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42   See Annex 2 for a justification of the logistic form of technology diffusion of the model over the confined exponential one.

43   See Section 2.2.3.

44   For further interpretation on these coefficients, see Annex 2.

3.2.2. Second empirical specification: fraction of high-skilled and adaptable human capital

The second empirical specification introduces the notion of adaptability. As a result, the growth of TFP (or technological progress) is a function of the stock of high-skilled and adaptable human capital. As discussed in Section 2.3.3, the idea is that an adaptable workforce is better placed to take advantage of the opportunities created by changing economic conditions. As a consequence, the effect of a high-skilled and adaptable workforce on technological progress is expected to be greater than that of a high-skilled but non-adaptable workforce. This prediction can be tested using the following specification:

$$(2) \quad \Delta \log A_{it} = b + g * FH_{it-1} (1 + d_1 adapt) + c * FH_{it-1} (1 - (A_{it-1} / A_{USt-1})) (1 + d_2 adapt) + \varepsilon_{it}$$

where $\Delta \log A_{it}$ represents the average annual growth rate in TFP of an EU Member State i between t and t-1, FH_{it-1} is the fraction of adult population with tertiary education in country i at period t-1, A_{it-1} represents the TFP in country i at period t-1, A_{USt-1} is the level of TFP in the US at period t-1, which is the world technology frontier, and ε_{it} is an i.i.d. disturbance term. The variable adapt is a dummy: equal to 1 for a country with a high degree of adaptability and zero otherwise.

The theory predicts a positive g, meaning that high-skilled human capital matters for technology creation in general. The parameter c is also expected to be greater than zero so that high-skilled human capital matters for technology diffusion. In order to measure the effect of a high-skilled and adaptable workforce on technological progress, two new parameters, d_1 and d_2 have been introduced in the model specification. In this case their estimates are significantly positive, which would support

the theory that a high-skilled and adaptable human capital stock has a positive effect on technological progress by creating and diffusing technology.

3.3. Results and interpretation

3.3.1. Fraction of high-skilled human capital

Column (1) in Table 2 reports the estimated coefficients for the model with the stock of high-skilled human capital as a driving force of technological progress through technology creation and absorption, as specified in equation (1). The estimated coefficients are positive and significant.

The results from equation (1) are consistent with the notion of skilled human capital as a factor of technology creation and diffusion in the EU Member States.

3.3.2. Fraction of high-skilled and adaptable human capital

In order to test the theory that adaptability has a positive impact on the growth of TFP in addition to the effect due to a high-skilled human capital stock, equation (2) is estimated. The effect of adaptability is captured by a dummy variable as explained above.

Column (2) in Table 2 reports the estimated coefficients for equation (2). The estimated coefficients for technology creation (g) and diffusion (c) remain unchanged compared to those estimated in equation (1). More interesting is the positive and significant estimate (d_1) for the effect of adaptability on technology creation. This result suggests that an adaptable workforce substantially increases technological progress generated by a high-skilled human capital stock. However, the effect of an adaptable workforce on technological progress through the absorption of technologies developed abroad (d_2) is not statistically significant.

4. Conclusions and policy implications

There is a consensus that education, and more generally human capital, are key determinants of productivity and other economic and social outcomes, both at the micro-economic and macro-economic levels, and that its role is crucial in a knowledge-based economy. Furthermore, this consensus was reaffirmed recently by the Heads of State or Government at Hampton Court, as well as the recent Brussels European Council (23/24 March 2006).

At the micro-economic level, human capital is an important determinant of individual income and employability. At the macro-economic level, evidence shows that the contribution of human capital to labour productivity is substantial. For these reasons, the Heads of State or Government put education and human capital at the heart of the Lisbon Strategy with a view to delivering more growth and creating more and better jobs. The 2005 revised Lisbon Strategy and the subsequent *Integrated Guidelines for Growth and Jobs (2005–2008)* adopted by the Council of the European Union, have placed an even stronger emphasis on the need to invest in human capital through better education and skills. Unfortunately, progress towards these goals has been slower than was expected.

This chapter has explored the issue of the role of human capital in economic growth. While there is broad consensus that human capital is a key engine for growth in today's knowledge-driven economy, the bulk of studies have nevertheless considered human capital as an ordinary input in the production process, alongside physical capital and labour. Human capital uniformly enhances the productivity of workers in all jobs – either routine or innovative. However, elaborating on the conclusions of several influential studies, this chapter argues that such treatment of

Table 2 – Summary of econometric results				
Empirical specification	Variable	Coefficient	Dependant variable: annual TFP growth	
			(1)	(2)
(1): Fraction of high-skilled human capital	FH_{it-1} $FH_{it-1}*(1-A_{it-1}/A_{USt-1})$	g c	0.2246 (0.0401) *** 0.2279 (0.1192) *	
(2): Fraction of high-skilled and adaptable human capital	FH_{it-1} $FH_{it-1}*(1-A_{it-1}/A_{USt-1})$ $g*FH_{it-1}*adapt$ $c*FH_{it-1}*(1-A_{it-1}/A_{USt-1})*adapt$	g c d_1 d_2		0.2317 (0.0446) *** 0.2726 (0.1571) * 0.6483 (0.3680) * -3.1963 (2.0728)
Cross-section dummy			yes	yes
Period dummy			yes	yes
Number of observations			98	98
R-squared			0.67	0.68

Note: Estimation by IV 2SLS with standard errors in parentheses. One, two and three stars indicate statistical significance at 10, 5 and 1% levels respectively. Time and country dummies are not reported. (1): fraction of high-skilled human capital. (2): fraction of high-skilled human capital in countries with high/low adaptability. "Adaptable" countries are Austria, Denmark, Finland, Germany, the Netherlands and Sweden. We apply panel data estimation techniques, allowing for the use of time and country dummies in all models. In addition, instrumental variables are used to deal with the possible endogeneity of educational attainment. The instrumental variables include the lagged values of the fraction of high-skilled workers, as well as the lagged interaction between human capital and the distance to the technology frontier.

the role of human capital in economic growth may be insufficient to fully capture its importance in knowledge-driven economies.

An alternative treatment of the role of human capital knowledge-driven economies has been considered here. The starting point being that an educated workforce is better at creating, adopting and implementing new technologies so that human capital influences technological progress by creating and adopting new technologies. This approach is particularly relevant for explaining the key role of education and, more generally, human capital in knowledge-based economies. It does not imply that certain routine jobs do not require substantial education; it says that education is especially important for jobs requiring adaptation to change and innovation, both of which are increasing in knowledge-based economies. Therefore, this alternative approach forms a natural framework in which to analyse the view expressed by the European Commission in the Communication *Working together for growth and jobs. A new start for the Lisbon Strategy* that "…economies endowed with a high-skilled and adaptable workforce are better able to create and make effective use of new technologies and to embrace change".

The first assumption has been made in this chapter that, across countries, the effect of a high-skilled workforce on the mechanisms driving growth depends on how far a country is from the world technology frontier. In less developed countries, a high-skilled workforce affects technological progress by adopting new technologies developed abroad. The speed at which these countries "catch up" with those close to the technology frontier is a function of the stock of high-skilled human capital and the distance to the technology frontier. As these countries move closer to the technology frontier, the strength of the "catch-up" effect decreases, and the endogenous creation of new technologies gains increasing significance to sustain growth. This is connected with the fact that in countries near the world technology frontier, a highly skilled workforce has an impact on technological progress predominantly through creation of new technologies.

The second assumption developed in this chapter is that adaptability matters too for growth in a knowledge-driven economy. The adaptability of workers is indeed essential in order to reallocate resources in response changes in economic conditions and to capture "disequilibrium rents" generated principally by technological progress. While the ability to deal with disequilibria is one of the main features of a well-educated workforce, its degree of adaptability is also sensitive to the forms of work organisation that workers face. In particular, this chapter argues that there are ways of working that are more appropriate than others in encouraging the effective use of the adaptability of a well-educated workforce for technological progress.

The empirical analysis carried out in this chapter has confirmed the role of skilled human capital as a factor that

encourages the creation and diffusion of technology in the EU Member States. Based on an original panel data set covering a sample of EU Member States between 1960 and 2000, it has been demonstrated that a high-skilled workforce contributes to productivity improvement by the endogenous creation of new technologies and by the absorption of technologies developed abroad. Moreover, the empirical results suggest that the impact of a high-skilled workforce on technological progress through technology creation is greater in countries where the working environment encourages adaptability – the capacity of high-skilled workers to adapt to changes in economic conditions. However, further research is needed to refine the measurement of adaptability and to better understand its relationship to technological progress.

Both theoretical and empirical results are significant. Firstly, they suggest that the relative underinvestment in higher education in the EU compared to the US, may hamper the progress of the former towards the ambitious Lisbon goal set in 2000 – "to become the most competitive and dynamic knowledge-based economy in the world" – because it slows down technological progress. Although the EU should invest more in higher education, this solution is not the panacea. Indeed, the whole lifelong learning continuum should be considered, as was stressed by the European Commission in the Communication *Efficiency and equity in European and training system*[45]. In particular, the EU Member States should also invest more in pre-primary education as an effective means to establish the basis for further learning

and preventing school drop-out. Secondly, the results of the chapter also suggest that investing more in higher education, though necessary, is unlikely on its own to be sufficient for the EU to move to the world technology frontier – the adaptability of workers and enterprises matters too. Therefore, the promotion and dissemination of innovative and adaptable forms of work organisation, such as "discretionary learning" are essential.

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45   Communication from the Commission (2006), "Efficiency and equity in European and training system", (COM(2006) 481 final).

Annex 1: A more formal description of the augmented Solow model and its related empirical specifications

This annex provides technical details regarding the augmented Solow model. The first section describes the building blocks of the model. The second section discusses how the model can be made fit for empirical applications, while the third elaborates on the appropriate estimation techniques.

The model

Two equations are at the heart of the augmented Solow model: the augmented production function and the equation describing the accumulation of physical and human capital.

The first equation describes the augmented production function as:

(A1.1) $Y_t = K(t)^\alpha \, H(t)^\beta \, (A(t)L(t))^{1-\alpha-\beta}$

Where K is the stock of physical capital, L is labour[46], H is the stock of human capital, and A is labour-augmenting technological progress. Labour and technology are assumed to grow exponentially at constant and exogenous rates n and g. AL measures the number of "effective" workers. The coefficients associated with each factor of production measure the output elasticity of the stocks of the different factors (an increase of 1% in the stock of human capital, for instance, would increase output by β-%). The values of α and β lie between 0 and 1, and $\alpha + \beta < 1$.

The second equation relates physical and human capital accumulation to the level of output (which determines saving and investment) and to capital depreciation. It assumes that the exogenous saving rate and the depreciation rate are constant and that the fraction of income saved at each period is totally invested so that physical and human capital evolve in line with the equation:

(A1.2) $\begin{cases} \dot{\tilde{k}}(t) = s_k \tilde{y}(t) - (g + n + \delta)\tilde{k}(t) \\ \dot{\tilde{h}}(t) = s_h \tilde{y}(t) - (g + n + \delta)\tilde{h}(t) \end{cases}$

Where $\tilde{y} = Y / AL$, $\tilde{k} = K / AL$, and $\tilde{h} = H / AL$ stand for output, physical capital, and human capital per "effective" worker, s_k is the share of income invested in physical capital, s_h is the share of income invested in human capital, δ is the depreciation rate (which is common to physical and human capital), n is the rate of population growth and g is the rate of technological progress. Equation (A1.2) indicates that the change in the stocks of physical and human capital per effective worker is equal to the difference between the level of investment in physical and human capital at each period and the amount of investment necessary to keep the stocks of physical and human capital per effective worker constant.

Because of diminishing returns to capital, the augmented Solow model predicts that in the long run the economy converges towards a steady state where human and physical capital per effective worker and hence output per effective worker remain constant. Consequently setting $\dot{\tilde{k}} = 0$ and $\dot{\tilde{h}} = 0$ in equation (A1.2) yields the following steady state of physical capital and human capital ratios to "effective" worker:

(A1.3) $\tilde{k}^* = (s_k^{1-\beta} s_h^{\beta} / n + g + \delta)^{1/(1-\alpha-\beta)}$

and

(A1.4) $\tilde{h}^* = (s_k^{\alpha} s_h^{1-\alpha} / n + g + \delta)^{1/(1-\alpha-\beta)}$

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46   The economy is assumed to be at full employment.

Substituting these values into the production function and taking logs gives the steady-state level of output per worker:

(A1.5) $\ln y(t) = \ln A(0) + gt + \alpha \ln \tilde{k}^* + \beta \ln \tilde{h}^*$

where $y=Y/L$ and $A(0)$ is the initial level of technology. The reduced form of equation (A1.5) – when the steady-state levels of physical capital and human capital are expressed according to their exogenous determinants – reads:

(A1.6) $\ln y(t) = \ln A_0 + gt + \lambda_1 \ln s_k + \lambda_2 \ln s_h - \lambda_3 \ln(g + n + \delta)$

where $\lambda_1 = \alpha/(1 - \alpha - \beta)$, $\lambda_2 = \beta/(1 - \alpha - \beta)$, and $\lambda_3 = (\alpha + \beta)/(1 - \alpha - \beta)$. Equation (A1.6) can be used as a starting point to test empirically whether the augmented Solow model is able to explain international variations in per capita income if the economies are in their steady-state. However, as this is usually not the case, equation (A1.6) is further modified to allow for deviations from the steady-state on the basis of the principle of transition dynamics[47]. Around the steady state, the level of output per worker can be written in reduced form as follows:

(A1.7) $\ln y(t_1) = (1 - e^{-\lambda\tau})(\lambda_1 \ln s_k + \lambda_2 \ln s_h - \lambda_3 \ln(g + n + \delta))$
$\qquad + e^{-\lambda\tau} \ln y(t_0) + (1 - e^{-\lambda\tau}) \ln A(0) + g(t_1 - e^{-\lambda\tau} t_0)$

where the speed of convergence is $\lambda = (g + n + \delta)(1 - \alpha)$. Equation (A1.7) is a "convergence equation", which shows that the level of output per worker is a function of the determinants of the steady-state level of output per worker and the initial level of output per worker.

Towards empirical application

Before a further discussion of the estimation of the augmented Solow model, three assumptions have to be made about the technology variable, $A(t)$ (with $A(t) = A(0)e^{gt}$). Indeed, both equations (A1.6) and (A1.7) contain the initial level of technology and its growth rate which are unobservable. In order to proceed with the estimations, it is indispensable to make some assumptions about these terms. Mankiw, Romer and Weil (1992) formulated simple ones.

First, the initial level of technology, $A(0)$, is a constant which is assumed to vary randomly across countries. Because the initial level of technology is unobservable, it is included in the disturbance term of the regressions and postulated independent of all explanatory variables; it is defined by $\ln A(0) = a + \varepsilon$, where a is a constant, and $\mathring{a}$ is a country-specific shock. Second, it is assumed that countries share the same common technological progress, gt. Otherwise countries would grow at different rates, thereby excluding the possibility of convergence in per capita income. Third, technological progress is assumed to be constant over time.

Empirical application[48]

One simple way to estimate the human capital parameter is to regress the structural form of the aggregate production function expressed in terms of output per worker, *i.e.*:

(A1.8) $\ln y_{it} = \alpha \ln k_{it} + \beta \ln h_{it} + \alpha + gt + \varepsilon_{it}$

This structural form is often expressed in terms of growth rate as:

(A1.9) $\ln y_{it} - \ln y_{i0} = \alpha (\ln k_{it} - \ln k_{i0}) + \beta (\ln h_{it} - \ln h_{i0}) + gt + \varepsilon_{it} - \varepsilon_{i0}$

Estimating equations (A1.8) and (A1.9) is not without difficulties. Indeed, both require reliable data for physical and human capital stocks, which are often not available. Moreover, if the stocks of human and physical capital accumulated at each time are not independent of productivity shocks contained in the error term, then standard econometric methods (*i.e.* Ordinary Least Squares) will give biased and inconsistent results. However, if the use of ordinary least squares would be inappropriate, other econometric methods, such as instrument variables, could still be considered if certain conditions are fulfilled.

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47   The derivation of this solution is much more complex analytically than the solution on the existence of the steady state. For further information on this derivation, see Mankiw, Romer and Weil (1992) or Islam (1995).

48   This section mainly draws on Gurgand (2000). To simplify the notations and to improve comparability between the different relations, transformations affecting $A(0)$ and g are not considered.

Alternatively, in order to overcome the above-mentioned difficulties, the human capital parameter is sometimes estimated using the reduced forms of the augmented Solow model. The reduced form of the steady-state level of output per worker, under the assumption that the economies are at their steady state, expresses the level of output per worker in terms of the exogenous variables, namely the saving rates as:

(A1.10) $\ln y_{it} = \lambda_1 \ln s_{ik} + \lambda_2 \ln s_{ih} - \lambda_3 \ln(g + n + \delta) + \alpha + gt + \varepsilon_{it}$

Relaxing the very strong assumption of steady-state equilibrium and assuming that the economies are around their steady state, the level of output per worker can be described by the "convergence equation" as:

(A1.11) $\ln y_{it} = (1 - e^{-\lambda\tau})(\lambda_1 \ln s_{ik} + \lambda_2 \ln s_{ih} - \lambda_3 \ln(g + n + \delta)) + e^{-\lambda\tau} \ln y_{i0} + \alpha + gt + \varepsilon_{it}$

This equation can be rewritten by taking the (steady-state) level of human capital instead of the rate of investment in human capital as:

(A1.12) $\ln y_{it} = (1 - e^{-\lambda\tau})(\lambda_1' \ln s_{ik} + \lambda_2' \ln h^*_i - \lambda_3' \ln(g + n + \delta)) + e^{-\lambda\tau} \ln y_{i0} + \alpha + gt + \varepsilon_{it}$

where $\lambda_1' = \lambda_3' = \alpha/(1 - \alpha)$ and $\lambda_2' = \beta/(1 - \alpha)$.

Annex 2: The Benhabib-Spiegel's variations on the Nelson-Phelps framework

This annex provides technical details on the Benhabib-Spiegel model (2005) and its variations on the Nelson-Phelps approach (1966). The first section briefly presents the framework developed by Nelson-Phelps. In the second section, we introduce the variations on the Nelson-Phelps model (1966) made by Benhabib and Spiegel in their paper published in 2005. Based on the Nelson-Phelps approach, Benhabib and Spiegel (2005) examined two different processes of technology diffusion: the confined exponential diffusion process and an alternative diffusion process known as the logistic model of technology diffusion.

The Nelson-Phelps framework

In their seminal paper published in 1966, Nelson and Phelps suggested that the growth of TFP or technological progress depends positively on the gap between the level of human capital and the gap between the theoretical level of technology and the level of technology in practice. Such a relation can be described as:

(A2.1) $A(t) / A(t) = \Phi(h)((T(t) - A(t)) / A(t))$

where Φ is the level of human capital, $A(t)$ is the level of technology in practice and $T(t)$ is the theoretical level of technology.

Variations on the Nelson-Phelps framework

In 1994, Benhabib and Spiegel extended the Nelson-Phelps framework to allow the level of human capital to impact not only on technology diffusion but also on technology creation. More precisely, they modelled the growth of TFP or technological progress for a country i as follows:

(A2.2.) $A_{it} / A_{it} = g(H_i) + c(H_i)((A_{mt} - A_{it}) / A_{it})$
$= g(H_i) + c(H_i)((A_{mt} / A_{it}) - 1)$

where H_i is the level of human capital in country i; $g(H_i)$ captures its ability to create domestically new technologies; $c(H_i)((A_{mt}-A_{it})/A_{it})$ represents its ability to absorb technologies developed by the technological leading country m; $c_i(.)$ and $g_i(.)$ are increasing functions.

Based on this formulation, the authors showed[49] that, irrespective of the initial levels of technology, the country with the highest level of human capital will emerge as the technology leader and will act as a "locomotive" by pushing forward the technology frontier. In the long run, the leading country and the followers will grow at the same growth rate even though they have different levels of human capital. In such a process of technology diffusion and "catch up", the level of technology of the leading country cannot be surpassed by another country with a lower level of education.

In their paper published in 2005, Benhabib and Spiegel put this extended version of the original Nelson-Phelps model in the context of disaggregated models of technology diffusion. Equation (A2.2.) is known as the "confined exponential model of technology diffusion" and that another formulation related to the "logistic model of technology diffusion" can be expressed as:

$$(A2.3.) \; A_{it} / A_{it} = g(H_i) + c(H_i)(1 - (A_{it} / A_{mt}))$$
$$= g(H_i) + c(H_i)(A_{it} / A_{mt})((A_{mt} / A_{it}) - 1)$$

The difference between equations (A2.2) and (A2.3) lies in the presence of the additional term (A_{it}/A_{mt}). The presence of this additional term in the logistic model of technology diffusion compared to the confined exponential one has noteworthy implications in terms of catching up and convergence. This additional term acts to impede the ability of "catching-up" countries to absorb new technologies developed by the leader when the technological gap is too wide, indicating perhaps "the difficulty of adopting distant technologies" (Benhabib and Spiegel, 2005). While with a confined exponential diffusion process, technology diffusion and "catch up" ensure that the leading country and the followers will ultimately grow at the same growth rate even though they have different levels of human capital, such convergence in growth rates is not certain in the case of logistic diffusion process. Indeed, countries with levels of education that are too low will remain trapped in a growing technological gap unless they increase their investment in human capital. With the introduction of this alternative formulation of the extended Nelson-Phelps framework, the possibility of divergence in growth rates is thus admitted.

In Benhabib and Spiegel (2005), the authors derived an empirical specification that nests these two forms of technology diffusion to identify empirically the formulation that best describes the best process of technology diffusion. Specifically,

$$(A2.4) \; \Delta a_{it} = (g + (c / s)) \, h_{it} - (c / s) \, h_{it} \, (A_{it} / A_{mt})^s$$

Where Δa_{it} is the growth of TFP for country i; h_{it} is the level of human capital; and (A_{it}/A_{mt}) is the ratio of the country's TFP to that of the leader. This specification nests the logistic (s=1) and exponential (s=-1) models. They tested this specification for a cross-section of TFP of 84 countries over the period 1960–2005. Their results favour the logistic form of technology diffusion over the confined exponential.

With s constrained to equal 1, the above equation can be rewritten as:

$$(A2.5) \; \Delta a_{it} = (g + c) \, h_{it} - ch_{it} \, (A_{it} / A_{mt})$$
$$= gh_{it} + ch_{it} \, (1 - (A_{it} / A_{mt}))$$

Such a specification can be estimated in order to examine whether the level of human capital or the proportion of high-skilled human capital in a country i has an impact on its ability to create new technologies and to absorb technologies from the country leader. The coefficient g is expected to be greater than zero so that the level of human capital or the proportion of high-skilled human capital has a positive impact on the ability of country i to create new technologies. The coefficient c is expected to be greater than zero so that the level of human capital or the fraction of high-skilled human capital enhances its ability to absorb technologies from the leader.

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49   The derivation of the solution of this equation is beyond the scope of this chapter. For further information on this derivation, see Benhabib and Spiegel (1994, 2005).

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Special Focus: Human Capital and Innovation; Challenges and Issues for SMEs

There is an increasing recognition of the importance of human capital among public and private stakeholders. Human capital is seen as a key engine for growth and competitiveness independent of the size of the company[1].

SMEs[2] include all types of businesses that display sometimes large differences in their age, growth patterns, business and human resource dynamics. SMEs can include fast growing high-tech start-ups, long established enterprises in traditional sectors, as well as all those in-between. Furthermore, the very small enterprises (the so-called "micro businesses") will have to develop and follow different strategies of human resource management and development than the larger SMEs, and in addition all will be influenced by sectoral and other activity-related characteristics.

In spite of this heterogeneity among the SME's, there are some important common problems related to the skills/qualifications of personnel and the growth of the enterprise that concern most of them. Three such areas are: managerial skills, innovation capacity as resulting from R&D efforts and quality of staff (in terms of recruitment and training), and these are briefly discussed below.

1. Managerial Skills

Large companies can structure functions and responsibilities in a way that allows a certain level of specialisation among their employees but this is not possible to the same extent in SMEs. A combination of skills is often essential in the SME sector, while it is typically far less important in large companies. Hence, technical knowledge (or other types of expert knowledge) may be required alongside a more general managerial experience associated with a willingness to take responsibility and risk. The latter characteristic is often referred to as "entrepreneurial spirit" or "entrepreneurial mindset", and is considered essential for tapping the full growth potential of a business.

The issue of managerial skills in SMEs has been the subject of major attention[3] in recent years and can be addressed at different levels as follows:

Knowledge. The knowledge of economic and administrative processes and procedures is a crucial success factor for leading a business. While young entrepreneurs often have good knowledge of their profession, they may lack the relevant managerial competences related to issues such as company registration, obligations towards financial authorities, business planning or financial management. These knowledge gaps can be addressed at different levels and a particularly promising strategy consists in targeting those most likely (because of their professional qualification or other qualities) to set up an enterprise

through specific courses and counselling services for entrepreneurs. More general information can also be integrated in the general school curricula, as well as in professional training schemes and university courses.

Attitude and motivation. Entrepreneurial spirit is nonetheless not only a question of knowledge but also of mental attitude and motivation, creativity and culture, and it is therefore important to support those initiatives (mainly in schools and universities) that encourage the idea of becoming an entrepreneur. The mental attitude can be seen as motivating the acquisition of knowledge and the start of an enterprise. Therefore it is valuable to distinguish between the two characteristics. Approaches aimed at learning through experience[4] (e.g. simulations of enterprises, mini companies or specific internships) are a way of changing the individual's attitude towards entrepreneurship.

Societal dimension. The motivation to become an entrepreneur has not only individual but, importantly, also a societal dimension. Societies can encourage its members to take risks by giving them a second and, if needed, a third chance in case of failure or conversely discourage them to do so.

The development of managerial and entrepreneurial skills as described above has been on the agenda in almost all Member States for some time, with the most comprehensive

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1   *European Observatory of SMEs* (2003), "Competence development in SMEs" 2003/1 p. 15 and European Commission (2003) *Human Capital in a Global and Knowledge-based Economy* (by A. de la Fuente/A. Ciccone et al.).

2   SMEs are most universally defined by employing 1-249 employees.

3   See e.g. the European Commission's Communication on "Fostering Entrepreneurial Mindsets Through Education and Learning" (COM (2006) 33 final), or the "Entrepreneurship Action Plan" (COM (2004) 70 final). For a compilation of activities, including references to Member States activities see: http://ec.europa.eu/enterprise/entrepreneurship/support_measures/training_education/index.htm

4   E.g. European Commission (2005) Final Report of the Expert Group "Education for Entrepreneurship" – *Making Progress in Promoting Entrepreneurial Attitudes and Skills through Primary and Secondary Education* and European Commission (2005) Final Report of the Expert Group "Education for Entrepreneurship" – *Mini-Companies in Secondary Education*.

Special Focus: Human Capital and Innovation; Challenges and Issues for SMEs (cont.)

sets of measures to be found in Denmark, Finland, Spain, Sweden and the UK[5]. Also the European Integrated Guidelines specifically address this issue[6]. Furthermore entrepreneurship and the knowledge, skills and attitudes it requires is defined as one of the eight key competences for lifelong learning which comprise a European Reference Framework[7]. In spite of these efforts, shortcomings exist with regard to the integration of different aspects of promoting managerial skills[8].

The benefit of well-developed initiatives in this field may not only extend to an increase in successful business start ups and transfers to the next generation. These skills might also – up to a certain extent – encourage and enable employees to see themselves as entrepreneurs taking responsibility for their professional development, which is likely to increase their overall employability.

2. R&D and Innovation

The competitiveness of European SMEs depends, to an increasing extent, on their ability to provide innovative goods and services, or to use the most up-to-date technology in production (or both). The unique potential strengths of SMEs, such as a high degree of flexibility and price competitiveness, do not constitute, taken on their own, a viable long-term business strategy. Innovation activities in the SME sector have also been assessed as contributing to a significantly higher rate of employment creation[9]. The general importance of innovation and specifically R&D expenditures as a major input to innovation has been stressed in the Lisbon Agenda, which set a goal for R&D expenditures in the EU Member States at 3% of GDP. As 99.8% of enterprises in the enlarged EU are SMEs[10] amongst which are the companies with the highest growth potential, it is essential to integrate these companies in the efforts to increase competitiveness through innovation.

R&D expenditure as a proportion of turnover is, on average, lower in SMEs than in large companies[11]. More than 60% of the overall turnover[12] is made by SMEs while these companies only account for 25% of the business-financed research expenditure[13,14]. This has partly historical causes, but also more objective ones. R&D projects often require a certain level of expenditure that is difficult to scale down[15].

Moreover, a bigger company can afford to employ specialists needed for the development of a project within the company and to keep up with the scientific discussion. For these reasons, R&D activities in small companies tend to require relatively more effort to establish trustful inter-organisational links which are needed even more in SMEs than in bigger companies. Additionally, larger companies have greater productive capacity that can bring a faster return on any R&D investment.

On the other hand, small enterprises also have some advantages with regard to R&D driven innovation. In particular they are often seen as being more flexible, with R&D and the application of results working closely together. This tends to promote piecemeal improvements of products and processes. Furthermore the type of market a company operates in and its relative position in this market seem to be important factors influencing the intensity with which SMEs participate in the innovation process. For enterprises with a relatively small market share compared to their main competitors, innovation can provide an opportunity to generate growth and this competitive pressure seems not only to

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5   E. g. *Joint Employment Report 2003/2004*, pp. 29-32; *Background document for the Joint Employment Report 2004/2005*, p. 15.

6   *OJ 2005,* L 205, especially guideline 15 "Promote a more entrepreneurial culture and create a supportive environment for SMEs" and employment guidelines 2003: *OJ 2003,* L197/13ff (guideline 2 "Job creation and entrepreneurship").

7   Proposal for a Recommendation of the European Parliament and the Council on key competences for lifelong learning, COM (2005) 548 final, 10.11.2005.

8   *Background document for the Joint Employment Report 2004/2005*, p. 15.

9   Zimmermann, Volker (2006) Beschäftigungseffekte von Innovationen in bestehenden kleinen und mittleren Unternehmen, in: *KfW: Mittelstands- und Strukturpolitik*, Special Volume: Innovationen im Mittelstand, (July 2006), p. 37-67.

10   OECD (2005) SME and Entrepreneurship Outlook 2005, p. 16; data for 2003.

11   OECD (2005) SME and Entrepreneurship Outlook 2005, p. 35ff.

12   Eurostat (2002) SMEs in Europe – Competitiveness, innovation and the knowledge-driven society, p. 13. Europe defined as EU-15 and Norway; data for Greece and Luxembourg are not available. Data for 2000.

13   OECD (2005) SME and Entrepreneurship Outlook 2005, Data for 2001.

14   The same result is found in respect to innovation activities. See: Eurostat (2004) Innovation in Europe, p. 40 ff.

15   Scientific and technical research often requires certain equipment independent of how much it is used. Furthermore industrial R&D activities are often performed under time-pressure. So it is not only important to come up with a solution but to market the innovation before the competitor does.

Special Focus: Human Capital and Innovation; Challenges and Issues for SMEs (cont.)

make more innovations necessary, but also more likely[16]. Nevertheless, SMEs still tend to under invest in R&D overall. In fact, some SMEs are failing to participate in the research process at all[17], and face specific, size-related problems when organising research processes. Given this situation, it is in the public interest to specifically encourage and support the participation of SMEs in R&D.

Research networks are a possible means of addressing the innovation needs of SMEs. Studies on the innovative performance of SMEs show that the active participation in networks comprising research institutions, but also other companies, leads to a significant improvement in innovation activity[18]. Projects with the mixed participation of SMEs and large companies can be useful to help SMEs overcome specific problems such as shortage of the means to finance the project or insufficient market share. On the other hand, such cooperations between unequal partners are characterised by an asymmetry of power that needs to be taken into account in contractual arrangements and in funding provisions. Funding schemes that support the creation of such networks and integrate the necessary procedural aspects, should therefore be promoted[19]. It is also important to understand in this respect that research funding does not merely involve financing projects, but also creating the informal networks (for example, by facilitating discussions among experts in companies and research institutions).

Given the complexities of inter-institutional research projects and the difficulties of communication between researchers and users, international cooperation will not be the optimal choice in most cases. Such research networks should and will mostly operate on a national or regional basis. However, the participation of SMEs in research in the Members States varies widely and support for such schemes is not universal. This opens the way for mutual exchange and learning on the matter, comparing the functioning and the successes of the funding schemes in the SME sector.

3. Quality of staff: recruitment and training

Recruitment

The two previously discussed problems of SMEs (managerial skills and innovation capacity) can be further aggravated by the difficulties that SMEs face in hiring, developing and maintaining their staff.

Large companies have several advantages when competing with a small company for a job seeker. Typically they might be able to offer benefits such as higher salaries, career paths within the company, explicit human resource development schemes aimed at improving long-term career perspectives, and the social prestige of being employed with a well-known company, as well as a job which is potentially safer and securer. Moreover the likely existence of worker representation facilities (such as a works council or

active trade union) in a large company can be seen as providing additional protection to the employee.

Furthermore, large companies tend to recruit at regular intervals and at many qualification levels, which means that they can develop routines approaches to deal with them. They are generally better placed to develop permanent contacts with the educational and training institutions, get a more direct access to the students and graduates and even influence the content of the curricula.

Faced with these challenges, combined with the prospect of declining numbers of labour market entrants and ensuing skills shortages[20], SMEs need to develop strategies to enable them to become attractive to young employees. There are indications that this is possible, as SMEs can offer advantages to graduates as well as to experienced employees, such as more comprehensive jobs, promoting the understanding of the whole enterprise, a higher visibility within the company, individual working arrangements and more direct responsibility.

Furthermore, SMEs can gain some of the strengths of large companies, for example, by working together and expressing common interests to the training providers. The social partners will also tend to play an important role in achieving this. However, SMEs have not yet acknowledged the importance of this issue sufficiently and also have to empower the social partners if these expectations are to be realised.

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16   Zimmermann, Volker (2003) Innovationsaktivitäten von KMU im verarbeitenden Gewerbe: Was zeichnet Imitatoren und originäre Innovatoren aus? (*ZEW discussion paper*).

17   Eurostat (2004) "Innovation output and barriers to innovation" (*Statistics in focus*, Theme 9, 1/1004).

18   See e.g.: OECD (2005) "SME and Entrepreneurship Outlook 2005", p. 36/37 and also p. 70/71.

19   This is in line with the OECD position (OECD (2005) SME and Entrepreneurship Outlook 2005, p. 73).

20   In a survey in 2002 already 20% of SMEs were negatively affected by a lack of skilled labour. *European Observatory of SMEs* (2003), "Competence development in SMEs", p. 16.

Special Focus: Human Capital and Innovation; Challenges and Issues for SMEs (cont.)

Training

Closely linked with the problems of recruitment are human resource development and training. Participation in formal and certified training is not as extensive in SMEs as it is in large companies[21]. The vast majority (96%) of large enterprises in the EU provided continuing vocational training in 1999 compared with only 56% of the SMEs. This translated into 48% of employees in large enterprises participating in vocational training, while in medium-sized and small enterprises, the figures were 33% and 23%, respectively[22]. Informal methods of learning such as "learning by doing" or "learning from others" are far more important in SMEs than in large companies. This may be one of the reasons behind the otherwise surprising conclusion of several studies that have found no significant positive relationship between the involvement of SMEs in formal training activities and the individual competitiveness and performance of an enterprise[23].

The attractiveness of informal methods of learning in SMEs from the employer's perspectives is threefold. Firstly, it does not demand specific organisational effort because neither special leave for training, nor search for the most suitable training course are involved. Secondly, it goes beyond the pure transfer of knowledge on to the development of competences on an organisational level. Finally, informal knowledge is less liable to be "externalised" to a competitor mainly because the acquired skills and qualifications are not formally certified and so less transferable on the open labour market, though this may be seen as a disadvantage from the employee's point of view.

Overall there is broad acknowledgement among policy-makers and business leaders that investment in further education and lifelong learning is a prerequisite for future competitiveness[24] and that there are deficiencies in the SME sector in this respect, such as low participation levels and a lack of strategic planning. Therefore, financing instruments that target these deficiencies should be actively supported by the social partners and public authorities[25]. However, SMEs themselves need to increase efforts to develop consistent lifelong learning strategies. According to a 2002 survey, 45% of the SMEs have the identification of competence needs formally assigned to a specific person or group within the business. Other instruments, such as strategic human resource development programmes, are somewhat rarer[26].

Conclusion

It is widely agreed that SMEs face specific challenges with respect to their management, their innovation capacity and upgrading the quality of their staff. To address these issues, joint action from public authorities and social partners is required. The main rationale for public authorities to support SME investment in human resources and research is the return of positive external effects. These benefits in the form of, for example, job creation and improved employability, cannot be internalised by the SMEs and without sufficient public intervention will face underinvestment.

Given the described situation, it is vital that there is continuity and development of public and private activities in this area. The issues are clearly strongly linked and so it is not advisable to focus on them in isolation, but to adopt intervention strategies reflecting all three dimensions simultaneously.

21 OECD (2005) SME and Entrepreneurship Outlook 2005, p. 78, EIM/SEOR (2005) *Policy instruments to Foster Training of the Employed*, Vol 1. Main Report – based on the Evaluation of the Continuing Vocational Training Survey 2.

22 Eurostat (2002) SMEs in Europe – "Competitiveness, innovation and the knowledge-driven society, p. 48/49.

23 *European Observatory of SMEs* (2003) "Competence development in SMEs", p. 12/13.

24 *European Observatory of SMEs* (2003) "Competence development in SMEs", p.15.

25 In the framework of the Mutual Learning Programme a conference on this issue took place in September 2005. Information at: http://www.mutual-learning-employment.net/Sharingcostsandresponsibilitiesforlifelonglearning.

26 *European Observatory of SMEs* (2003) "Competence development in SMEs", p. 30/31.

5 Geographic mobility within the EU

Chapter
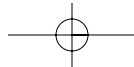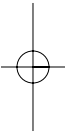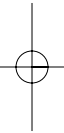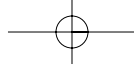
1. Introduction

1.1. The background

The freedom of movement to live and work in other Member States has become a symbol of European integration. Indeed, when questioned in a recent Eurobarometer survey as to what it means to be a "European citizen", freedom to move to another Member State is generally cited as a key factor by respondents.

There is a long history of Europeans moving to other regions or countries in search of a safer place, a better education, a job or a higher income (or a combination of these factors). However, it is a relatively recent phenomenon that people have in principle been granted the right to work in another EU Member State (although some restrictions still apply, especially for citizens from Member States which joined the EU in May 2004).

The free movement of EU workers within the-then "European Common Market" first became possible in 1968 and was the first of the four basic economic freedoms of the European market to be implemented. The other principles covering the free movement of goods, services and capital were to follow only 25 years later with the emergence of the single European Market in 1993.

The idea of free movement of labour within the EU including the European Economic Area is based on the philosophy that EU citizens should be able to

enjoy throughout the entire EU the same freedoms as they do in their home countries[1]. The rationale is that freedom of movement will contribute to the formation of a stronger European identity and deeper European integration. And later on in this chapter, the evidence that citizens who have lived and worked in other European countries feel more European is discussed.

From an economic perspective, the free movement of labour is seen as a way of promoting labour market efficiency by improving the matching of the available labour supply to the demand from employers. In this scenario, mobility is driven by both the desire of workers to improve their economic situation and the search of companies for workers to meet their requirement for labour[2]. Greater labour force mobility, both between jobs (job mobility) and within and between countries (geographic mobility) can help the European economy and labour force to adapt to changing conditions more smoothly and efficiently, as well as respond to change in the competitive global economy. In a world of increasing globalisation and ever faster change, mobile employees can contribute significantly to the dissemination and updating of knowledge, help meet the needs of an increasingly global world through an adaptable, flexible and employable workforce and compensate for bottlenecks of skilled (and unskilled) labour that can act as a break on economic activity. The mobility of workers between EU Member States is also seen as a counterpart to European monetary union.

However, while mobility is widely regarded as a positive feature of the labour market, actual mobility levels within Europe have remained comparatively low (as will be demonstrated later). National and regional disparities in wage levels and unemployment rates, combined with ever lower institutional and administrative barriers to mobility, would suggest that there is an environment that encourages mobility. However, despite this, EU citizens have displayed a reluctance to move, with less than 2% of all EU citizens living in another EU Member State. This low overall mobility tends to indicate the absence of a genuine "mobility culture" for workers in the EU.

Currently the enlarged EU continues to exhibit strong labour market disparities between regions and Member States. European regions with skill shortages and low unemployment often exist side by side with regions with skill or general labour surpluses and high unemployment. Furthermore, skill shortages in the European labour market are expected to grow, fuelled in part by the demographic changes creating a smaller active population. It suggests that the need for more mobile workers is likely to increase.

1.2. Coverage of the chapter

Against this background, the main purpose of this chapter is to present recent empirical evidence on the trends in geographic labour mobility in Europe. It will primarily focus on the economically motivated labour mobility within and

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1   Although in practice it is still restricted for citizens from new Member States – see Box 2.
2   On the theory of labour mobility, see for example Borjas, G. (2005), Chapter 9.

Box 1 – A note on the terminology used

In this chapter, the term "geographic mobility" refers to the move of EU residents from one region to another within the same EU country, or from one country to another. It is essentially synonymous to migration, a word more commonly used in demographic research and with respect to migration to and from non-EU countries.

Geographic mobility can take several forms. Geographic labour mobility generally refers to a change in residence for employment-related reasons such as moving to find and take up a new job, being transferred, losing a job or moving closer to work. Other forms of geographic mobility occur due to studying away from home, for family or housing reasons or due to retirement.

Commuting is also a form of geographic mobility, albeit one that does not include a change of residence. Geographic labour mobility may or may not be connected to job mobility and occupational mobility, i.e. a change of job or professional occupation.

Throughout the chapter, reference is made to "old" and "new" Member States, EU-15, EU-10, and sometimes EU-8. The old Member States, or EU-15 refers to all Member States forming part of the EU before 1 May 2004; the new Member States or EU-10 refers to all States that joined the EU on 1 May 2004, whereas EU-8 refers to all EU-10 Member States except for Malta and Cyprus. This distinction is made purely on practical and analytical grounds. EU-25 denotes all EU Member States.

between EU Member States. The wider issue of migration from and to third countries (outside the EU) will be considered in part, but not addressed in detail, having been treated in previous reports (see, for example, European Commission (2003)) with the focus more on the issue of migration to the EU rather than "intra-EU mobility".

The chapter begins by presenting the recent policy context on geographic mobility in the EU. It then describes the overall statistical evidence on numbers of EU citizens living and working in other Member States and the extent of current labour mobility between European regions and countries. This is followed by an examination of mobile EU citizens with respect to their socio-demographic characteristics, their labour market-performance and their motives and experiences. This also includes a look at prospects for future mobility and its current drivers and barriers. Furthermore, this chapter will briefly look at the phenomenon of commuting within and between countries as an alternative to residential mobility. Finally, the main results are summarised and policy conclusions drawn.

2. The recent policy context

The political and economic rationale behind the principle of the free movement of people and labour is deeply rooted in Community law. Both the right to live and work in another Member State, as well as the unrestricted right of EU citizens to move and reside within the territory of the Union have been enshrined in the EU Treaty (Art. 39 and Art. 18).

The legal, economic and political importance of the free movement of labour has found expression in a wide range of European Commission (EC) initiatives aimed at promoting and encouraging mobility to actually take place. Most recently these initiatives include the *Action Plan on Skills and Mobility 2002*, the *Integrated Guidelines for Growth and Employment (2005–2008)*, the *Action Programme in the field of Lifelong Learning (2007–2013)* and the *European Year of Workers' Mobility 2006*.

2.1. Action Plan on Skills and Mobility

The *Action Plan for Skills and Mobility*[3], adopted by the EC in February 2002 and endorsed by the Barcelona European Council in March 2002, was principally designed as a contribution to achieving the Lisbon objective of more and better jobs, greater social cohesion and a dynamic knowledge-based economy. It was intended to further the principle of the freedom of movement for workers, underscore the importance of labour market mobility in advancing the Employment Strategy, and open up European labour markets to make them accessible for all.

The objectives of the Action Plan were as follows:

• Expand occupational mobility and skills development, by ensuring that education and training systems become more responsive to the labour market; that competence development strategies for workers are drawn up; and learning is recog-

3   European Commission (2002) and (2004).

nised wherever acquired and qualifications are more easily transferable;

- Facilitate geographic mobility through the removal of administrative and legal barriers, the development of language and cross-cultural skills, the promotion of cross-border recognition of qualifications, and an EU-wide immigration policy;

- Improve information and transparency of job opportunities through the provision and dissemination of information about existing opportunities for mobility and the related support mechanisms in the EU. This was mainly to be achieved through the setting up of a one-stop mobility information site and the improvement of the EURES[4] jobs vacancy system.

A final report on the implementation of the Action Plan for Skills and Mobility is due to be published shortly and will take into account progress or shortcomings towards these objectives.

2.2. Integrated Guidelines for growth and jobs

The need for greater mobility is also fully reflected in the *Integrated Guidelines for Growth and Jobs (2005–2008)*, adopted by the European Council in April 2005[5], and which form an essential part of the re-launched Lisbon strategy.

With regard to ensuring a dynamic and well-functioning Euro Area (Guideline 6), it mentions that structural policies that foster the smooth adjustment of prices and wages are essential to ensure that Euro Area Member States have the capacity to rapidly adjust to shocks and to help avoid unwarranted inflationary developments. Policies encouraging

occupational and geographic mobility are among those specifically mentioned as being particularly important in this respect, by contributing to the increased responsiveness of labour markets.

With regard to improving the matching of labour market needs (Guideline 20), the integrated guidelines state that in order to allow more people to find better employment opportunities, it is necessary to strengthen the labour market infrastructure at national and EU level, including the use of the EURES network to better anticipate and resolve possible mismatches in the labour market. In this context, the mobility of workers within the EU is key and should be guaranteed within the context of the various treaties. In light of this, Guideline 20 specifically calls for an improvement in meeting the demands of labour market needs through:

- modernising and strengthening labour market institutions, notably employment services, also with a view to ensuring greater transparency of employment and training opportunities at national and European level;

- removing obstacles to the mobility for workers across Europe within the framework of the treaties;

- anticipating skill needs, labour market shortages and bottlenecks;

- managing economic migration more appropriately.

Finally, greater support for transitions in occupational status, (including training, self-employment, business creation and geographic mobility), has been mentioned as one of the key measures in promoting flexibility combined

with employment security and reducing labour market segmentation (Guideline 21). This in turn will improve the adaptability of workers and enterprises. It states that: "geographic mobility is needed to access job opportunities across the EU at large".

2.3. Mobility for education and training purposes

Intensifying European mobility and exchanges for education and training purposes is an objective of the work programme to make Europe the most innovative and most competitive knowledge-based economy between now and 2010. The Action Programme in the field of Lifelong Learning (2007–2013) will reinforce the mobility of students and trainees in both its Erasmus and Leonardo da Vinci programmes. The target is that by 2012 three million students will have benefited from Erasmus and by 2013 there will be 80,000 people per year taking advantage of a Leonardo da Vinci placement abroad.

A proposal for a Recommendation of the European Parliament and of the Council on transnational mobility within the Community for education and training purpose, European Quality Charter for Mobility, has now reached an advanced stage of agreement at both the European Parliament and Council. In order to ensure the overall quality of mobility, the Charter will comprise principles and recommendations to be applied to all types of mobility for learning or professional development purposes. These include education or training; formal or non-formal learning, such as voluntary work and projects; short or long mobility periods; school, higher education or job-related learning; and measures in connection with lifelong learning.

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4   European Employment Services, www.eures.europa.eu
5   European Commission (2005).

2.4. European Year of Workers' Mobility 2006

The European Commission designated 2006 as the *European Year of Workers' Mobility*[6]. The main purpose of this initiative is to raise public awareness and open up the debate on the real benefits and challenges of working abroad or changing job, including the advantages, costs, impacts and rights of working in another country. It has three concrete objectives as follows:

• To inform citizens about the rights of workers to free movement, as well as the opportunities, costs and support measures that exist;

• To develop the exchange of good practices on mobility;

• To find out more – through studies and surveys – about mobility flows in Europe, the obstacles to mobility and the motives for mobility.

In order to achieve these objectives, the EC is organising and sponsoring throughout 2006 and beyond a wide range of activities, including seminars and conferences, mobility research, and information projects.

3. Trends in geographic mobility

3.1. A historical overview of intra-European migration

Europeans have a long history of migration. The option to resettle abroad has been regarded by many generations of Europeans as an economically sensible and socially acceptable life choice. As senders of people, receivers (or both), almost all regions of Europe have some experience of migration[7].

Until the early 1970s, many Europeans were movers. From 1945 to the early 1960s, migration within and to Europe was marked by the displacements of World War II, the return migration from newly independent European colonies and inflows of workers from former overseas territories. In the mid-1950s, a South-to-North migration pattern emerged, starting with Italians and soon followed by Spanish, Portuguese, Greeks, Turks, Yugoslavs, Tunisians and Moroccans. The relatively poorer peripheral regions in southern Europe (and Ireland) experienced high net out-migration, while central metropolitan regions in central Europe saw significant net in-migration rates.

Around 1973 intra–European population movements reached a peak and migration rates between European regions slowed down considerably in the succeeding years. The demand for foreign workers fell in the wake of the first oil price shock in 1973 and the ensuing economic crises triggered by it. Governments of the major destination countries for migrants curtailed the active recruitment of foreign workers and attempted to encourage return migration.

Other important factors contributing to the slowdown of intra-European migration since the 1970s were the improving economic performance of the poorer countries within the EU; an increasing rate of convergence of the European regions; and the decrease in regional income and employment gaps. The absolute number of EU workers in Member States other than their own dropped by one-third between 1973 and 1984. On the other hand, from the mid-1970s traditional migration patterns were complicated by emerging "non-job considerations", most notably by "quality of life" factors, including environment and cost of living issues. Such non-work related motives counter the traditional rural-to-urban (intra-national) and South-to-North (inter-national) directions of geographic mobility in Western Europe. Meanwhile, cross-national flows among urban areas appeared to be on the rise, occasioned by the spread of skilled international migration, especially from the peripheral regions of Europe where the supply of highly trained persons outstrips the capacity of the local economy to absorb it. Part of this high-skilled migration is due to cross–border transfers of employees of multinational companies — sometimes advocated as a strategy to consolidate corporate cultures and internal labour markets.

3.2. Current trends in European cross-border mobility

3.2.1. Non-nationals in the EU population[8]

According to official national statistics and Eurostat estimates, the total number of non-nationals living in the EU in 2004 was around 25 million, or just below 5.5% of the total population. In absolute terms, the largest numbers of foreign citizens reside in France, Germany, Italy, Spain and the UK.

Data for the period 2000–2004 indicates that the non-national population varied from less than 1% of the total population in Slovakia, to 39% in Luxembourg, but in the majority of countries the figure was between 2% and 8% (Table 1). However, a proportion of non-nationals above 8% was found (by decreasing order) in Latvia, Estonia, Austria, Cyprus, Germany,

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6   For more information see http://ec.europa.eu/employment_social/workersmobility_2006/

7   For this section see Recchi, E. et al. (2006), p.4 f.

8   For this section see Eurostat (2006, 2).

Belgium and Greece and below 2% in Lithuania, Hungary and Poland.[9]

In all EU Member States except Belgium, Cyprus, Ireland and Luxembourg the majority of foreign nationals are citizens of countries outside the EU-25. The number of citizens from the 10 new Member States residing in the EU-15 is comparatively small at around 0.2% of the total population of the EU-15, and with the largest proportion in Germany – around 0.6% of that country's total population.

Between 1990 and 2004, in most Member States the percentage of foreign nationals either did not change significantly or it increased. Latvia was the only country registering a significant decrease (around five percentage points from 1998 to 2004). The most significant growth was observed in Luxembourg, followed by Spain, Cyprus, Greece, Ireland and Austria. This was largely due to an increase in population from outside the EU-25, except for Luxembourg, where an increase in the number of EU-15 citizens was dominant. Regularisation programmes for legalizing the resident status of irregular and undocumented migrants had a significant effect on the size of non-national populations in Greece, Italy, Portugal and Spain.

The nationality structures of foreign populations in the EU Member States vary greatly (Tables 1 and 2). As well as geographic proximity, the composition of the non-national population, examined against the proportion of the five largest groups of non-nationals, strongly reflects their history — in particular labour migration, recent political developments and historical links. For example, the largest non-national groups include Turkish citizens in Germany, Denmark and the Netherlands; citizens of Cape Verde,

Brazil and Angola in Portugal; Ecuadorians and Moroccans in Spain; migrants from Albania in Greece; citizens from other parts of the former Yugoslavia in Slovenia; Czech citizens in Slovakia; and citizens from other former Soviet Union countries in Estonia, Latvia and Lithuania.

Germany, which in absolute numbers hosts the largest foreign population in the European Union, displays a relatively stable ranking of its five largest non-national populations: Turks, citizens from the Western Balkan countries, Italians, Greeks and Poles (Table 2). Luxembourg, which has the largest percentage of non-nationals in the EU (and at the same time the highest proportion of foreigners from other EU-15 countries), also has a stable composition of the largest groups of foreign citizens, which remained almost unchanged between 1991 and 2004. The most significant change in the composition of the recorded non-national population occurred in Greece, following regularisation programmes (see Table 2).

3.2.2. Non-national working age population

Foreign working age population by nationality

The figures presented above give an overall impression of the composition of citizenship by country. As the main focus of this chapter is on the mobility of workers in the EU, the following sections will focus on the working age population, namely those aged between 15 and 64. For this analysis statistics from the European Labour Force Survey (LFS) are used as this represents the principal source of Europe-wide harmonised statistics that allow linkages to be established with labour-market related variables on the (labour

market) situation of migrants, with basic information related to their migration movements.

Looking at the nationality breakdown of the EU working age population, it is obvious that the largest share of the foreign working age population is composed of third country nationals, with only a minority of other EU-25 citizenship (see Table 3). Only Belgium, Ireland and Luxembourg have a higher share of EU-25 nationals than third country nationals.

Many Member States also show a high share of working age citizens who were not born in their present country of residence, but hold its citizenship, mainly through naturalisation or by being born abroad and having migrated to their current EU Member State at a later date. Member States with a comparatively high share of non-native nationals are Sweden, followed by Latvia, the Netherlands, Germany and Slovenia.

Active foreign working age population

Examination of the LFS can also identify the active working age population by nationality (i.e. working age nationals and foreign citizens who are either in employment or currently unemployed, but available and looking for work). According to the LFS, the active working age population of the EU-15 Member States numbered 180 million people. Of this total, approximately 19 million have migrated to their current Member State of residence at some stage from another country, meaning that they were not born in their Member State of residence and do not hold its citizenship, or are foreign born, but have acquired citizenship of their country of residence. (Unfortunately, this figure does not include the numbers for Italy, which does not publish breakdowns by citizenship. Therefore, the number of

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Table 1 – National and non-national population in the European Union Member States, around 2004 and 1990.									
Country	Year	Nationals (1000)	Non-nationals (1000)	Non-nationals %	Largest group of non-nationals (country of citizenship)	Year	Nationals (1000)	Non-nationals (1000)	Non-nationals %
BE	2004	9 536	860	8.3	IT	1990	9 067	881	8.9
CZ	2004	10 016	195	1.9	UA	1990	10 327	36	0.3
DK	2004	5 126	271	5.0	TR	1990	4 985	151	2.9
DE	2004	75 190	7 342	8.9	TR	1990	74 267	4 846	6.1
EE	2000c	1 096	274	20.0	RU	1990	:	:	:
EL	2004e	10 149	891	8.1	AL	1990	9 979	142	1.4
SP	2004	39 426	2 772	6.6	EC	1990	38 428	398	1.0
FR	1999c	55 258	3 263	5.6	PT	1990	53 055	3 597	6.3
IE	2002c	3 585	274	7.1	UK	1990	3 426	81	2.3
IT	2004	55 898	1 990	3.4	AL	1990	56 338	356	0.6
CY	2002c	625	65	9.4	EL	1992	577	26	4.2
LV	2004	1 804	515	22.2	RU	1998	1788	671	27.3
LT	2001c	3 450	34	1.0	RU	1990	:	:	:
LU	2004	277	174	38.6	PT	1990	270	109	28.7
HU	2004	9 987	130	1.3	RO	1995	10 199	138	1.3
MT	2004	389	11	2.8	UK	1990	352	6	1.6
NL	2004	15 556	702	4.3	TR	1990	14 251	642	4.3
AT	2004	7 375	765	9.4	CS	1990	7 211	434	5.7
PL	2002c	37 530	700	1.8	DE	1990	:	:	:
PT	2003p	10 169	239	2.3	CV	1990	9 819	101	1.0
SI	2004	1 951	45	2.3	BA	1995	1 942	48	2.4
SK	2004	5 350	30	0.6	CZ	1990	:	:	:
FI	2004	5 113	107	2.0	RU	1990	4 953	21	0.4
SE	2004	8 500	476	5.3	FI	1990	8 071	456	5.3
UK	2003	55 636	2 760	4.7	IE	1990	55 043	2 416	4.2

c - Census data; e – Estimated figures; p – Provisional data. UA – Ukraine, RU – Russia, AL – Albania, EC – Ecuador, CS – Serbia and Montenegro, CV – Cape Verde, BA - Bosnia and Herzegovina,

Source: Eurostat.

Table 2 – Citizenship composition of non-national population in selected EU Member States

GERMANY

1990	(1000)	%	2004	(1000)	%
TR	1612.6	33.3	TR	1877.6	25.6
BA+HR+MK+CS+SI	610.5	12.6	BA+HR+MK+CS+SI	1054.7	14.4
IT	519.5	10.7	IT	601.3	8.2
EL	293.6	6.1	EL	355.6	4.8
PL	220.4	4.5	PL	326.9	4.5
Other	1589.1	32.8	Other	3119.6	42.5

PORTUGAL

1990	(1000)	%	2003	(1000)	%
CV	28.0	27.7	CV	52.4	21.9
BR	10.5	10.4	BR	24.9	10.4
UK	7.8	7.7	AO	24.6	10.3
ES	7.3	7.2	GW	19.1	8.0
US	6.4	8.4	UK	15.9	6.7
Other	41.0	40.6	Other	101.9	42.7

LUXEMBOURG

1991	(1000)	%	2004	(1000)	%
PT	37.6	34.2	PT	63.8	36.6
IT	19.9	18.1	FR	21.9	12.6
FR	13.0	11.8	IT	18.9	10.8
BE	9.5	8.6	BE	16.0	9.2
DE	8.8	8.0	DE	10.3	5.9
Other	21.3	19.4	Other	43.3	24.9

GREECE

1994	(1000)	%	2001	(1000)	%
US	15.1	10.1	AL	438	57.5
UK	13.5	9.0	BG	35.1	4.6
RU	10.3	6.9	GE	22.9	3.0
DE	9.2	6.2	RO	22	2.9
PL	8.8	5.9	US	18.1	2.4
Other	92.4	62.0	Other	225.3	29.6

CZECH REPUBLIC

2004	(1000)	%
UA	56.4	28.9
SK	33.1	17.0
VN	25.6	13.1
PL	16.1	8.2
RU	12.5	6.4
Other	51.7	26.5

HUNGARY

2004	(1000)	%
RO	55.7	42.8
UA	13.1	10.1
CS	12.4	9.5
DE	7.4	5.7
CN	6.8	5.2
Other	34.8	26.7

SLOVAKIA

2004	(1000)	%
CZ	5.4	18.0
UA	4.8	16.1
PL	2.4	7.9
RO	1.9	6.5
VN	1.8	5.9
Other	13.6	45.6

SLOVENIA

2004	(1000)	%
BA	21.8	48.2
CS	7.6	16.8
HR	7	15.4
MK	4.1	9.0
UA	0.9	1.9
Other	3.9	8.7

BA - Bosnia and Herzegovina, HR - Croatia, MK – Former Yugoslav Republic of Macedonia, CS – Serbia and Montenegro, SI – Slovenia, US – United States of America, UA – Ukraine, VN – Vietnam, RU – Russia, CV – Cape Verde, BR – Brazil ,AO – Angola, GW – Guinea Bissau, AL – Albania, GE – Georgia.

Source: Eurostat.

Table 3 – Share of working age foreign nationals and foreign born nationals in the country of residence relative to total working age population, 2005 (in percent)

Country of residence	Citizenship			
	EU-15	EU-10	Non-EU-25	Foreign born nationals
BE	4.4	0.3	2.8	6.2
CZ	(0.0)	0.3	0.4	1.2
DK	0.9	(0.2)	2.5	2.5
DE	1.9	0.6	5.4	7.9
EE	:	:	8.4	4.6
EL	0.2	0.4	5.3	2.1
ES	1.2	0.2	8.4	:
FR	1.8	0.1	3.6	6.3
IE	2.7	1.9	2.7	4.0
IT	:	:	:	:
CY	5.5	(0.3)	7.4	3.6
LV	:	:	(0.4)	10.9
LT	:	:	(0.4)	3.0
LU	32.9	(0.2)	3.2	3.5
HU	(0.1)	:	0.5	1.2
MT	1.1	:	1.7	2.3
NL	1.3	0.1	2.6	9.0
AT	1.7	1.4	7.1	5.9
PL	:	:	0.1	0.5
PT	0.4	:	2.6	4.1
SI	:	:	(0.4)	7.7
SK	:	(0.1)	(0.1)	0.7
FI	0.3	0.3	0.9	1.3
SE	2.0	0.3	3.1	11.5
UK	1.7	0.4	4.0	4.8
EU-10	0.1	0.1	0.5	1.5
EU-15	1.5	0.3	4.0	4.6
EU-25	1.2	0.3	3.4	4.1

Source: Eurostat, LFS, spring data.

Note: Data in brackets lack reliability due to small sample size. The symbol ":" is used when data is either not available or extremely unreliable.

the main receiving countries in relative terms. Sweden, Germany and France each have a share of around 2 %, Austria 1.8%. Destination countries with the lowest shares are Portugal (0.4%), Finland (0.3%) and Greece (0.2%) (see Chart 1).

Chart one also shows which EU-15 countries host how many EU-10 workers in relative terms. On top is Ireland where 2.5% of the active working age population are citizens from the new Member States. This is almost as many as from the old Member States. Austria has the second highest share with 1.5%, followed by Germany and the UK with 0.5% each. In all other countries the share is between 0.1 and 0.3%.

Among the EU-15 Member States, Ireland and Portugal have the highest share of its workers resident in another EU-15 country (see Chart 2). In 2005, over 10% of active Irish citizens between the age of 15 and 64 lived in another EU-15 country, for Portugal the share is almost 9%. Austria, Finland and Greece are also well above the EU average in this respect. The lowest shares occur in Germany, France, Spain and the UK. As for the new Member States, Lithuania and Poland have the highest share of its workers resident in a EU-15 Member State (3.4% and 2.1%, respectively). For Slovakia the share of emigrant workers resident in the EU-15 is 2% of their active working age population, for Hungary it is 1.2% and for the Czech Republic 0.7% (for the remaining EU-10 Member States there are too few cases in the survey samples to produce reliable results).

3.2.3. Recent cross-border mobility of EU-15 citizens

Annual cross-border mobility

The figures presented above give an overall impression of how many EU citizens have taken up residence in another EU-15 Member State at one point in the past and who are employed

foreign workers presented here is an underestimation.) Furthermore, out of these 19 million about 2.7 million are citizens from another EU-15 Member State and about 600,000 are from one of the 10 new Member States. In other words, less than 20% of the foreign born workers in the EU-15 are citizens of another EU country.

Nevertheless, there are substantial differences across individual Member States, both with respect to destination and sending countries. An extreme case is Luxembourg where due to its small size, its proximity to other Member States and its past attraction for labour migrants in its steel and mining industry more than a third of the resident active working age population hold the nationality of another EU-15 country, the majority of them from Portugal, France and Italy. The exceptional case of Luxembourg aside, Belgium (4.3%) and Ireland (2.8%) are

Chart 1   **Share of active EU-15 and EU-10 working age citizens resident (but not born) in another EU-15 country relative to the total active working age population of country of residence, 2005 (percentage)**

EU-15 ■   EU-10 ■

	LU	IE	BE	AT	DE	SE	UK	FR	ES	NL	DK	FI	EL	PT
EU-10	0.3	2.5	0.3	1.5	0.5	0.2	0.5	0.1	0.2	0.1	:	0.3	0.3	:
EU-15	37.3	2.8	4.3	1.8	2.0	1.9	1.7	1.9	1.2	1.4	0.8	0.3	0.2	0.4
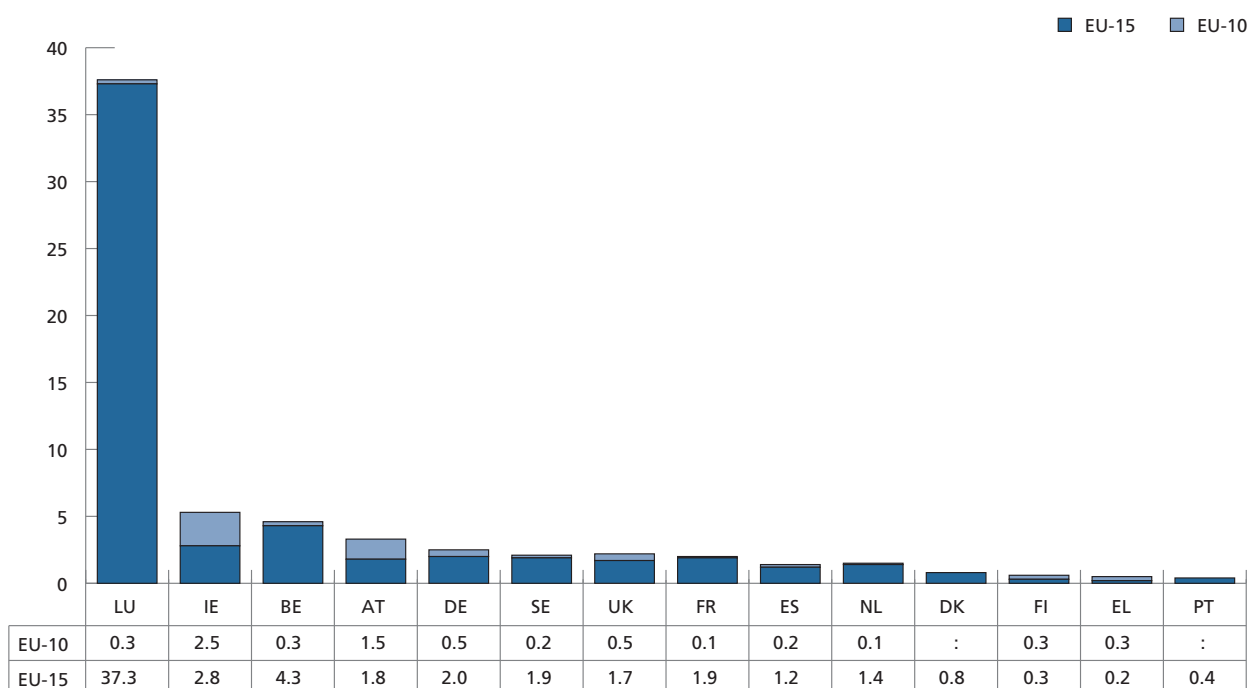
Source: Eurostat, LFS, spring results.
Note: No data available on nationality in Italy. Figures on EU-10 nationals for Denmark and Portugal not reliable due to small sample size.

Chart 2   **Share of active working age EU-25 citizens resident (but not born) in another EU-15 country relative to the total active working age population of country of citizenship, 2005**

	IE	PT	GR	LT	AT	FI	PL	SK	BE	IT	NL	DK	HU	SE	FR	UK	ES	CZ	DE
%	10.2	8.9	3.6	3.5	3.5	2.1	2.1	2.0	1.9	1.9	1.7	1.6	1.2	1.0	0.9	0.8	0.8	0.7	0.7
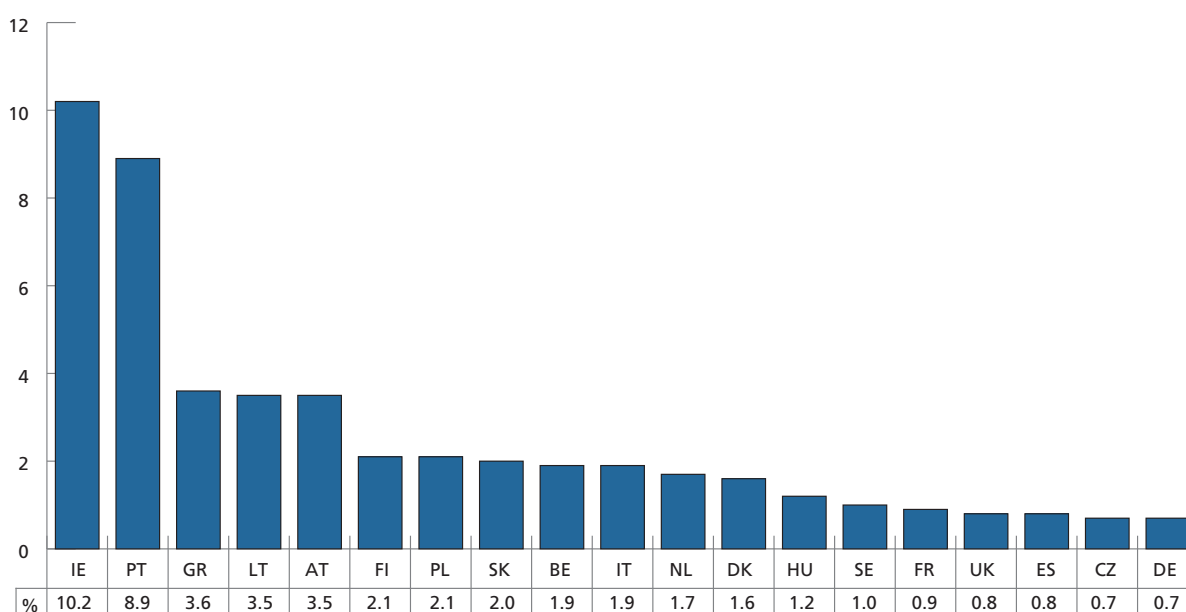
Source: Eurostat, LFS, spring results.
Note: Does not include EU citizens resident in Italy. Figures on Cyprus, Estonia, Latvia, Luxembourg, Malta and Slovenia not reliable due to small sample size.

or available to the labour market. These stock figures therefore serve to illustrate the trend in past migration between EU Member States.

However, what the overall stock figures hide is when the move from one country to another took place and whether any moves took place before a person settled into their current country of residence. Therefore, in order to understand more closely current geographic mobility, one needs to examine changes of residence from one period to another.

In principle this can be done with data from the LFS, which records respondents' change of residence over a 12-month period. According to the LFS figures, annually only around 0.1% of the active working age population of the EU-15 have changed country of residence from one Member State to another every year since 2000. This means that approximately 170,000 to 180,000 active working age persons per year change their residence between the EU-15 Member States.

However, these figures should be treated with caution for the following reasons. Firstly, the annual mobility rate of 0.1% is an average based on only 11 of the 15 Member States for which the LFS provides data on year-to-year cross border change of residence. The absolute figure is therefore a crude extrapolation to all EU-15 Member States based on the average moving rate. Secondly, the LFS tends to under-report people who have only recently taken up residence in another country, due to some problems in including the newly arrived people in the sampling frame, as well as a high non-response rate among migrants. According to one study, for example, the under reporting of annual migration by the LFS may be around 30%[10]. This means that the flow figures presented above represent an approximation rather than a precise fig-

ure. However, even if the figures were adjusted for any instance of under reporting of change of residence by 30% or even double the intra-EU migration rate, annual cross-border residential mobility between the old Member States would still appear low in relative terms.

There are additional problems in capturing the full picture of geographic mobility in official statistics. Due to the relatively small number of annual residential cross-border moves, it is problematic to use them for showing detailed and statistically reliable breakdowns on the country distribution and the socio-economic characteristics of mobile workers. Furthermore, there are presently no reliable and comprehensive statistical sources on mobility flows that last less than one year. There is reason to suspect that EU citizens may be more mobile than described by annual flow data and stock figures from censuses and surveys. Anecdotal evidence suggests that there may be some sizable short-term mobility in the form of workers moving abroad for seasonal jobs or being sent on temporary assignments by their companies, but there is so far no hard information to quantify this short-term mobility.

Recent mobility by destination and sending countries

Due to the statistical limitations described and in order to still produce a reasonably detailed picture of recent mobility trends in the EU, this chapter will take a new approach at analysing data from the LFS. Instead of looking at the somewhat problematic year-to-year changes of residence, the variable "years of residence" is taken as a proxy for the annual change of residence.

As a result, the analysis here and in Section 4.1 considers people who were not born in their current Member State

of residence and who have been living there for less than five years. The advantage of choosing a five-year residence threshold compared to the year-to-year residence change is that it provides more complete and reliable statistical data. Applying this measure is essentially a hybrid approach between the stock and flow figures. It does not include the number of international moves that may have occurred before a person settled in their current country of residence, and therefore tends to underestimate the total level of mobility occurring annually. It does, however, allow the more detailed analysis of the characteristics of persons who have been geographically mobile at least once within the past five years and thus enables valid conclusions to be drawn on the trends in recent mobility patterns.

According to the LFS, the number of recently mobile EU-15 workers (i.e. active working age EU-15 citizens resident less than five years in another EU-15 Member State) has increased from approximately 470,000 persons in 2000 to around 610,000 in 2005. Both in 2000 and 2005, the UK has been the preferred destination of these mobile EU-15 citizens in absolute terms. In 2000, about 30% of all EU-15 recently mobile citizens lived in the UK (see Chart 3). In 2005, this share had declined somewhat to 27%. Around 19% of the recent movers favoured Germany as a country of destination in 2005, followed by Spain (14%), France (11%), and Belgium (8%). All other EU-15 countries received a share of less than 5% each.

From the perspective of the sending countries, French citizens have been the largest group among the old Member States to go and work in another EU-15 country in absolute terms. In 2005, almost 14% of the recently EU-15 mobile have been from France, fol-

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10   See Rendall M.S., Tomassini C., and Elliot D.J. (2003).

Chart 3

Mobile EU-15 citizens by destination country, 2000 and 2005
(Active working age EU-15 citizens resident less than five years in another EU-15 Member State by country of residence as a percentage of total active working age EU-15 citizens resident less than five years in another EU-15 Member State)

■ 2000   ■ 2005

	UK	DE	ES	FR	BE	IE	AT	NL	SE	LU	DK
2000	30.2	26.6	11.1	7.4	6.3	6.2	4.0	4.2	2.3	3.0	2.2
2005	26.5	18.8	13.7	11.0	7.9	4.6	4.1	3.8	3.7	2.8	1.3
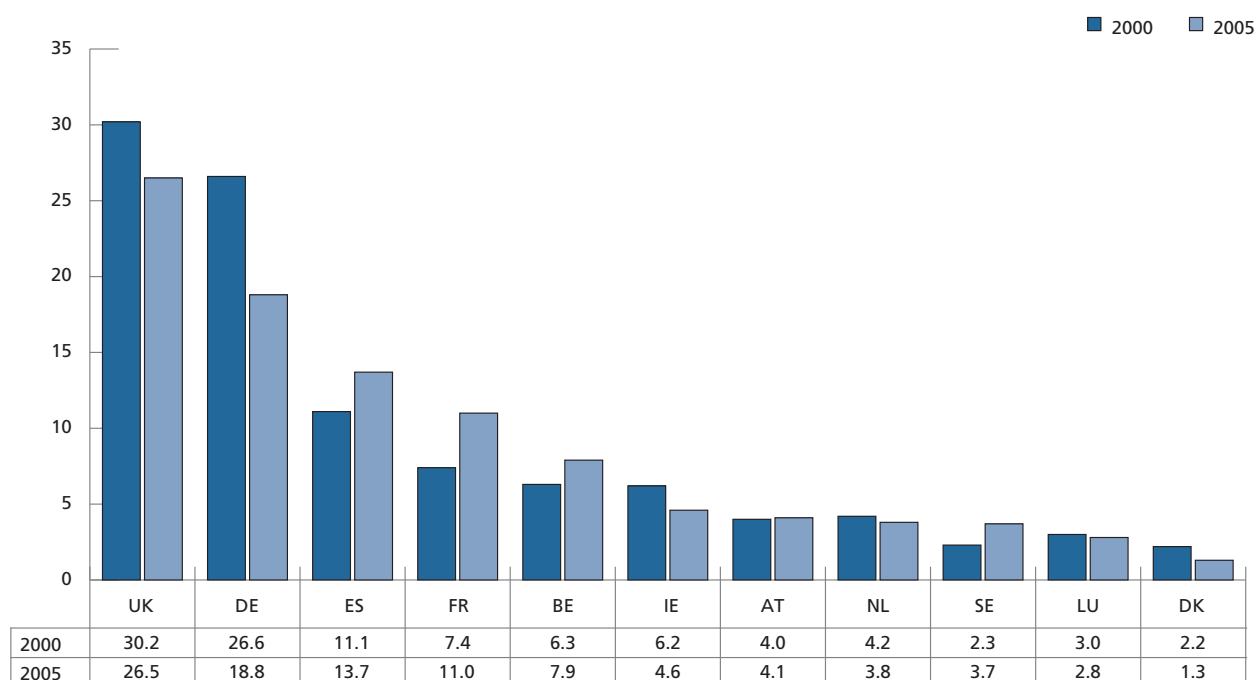
Source: Eurostat, LFS, spring results.
Note: Figures do not include EU-15 nationals resident in Italy. Figures for missing EU-15 Member States not reliable due to small sample size. FR: 2001 instead of 2000.

lowed by Germans (13.5%), British (11.9%) and Italians (11.8%) (see Chart 4)[11].

3.2.4. Mobility flows from the new Member States

Although population and labour force statistics do contain stock figures on people from the new Member States living in other EU countries, statistical problems remain in capturing recent flows of workers from the EU-10 Member States to the EU-15. The main reason for this is that annual migration flows from the EU-10 to the EU-15 have been too low to yield statistically robust results from sample surveys, at least for a detailed analysis. While some estimates are possible for overall flows, many breakdowns for EU-10 countries and nationals are below statistical reliability limits and cannot be shown.

In order to continue to obtain country data and to assess the functioning of the transitional arrangements (TA) for the free movement of workers from the eight new Member States affected by them[12] (see Box 2), the EC started a special data collection exercise to obtain up-to-date figures from administrative sources on mobility flows before and after enlargement.

The Commission analysed the labour flows from EU-10 to EU-15 Member States after enlargement in its "Report on the Functioning of the Transitional Arrangements set out in the 2003 Accession Treaty", released in February 2006[13]. These statistics, which were submitted by the EU Member States themselves and obtained from the Labour Force Survey (LFS), showed that mobility flows between the EU-10 and the EU-15 has been limited.

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11   Unfortunately, no comparison by sending country with years before 2005 is possible, as Germany, the second most important receiving country, started publishing breakdowns by citizenship only in 2005.

12   Although the TA do not apply to Cyprus and Malta, most of the analysis in this section looks at the EU-15 and the EU-10 as two groups. This is for practical reasons and should not affect the outcome as the mobility numbers involved for Cyprus and Malta are very low.

13   European Commission (2006).

Chart 4

Mobile EU-15 citizens by sending country, 2005
(Active working age EU-15 citizens resident less than five years in another EU-15 country by country of citizenship as a percentage of total active working age EU-15 citizens resident less than five years in another EU-15 Member State)

	FR	DE	UK	IT	NL	PT	ES	IE	AT	BE
2005	13.7	13.4	11.9	11.7	9.8	8.6	7.2	4.4	4.3	4.0
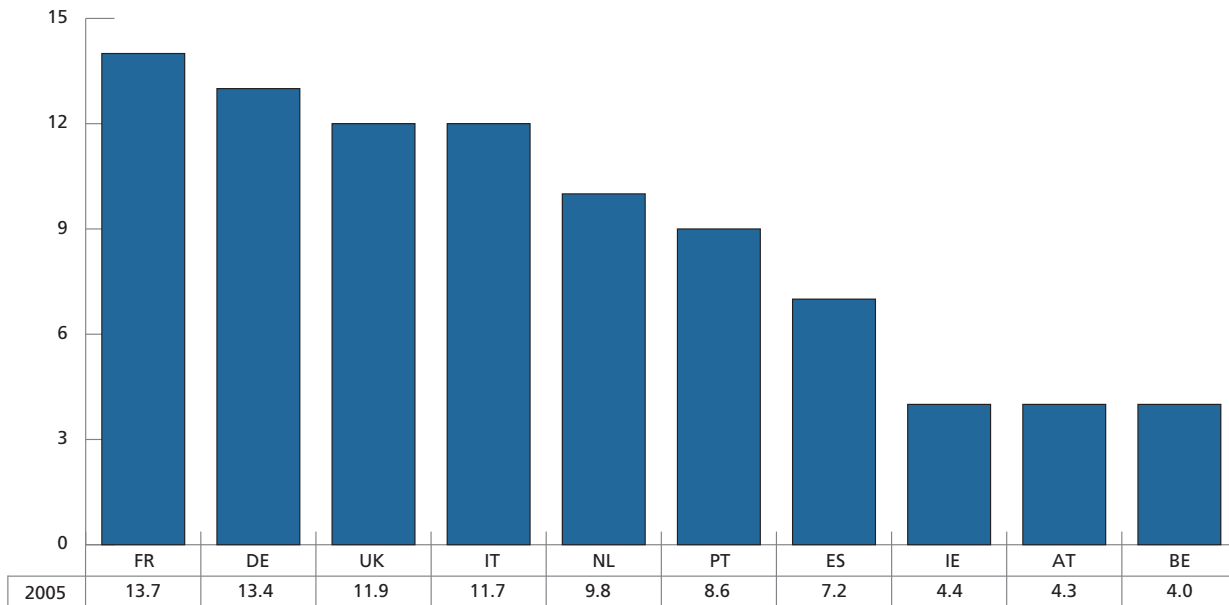
Source: Eurostat, LFS, spring results
Note: Figures do not include EU-15 nationals resident in Italy. Figures for missing EU-15 countries too small to be reliable.

Furthermore, mobility flows from EU-15 to EU-10 Member States and between EU-10 Member States has been generally negligible. The most harmonised and comparable set of data received by the EC covered 2004, although for several countries 2003 and 2005 data are also available, for the UK also for the first half of 2006[14].

Table 4 shows flows/stocks relative to the working age population aged 15-64 (WAP) of the destination Member State. According to this, annual flows of EU-10 nationals represented less than 1% of the working age population aged 15 to 64 in all Member States except Austria (1.2% in 2004 and 1.4% in 2005) and Ireland (1.9% in 2004 and 3.8% in 2005).

In addition to the finding that mobility flows from the EU-10 to the EU-15 have been relatively limited, the "Report on the Functioning of the Transitional Arrangements" concluded that workers' mobility from the EU-8 to EU-15 has had positive effects on the economies of the EU-15 Member States. Workers from the EU-8 helped to relieve labour market shortages and skill bottlenecks; contributed to business creation and long-term growth through human capital accumulation; and contributed to the overall improvement of economic and labour market performance in Europe. Those Member States that did not apply restrictions (the UK, Ireland and Sweden) have experienced high economic growth and a rise in employment. As to the 12 EU Member States applying transitional arrangements, where workers managed to obtain access legally, this has contributed to a smooth integration into the labour market. However, evidence suggests that some of these countries may also have faced undesirable side-effects, such as higher levels of undeclared work and bogus self-employed work.

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14   An updated administrative data set for mobility flows from the new to the old Member States, including figures for 2005, will be available at the end of 2006.

Table 4 – Resident/work permits to EU citizens as percentages of destination country's working age population (WAP) aged 15 to 64				
Country of destination	Type of data	Reference period[1]	% WAP Nationality	
			EU-10[2]	EU-15
BE[3]	Residence permit Residence permit Residence permit	2003 2004 2005	0.1 0.2 0.2	2.7 2.7 2.6
CZ	Foreign workers stock Foreign workers stock	2003 2004	0.9 1.0	0.1 0.1
DK	Residence permit	2004	0.1	0.2
DE	Foreign workers stock Work permit Work permit	2004 2004 2004 May-2005 Sep	0.2 0.9 0.9	1.0 : :
EE	Residence permit	2004	0.0	0.1
EL	Residence permit	2004	0.1	:
ES	Residence permit	2004	0.0	0.1
FR	Work permit Work permit	2003 2004	0.0 0.0	: :
IE[4]	Personal Public Service Numbers Personal Public Service Numbers	2004 May-Dec 2005 Jan-Nov	1.9 3.8	: :
IT	Application for work auth. Application for work auth.	2004 2005 Jan-Sep	0.1 0.1	: :
LV	Residence permit	2004 May-2005 Apr	0.0	0.0
LT	Residence permit	2004	0.0	0.0
HU	Residence permit	2004	0.0	0.0
MT	Residence permit	2004-2005 Apr	0.1	0.8
NL	Work permit Work permit Work permit	2003 2004 2005 Jan-Jun	0.1 0.2 0.1	: : :
AT	Average annual stock Average annual stock Work permit Work permit	2004 2005 Jan-Jun 2004 2005 Jan-Jun	0.7 0.7 1.2 0.6	: : : :
PL	Residence permit	2004	0.0	0.0
PT	Residence permit	2004	0.0	0.0
SI	Work permit/ registration	2004-2005 Jun	0.1	0.0
SK	Residence permit	2004	0.0	0.0
FI	Residence permit	2004	0.0	0.0
SE[5]	Residence permit	2004	0.1	0.0
UK	Applicant to WRS Applicant to WRS Applicant to WRS	2004 May-Dec 2005 Jan-Dec 2006 Jan-June	0.3 0.5 0.2	: : :

Source: Administrative data from Member States, Eurostat, LFS for working age population.

Notes: % WAP - as percentage of destination country's working age population 15-64. ':' not applicable or data not available.

All figures refer to the number of applicants / applications / registrations / permits issued (flows), except in the case of: the Czech Republic, where the figure refers to the stock of workers; Germany, where the first line refers to the stock of workers; and Austria, where the first line refers to the average annual stock of employees. Figures on residence permits refer to permits issued for employment reasons only, except for Belgium. Data for Cyprus and Luxembourg not were received by the Commission.

1) January to December, if not otherwise specified. 2) Figures for France, Italy, Austria, and the number of work permits for Germany relate to EU-8. 3) The figures for Belgium refer to residence permits issued for all reasons. 4) The figure for Ireland refers to PPS Numbers issued not only for employment reasons, but also for other administrative purposes, including welfare, health and other public services. 5) The figure for Sweden for EU-10 nationals refers to 2004 May to December.

Box 2 – Limited mobility for workers from the new Member States

Under the Treaty of Accession of 2003, access by workers from the EU-8 (Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia) to the labour market of the EU-15 Member States is subject to so-called transitional arrangements (TA). (For Cyprus, no restrictions apply and with regard to Malta, there is only the possibility of invoking a safeguard clause). As a result of these provisions, the application of a part of the Community law on free movement of workers across the EU may be deferred for a maximum period of seven years. The 2003 Accession Treaty divides the transitional period into three distinct phases, according to the "2-plus 3-plus 2" formula. Different conditions apply during each of these phases.

For the first phase of the TA that lasted from 1 May 2004 to 30 April 2006, in order to regulate access to their labour markets the EU-15 Member States could apply their national law and policy. In practical terms, this means that a worker from one of the new Member States listed above is likely to need a work permit. National measures may be

extended for a further period of three years (1 May 2006–30 April 2009). After that, an EU-15 Member State can be authorised to continue to apply national measures for further two years, but only if it experiences serious disturbances in its labour market. The transitional arrangements will irrevocably end on 30 April 2011. Member States that joined the EU on 1 May 2004 and whose nationals face restrictions in one of the EU-15 Member States may impose equivalent restrictions on workers from that Member State.

Workers from the Member States that joined the EU on 1 May 2004 and who are subject to transitional arrangements must be given priority over workers from third countries. Once the worker has obtained access to the labour market, he/she benefits from equal treatment.

During the first phase of the TA from 1 May 2004 until 30 April 2006, Sweden and Ireland decided not to apply any restrictions on access to their labour market by workers from the EU-8. The UK decided not to apply any ex-ante restrictions on access to its labour

market but adopted a Worker's Registration Scheme. The remaining EU-15 Member States maintained their work permit system, albeit with some modifications. Three EU-8 Member States (Poland, Slovenia and Hungary) applied reciprocity to EU-15 Member States applying restrictions and none of the EU-8 Member States applied for permission to restrict access by workers from other EU-8 Member States.

The situation for the second phase, which started on 1 May 2006, is as follows: Ireland, Sweden and the UK have kept their labour markets open to citizens from the EU-8. Finland, Greece, Italy, Portugal and Spain have removed the restrictions. The UK continues its mandatory registration scheme. Finland is at the moment working on a registration/monitoring scheme. Belgium, Denmark, France, Luxembourg and the Netherlands have announced simplifications to their existing national access schemes. Austria and Germany will keep the restrictions until 2009. Hungary and Poland continue to apply reciprocity, while Slovenia has decided to stop applying reciprocal measures.

The assessment of the functioning of TA has also been the subject of several reports from different Member States and institutions. Most of these confirm the evidence from the Commission's report that the flows of EU-8 nationals to the EU-15 have been relatively limited since accession, and emphasise in general a positive impact of mobile workers from the EU-10 on the economy and the

labour markets in the receiving countries[15].

3.3. Regional mobility

While cross-border residential mobility in the EU has been relatively small, movements between regions within countries are much greater. Depending on the regional breakdown analysed, regional mobility rates in the EU-15 are

on average about ten to thirteen times greater than annual cross-border mobility rates. Data from the LFS indicate that the annual regional mobility rate between the so-called NUTS 1 regions[16] has been at around 1% of the total working age population in 2005. For NUTS 2 regions, which represent a more detailed regional breakdown, the mobility rate has been 1.3% in 2005. Overall, EU-15 regional mobility has

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15   See for example Boeri T. and Brücker H. (2005), Dolvik J.E. and Eldring L. (2006), Doyle N., Hughes G., and Wadensjö E. (2006), European Citizens Action Service (ECAS) (2005) and (2006), Gilpin N., Henty M., Lemos S., Portes J. and Bullen C. (2006), Ireland's National Training and Employment Authority (2006), Portes J. and French S. (2005), Tamas K. and Münz R. (2006), UK Home Office (2006).

16   "NUTS" stands for the "Nomenclature of Statistical Territorial Units" and is the common classification system for dividing the European Union's territory in order to produce regional statistics for the Community. NUTS subdivides Member States into regions at NUTS 1 level, of which there a are 89 in the EU25. Each of these is then subdivided into regions at NUTS level 2 (254 regions) and these in turn into regions at NUTS level 3 (1214 regions).

been higher in 2005 than ten years ago, although most of the increase seems to have occurred from 1995 to the beginning of this decade. Since 2000, the EU-15 regional mobility rate seems to have levelled off a bit[17].

As for individual countries, Portugal, the UK, Belgium, France and Germany show the highest regional mobility rates in 2005, both at NUTS 2 and NUTS 1 levels (see Tables 5 and 6). The old Member States with the lowest internal mobility levels are Italy and Greece.

Regional mobility in the new Member States is significantly lower than in the old Member States[18]. The new Member States for which regional mobility can be identified from the LFS at NUTS 2 level had an average regional mobility rate of 0.3% in 2005. The Czech Republic had the highest rate with 0.7%, followed by Hungary with 0.3% and Poland with 0.2%. It was lowest in Slovakia at only 0.1%.

The great differences in regional mobility rates between Member States and the lower overall mobility rate compared with the US (see Box 3), suggest that there may be a potential for higher geographic mobility in the EU.

Table 5 – Regional mobility rates (NUTS 1 regions) (Percent of working age population which has moved residence within the country from one NUTS 1 region to another since the year before)			
Country	1995	2000[1]	2005[2]
EU-15			
BE	0.5	:	1.1
DE	0.7	1.3	1.1
EL	0.3	0.2	0.1
ES	0.2	0.1	0.4
FR	1.5	2.0	1.7
IT	0.3	0.3	0.1
NL	1.3	1.5	0.5
AT	:	:	0.2
PT	:	1.6	2.1
UK	1.3	1.8	1.5
EU-15 available	**0.8**	**1.2**	**1.0**
EU-10			
HU	:	0.3	0.3
PL	:	:	0.2

Source: Eurostat, LFS.
1) PT, UK, HU 2001 data, NL 1998 data.
2) EL, AT 2003 data.

4. Who are the movers and what drives them

4.1. The characteristics of EU movers

Socio-demographic characteristics

In this section the following questions are addressed. Who is geographically mobile? What are the typical characteristics of recently mobile workers in the EU? How do they differ from the overall population in terms of age,

gender, education and other characteristics?

Table 8 gives an overview of the social-demographic composition of the recently arrived "internationally mobile" population in the EU-15 Member States, here defined as active working age citizens from other countries who have moved to their current country of residence less than five years ago[20]. It confirms a number of findings of the migration literature and shows some interesting trends in recent mobility flows. It also shows that there are some distinct differences between mobile EU-15 workers, mobile

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17   Note, though, that the regional mobility rates presented here should be taken with some caution. The overall average moving rate is based on information from only about half of the EU-15 countries, as no information is available for the others. Similar to the statistical difficulties encountered in measuring year-to-year change of residence across country borders, one can also expect coverage problems when surveying regional change of residence, albeit to a smaller degree. Another uncertainty arises from the way regions are classified. For analytical purposes it would be interesting to capture residential moves between labour market regions and to have information on whether a move has taken place from a neighbouring region to another or from further away. For practical reasons, however, the regional boundaries are normally determined through administrative borders which do not necessarily follow economic criteria. Furthermore, the source statistics do not allow identifying the distance of a move within a country, but only the fact that a move has taken place from one region to another.

18   This finding appears somewhat in contrast to the great structural changes which their labour markets have undergone, e.g. due to privatisation and increased unemployment.

19   See Recchi et al. (2006) for a similar analysis, which is based on the stock of EU and non-EU foreign residents in the Member States instead of recent arrivals.

Table 6 – Regional mobility rates (NUTS 2 regions) (Percent of working age population which has moved residence within the country from one NUTS 2 region to another since the year before)			
Country	1995	2000[1]	2005[2]
EU-15			
BE	0.9	:	2.0
DE	1.1	1.7	1.5
EL	0.4	0.2	0.1
ES	0.2	0.2	0.5
FR	1.7	2.3	:
IT	0.4	0.3	0.4
NL	1.8	2.1	
AT	:	:	0.4
PT	1.1	1.9	2.2
FI	:	1.0	1.0
SE	:	1.7	:
UK	1.3	2.5	2.1
EU-15 available	**1.0**	**1.6**	**1.2**
EU-10			
CZ	:	0.6	0.7
HU	:	0.4	0.3
PL	:	:	0.2
SK	:	:	0.1
EU-10 available	**:**	**:**	**0.3**

Source: Eurostat, LFS.
1) BE, PT, UK, HU 2001 data, NL 1998 data.
2) EL, AT 2003 data.

citizens from the new Member States and mobile citizens from non-EU countries.

Age clearly is a key factor in mobility. Younger people tend to be significantly more willing to change their country of residence than older people. In 2000, half of the EU-15 active mobile were between 25 and 34 years old, although only little more than a quarter of the overall working age population falls into this age group. Younger workers between 15 and 24 also tended to be more mobile than the respective overall population, whereas mobility declined significantly after people have reached their mid-thirties. However, the data also indicate that the share of EU-15 mobile workers aged 35 and older has increased significantly between 2000 and 2005, from 31% to 40%

Interestingly, both EU-10 and third country mobile workers tend to be younger than the EU-15 mobile. This is especially the case for the recently EU-10 mobile resident in the EU-15. In 2005, more than half of them were between 25 and 34 years old and more than a quarter were below the age of 25.

Perhaps surprisingly, the data do not indicate any major gender differences between other EU-15 nationals and third country mobile workers having recently settled in the EU-15. While it is often assumed that men tend to be significantly more mobile than women, the figures show that the gender composition of the EU-15 active mobile is, in fact, similar to the gender composition of the overall active working age population. In 2000, 60% of

the EU-15 active mobile were male compared to 57% in the overall active working age population, and in 2005 the composition was almost identical. For recent arrivals from non-EU-25 countries, the gender composition has been identical to that of the overall EU-15 working age population in 2005. However, the gender composition of mobile workers from the EU-10 is significantly different to that of the other groups, as there was an equal split between the sexes – 50% men and 50% women.

As for educational attainment, there are notable differences not only between mobile people and the population at large, but also among the mobile from the EU-15, the EU-10 and third countries. In 2000, 44% of all EU-15 active mobile were highly skilled (i.e. had gone through tertiary education) compared to only 23% of the total active working age population, whereas movers with medium and low skills were significantly underrepresented. By 2005, the overall skill level of the EU-15 mobile had increased substantially as the share of medium-skilled movers rose and that of low-skilled movers dropped. Furthermore, while the share of high-skilled workers among EU-10 mobile workers has been substantially lower than among the EU-15 mobile, the proportion of medium-skilled workers from the EU-10 is much higher than that of both the EU-15 mobile and the total active working age population. Taking further into account that only 15% of the EU-10 mobile have low skill levels, it is fair to say that mobile workers from the new Member States make a positive contribution to improving the skill level of the workforce in the old Member States. As for the skill composition of mobile workers from countries outside the EU-25, the data show that their educational level is on average lower than that of both the overall workforce and mobile workers from the old and new Member States. About a quarter of the mobile workers from third

Box 3 – Comparing geographic mobility in the EU to the US

When discussing geographic mobility in Europe, it is sometimes argued that mobility in the EU is comparatively low when compared to other parts of the world, and notably the US. This certainly appears true when comparing cross-EU mobility to the interstate mobility flows found in the US. In the EU-15, only about 0.1% of the working age population change their country of residence in a given year. In the US, every year about 3% of the working age population move to a different state (see Table 7).

However, the validity of comparing interstate moves in the US with cross-border moves in the EU is problematic on several grounds. The United States is a federal state, whereas the EU is not; the US is one nation, the EU is not; free movement in the US is a century-old phenomenon, but only a more recent possibility in the EU; labour legislation is different in the US compared to the EU (where there are also differences among Member States) and finally language and cultural barriers within the EU are much greater than within the US[20].

On the basis of these differences, it therefore may be more appropriate to compare internal mobility in the US to geographic mobility not between, but within the EU Member States. Comparing interstate mobility in the US to internal mobility

between NUTS 1 regions in EU Member States does narrow the "mobility gap" somewhat between Europe and the US. For example, between 2000 and 2005, around 1% of the working age population have changed their residence each year from one (NUTS 1) region to another within the EU-15, compared to an overall interstate mobility rate of between 2.8 to 3.4% in the US during the same period of time.

Around half of all the interstate mobility actually took place within the nine US Census Divisions which group several states into larger analytical territorial entities roughly comparable in size to EU Member States. (The Census Divisions in the

US are then further grouped into three Regions). Within Census Divisions, therefore, some 1.5% of the working age population move from one state to another every year. This is still higher than the comparable EU average figure (NUTS 1) and certainly much higher compared with many EU Member States.

Hence, although a large part of the difference between the US and the EU with respect to geographic mobility rates can obviously be explained by the absence of national borders, the common language and the similar institutional framework, these comparisons would still suggest that there may be a potential for higher geographic mobility in the EU.

Table 7 – Geographic mobility in the United States 2000 – 2004
(in percent of working age population)

Year	Different state, same Census Division	Different Census Division, same Census Region	Different Census Region	Different state
	1	2	3	4=1+2+3
2004	1.4	0.4	1.0	2.8
2003	1.5	0.4	1.0	3.0
2002	1.5	0.5	1.2	3.1
2001	1.6	0.5	1.0	3.1
2000	1.7	0.5	1.2	3.4

Source: US Census Bureau, Current Population Survey.
(http://www.census.gov/population/www/socdemo/migrate.html)

countries are highly skilled, 40% have medium skills and more than a third have low skills.

Another important factor of the mobility equation is family ties. One would expect that a single person without children does not have to take into account the social and material costs mobility may have on his or her partner or children and is, other things being

equal, freer to make a decision to move. It seems that this relation can be confirmed by the data for mobile workers from the EU-15 and EU-10. While over 60% of the total EU-15 active working age population is married, only around 40% of the EU-15 mobile and 47% of the EU-10 mobile have the same status. Furthermore, only around one-third of the EU mobile workers have children, compared to over 50% of the overall

active working age population. These differences are also certainly a function of age, as movers tend to be younger than the average population and therefore less likely to be married and have children. However, when considering age groups single people without children still tend to have a higher share among movers than among the overall population.

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20   Recchi et al. (2006), p. 16 f.

Table 8 – Geographic mobility in the EU-15 countries by selected characteristics - 2000, 2005 (in percent)							
Selected characteristics	2000			2005			
	Total active working age population[1]	EU-15 "Mobile" active working age population[2]	non EU-15 "Mobile" active working age population (incl. EU-10)[3]	Total active working age population[1]	EU-15 "Mobile" active working age population[2]	EU-10 "Mobile" active working age population[4]	non-EU-25 "Mobile"active working age population[5]
Age group							
15-24	13	19	21	12	12	27	19
25-34	27	50	45	24	48	51	46
35-64	61	31	33	64	40	22	35
Sex							
Male	57	60	57	56	57	50	56
Female	43	40	43	44	43	50	44
Education							
Low	31	22	38	27	15	15	36
Medium	46	34	35	47	41	63	40
High	23	44	27	26	44	22	24
Marital Status							
Single	37	57	36	39	61	53	38
Married	63	43	64	61	39	47	62
Household composition[6]							
One adult without children	15	25	20	17	25	24	16
Couple without children	32	41	39	33	44	48	40
One adult or couple with at least one child	52	34	41	51	31	28	44

Source: Eurostat, LFS, spring results.

1) Total EU15 residents aged 15 to 64 who are either employed or who are unemployed but are available for and actively seeking work.
2) EU-15 citizens resident for less than 5 years in another EU15 country (except Italy) aged 15 to 64 who are either employed or who are unemployed but are available for and actively seeking work.
3) Non-EU-15 citizens (including EU-10) resident for less than 5 years in an EU-15 country (except Italy) aged 15 to 64 who are either employed or who are unemployed but are available for and actively seeking work.
4) EU-10 citizens resident for less than 5 years in another EU-15 country (except Italy) aged 15 to 64 who are either employed or who are unemployed but are available for and actively seeking work.
5) Non-EU-25 citizens resident for less than 5 years in another EU-15 country (except Italy) aged 15 to 64 who are either employed or who are unemployed but are available for and actively seeking work.
6) Does not include DK, FI and SE.

Mobile workers by economic activity

There are also some notable differences between mobile workers and the overall workforce with respect to which economic sectors they work in. Compared to the overall employed working age population, a high share of the mobile EU-15 workers is employed in the hotel and restaurant sector and real estate, renting and business activities. For the other activities their share is similar to the overall working age population, but they are underrepresented in construction. Over recent years there has also been a clear trend for the EU-15 mobile away from jobs in agriculture and industry towards service jobs[21].

For the non-EU-15 mobile the pattern is somewhat different. Similar to the EU-15 mobile, they are strongly represented in the hotel and restaurant business. Compared to both EU-15 and third-country mobile, a large share of the EU-10 mobile is employed in agri-culture, manufacturing and other industries. A notable and increasing proportion of both EU-10 and non-EU mobile works in the construction industry. However, the case of hotels and restaurants and business activities aside, a relatively small share of the EU-10 mobile works in the service industry. This is most notable in "other service activities" which employ almost 30% of the EU-15 mobile and third-country mobile, but less than 20% of the EU-10 mobile.

Occupational structure of mobile workers

There is clear evidence that a significant proportion of the EU-15 mobile tend to work in highly qualified "white-collar" occupations. According to the LFS, more than 55% of the EU-15 mobile worked in high-skilled non-manual occupations in 2005, compared to 40% of the total active working age population (see Table 10). Low-skilled non-manual workers occupied a similar share among the total population and the mobile population (26% and 24% respectively), and "blue-collar" workers were clearly underrepresented among the EU-15 mobile population. Compared to 2000, the trend both towards more high-skilled non-manual and away from blue-collar occupations seems to have increased.

Again, these findings differ significantly from the profile of mobile workers from the EU-10 and non-EU countries. While the share of low-skilled non-manual workers is fairly similar across the broad nationality groups presented here, the proportion among EU-10 and non-EU mobile workers with high-skilled "white-collar" occupations is by far lower than for EU-15 mobile and the overall workforce. On the other hand, the share of workers with skilled "blue-collar" occupations and elementary occupations among EU-10 and non-EU mobile increased at the same

Table 9 – Economic sector structure of employed working age population in the EU-15 Member States, 2000 and 2005 (in percent of all economic sectors)

Economic sector (NACE Rev. 1)	2000			2005			
	Total employed[1]	EU-15 "Mobile"[2]	Non-EU-15 "Mobile"[3]	Total employed[1]	EU-15 "Mobile"[2]	EU-10 "Mobile"[4]	Non-EU-25 "Mobile"[5]
Agriculture, Fishing, and Industry (A to E)	25	21	21	22	16	21	17
of which Manufacturing (D)	20	18	16	18	14	18	12
Construction (F)	8	4	11	8	5	17	14
Wholesale and retail trade (G)	15	9	10	15	12	12	11
Hotels and restaurants (H)	4	16	12	4	12	14	14
Transport and communication (I)	6	5	4	6	6	5	4
Financial intermediation (J)	3	4	3	3	4	1	1
Real estate, renting and business activities (K)	9	16	11	10	17	13	9
Other service activities (L to Q)	30	25	28	31	29	18	29

Source: Eurostat, LFS, spring results.
1) Total employed aged 15 to 64
2) Employed EU-15 citizens aged 15 to 64 resident less than 5 years in another EU-15 country (except Italy).
3) Employed non-EU-15 citizens (incl. EU-10 countries) aged 15 to 64 resident less than 5 years in an EU-15 country (except Italy).
4) Employed EU-10 citizens aged 15 to 64 resident less than 5 years in an EU-15 country (except Italy).
5) Employed non-EU-25 citizens aged 15 to 64 resident less than 5 years in an EU-15 country (except Italy).

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21   Note, however, that the data presented here do not include short-term and seasonal mobility, which is a significant phenomenon in some industries, such as agriculture and construction.

Employment in Europe 2006

time and is much higher than among the EU-15 mobile and the overall employed population.

In this context, it is interesting to note that the occupational structure of the EU-10 mobile is in some contrast to their educational composition. In principle, one would expect that mobile workers tend to work in occupations that more or less correspond to their educational level. For mobile workers from EU-15 Member States and from non-EU countries, this seems to hold true as their occupational structure reflects, by and large, their educational composition. However, the proportion of EU-10 mobile persons concentrated in elementary occupations (30% in 2005) is much higher than one would expect from the share of EU-10 mobile persons with a low educational background (15%) and given the fact that more than 60% of them have a medium level education (see Table 8). In other words, a relatively high number of mobile EU-10 workers seem to move into jobs abroad for which they are overqualified. One reason for this could be that many low-skilled jobs in the old Member States are still better paid than more qualified occupations in the new Member States. For many qualified mobile workers a low-skilled job may

be a temporary stepping stone to move on to a better position in the host country or back home, after having gained money and experience on the foreign labour market.

Labour market performance of mobile workers

How do mobile people fare in the labour market? Does geographic mobility help to improve the employment situation of an individual?

Overall, citizens from other EU countries perform relatively well in the labour markets of their EU-15 destination countries. Table 11 shows the key labour market indicator, the employment rate, of the total working age population in the old Member States compared to the total stock of the foreign resident working age population by nationality and recently mobile persons, i.e. those foreign residents who settled in a EU-15 Member State less than five years ago.

According to this, EU-15 citizens resident in another EU-15 country have shown employment rates which are very similar to those of the overall working age population. For the last five years, the employment rate of EU-

15 foreign residents has been at around 67% and therefore slightly above that of the average population (66%). For recently mobile EU-15 citizens, i.e. those who have been resident in their host country for less than five years, the picture is the same in 2005 and with some slight variations in the years before.

For EU-10 nationals living in a EU-15 country, employment rates were significantly below average only five years ago, but have increased steadily since then. By 2005 the employment rate of EU-10 foreigners was close to that of the overall population, showing that EU-10 nationals contribute positively to overall labour market performance in the old Member States. Compared to that, employment rates of non-EU-25 citizens resident in the EU-15 Member States remain considerably below average, with only 55% of them being employed. However, this is already significantly higher than only five years ago.

There are significant differences among the various destination countries, mainly with respect to employment rates of foreigners from EU-10 countries and non-EU nationals. Spain, Austria, the UK, and most of all Ireland are countries where EU-10 nationals

Occupational level	2000			2005			
	Total employed[1]	EU-15 "Mobile"[2]	Non-EU-15 "Mobile"[3]	Total employed[1]	EU-15 "Mobile"[2]	EU-10 "Mobile"[4]	Non-EU-25 "Mobile"[5]
High-skilled non-manual	37	51	26	40	55	16	20
Low-skilled non-manual	27	26	24	26	24	28	25
Skilled manual	27	14	22	25	12	27	21
Elementary occupations	9	9	28	10	9	30	35

Table 10 – Occupational structure of the employed working age population in the EU-15 Member States (in percent of all occupations)

Source: Eurostat, LFS, spring results.

1) Total employed aged 15 to 64

2) Employed EU-15 citizens aged 15 to 64 resident less than 5 years in another EU-15 country (except Italy)

3) Employed non-EU-15 citizens (incl. EU10 countries) aged 15 to 64 resident less than 5 years in an EU-15 country (except Italy)

4) Employed EU-10 citizens aged 15 to 64 resident less than 5 years in an EU-15 country (except Italy)

5) Employed non-EU-25 citizens aged 15 to 64 resident less than 5 years in an EU-15 country (except Italy)

Note: The distributions of active persons by occupation are based on the classification ISCO 88-COM (groups 1 to 3 for high-skilled non-manual, 4 to 5 for low-skilled non-manual, 6 to 8 for skilled manual and 9 for elementary occupations.

Table 11 – Employment rates for resident working age population in EU-15 Member States 2000 to 2005 (in percent of working age persons)							
Year	Total working age population	Foreign residents (total)			Recently mobile (resident less than 5 years)		
		Nationality					
		EU-15	EU-10	non-EU-25	EU-15	EU-10	non-EU-25
2000	65	66	57	50	64	49	45
2001	66	67	59	53	67	53	48
2002	66	67	60	53	67	59	52
2003	66	67	58	53	65	55	52
2004	66	67	58	53	63	59	55
2005	66	67	63	55	67	62	54

Source: Eurostat, LFS, spring results.

Italy is excluded as a destination country in breakdowns by nationality, since it does not disaggregate by nationality.

Denmark and Portugal are excluded in breakdowns for EU-10 nationals due to data unavailability.

Estimates of data for Germany and Ireland in 2000-2004, France in 2000-2002 and Spain in 2000-2001.

Table 12 – Employment rates for foreign resident working age population in EU-15 Member States in 2005							
Destination country	Total working age population	Foreign residents (total)			Mobile foreign (resident less than 5 years)		
		Nationality					
		EU-15	EU-10	non-EU-25	EU-15	EU-10	non-EU-25
BE	61	60	55	35	67	52	35
DK	75	71	:	51	67	:	48
DE	65	68	51	48	67	42	35
EL	60	53	47	71	(49)	(23)	64
ES	63	64	78	71	67	68	70
FR	63	67	57	44	56	:	35
IE	67	69	85	57	70	86	58
LU	64	68	(68)	56	78	:	(39)
NL	73	76	(64)	41	74	:	37
AT	68	70	72	57	71	(66)	45
PT	68	65	:	73	:	:	78
FI	69	67	55	45	(78)	:	(31)
SE	73	73	62	45	74	(63)	31
UK	71	69	75	58	68	76	55

Source: Eurostat, LFS, spring results.

Italy is excluded as a destination country in breakdowns by nationality, since it does not disaggregate by nationality.

Denmark and Portugal are excluded in breakdowns for EU-10 nationals due to data unavailability.

Estimates of data for Germany and Ireland in 2000-2004, France in 2000-2002 and Spain in 2000-2001.

have employment rates well above the employment rate of the overall population and other EU-15 nationals (see Table 12). On the other hand, employment rates of EU-10 citizens in Belgium, France, Germany, Greece, the Netherlands, Finland and Sweden are substantially below the national average. And with the exception of Greece,

Year and demographic breakdown		Total working age population	Foreign residents (total)			Mobile foreign (resident less than 5 years)		
			Nationality					
			EU-15	EU-10	non-EU-25	EU-15	EU-10	non-EU-25
2000								
Gender	male	73	75	63		77	58	
	female	57	57	39		52	35	
Age	15-24	42	46	36		49	34	
	25-34	78	78	56		74	51	
	35-54	78	76	58		71	51	
	55-64	39	39	32		:	:	
Education level	low	52	60	45		56	39	
	medium	71	71	61		64	52	
	high	83	78	64		74	53	
2005								
Gender	male	73	75	72	66	75	76	66
	female	60	59	56	45	58	53	44
Age	15-24	41	40	51	36	45	53	37
	25-34	77	77	67	61	79	67	60
	35-54	79	77	67	63	71	66	62
	55-64	46	47	48	38	32	:	39
Education level	low	50	58	48	46	57	53	47
	medium	71	70	64	63	63	64	59
	high	83	79	69	66	77	61	62

Table 13 – Employment rate for foreign resident working age population in EU-15 Member States by demographic breakdown in 2000 and 2005

Source: Eurostat, LFS, spring results.

Notes: ':' data not available.

For 2000, data source does not allow to distinguish between EU10 citizens and non-EU-25 citizens.Italy is excluded as a destination country in breakdowns by nationality, since it does not disaggregate by nationality. Denmark and Portugal are excluded in breakdowns for EU-10 nationals due to data unavailability. Belgium is excluded in breakdown by age for mobile EU-10 due to data unavailability.

Table 14 – Links between cross-country mobility and year-to-year job mobility, EU-15 Member States (in percent of the working status a year before)				
Country of residence a year before	Working status a year before	Current working status		
		Employed	Unemployed	Inactive
Same	Employed	94	3	3
	Unemployed	29	64	6
	Inactive	6	3	91
EU-15	Employed	76	12	11
	Unemployed	(55)	(42)	(3)
	Inactive	27	(7)	66

Source: Eurostat, LFS, spring data; own calculations based on pool of data over 2000 to 2005.

Note: Data in brackets lack reliability due to small sample size. Does not include data for DE, ES, IE, NL, UK.

For 2000, the data source does not distinguish between EU-10 citizens and non-EU-25 citizens. Italy is excluded as a destination country in breakdowns by nationality, since it does not disaggregate by nationality. Denmark and Portugal are excluded in breakdowns for EU-10 nationals due to data unavailability. Belgium is excluded in breakdown by age for mobile EU-10 due to data unavailability.

Spain and Portugal, all EU-15 countries show below average employment rates for non-EU nationals. In France, Germany, the Netherlands and Sweden these rates are below 50%. The most striking case is, however, Belgium where only 35% of non-EU nationals held a job in 2005.

As for the gender dimension, there are no major differences between the employment rates of men and women from other EU Member States and those of men and women in the total resident working age population. In 2005, the employment rate of other EU-15 male nationals was 75% and that of other EU-10 male nationals 72%, compared to 73% among the total working age population (see Table 13). For women from both the EU-15 and EU-10, the employment rate was 16 percentage points lower than that for men, and for the total female working age population 13 percentage points lower. This is in contrast to non-EU-25 nationals, who not only have significantly lower employment rates than both the overall population and EU nationals, but also a higher gender gap

(21%). However, the data also indicate the gender employment gap has decreased since 2000, both in the overall population and among foreign residents and mobile people from both other EU countries and outside the EU.

There are also differences with respect to age among the employment rates of other EU nationals and non-EU nationals. Notably older EU-15 and EU-10 citizens between the age of 55 and 64 have a higher employment rate (47% and 49% respectively) than the overall resident working age population (46%) and non EU-25 nationals (38%). Among young people between the ages of 15 to 24, other EU-10 nationals show a substantially higher employment rate than their counterparts in the overall population and the other nationality groups.

The data also reconfirm that education is a key to success on the labour market. The higher the educational level of a person the higher his or her general chances of being employed. This relationship holds not only for the overall population but also for internationally mobile people. Interestingly, however, employment

rates of other low-skilled EU-15 nationals and recently mobile are higher than those of the low-skilled portion of the overall working age population. This is also the case for recently mobile EU-10 citizens, and may be largely due to the fact that a large number of other EU-25 citizens find low-skilled jobs in sectors such as the construction industry and the hotel and restaurant business.

Overall, finding a job in another country is a motivation to move for unemployed and inactive people. Looking at labour market transitions for geographically mobile workers (see Table 14), 55% of those who were unemployed in another EU country the previous year had found a job in the current year. This was in contrast to 29% that stayed in the same country.

4.2. Mobility motives and experiences

Official statistics such as the European LFS generally do not include data on what motivates people to move and whether or not mobility has been a positive experience for them. For this, ref-

erence has to be made to special sur-veys, such as the European Internal Movers Survey[22] or the Eurobarometer. A special Eurobarometer survey on geographic and labour market mobility was undertaken in September 2005 and asked people in the EU-25 Member States about their experiences with and views on geographic and job mobility. The following sections summarise some of the main results on geographic mobility from this survey[23].

General attitudes towards geographic mobility

In general, Europeans regard geograph-ic mobility as something positive. According to the Eurobarometer, 57% of respondents say that mobility across

regions or country borders is a positive thing for European integration, 46% think it is good for labour markets, 46% think it is good for the individual and 40% think it is good for the economy. Only on the question of whether or not mobility is good for families were views (perhaps not surprisingly) mixed, with only 32% saying it is a good thing and 27% feeling it is a bad thing (see Chart 5).

Interestingly there are some differences between citizens from the old and the new Member States on how they view mobility. Citizens from the old Member States hold, on average, more positive views on mobility than citizens from the new Member States in all categories except the labour market.

Reasons for moving

According to the Eurobarometer, the single most important reason for past movers deciding to move to another region or country was to take up a new job. In the EU-15 countries, 30% of all respondents who had been geographi-cally mobile, said that a new job or job transfer were their reason for moving (see Chart 6). In the EU-10 Member States the job motive was even more pronounced, with 36% of respondents citing a new job as a motive for geo-graphic mobility.

Family related reasons also rank highly in the decision to move. In particular, a change of partnership or of marital sta-tus prompts many people to move, but

Chart 5   **Attitudes towards geographic mobility for different life domains (percentages)**
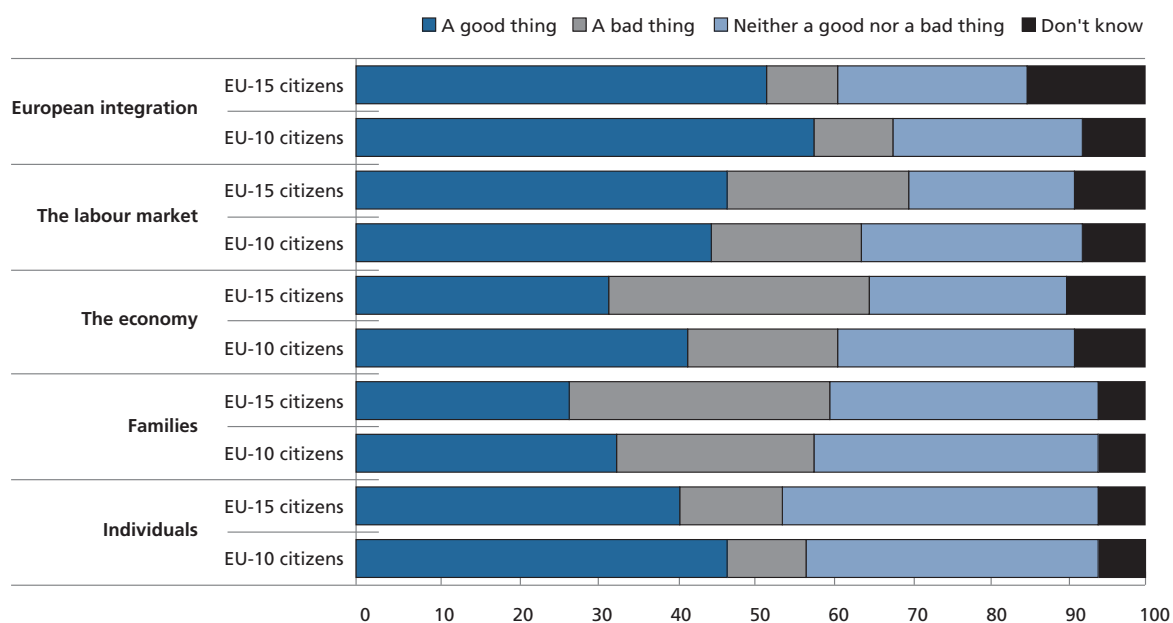
■ A good thing   ■ A bad thing   ■ Neither a good nor a bad thing   ■ Don't know

Source: Special Eurobarometer survey on geographical and labour market mobility – September 2005.

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22   The European Internal Movers Survey was undertaken and analysed within the PIONEUR research project, funded by the 5th Framework Programme of the European Commission and coordinated by the University of Florence. This survey covered a sample of European citizens resident as foreign nationals in five European Member States (France, Germany, Italy, Spain and the UK) and provides information on the socio-demograph-ic profile of intra EU movers and their motivations, life patterns and mobility experiences. For more information see www.obets.ua.es/pioneur

23   The Eurobarometer survey on geographic and labour market mobility was commissioned and financed by the European Commission and carried out between 2 September 2005 and 6 October 2005. The survey covers residents of EU Member States aged 15 years and over (a sample of 24,642 respondents in total). All interviews were conducted face-to-face in households and in the appropriate national language. A descriptive analysis of this data is provided in Coppin, L. et al. (2006). A more detailed and extensive analysis of the Eurobarometer mobility survey data is currently carried out by a research group under the auspices of the European Foundation for the Improvement of Living and Working Conditions. Their reports are due to be published in the near future.

Chart 6 — **Reasons for having moved to another region or European Union country (percentages)**
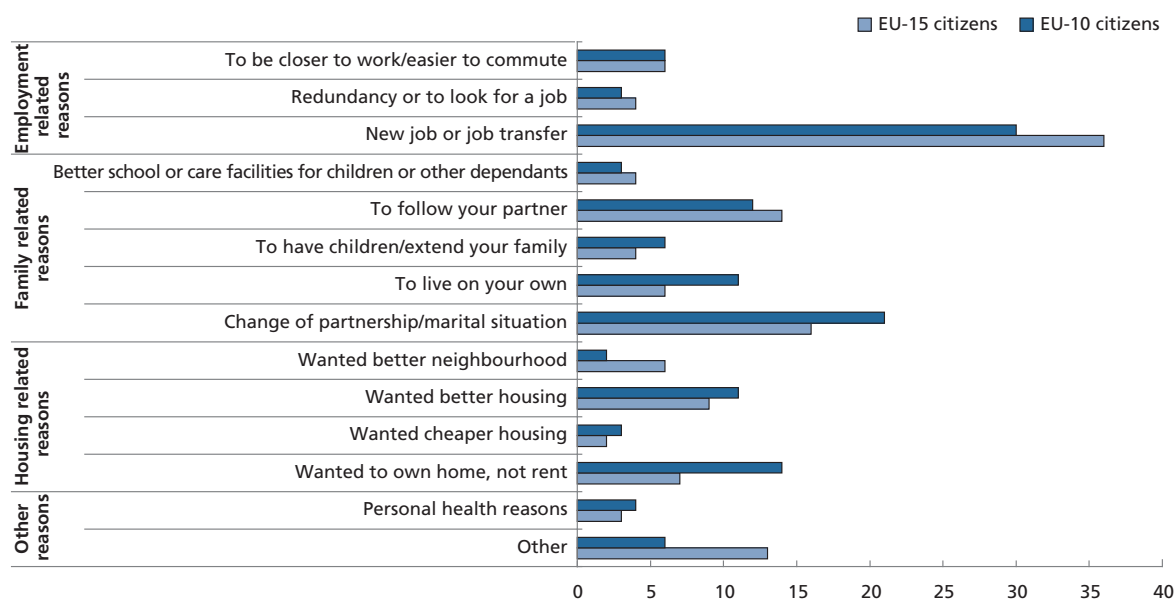
Source: Special Eurobarometer survey on geographical and labour market mobility – September 2005.

so does following a partner to the new location. Another important factor for moving (presumably to another region and less so internationally) relates to the aim of improving their housing situation by either finding better housing or by becoming a home owner.

Views of people with long distance mobility experiences

On balance, Europeans who have already moved to another region or country seem to regard the experience as something positive. According to the Eurobarometer survey, 45% of respondents report no deterioration in their circumstances after a move to another region or country (see Chart 7). The main positive effect reported in the survey is the improvement in housing conditions (36%).

A significant share of respondents has also seen its employment and income situation improve. Around 25% report a better job situation for themselves or their partner, 22% have seen an increase in their household income, and for 15% their working conditions have changed for the better. However, perhaps not surprisingly, social contacts and the support of family and friends are the two aspects of life that are most likely to worsen after a long distance move. However, a similar share of respondents report that social support and contacts have actually improved through mobility.

4.3. Prospects for future cross-border mobility

The analysis above has been looking mainly at past mobility patterns. The Eurobarometer survey on geographic and labour market mobility also provides some prospective information on the future mobility of European citizens. This concerns the expectations of citizens to move within the next five years, which indicates the underlying potential for mobility.

Focusing on expectations for a move to another EU Member State within the next five years (see Chart 8), only around 3% of EU citizens expressed any such expectation, although moving intentions in the EU-10 taken as a whole, are more pronounced than in the EU-15 (5.4% and 2.7% respectively).

Nevertheless, there are large variations across Member States. Especially among the EU-8 one can distinguish between a group of countries with a high mobility potential and one with a low mobility potential. In particular Estonians, Latvians, Lithuanians and Poles show a high propensity to move, with over 7% of respondents declaring that they have the intention to move to another country within the next five years. In contrast to this, mobility intentions are much lower in Slovakia (3.5%), Hungary (2.4%), Slovenia (2.2%) and the Czech Republic (1.6%). The highest mobility potentials among the EU-15 exist in Denmark, followed by Ireland, Sweden, Finland and France. The UK also has an international mobility potential which is slightly above average, but with in the

Employment in Europe 2006

Chart 7 **What has improved or deteriorated after the last time a person has moved to another region or country, EU-25 (percentages)**
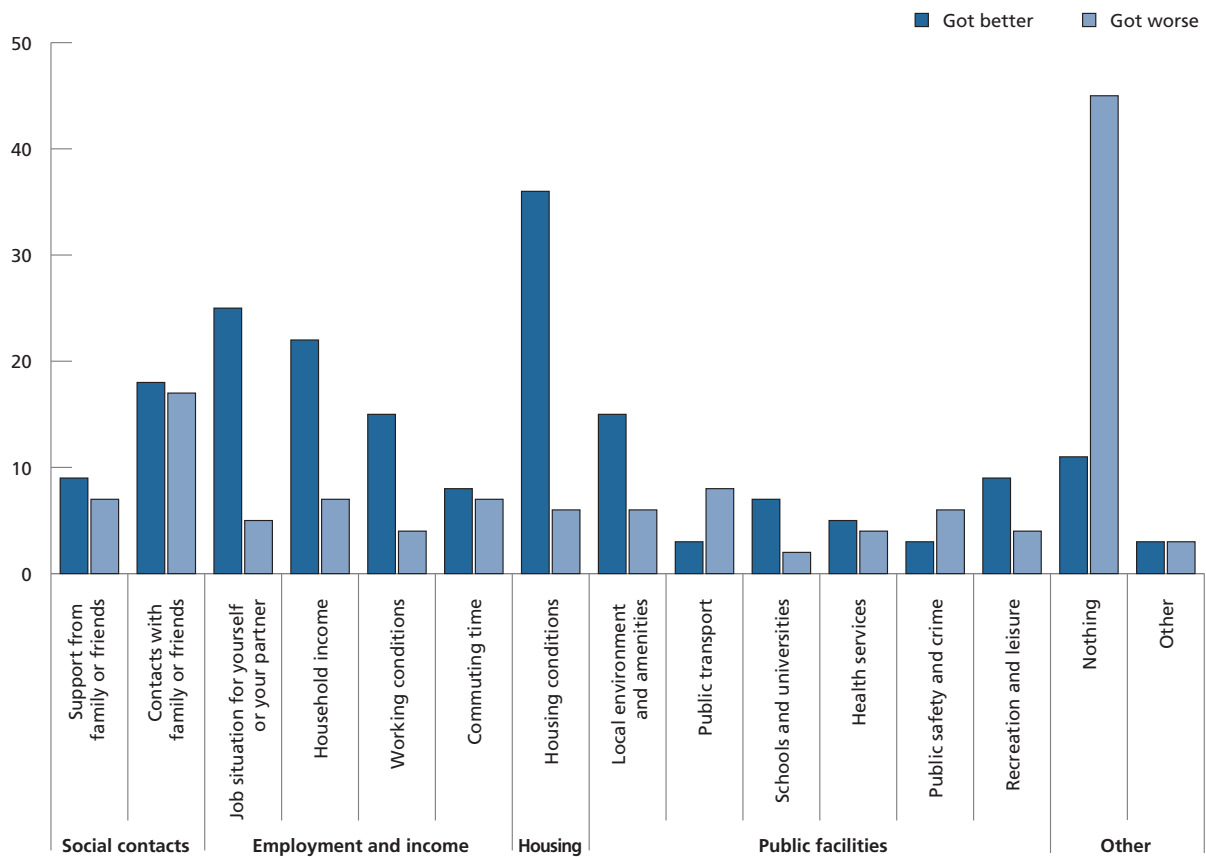
Source: Special Eurobarometer survey on geographical and labour market mobility – September 2005.

rest of the old Member States it is below average. Interestingly, all of the EU-15 high mobility countries and even many of the EU-15 low mobility countries show higher mobility intentions than the Czech Republic, Hungary, Slovakia and Slovenia.

Certainly not all mobility intentions will translate into a firm intention to migrate. It is estimated that about a third or a half of those who express a basic intention to move may actually do so in the future[24]. This would mean that roughly between 1% to 1.5% of EU-15 citizens can be expected to move to a different Member State within the next five years, compared to between 0.5% to 1.8% of the population in the low mobility EU-8 countries and between 2.5% to 4.5% in the high mobility EU-8 countries.

Compared to 2001, mobility intentions for the four low mobility EU-8 countries have only increased slightly and were similar or smaller than the increase of mobility intentions in the EU-15 countries. However, for the three Baltic countries and Poland, mobility intentions increased significantly more compared to 2001[25].

Given these findings, geographic mobility between the EU-15 Member States is likely to increase somewhat, but it remains to be seen by how much. As for the EU-8 countries, one can observe two distinct groups of countries which greatly differ in their expected mobility rates. The Czech Republic, Hungary, Slovakia and Slovenia, have expected mobility rates that are below that of most old Member States. It is therefore unlikely that future labour flows from these countries will cause significant pressures on the labour markets in the EU-15 Member States. Considering that geo-

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24   See Krieger, H. and Fernandez, E. (2006), p.11.
25   See European Foundation (2006).

Chart 8   **Proportion of people who think that they are likely to move to another EU Member State in the next five years (percentages)**
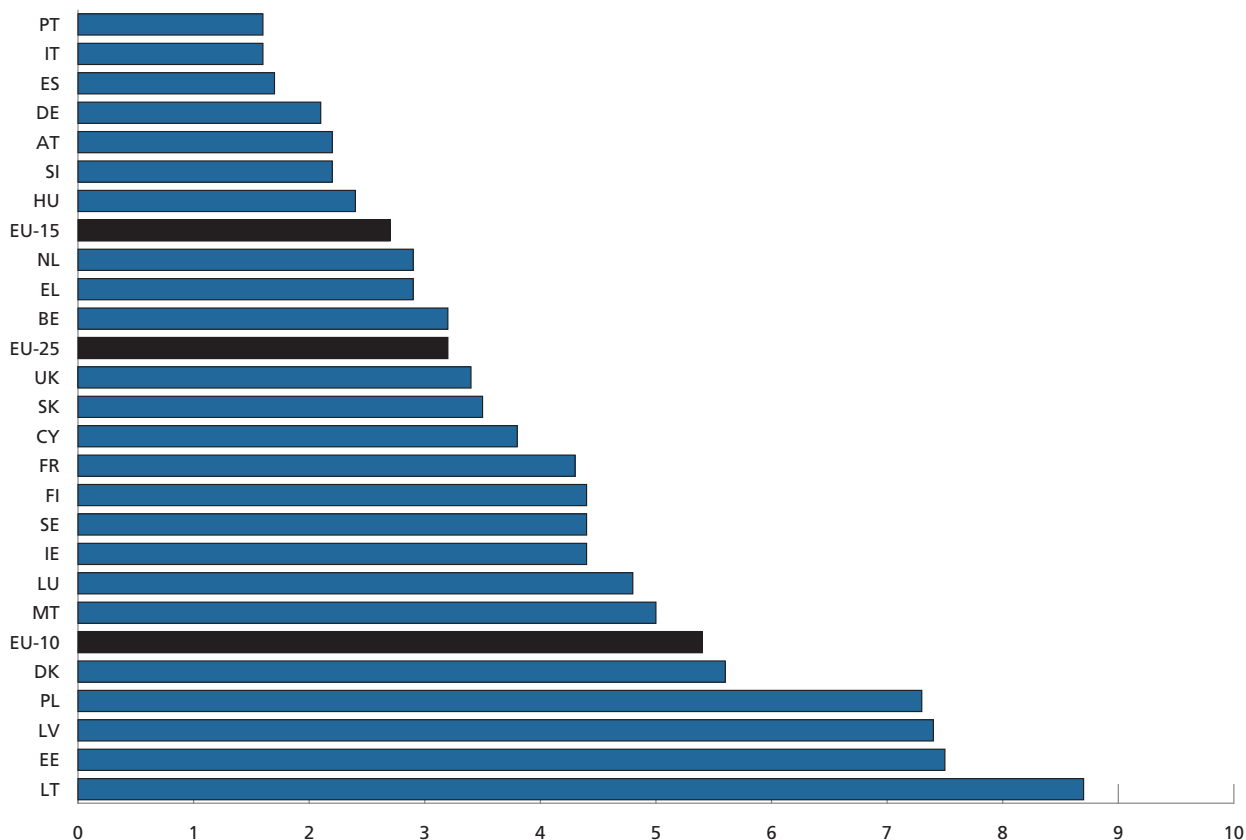
Source: Special Eurobarometer survey on geographical and labour market mobility – September 2005.

graphic mobility is an important mechanism for improving labour market efficiency, their low mobility rates may be rather a cause of concern than a justification for the continued application of transitional arrangements.

On the other hand, expected mobility from the Baltic countries and Poland is indeed significantly higher than that from the rest of the Member States. In principle, this should be welcome news, as the mobile workers from these countries and the companies employing them are showing a relatively high degree of flexibility and adaptability.

It is also unlikely that this will pose major and lasting challenges for the labour markets of the receiving countries. Although current and expected mobility rates for the three Baltic

countries may seem high in relative terms, the absolute numbers behind this are modest, given the small size of these countries. As for Poland, the largest of the new Member States, the potential future outflow of workers to the EU-15 may appear large in absolute terms. However, this needs to be put into the perspective of the total size of the European labour market. And even if mobile workers from Poland (and elsewhere) tend to concentrate on a few destination countries there are few reasons to believe that those labour markets cannot absorb them. Mobility flows will be spread over time as not everybody who declares an intention to move to another country will do so tomorrow. Furthermore, old Member States which have been welcoming EU-8 workers from the beginning and which

are already experiencing considerable inflows, namely Ireland and the UK, have been able to integrate them into their workforce and to the general advantage of their economies. If at all, the relatively high expected mobility from the Baltic countries and Poland may raise questions in relation to youth and brain drain. However, this also depends on who moves and how permanent emigration from these countries will be. Data from the LFS indicate that a high share of recent movers from those countries is in the youngest age groups, has medium skill levels short of tertiary education and tends to move into relatively low-skilled occupations. This could be a reason to expect that a substantial proportion of them may return to their home country after having earned enough money and improved their skills abroad.

4.4. Drivers and barriers of mobility

When discussing the reasons and experiences of movers above, it was clear that economic and personal reasons can act as strong incentives to mobility. This is also confirmed by the response to the question of what would encourage somebody to move to another country.

Here the desire for higher income and better working conditions ranks highest, most notably among citizens from the new Member States. Some 34% of EU-10 respondents say that the prospect of a higher income would be an incentive to move to another country, and 31% cite better working conditions as a factor (see Chart 9). In comparison, only 18% of EU-15 citizens would be encouraged to move for a higher income, and 19% for better working conditions. It seems that for EU-15 citizens non-economic factors count as much as economic factors. A better climate, the adventure of discovering a new environment, learning a new language and meeting new people all seem to be of almost equal importance as earning a higher income or finding a better job.

One explanation for this distinct pattern between the old and the new Member States is probably the fact that the differentials in income and employment conditions between the EU-10 and the EU-15 are still significantly higher than among EU-15 Member States. Therefore there is more incentive for EU-10 to be more geographically mobile than EU-15 citizens. For many workers from the EU-15 Member States, international income and employment differentials alone may not be significant enough to prompt a move. For them it also takes "fun and sun" factors to become mobile.

It is also interesting to note that better access to healthcare and other public services in the receiving countries provide only little encouragement for mobility compared to the economic incentives. This is true for potential migrants from both the EU-15 and the EU-10.

However, given that a majority of EU citizens regard mobility as a good thing, and taking into account the fact that mobility seems to have been a positive experience for a majority of people who have been geographically mobile in the past, it is perplexing why mobility rates are still at comparatively low levels in most of the Member States.

Part of the answer is that mobility not only has its benefits, but also its eco-

Chart 9 **Factors that would encourage a person to move to another country (percentages)**
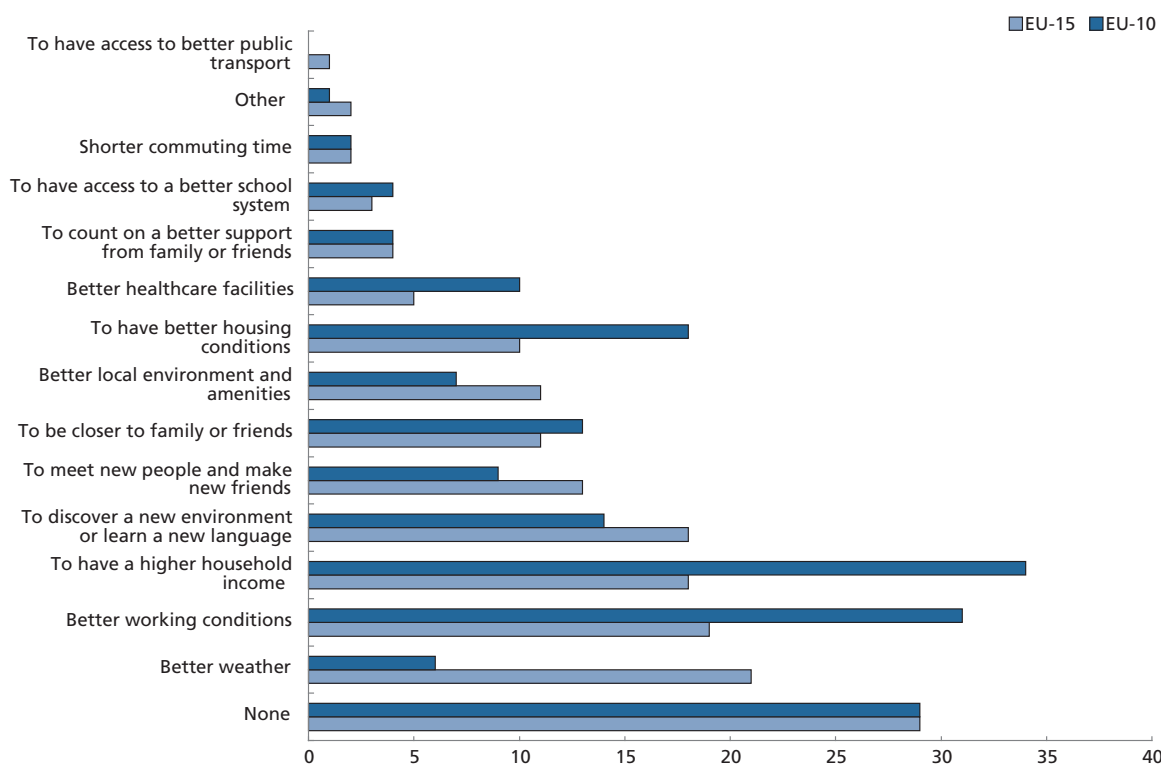
Notes: Figures are for respondents with and without moving intentions.
Source: Special Eurobarometer survey on geographical and labour market mobility – September 2005.

Chart 10 **Factors that would discourage a person to move to another country (percentages)**
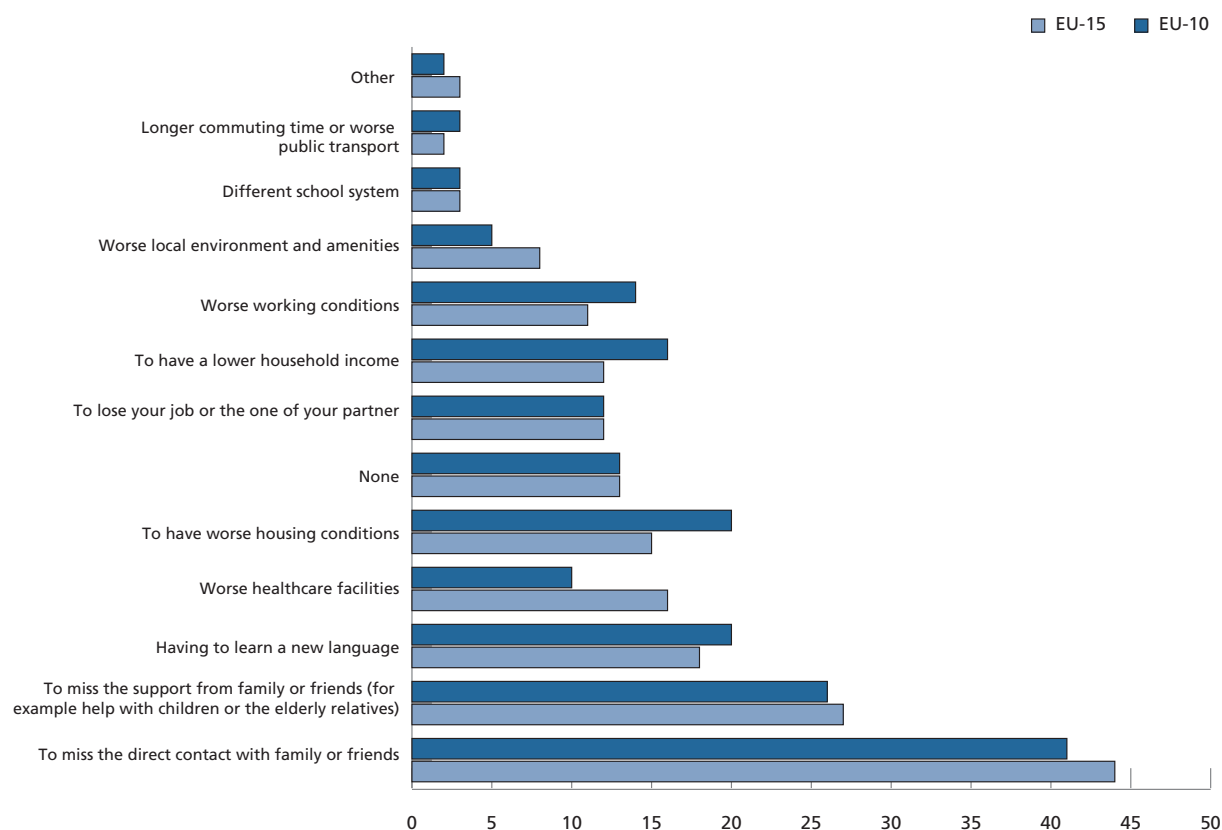
EU-15   EU-10

Categories (top to bottom):
- Other
- Longer commuting time or worse public transport
- Different school system
- Worse local environment and amenities
- Worse working conditions
- To have a lower household income
- To lose your job or the one of your partner
- None
- To have worse housing conditions
- Worse healthcare facilities
- Having to learn a new language
- To miss the support from family or friends (for example help with children or the elderly relatives)
- To miss the direct contact with family or friends

X-axis: 0 5 10 15 20 25 30 35 40 45 50

Notes: Figures are for respondents with and without moving intentions.
Source: Special Eurobarometer survey on geographical and labour market mobility – September 2005.

nomic and social costs. Despite the existence of a whole range of different factors which would entice someone to move to the another country, Chart 10 also shows that almost 30% of people do not see any factor at all which would encourage them to be internationally mobile. Furthermore, there is a whole range of reasons that would discourage people from moving. By far the biggest obstacle to mobility is the social cost of moving. More than 40% of respondents say that the loss of direct contact with family and friends would discourage them from moving. Over a quarter say that they would also miss the support from family and friends, for example with respect to caring for children or the elderly. Concerns about having to learn a new language only rank in third place followed by inferior housing con-

ditions and worse income and working conditions (see Chart 12).

Some of these concerns are also found in the response to the question of what difficulties someone expects to encounter when moving to another EU Member State. The greatest expected difficulty is lack of language skills (around 60% of respondents – see Chart 11; however, as seen above, only 20% say that the lack of language skills would actually discourage them to move). Relatively few respondents quote access to social protection or social services and the recognition of pension rights as a potential barrier, and less than 10% believe that they would have difficulties in having their skills and diplomas recognised. Obtaining a work permit also does not

seem to be a major concern to EU citizens. Given the current restrictions to the free movement of workers that apply to the new Member States, it is, however, not surprising that the highest proportions of people quoting "obtaining work permit" as one of the main potential mobility barriers are in the Czech Republic, Estonia, Poland, Slovakia and Slovenia though the response was consistently below 20%. At the same time, 30% of EU citizens expect to encounter difficulties in finding a job in another country, either for themselves or for their partner.

Overall, these data show that there are important trade-offs between economic and social aspects of mobility. On the one hand, people are attracted both by the job and income opportunities of

Chart 11   Difficulties people expect to face should they wish to move to another EU Member State (percentages)
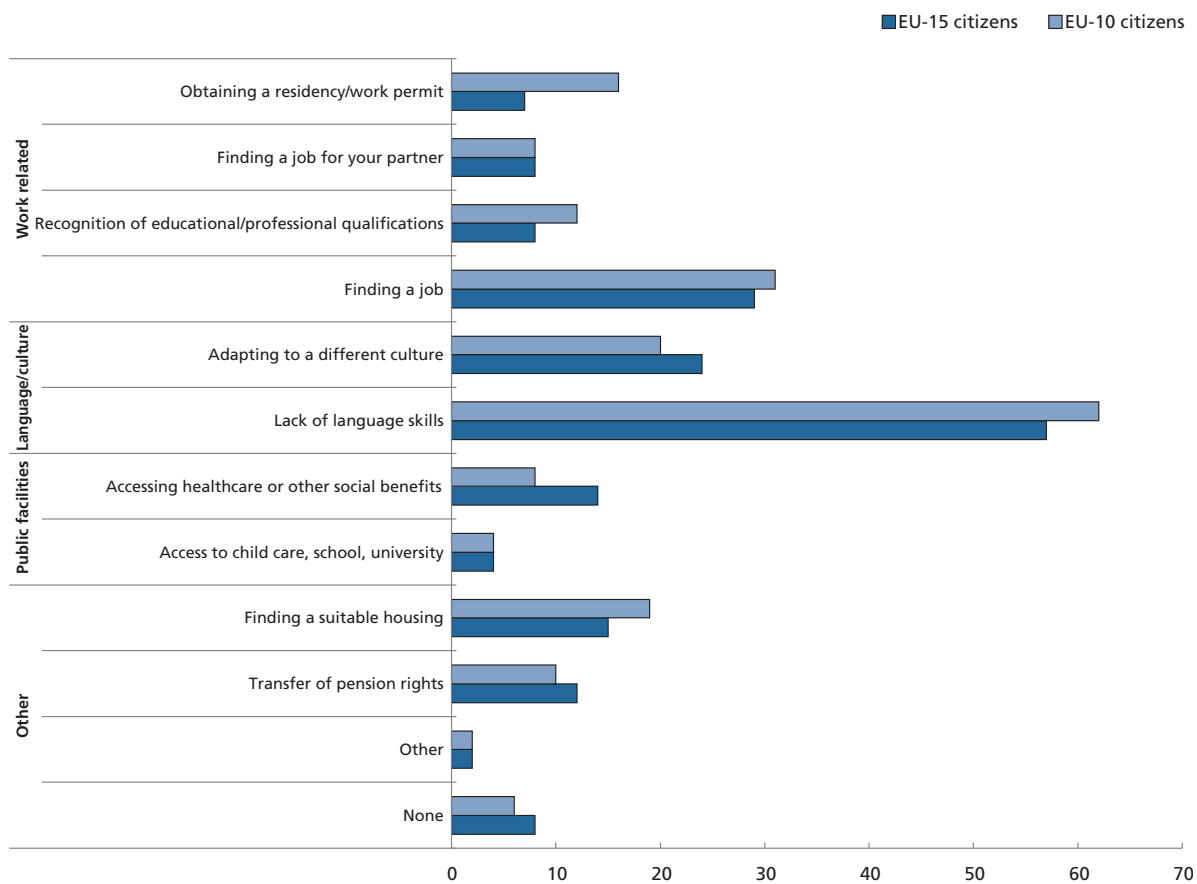
Source: Special Eurobarometer survey on geographical and labour market mobility – September 2005.

geographic mobility and its potential to improve ones quality of life through discovering new things and a better living environment. On the other hand, concerns about losing one's social network, not being able to cope with a new language or culture and the perceived difficulty of finding a job or proper housing abroad are the main mobility barriers for European citizens. Compared to this, administrative and legal barriers are perceived as less of an obstacle although they still play a role, especially for citizens from the new Member States affected by transitional arrangements.

These findings have several implications. Most policies for improving

geographic mobility in the EU are focusing on removing still existing administrative and legal barriers. Major achievements have already been made in recent years to lower these barriers, for example through improved transparency, transferability and recognition of qualifications, the introduction of a European health insurance card and a better coordination of Social Security Schemes (see Box 4). These efforts should continue, for instance through the Commission's proposals for improving the portability of supplementary pension rights or by further improving the information and transparency of job opportunities in Europe through the EURES network (see Box 5).

However, even if all administrative barriers and information hurdles to mobility were removed, the social, cultural, educational and infrastructure barriers to mobility would still remain as the main obstacles. This is an area where policy-makers from the EU level all the way down to the local level could contribute to improve matters, for example by fostering the integration and acceptance of newcomers, by providing for more attractive urban environments and housing markets, by improving language skills, by helping young people to gain first mobility experiences through studies or internships abroad or by raising educational levels, especially of the low and medium skilled.

Box 4 – Recent actions at EU level for improving geographic mobility

Until recently there was a piecemeal approach to the right of free movement and residence in the EU. The fact that the citizenship of the Union confers the right to free movement on every citizen of the Union is reflected by the fact that there is now one single Community instrument dealing with the right to move and reside within the Union (Directive 2004/38/EC). Member States had to comply with this directive by 30 April 2006.

Action has also been taken in the area of **recognition of non-formal and formal learning**. In May 2004, the Council (Education) adopted a set of common European principles on the validation of non-formal and informal learning and finalised a European Inventory on validation, providing a basis for mutual learning and the exchange of experiences between Member States.

As regards the **transparency and transferability of qualifications**, an issue that concerns both geographic and occupational mobility, the single framework for transparency of qualifications and competences — Europass — was adopted in December 2004 and launched in February 2005. Through a European Internet portal and a network of National Europass Centres, Europass makes available to citizens a coordinated portfolio of transparent documents. Offering tools that are mostly used by job-seekers, it is closely related to the EURES Job Mobility Portal and synergy is being developed between both instruments.

One of the most visible recent achievements has been the introduction of the **European Health Insurance Card**. Regulation 631/2004 aims at facilitating the introduction of the European Health Insurance Card by aligning the rights on benefits in kind of all categories of insured persons and by simplifying the procedures, and was adopted in March 2004. The European Health Insurance Card, which is currently used by over 30 million citizens, has been in place in all countries of the European Economic Area since the end of 2005.

The **coordination of Social Security Schemes** has been improved through the simplification and modernisation of Regulation 1408/71 by means of the new Regulation 883/2004. The new Regulation contains a number of key provisions for the promotion of mobility and the improvement of protection levels for migrant workers and their families, such as the possibility of extending the period during which a job-seeker can look for work in another Member State from three to six months; the possibility of exporting pre-retirement benefits, which may result in healthcare coverage and entitlement to family benefits; the supplementary possibility for unemployed frontier workers to seek a job in the Member State of former employment by keeping their entitlement to unemployment benefits in the Member State of residence; as well as the improvement of healthcare protection for family members of a frontier worker by granting them not only entitlement to healthcare in the Member State of residence, but also in the Member State where they work.

The process of improving the **recognition of professional qualifications for regulated professions** produced likewise significant results with the adoption of the related Directive 2005/36/EC in September 2005. The new Directive integrates fifteen Directives into one single framework, while respecting existing guarantees for migrants. It introduces a number of changes including greater facilitation of cross-border provision of services for regulated professions, which is an essential element of the Commission's Services Strategy. It also offers the opportunity to obtain more automatic recognition of qualifications on the basis of common platforms, increased flexibility in procedures and better guidance of citizens concerning the recognition of their professional qualifications.

The Spring European Council of March 2005 requested that measures be taken as regards the **recognition of educational qualifications and competences in non-regulated professions** through the creation of a European Qualifications Framework (EQF) for higher education and vocational education and training in this area. The instrument is designed as a shared reference document, which will make it possible to position and compare different learning outcomes and thus facilitate the transfer and recognition of qualifications held by individual citizens.

Concerning the **portability of supplementary pensions**, the Commission proposed on 20 October 2005 a new Directive[26] aimed at reducing the obstacles to mobility within and between Member States caused by the existing supplementary pension schemes provisions. The obstacles referred in particular to the conditions of acquisition of pension rights, the conditions of preservation of dormant pension rights, as well as the transferability of acquired rights. The proposal complements the community *acquis* in the area of supplementary pensions such as Directive 98/49/EC on the safeguarding supplementary pension rights of employed and self-employed persons moving within the EU.

26   Proposal for a Directive of the European Parliament and of the Council on improving the portability of supplementary pension rights, COM(2005) 507 final.

Box 5 – Improving information and transparency of job opportunities

In order to ensure improved information and more transparency of job opportunities in Europe, the Commission launched in September 2003 the **EURES Job Mobility Information Portal** with the objective to provide Europe-wide access to available jobs and skilled workers. EURES links together the Public Employment Services of the Member States and partners such as employers and trade union organisations. The launch of the Portal has substantially improved and simplified the access of workers and employers to practical information on questions related to job mobility. With around 1 million unique visitors per month, EURES has become one of the most visited Commission websites. By the end of 2005, further extensions of the Portal enabled all EU citizens to have direct access, through a common IT platform, to all job vacancies published by the Public Employment Services, namely in the order of 1 million job vacancies at any given time.

EURES has also developed links with other relevant information providers, in particular **PLOTEUS**, the Portal on Learning Opportunities throughout the European Space[27], and the **European Researcher's Mobility portal**, also known as **ERACAREERS**[28], which aims at creating a more favourable environment for career development opportunities for researchers within the European Research Area. The Portal offers free direct advertisements of job vacancies in the research area and posting of CVs. In addition to the services provided through the Researchers'
Mobility Portal, researchers and their families have, since 2004, access to a tailored and personalised assistance service operated through **ERAMORE**, a network of 200 mobility centres located in 32 countries.

Another significant development on the information side is the launch, in February 2005, of the **Your Europe Portal**[29]. The portal offers practical information and opportunities to European citizens wishing to work or study in another EU Member State, or to European businesses wanting to move to or open a new branch in another EU Member State. Over 3,000 different documents are currently stored in the Portal, covering both general European-level and country-related information.

5. Commuting

Geographic labour mobility is not confined to people moving residence from one region or country to another. Across the EU, significant numbers of people travel quite long distances, sometimes across country borders, from their homes to their places of work, mostly every day, though occasionally every week or at less frequent intervals. In practice, this is a far more common occurrence than people moving house to take up employment and is an equally important aspect of mobility. Commuting may have environmental and other disadvantages, but also has its benefits, both for the individual worker as well as the labour market. For the individual worker, commuting may mean lower mobility costs compared to moving house, as the cost of transportation and time spent on the commute may well be below the material and social cost of a complete relocation, especially in the presence of modern transport systems. For employers, commuting has the advantage of being able to tap into the labour supply beyond local labour markets and attract workers who otherwise would not be willing or able to move house.

5.1. Commuting between regions

One question is how to distinguish a commute from the normal way to work which most workers face every day. Usually, a commuter is defined as somebody who has to cross a regional boundary to get from home to work. Ideally, this would involve trying to capture commutes between labour market regions. For practical reasons, however, the regional boundary is normally determined through administrative borders, although in reality there will be cases in which a commute between two neighbouring regions may actually be a trip to work within the same regional labour market and may also be shorter in time or distance than a trip to work within a region.

With this caveat in mind, examined first are the LFS data on commuting within Member States between NUTS 2 regions. According to this, there is significantly more commuting going on within the old Member States compared to the new Member States. In 2005, 8% of the employed working age population of the old Member States (for which data are available – see Chart 14) commuted between NUTS 2 regions. For the four new Member States for which data are available (namely CZ, HU, PL, SK), the regional commuting rate was 2.6% in 2005 (see Chart 12).

27   http://europa.eu.int/ploteus/portal/home.jsp

28   http://europa.eu.int/eracareers/index_en.cfm

29   http://ec.europa.eu/youreurope/index_en.html

There are significant differences in the commuting rates among the Member States. Belgium, for example, has by far the highest commuting rate, with one in every five employees crossing a regional border on their way to and from work, followed by the UK, where every sixth employee is a commuter. Other countries with high internal commuting rates are the Netherlands (12%), Austria (11%) and Germany (10%). The lowest commuting rates are found in Spain (1.8%) and Greece (0.2%). Among the new Member States, the Czech Republic and Slovakia each have internal commuting rates of 4.5%, and Hungary of 3.8%. Poland, on the other hand, has the second lowest commuting rate of all EU-25 countries of just 1.4%.

Comparing 2005 with the situation at the beginning of the current decade, it seems that commuting has increased slightly in the three new Member States for which such a comparison is possible (CZ, HU, SK). For the old Member States, the data vary from country to country. In Belgium, the UK, Germany, Portugal, Finland and Spain, commuting rates have increased slightly, whereas the Netherlands, Austria, France and Italy have seen pronounced decreases.

Additional recent data on commuting is available from the EU ad-hoc labour market survey 2004[30]. This survey includes data on commuting by gender, age group and duration, as well as distance of commute by Member State. In particular, the data on commuting distance allows long-distance commuters to be distinguished from short-distance commuters, compared to the regular LFS data. According to this survey, 9% of the employed population in the EU-15 Member States travel more than 30 kilometres to work, compared to 6% in the EU-10 (see Table 15). For shorter distances the situation is the other way around and more pronounced. About 60% of the new Member States employed population have a commute of up to 30km compared to 39% in the old Member States.

The data also show that commuting is much more prevalent among employed men than among employed women. Around 44% of all employed men are commuters (including both short and long-distance commuters), compared to 34% of employed women. Age also plays a role with younger people below 30 more likely to commute than older workers.

Chart 12 **Regional commuting rates (NUTS 2 regions), 2005** (in percent of employed working age population)

	CZ	SK	HU	PL		BE	UK	NL	AT	DE	FR	SE	PT	FI	IT	IE	ES	EL
2000	4	4	4	:		20	16	15	13	10	9	:	3	2	8	3	1	0
2005	5	4	4	1		20	16	12	11	10	5	5	4	3	2	2	2	0
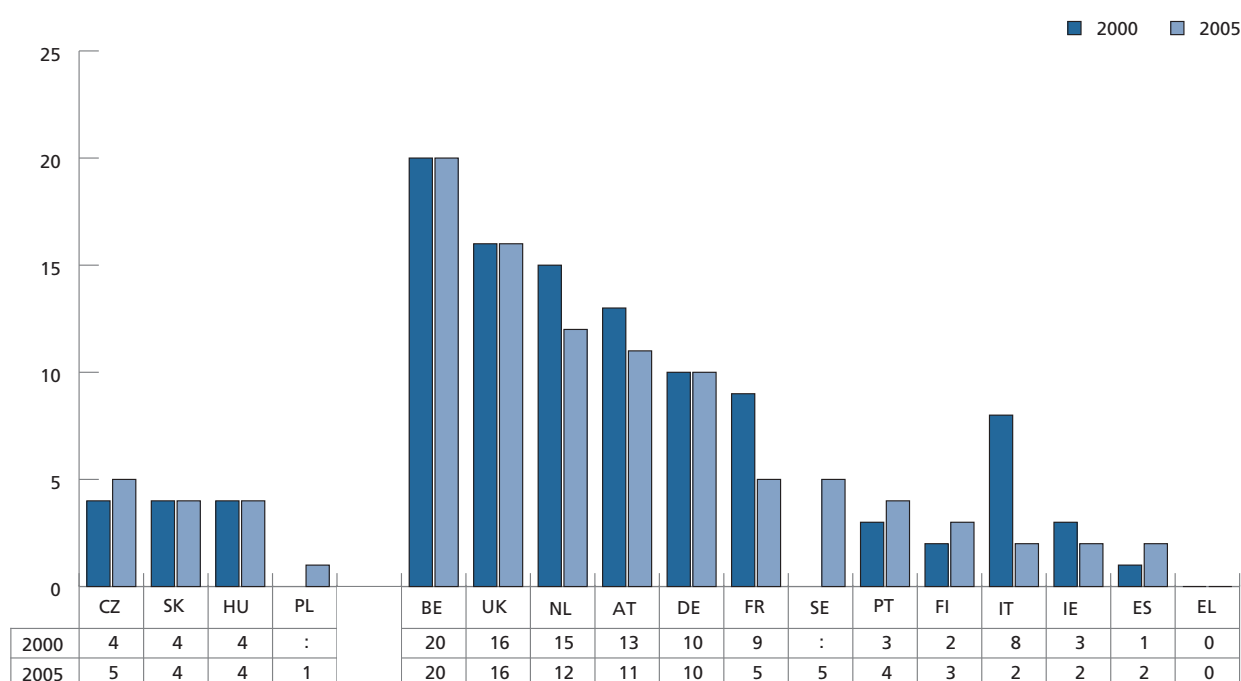
Source: Eurostat, LFS, spring results.
Note: not applicable for DK, LU, CY, EE, LT, LV, MT and SI which do not have NUTS 2 regions.
HU, NL, DE: 2001 instead of 2000. IE: 2002 instead of 2000. PL, SE: no data for 2000.

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30   See http://ec.europa.eu/economy_finance/indicators/business_consumer_surveys/studies_en.htm

Country	Total share of commuters	Gender		Age group			Duration of commute			Distance of commute					
		Men	Women	14-29 years	30-49 years	50 and more years	Less than 1 hour	1 to 2 hours	More than 2 hours	Less than 1 km	1 to 5 km	6 to 10 km	11 to 30 km	31 to 60 km	More than 60 km
EU-25	39	44	34	44	40	35	31	6	1	1	5	7	16	6	3
EU-15	38	42	33	43	39	34	29	6	1	1	4	7	16	6	3
EU-10	64	69	59	70	63	63	56	7	1	3	18	20	19	4	2
AT	36	41	29	40	35	32	29	6	1	0	1	5	16	9	5
BE	59	60	58	48	60	58	49	9	1	1	7	12	20	12	7
CY	52	59	46	56	50	53	49	3	0	0	14	13	19	5	2
CZ	68	75	59	68	69	64	59	8	1	15	22	14	14	2	1
DE	31	38	22	43	30	23	24	6	1	0	2	4	17	6	3
DK	56	59	53	56	57	53	50	5	1	1	9	9	21	10	5
EE	21	22	21	23	22	18	18	3	1	0	2	4	12	3	1
EL	38	35	40	41	35	45	28	10	0	0	12	12	13	1	0
ES	52	55	47	53	51	51	44	7	1	5	11	12	17	4	3
FI	22	22	23	18	23	24	15	7	0	1	1	1	10	6	3
FR	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HU	30	32	26	38	28	22	28	2	0	0	2	8	13	4	2
UI	76	78	74	76	77	74	70	4	2	7	19	20	24	5	2
IT	16	15	19	24	18	11	12	4	0	0	1	3	8	4	1
LT	24	25	23	31	21	22	22	1	1	0	2	11	8	2	1
LU	27	28	26	32	29	16	25	2	0	2	9	4	10	2	0
LV	67	74	61	77	70	51	60	7	0	3	24	18	14	7	1
MT	4	4	6	7	3	3	3	0	1	0	1	1	2	0	0
NL	60	66	52	60	60	58	51	9	0	0	3	12	30	11	4
PL	80	84	74	85	77	83	70	8	2	2	23	28	21	4	3
PT	58	58	58	67	62	61	49	8	1	5	14	16	18	5	1
SE	43	44	43	35	47	45	38	4	1	1	5	6	19	8	4
SI	83	86	79	87	84	76	63	17	2	3	24	18	29	7	2
SK	49	56	43	62	46	46	39	8	3	0	5	14	22	4	4
UK	45	52	39	45	47	41	:	:	:	:	:	:	:	:	:

Table 15 – Share of commuters by Member State, differentiated by gender, age, duration and distance of commute, 2004 (in percent of employed persons)

Source: Ad-hoc labour market survey EU 2004.

Note: Commuters defined as persons who cross a local boundary to reach their workplace.

Chart 13 — **Commuting rates between EU-25 Member States, 2005** (percentage of employed working age population whose place of work is located in another country)

■ Commuting between Member States   ■ Commuting outside the EU

	EU-25		(SK)	(LT)	(SI)	(LV)	HU	CZ	PL		(BE)	AT	FR	LU	SE	NL	IE	DE	ES	IT	UK
Commuting outside the EU	0.2		0.2	0.5	:	:	:	:	:		0.1	0.5	0.3	:	0.4	:	:	0.2	0.1	0.3	0.1
Commuting between Member States	0.4		5.3	1.2	0.8	0.7	0.5	0.4	0.3		2.5	0.8	0.6	0.6	0.4	0.4	0.4	0.2	0.2	0.1	0.1
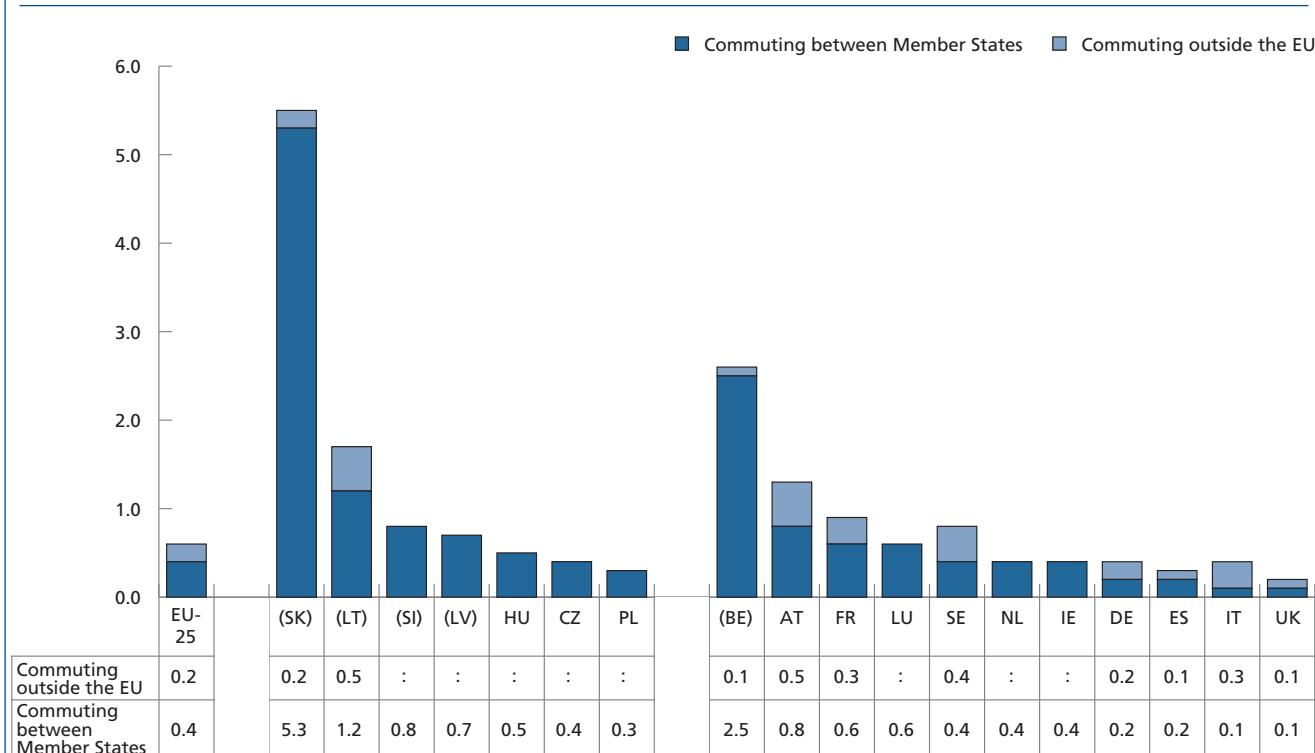
Source: Eurostat, LFS, spring results.
Note: Data for SK, LT and BE on commuting outside the EU as well as data for LT, SI and LV on commuting beween Member States are of limited reliability.
Figures for missing EU-25 countries either not available or too small to be published.

5.2. Commuting between countries

Given the close geographic proximity between many EU Member States, commuting is not only a phenomenon within but also between many Member States, albeit on a much smaller scale than internal commuting. On average, 0.4% of the EU-25 working age population lives in one Member State and works in another.

The scale of cross-border commuting varies markedly between Member States, as might be expected given the different geographic positions of the countries concerned. By far the highest external commuting rate is found in Slovakia, where many workers commute to work in the neighbouring Czech Republic and Austria. Among the EU-15, Belgium has the highest relative share of EU commuters (2.5%). By comparison, countries such as Italy and the UK have very low EU external commuting rates of 0.1% (see Chart 15).

A number of Member States also have significant commuting flows with non-EU countries. For example, Austria, France, Germany and Italy have flows mainly with neighbouring Switzerland, Sweden mostly with Norway.

6. Summary and conclusions

This chapter highlights major empirical evidence on geographic mobility within the EU in recent years. Overall, geographic mobility is a limited phenomenon both relative to the total EU population and compared to migration from third countries to the EU. Currently, less than 2% of EU working age citizens live in another EU Member State. The big majority of them are citizens of the 15 old Member States and only a minority is from the 10 new Member States that joined the EU in May 2004. Taken together, this is clearly less than 20% of the total foreign-born working age population of the EU.

Nevertheless, there are substantial differences across Member States, both with respect to destination and sending countries. Luxembourg aside, where due to several specific reasons well over a third of the labour force is from another from another EU Member State, Ireland (5.3%), Belgium (4.6%), Austria (3.3%), Germany (2.5%), the UK (2.2%), Sweden (2.2%) and France (2%) are the countries with the highest

share of other EU nationals in its labour force. In all other Member States, the share of EU nationals among the overall active working age population is below 2%. Furthermore, in a majority of Member States, the share of workers from the EU-10 countries is well below that of workers from the other EU-15 Member States. Only Ireland and Austria host a sizable share of EU-10 workers which is similar (but still below) to that of other EU-15 workers. In Germany and the UK, which are also popular destination countries for EU-10 workers, their share comes to only 0.5% of the labour force. In all other old Member States, the proportion of EU-10 workers is below that.

As for countries of origin, Irish and Portuguese citizens have in the past been the most mobile in relative terms, with about a tenth of active working age citizens of these countries living in another EU Member State. By comparison, the share of Lithuanian workers living in another EU country is 3.4% of the Lithuanian labour force and similar to that of Austrians and Greeks. For Poland, the share is 2.1% and close to the proportion of Finnish, Belgian and Italian workers living abroad.

As for current mobility flows, available data show that about 0.1% of the EU-15 national labour force has been changing its place of residence from one Member State to another each year since 2000. Due to the problems of official statistics of recording all newcomers and short-term mobility lasting less than one year, this figure is likely to be an underestimation of true mobility levels. However, it is an indication that international cross-border mobility rates between the EU-15 countries are low. The preferred destination countries of the EU-15 mobile in recent years have been, by order of preference, the UK, Germany, Spain and France, and the majority of movers from the old Member States have been coming from France, Germany, the UK and Italy.

Mobility rates with respect to flows of workers from the EU-10 to the EU-15 after enlargement have been relatively limited according to the evidence so far and the flow from EU-15 to EU-10 Member States has been largely negligible.

Regional mobility within Member States is significantly higher than cross-border mobility, although regional mobility rates between countries vary greatly. Internal mobility is substantially lower in the new Member States compared to the old Member States. Due to data limitations, it is difficult to identify a clear trend over time, but it seems that overall regional mobility rates have remained largely the same between 2000 and 2005, with perhaps a slight increase in the new Member States and stable trends in the old Member States. Overall, internal mobility rates in the EU are lower than in the US, although not as wide as sometimes claimed. Nevertheless, both the existing mobility gap with the US as well as the relatively low cross-border mobility in the EU and the great differences between internal mobility rates suggest that there is a potential for higher mobility in the EU.

In comparison with the overall working age population, but also compared with mobile workers from non-EU countries, internationally mobile EU-15 citizens are significantly younger, higher skilled, mostly single and less likely to have children. However, their gender composition is similar to that of the overall labour force, with roughly 60% male and 40% female movers. There are indications that their skill level has increased since 2000, and there seems to be a trend towards higher mobility among older workers. EU-15 mobile tend to be overrepresented in the hotel and restaurant sector and in business services and well over half of them occupy high-skill white-collar jobs.

Internationally mobile workers from the EU-10 Member States differ from their EU-15 counterparts in a number of aspects. The share of young workers is considerably higher among the EU-10 mobile than among the EU-15 and non-EU mobile, their gender composition is more balanced and they are more likely to be married. Although the share of highly educated workers is relatively low among the EU-10 mobile, the proportion of medium-skilled movers is very high. The proportion of EU-10 mobile people working in the hotel and restaurant business is similar to that of their EU-15 counterparts. However, they are more likely to be employed in manufacturing and the construction industry, and significantly less likely to concentrate in service activities other than trade and hospitality services. They are also much less likely to be in high-skilled non-manual positions, but have a substantially higher concentration in skilled blue-collar and elementary occupations. This and their different educational structure suggest that EU-10 workers tend to contribute to national economies in a complementary way instead of generally competing for similar jobs with the national labour force.

As for labour market outcomes, the employment rates of mobile EU-15 citizens are very similar, if not higher than those of the total working age population. Employment rates of EU-10 citizens resident in the old Member States have increased considerably over recent years, are close to those of the overall population and EU-15 movers and substantially higher than for non-EU nationals.

However, there are significant differences between countries, mainly with respect to the labour market performance of their EU-10 and non-EU populations. Spain, Austria, the UK, and most of all Ireland are countries where EU-10 nationals have employment

rates well above the employment rate of the overall population and other EU-15 nationals. On the other hand, employment rates of EU-10 citizens in Belgium, Germany, Greece, France, the Netherlands, Finland and Sweden are substantially below the national average. However, they are still considerably higher than those of resident non-EU citizens whose employment rate is on average 55%, and in some countries much below that.

Overall, finding a job in another country is a motivation to move for unemployed and inactive people. Geographically mobile workers who were unemployed in another EU country the previous year are significantly more likely to have found a job than an unemployed who has not changed residence.

Europeans in general and those who already know it from their own experience, largely regard geographic mobility as something positive. While economic factors such as the prospect of better income and employment conditions are the most important mobility incentive for citizens from the new Member States, citizens from the old Member States seem to regard "lifestyle" factors such as better weather, the adventure of discovering a new environment, learning a new language or meeting new people as important as economic factors.

Nevertheless, the willingness to actually move remains limited, especially when it comes to change of residence to another Member State. Administrative barriers to mobility are still considered an obstacle, albeit on a minor scale compared to other factors and difficulties, such as language, the concern of losing social ties to friends and family, and coping with a different culture or finding a job or housing in another country or region.

Commuting between regions, but also between Member States, is a common and in many countries increasing form of geographic mobility which can be an alternative to residential mobility. Despite its potential environmental and other consequences, it can be an attractive alternative to changing residence and enhances the local supply of labour. However, the potential of commuting depends on geographic proximity and the availability and expansion of modern transport infrastructures.

In general, further research is needed on how much geographic mobility European labour markets need, or rather how mobility can be optimised, taking into account both social and economic aspects[31]. Geographic mobility can be an enriching experience for the individual worker in economic terms and with respect to quality of life and contributes to improving labour market efficiency.

In spite of this, overall geographic mobility in the EU has remained relatively low until now. Survey data on the intention of European citizens to move to another country in the next five years suggest that cross-border mobility between the EU-15 Member States may increase somewhat in the near future, but it remains to be seen by how much.

As for the EU-8 countries, one can observe two distinct groups of countries which greatly differ in their expected mobility rates. The Czech Republic, Hungary, Slovakia and Slovenia, have expected mobility rates which are below that of most old Member States. It is therefore unlikely that future labour flows from these countries will cause significant pressures on the labour markets in the EU-15 Member States. Considering that geographic mobility is an important mechanism for improving labour market efficiency, their low mobility rates

may be rather a cause of concern than a justification for the continued application of transitional arrangements.

On the other hand, expected mobility from the three Baltic countries and Poland is indeed significantly higher than that from the rest of the Member States. In principle, this should be welcome news, as the mobile workers from these countries and the companies employing them are demonstrating a high degree of flexibility and adaptability. It also seems unlikely that this will pose major and lasting challenges for the labour markets of the receiving countries, given the large size of the total European labour market and the positive experiences of the countries such as Ireland and the UK who already host a considerable number of workers from these countries.

If at all, the relatively high expected mobility from the Baltic countries and Poland may raise questions in relation to youth and brain drain. However, this depends on who moves and how permanent emigration from these countries will be. Only two and a half years after enlargement it seems too early to draw firm conclusions on this. The fact that a high share of movers from those countries is in the youngest age group, has medium skill levels short of tertiary education and tends to move into relatively low-skilled occupations could be a reason to expect that many of them may return to their home country with the money and experiences earned abroad.

Looking at the longer term, geographical mobility between the EU Member States is likely to be affected by aging populations. According to recent population projections the EU population will age substantially over the next decades and the younger age population is set to shrink considerably[32]. As the number of young entrants in the

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31   DG Employment, Social Affairs and Equal Opportunities is supporting research on this through studies launched in the framework of the European Year of Workers' Mobility 2006.

32   See Eurostat (2006, 1).

labour market is projected to fall and as young people are the most likely to be mobile, demographics will act as another brake on geographic mobility.

Given the relatively low mobility levels in Europe and demographic developments, it will require a combined set of measures to foster geographic mobility. Major achievements have already been made in recent years to lower administrative and legal barriers to mobility, for example through improved transparency, transferability and recognition of qualifications, the introduction of a European health insurance card and a better co-ordination of Social Security Schemes. These efforts should continue, for example through the Commission's proposals for improving the portability of supplementary pension rights or by further improving the information and transparency of job opportunities in Europe through the EURES network. Furthermore, the restrictions

on the free movement of workers from new Member States should be lifted as soon as possible.

However, the removal of administrative, legal and information barriers to mobility will not be enough. It will help European citizens to better exercise their right of free movement and facilitate individual moving decisions. Yet, the social, cultural, educational and infrastructure barriers to mobility would still remain as the main obstacles. This is an area where policy makers from the EU level all the way down to the local level could contribute to improve matters, for example by fostering the integration and acceptance of newcomers, by providing for more attractive urban environments and housing markets, by improving language skills, by helping young people to gain first mobility experiences through studies or internships abroad or by raising educational levels, especially for the low and medium skilled.

Geographic mobility represents an important element in the strategy to cope with the current and future labour market challenges in the enlarged EU. However, in order to provide an efficient policy response to these challenges, policies on geographic mobility need to be coupled with actions in the field of other employment policies (for example by attracting and retaining more people in employment or by combining in an adequate way labour market flexibility with employment security), education and regional and structural policy. And if it is accepted that there are positive effects of geographic mobility between and within Member States, it is hard to ignore the great potential of migration to the EU. It is not only sensible but also necessary to continue efforts to develop a uniform and responsible policy on immigration from third countries.

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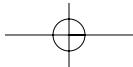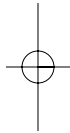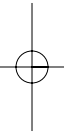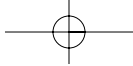
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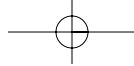
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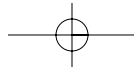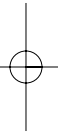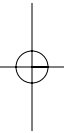
1 Macro economic indicators, annual percentage growth

Annex

European Union 25	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.8	2.6	1.8	2.7	2.9	3.0	3.9	2.0	1.2	1.2	2.4	1.6	2.3	2.2
Occupied Population	:	:	0.6	1.0	1.5	1.1	1.7	1.1	0.4	0.3	0.5	0.9	0.9	0.8
Labour productivity	:	:	1.5	2.0	1.6	2.1	2.4	1.0	0.9	1.0	2.0	0.9	1.4	1.3
Annual average hours worked	:	:	:	:	:	:	:	-0.6	-0.9	-0.5	0.1	-0.2	0.0	0.0
Productivity per hour worked	:	:	:	:	:	:	:	1.5	1.7	1.4	1.7	1.0	1.4	1.4
Harmonised CPI	2.8	3.0	3.1	2.6	2.1	1.6	2.4	2.5	2.1	1.9	2.1	2.2	2.1	2.2
Price delator GDP	3.2	3.3	2.6	2.0	2.0	1.3	1.6	2.5	2.7	2.3	2.1	2.0	1.8	2.0
Nominal compensation per employee	:	:	3.6	3.1	2.8	3.5	4.1	3.8	3.1	3.2	2.9	2.5	2.8	2.7
Real compensation per employee (GDP deflator)	:	:	1.0	1.0	0.8	2.2	2.5	1.3	0.4	0.9	0.8	0.5	1.0	0.7
Real compensation per employee (private consumption deflator)	:	:	0.9	0.8	1.2	2.3	1.6	1.4	1.3	1.2	0.9	0.3	0.7	0.6
Nominal unit labour costs	:	:	2.1	1.1	1.2	1.4	1.7	2.8	2.2	2.1	0.9	1.5	1.3	1.3
Real unit labour costs	:	:	-0.5	-0.9	-0.8	0.0	0.1	0.3	-0.5	-0.1	-1.1	-0.4	-0.5	-0.7

European Union 15	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.8	2.5	1.7	2.6	2.9	3.0	3.9	1.9	1.1	1.1	2.3	1.5	2.2	2.0
Occupied Population	-0.1	0.8	0.6	1.0	1.8	1.8	2.2	1.4	0.6	0.4	0.6	0.7	0.8	0.8
Labour productivity	3.1	2.0	1.4	1.9	1.4	1.4	1.9	0.6	0.6	0.9	1.9	1.0	1.4	1.3
Annual average hours worked	:	:	-0.1	-0.3	-0.2	-0.5	-0.9	-0.4	-1.0	-0.5	0.1	-0.3	-0.1	-0.1
Productivity per hour worked	:	:	1.2	1.9	1.3	1.6	2.6	0.9	1.5	1.2	1.6	1.1	1.5	1.3
Harmonised CPI	2.8	2.8	2.4	1.7	1.3	1.2	1.9	2.2	2.1	2.0	2.0	2.1	2.1	2.2
Price delator GDP	2.5	2.7	2.1	1.6	1.7	1.1	1.4	2.4	2.7	2.3	2.0	1.9	1.8	2.0
Nominal compensation per employee	3.2	3.5	3.0	2.6	2.5	2.7	3.5	3.3	2.9	3.2	2.9	2.6	2.8	2.7
Real compensation per employee (GDP deflator)	0.7	0.8	0.9	1.0	0.7	1.5	2.0	0.9	0.2	0.9	0.8	0.7	1.0	0.6
Real compensation per employee (private consumption deflator)	0.3	0.8	0.8	0.8	1.1	1.7	1.2	1.0	1.1	1.1	0.9	0.5	0.7	0.5
Nominal unit labour costs	0.2	1.5	1.6	0.7	1.0	1.3	1.6	2.7	2.3	2.2	1.0	1.6	1.3	1.3
Real unit labour costs	-2.3	-1.2	-0.5	-0.9	-0.6	0.1	0.1	0.3	-0.4	-0.1	-1.0	-0.3	-0.5	-0.7

United States	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	4.1	2.5	3.7	4.5	4.2	4.5	3.7	0.8	1.6	2.7	4.2	3.5	3.2	2.7
Occupied Population	2.3	1.9	1.7	2.2	2.4	2.2	2.2	0.0	-0.3	0.9	1.1	1.8	1.4	0.6
Labour productivity	1.5	0.0	1.9	2.2	1.9	2.4	1.6	0.5	2.7	2.8	3.3	1.7	1.8	2.1
Annual average hours worked	0.8	0.5	-0.4	0.7	-0.2	-0.2	-0.9	-1.2	-1.0	-1.4	0.1	-0.4	:	:
Productivity per hour worked	1.0	0.1	2.4	1.6	2.0	2.5	2.4	2.0	3.0	3.2	3.1	2.1	:	:
National CPI	2.6	2.8	2.9	2.3	1.6	2.2	3.4	2.8	1.6	2.3	2.7	3.4	2.9	1.6
Price delator GDP	2.1	2.0	1.9	1.7	1.1	1.4	2.2	2.4	1.8	2.0	2.6	2.8	2.5	1.7
Nominal compensation per employee	2.4	2.1	2.7	3.6	4.9	4.2	5.7	2.4	3.6	4.2	4.8	4.6	3.8	4.1
Real compensation per employee (GDP deflator)	0.3	0.0	0.8	1.9	3.7	2.7	3.4	0.0	1.8	2.1	2.2	1.7	1.3	2.3
Real compensation per employee (private consumption deflator)	0.3	-0.1	0.5	1.9	3.9	2.5	3.1	0.3	2.1	2.2	2.2	1.7	1.5	2.6
Nominal unit labour costs	0.9	2.0	0.8	1.4	2.9	1.8	4.0	1.9	0.8	1.3	1.5	2.8	2.0	2.0
Real unit labour costs	-1.2	0.0	-1.1	-0.3	1.8	0.3	1.8	-0.5	-0.9	-0.7	-1.1	0.0	-0.5	0.3

Japan	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	1.1	1.9	2.6	1.4	-1.8	-0.2	2.9	0.4	0.1	1.8	2.3	2.6	2.8	2.4
Occupied Population	0.1	0.1	0.4	1.0	-0.7	-0.8	-0.1	-0.6	-1.4	-0.3	0.2	0.4	0.4	0.3
Labour productivity	1.0	1.8	2.1	0.4	-1.1	0.6	3.1	1.0	1.5	2.1	2.1	2.3	2.4	2.0
Annual average hours worked	-0.4	-0.7	0.4	-1.5	-1.2	-1.7	0.6	-0.7	-0.6	0.2	-0.7	:	:	:
Productivity per hour worked	1.4	2.5	1.7	1.9	0.1	2.4	2.4	1.7	2.2	1.9	2.8	:	:	:
National CPI	0.7	-0.1	0.2	1.7	0.6	-0.3	-0.7	-0.6	-0.9	-0.3	0.0	-0.3	0.7	1.0
Price delator GDP	-0.6	-0.5	-0.7	0.5	-0.1	-1.3	-1.7	-1.2	-1.6	-1.6	-1.2	-1.3	-0.3	0.4
Nominal compensation per employee	1.4	1.6	0.4	1.1	-0.5	-1.5	0.0	-0.6	-1.6	-1.6	-1.6	0.6	0.8	1.0
Real compensation per employee (GDP deflator)	2.1	2.1	1.1	0.6	-0.5	-0.2	1.7	0.7	0.0	0.0	-0.4	1.9	1.1	0.6
Real compensation per employee (private consumption deflator)	3.0	1.8	0.4	-0.1	-0.7	-0.9	1.1	0.5	-0.1	-0.7	-0.9	1.3	0.3	0.3
Nominal unit labour costs	0.4	-0.2	-1.7	0.8	0.6	-2.1	-3.0	-1.5	-3.1	-3.6	-3.6	-1.6	-1.5	-1.0
Real unit labour costs	1.1	0.3	-1.1	0.3	0.6	-0.8	-1.3	-0.3	-1.5	-2.1	-2.5	-0.3	-1.2	-1.4

Employment in Europe 2006

Belgium	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	3.2	2.4	1.2	3.3	1.9	3.1	3.9	1.0	1.5	0.9	2.6	1.2	2.3	2.1
Occupied Population	-0.4	1.5	0.3	0.5	1.6	1.3	2.0	1.4	-0.1	-0.1	0.6	0.9	0.9	0.9
Labour productivity	3.7	0.9	0.8	2.9	0.4	1.7	1.9	-0.4	1.7	1.0	2.0	0.3	1.3	1.2
Annual average hours worked	-0.1	-0.9	-0.1	1.6	-0.4	-0.6	0.0	0.2	-0.1	-0.3	-1.2	-0.6	-0.4	-0.2
Productivity per hour worked	3.7	1.8	1.0	1.2	0.8	2.4	1.9	-0.6	1.7	1.3	3.3	0.9	1.8	1.4
Harmonised CPI	2.4	1.3	1.8	1.5	0.9	1.1	2.7	2.4	1.6	1.5	1.9	2.5	2.4	2.1
Price delator GDP	2.1	1.2	0.6	1.2	1.8	0.7	1.7	1.8	1.8	1.7	2.3	2.2	2.0	2.0
Nominal compensation per employee	4.4	1.4	1.4	3.4	1.4	3.5	2.1	3.6	3.8	1.7	2.1	2.4	2.4	2.2
Real compensation per employee (GDP deflator)	2.3	0.2	0.8	2.1	-0.5	2.8	0.3	1.8	1.9	0.0	-0.2	0.2	0.4	0.2
Real compensation per employee (private consumption deflator)	2.1	-0.1	0.4	1.9	0.1	3.2	-1.5	1.3	2.5	0.1	-0.4	-0.3	0.0	0.2
Nominal unit labour costs	0.8	0.5	0.6	0.5	1.0	1.7	0.2	4.0	2.1	0.7	0.1	2.1	1.0	1.0
Real unit labour costs	-1.3	-0.7	0.0	-0.7	-0.8	1.0	-1.5	2.2	0.3	-1.0	-2.1	-0.1	-0.9	-1.0

Czech Republic	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.2	5.9	4.2	-0.7	-1.1	1.2	3.9	2.6	1.5	3.2	4.7	6.0	5.3	4.7
Occupied Population*	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Labour productivity	:	:	4.6	-0.9	0.9	4.2	4.6	2.2	0.0	0.1	4.8	5.0	4.6	4.2
Annual average hours worked	:	:	0.1	0.0	0.4	0.6	0.2	-4.4	-1.0	-0.4	0.7	0.2	0.1	0.0
Productivity per hour worked	2.1	4.1	4.5	-1.0	0.8	4.9	4.2	7.0	0.9	5.1	3.9	4.8	4.5	4.2
Harmonised CPI	:	:	9.1	8.0	9.7	1.8	3.9	4.5	1.4	-0.1	2.6	1.6	2.5	2.7
Price delator GDP	13.4	10.2	8.7	8.3	11.2	2.8	1.4	4.9	2.8	2.6	3.4	0.0	1.3	2.1
Nominal compensation per employee	:	:	18.2	11.1	9.0	7.7	5.7	7.6	6.2	4.9	6.3	5.1	4.8	5.1
Real compensation per employee (GDP deflator)	:	:	8.7	2.6	-2.0	4.8	4.3	2.5	3.4	2.3	2.8	5.1	3.5	3.0
Real compensation per employee (private consumption deflator)	:	:	10.0	2.2	0.3	5.0	2.6	4.0	5.4	3.0	4.0	4.0	2.7	2.7
Nominal unit labour costs	:	:	13.0	12.0	8.0	3.3	1.0	5.3	6.2	4.7	1.5	0.1	0.2	0.9
Real unit labour costs	:	:	3.9	3.4	-2.9	0.5	-0.3	0.4	3.3	2.1	-1.9	0.1	-1.1	-1.2

Denmark	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	5.5	3.1	2.8	3.2	2.2	2.6	3.5	0.7	0.5	0.7	1.9	3.1	3.2	2.3
Occupied Population	1.6	1.0	1.0	1.2	1.5	1.0	0.4	0.8	-0.1	-1.2	0.0	0.7	0.4	0.1
Labour productivity	3.8	2.1	1.8	2.0	0.7	1.6	3.1	-0.1	0.5	1.9	1.8	2.4	2.7	2.2
Annual average hours worked	-2.4	0.4	-0.3	1.2	1.0	0.7	1.0	0.5	-0.4	-0.3	-0.7	0.9	0.6	-0.1
Productivity per hour worked	6.4	1.7	2.2	0.8	-0.4	0.8	2.1	-0.6	0.9	2.2	2.6	1.5	2.1	2.3
Harmonised CPI	1.8	2.0	2.1	2.0	1.3	2.1	2.7	2.3	2.4	2.0	0.9	1.7	2.1	2.0
Price delator GDP	1.5	1.3	2.0	2.0	1.2	1.7	3.0	2.5	2.3	1.9	2.2	2.6	3.2	2.4
Nominal compensation per employee	1.2	3.6	4.2	3.3	4.0	3.8	3.7	4.4	3.8	3.8	2.1	3.7	3.8	3.9
Real compensation per employee (GDP deflator)	-0.3	2.3	2.1	1.3	2.8	2.1	0.7	1.9	1.4	1.8	-0.1	1.0	0.5	1.5
Real compensation per employee (private consumption deflator)	-1.4	1.7	2.6	1.3	2.6	1.8	0.9	2.0	2.0	1.7	0.4	1.7	1.9	1.9
Nominal unit labour costs	-2.5	1.5	2.3	1.3	3.3	2.1	0.5	4.5	3.2	1.8	0.3	1.2	1.0	1.7
Real unit labour costs	-4.0	0.2	0.3	-0.7	2.1	0.5	-2.4	1.9	0.9	-0.1	-1.9	-1.4	-2.1	-0.7

Germany	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.7	1.9	1.0	1.8	2.0	2.0	3.2	1.2	0.1	-0.2	1.6	1.0	1.7	1.0
Occupied Population	-0.1	0.2	-0.3	-0.1	1.2	1.4	1.9	0.4	-0.6	-1.0	0.4	-0.2	0.3	0.3
Labour productivity	3.4	2.7	2.3	3.2	1.9	1.5	2.3	1.4	1.1	1.5	2.1	1.5	1.4	0.7
Annual average hours worked	-0.2	-0.9	-1.1	-0.6	-0.4	-0.8	-1.2	-1.0	-0.9	-0.4	0.4	-0.4	0.2	0.2
Productivity per hour worked	3.0	2.6	2.4	2.5	1.2	1.4	2.6	1.8	1.5	1.2	0.9	1.5	1.2	0.5
Harmonised CPI	:	:	1.2	1.5	0.6	0.6	1.4	1.9	1.4	1.0	1.8	1.9	1.7	2.3
Price delator GDP	2.4	1.9	0.5	0.3	0.6	0.4	-0.7	1.2	1.5	1.0	0.8	0.5	0.4	1.1
Nominal compensation per employee	3.7	4.8	2.4	2.3	2.1	2.0	3.0	2.3	2.0	2.4	1.4	0.8	0.8	-0.1
Real compensation per employee (GDP deflator)	1.3	2.8	1.9	2.0	1.6	1.6	3.7	1.1	0.5	1.4	0.6	0.3	0.4	-1.2
Real compensation per employee (private consumption deflator)	1.2	3.4	1.4	0.9	1.7	1.7	2.1	0.5	0.8	0.9	0.0	-0.5	-0.7	-2.0
Nominal unit labour costs	0.3	2.0	0.1	-0.9	0.3	0.5	0.7	0.9	0.8	0.9	-0.7	-0.8	-0.6	-0.8
Real unit labour costs	-2.1	0.1	-0.4	-1.2	-0.3	0.2	1.4	-0.3	-0.6	-0.2	-1.5	-1.3	-1.0	-1.9

Estonia	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	-1.6	4.5	4.4	11.1	4.4	0.3	7.9	6.5	7.2	6.7	7.8	9.8	8.9	7.9
Occupied Population	-3.3	-6.2	-2.3	0.0	-1.9	-4.4	-1.5	0.8	1.3	1.5	0.0	2.0	1.3	1.1
Labour productivity	1.8	11.4	6.9	11.1	6.8	5.3	11.0	5.6	5.6	5.8	7.7	7.9	8.0	7.3
Annual average hours worked	:	:	:	:	:	:	:	-0.4	0.2	0.1	0.6	0.5	0.5	0.5
Productivity per hour worked	:	:	:	:	:	:	:	6.0	5.6	5.1	7.2	7.1	6.9	6.2
Harmonised CPI	:	:	19.8	9.3	8.8	3.1	3.9	5.6	3.6	1.4	3.0	4.1	3.6	2.9
Price delator GDP	39.7	31.4	24.3	10.4	8.9	4.5	5.4	5.6	4.4	2.1	3.1	6.2	3.7	3.1
Nominal compensation per employee	56.5	42.6	24.0	20.4	15.5	14.9	9.9	7.6	10.3	10.9	10.8	12.0	11.7	11.1
Real compensation per employee (GDP deflator)	12.0	8.5	-0.2	9.0	6.0	10.0	4.3	2.0	5.7	8.6	7.5	5.5	7.7	7.8
Real compensation per employee (private consumption deflator)	14.2	14.3	-1.0	10.8	6.5	8.2	7.1	1.4	7.0	10.1	8.0	8.3	7.9	8.0
Nominal unit labour costs	53.7	28.0	16.0	8.4	8.1	9.2	-1.0	1.9	4.5	4.7	2.8	3.8	3.4	3.6
Real unit labour costs	10.1	-2.6	-6.7	-1.9	-0.7	4.5	-6.1	-3.5	0.1	2.6	-0.2	-2.2	-0.3	0.5

Statistical annex. Macro economic indicators, annual percentage growth

Greece	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.0	2.1	2.4	3.6	3.4	3.4	4.5	5.1	3.8	4.8	4.7	3.7	3.5	3.4
Occupied Population*	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Labour productivity	0.1	1.2	2.8	4.2	-0.7	3.4	4.6	5.4	3.7	3.4	1.7	2.2	2.2	2.1
Annual average hours worked	-1.5	-0.5	-1.2	-1.6	-0.1	2.2	0.6	0.3	0.1	0.0	-1.3	0.2	0.5	0.5
Productivity per hour worked	1.6	1.7	4.0	5.9	-0.6	1.2	4.0	5.2	3.7	3.4	3.0	2.0	1.7	1.5
Harmonised CPI	:	8.9	7.9	5.4	4.5	2.1	2.9	3.7	3.9	3.4	3.0	3.5	3.3	3.3
Price delator GDP	11.2	9.8	7.4	6.8	5.2	3.0	5.7	1.8	3.8	3.5	3.4	3.7	3.0	3.0
Nominal compensation per employee	10.9	13.0	8.8	13.7	5.3	6.5	6.0	5.7	10.0	4.6	5.8	6.1	5.9	5.0
Real compensation per employee (GDP deflator)	-0.2	2.9	1.4	6.5	0.1	3.4	0.3	3.8	6.0	1.1	2.3	2.3	2.8	1.9
Real compensation per employee (private consumption deflator)	0.0	3.7	0.6	7.7	0.8	4.1	-1.5	3.5	7.3	1.7	3.2	2.3	2.6	1.7
Nominal unit labour costs	10.8	11.7	5.9	9.1	6.1	3.0	1.3	0.2	6.0	1.2	4.0	3.8	3.6	2.9
Real unit labour costs	-0.4	1.7	-1.4	2.2	0.8	0.0	-4.2	-1.6	2.1	-2.2	0.6	0.0	0.6	-0.1

Spain	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.4	2.8	2.4	3.9	4.5	4.7	5.0	3.5	2.7	3.0	3.1	3.4	3.1	2.8
Occupied Population	-0.5	1.9	1.7	3.6	4.5	4.6	5.1	3.2	2.4	2.6	2.6	3.6	2.8	2.3
Labour productivity	2.9	0.9	1.0	0.3	0.2	0.1	0.0	0.3	0.3	0.4	0.5	0.3	0.4	0.6
Annual average hours worked	0.0	0.0	-0.5	0.4	-0.3	-0.8	1.2	-0.3	-0.2	-0.2	-0.3	-0.6	0.0	0.0
Productivity per hour worked	2.9	0.9	1.3	-0.1	0.3	1.0	-1.2	0.6	0.5	0.6	0.8	0.5	0.4	0.4
Harmonised CPI	4.6	4.6	3.6	1.9	1.8	2.2	3.5	2.8	3.6	3.1	3.1	3.4	3.6	3.1
Price delator GDP	3.9	4.9	3.5	2.4	2.5	2.6	3.5	4.2	4.4	4.0	4.1	4.4	4.2	3.6
Nominal compensation per employee	3.7	3.7	4.0	2.2	2.0	2.0	2.9	3.6	3.3	3.4	3.3	2.5	3.3	3.2
Real compensation per employee (GDP deflator)	-0.2	-1.2	0.5	-0.2	-0.4	-0.6	-0.6	-0.6	-1.1	-0.6	-0.7	-1.8	-0.9	-0.3
Real compensation per employee (private consumption deflator)	-1.1	-1.1	0.8	-0.5	0.1	-0.2	-0.8	0.2	0.4	0.5	-0.1	-1.0	-0.4	0.0
Nominal unit labour costs	0.8	2.8	3.0	1.9	1.9	1.9	2.8	3.3	3.0	2.9	2.8	2.3	2.8	2.6
Real unit labour costs	-3.0	-2.0	-0.4	-0.5	-0.6	-0.7	-0.6	-0.9	-1.4	-1.0	-1.2	-2.1	-1.3	-0.9

France	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.0	2.2	1.1	2.2	3.5	3.2	4.0	1.9	1.0	1.1	2.3	1.2	1.9	2.0
Occupied Population	0.1	0.9	0.4	0.4	1.5	2.0	2.7	1.8	0.6	0.1	0.0	0.3	0.4	0.6
Labour productivity	2.2	1.7	1.2	1.9	2.2	1.3	1.1	-0.3	0.1	1.1	2.3	0.9	1.4	1.4
Annual average hours worked	-0.4	-1.5	0.3	-0.4	-0.7	-0.4	-2.4	-0.9	-2.6	-0.5	-0.1	0.0	0.0	0.0
Productivity per hour worked	2.3	2.8	0.4	2.2	2.6	1.6	3.8	1.0	3.1	1.5	2.4	1.0	1.4	1.4
Harmonised CPI	1.7	1.8	2.1	1.3	0.7	0.6	1.8	1.8	1.9	2.2	2.3	1.9	1.9	1.8
Price delator GDP	1.5	1.2	1.7	1.1	0.9	-0.1	1.4	2.0	2.4	1.9	1.7	1.9	1.5	1.9
Nominal compensation per employee	1.8	2.6	2.6	2.0	2.1	2.3	2.2	2.0	3.0	2.9	3.3	2.8	3.3	3.2
Real compensation per employee (GDP deflator)	0.2	1.4	0.9	0.9	1.1	2.4	0.7	0.0	0.6	1.0	1.6	1.0	1.8	1.3
Real compensation per employee (private consumption deflator)	0.4	1.6	0.9	1.1	1.9	2.8	-0.1	0.3	2.1	1.0	1.4	0.8	1.5	1.4
Nominal unit labour costs	-0.4	0.9	1.4	0.0	-0.1	1.0	1.0	2.3	2.9	1.8	1.0	1.9	1.9	1.8
Real unit labour costs	-1.9	-0.3	-0.3	-1.0	-1.0	1.1	-0.4	0.3	0.5	-0.1	-0.6	0.0	0.3	-0.1

Ireland	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	5.8	9.8	8.3	11.7	8.5	10.7	9.2	6.2	6.1	4.4	4.5	4.7	4.9	5.1
Occupied Population	3.1	4.1	3.6	5.6	8.6	6.2	4.6	3.0	1.8	2.0	3.1	4.7	2.9	2.4
Labour productivity	2.6	5.5	4.5	5.8	-0.1	4.2	4.4	3.1	4.3	2.4	1.3	-0.1	2.0	2.5
Annual average hours worked	0.1	0.3	0.2	-2.4	-3.9	-1.5	-0.2	-0.6	-1.2	-1.2	-0.4	-0.7	-0.3	-0.3
Productivity per hour worked	2.5	5.2	4.3	8.3	4.0	5.8	4.6	3.7	5.5	3.7	1.7	0.6	2.3	2.9
Harmonised CPI	:	2.8	2.2	1.3	2.1	2.5	5.3	4.0	4.7	4.0	2.3	2.2	2.4	2.3
Price delator GDP	1.7	2.9	2.2	3.6	6.5	4.0	5.5	5.7	5.0	2.0	2.2	3.1	2.8	2.9
Nominal compensation per employee	2.2	3.0	4.3	5.0	4.7	4.5	8.0	7.4	5.1	5.6	5.5	5.1	5.0	4.8
Real compensation per employee (GDP deflator)	0.5	0.1	2.1	1.3	-1.7	0.5	2.4	1.7	0.0	3.5	3.2	1.9	2.2	1.8
Real compensation per employee (private consumption deflator)	-0.5	0.3	1.8	2.3	0.7	1.3	3.1	3.2	0.0	1.8	4.7	3.1	2.6	2.4
Nominal unit labour costs	-0.4	-2.4	-0.2	-0.8	4.8	0.3	3.5	4.2	0.8	3.1	4.1	5.2	2.9	2.2
Real unit labour costs	-2.0	-5.1	-2.3	-4.3	-1.6	-3.6	-1.9	-1.4	-4.1	1.0	1.8	2.0	0.2	-0.7

Italy	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.2	2.8	0.7	1.9	1.4	1.9	3.6	1.8	0.3	0.0	1.1	0.0	1.3	1.2
Occupied Population	-1.6	-0.2	0.6	0.3	1.0	1.1	1.9	2.0	1.7	1.5	0.3	0.2	0.5	0.5
Labour productivity	3.2	2.9	0.4	1.5	0.5	1.4	1.7	0.0	-0.9	-0.6	1.0	0.4	1.1	1.0
Annual average hours worked	0.0	-0.2	0.4	-0.7	0.8	-0.3	-1.2	-0.3	-1.2	-1.3	0.4	-0.6	-0.3	-0.3
Productivity per hour worked	3.9	3.3	-0.2	2.2	-0.4	1.1	2.9	0.1	-0.2	-0.2	0.3	0.4	1.1	1.0
Harmonised CPI	4.2	5.4	4.0	1.9	2.0	1.7	2.6	2.3	2.6	2.8	2.3	2.2	2.2	2.0
Price delator GDP	3.6	5.0	5.2	2.5	2.6	1.3	2.0	3.0	3.4	3.1	2.9	2.1	2.0	2.1
Nominal compensation per employee	3.4	4.3	6.2	4.2	-1.6	2.6	2.3	3.2	2.7	3.7	3.5	2.9	2.6	2.7
Real compensation per employee (GDP deflator)	-0.1	-0.7	1.0	1.6	-4.1	1.3	0.3	0.2	-0.6	0.6	0.5	0.8	0.6	0.6
Real compensation per employee (private consumption deflator)	-1.6	-1.6	2.1	1.9	-3.4	0.8	-1.0	0.5	-0.1	0.9	0.8	0.5	0.2	0.6
Nominal unit labour costs	0.2	1.4	5.8	2.7	-2.1	1.2	0.6	3.2	3.7	4.3	2.4	2.5	1.5	1.7
Real unit labour costs	-3.3	-3.4	0.6	0.1	-4.6	-0.1	-1.4	0.2	0.3	1.2	-0.5	0.4	-0.6	-0.4

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Cyprus	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	5.9	9.9	1.8	2.3	5.0	4.8	5.0	4.1	2.1	1.9	3.9	3.8	3.8	3.8
Occupied Population*	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Labour productivity	:	:	1.3	1.9	3.3	2.9	2.7	1.9	1.0	0.9	2.3	2.2	2.3	2.3
Annual average hours worked	:	:	:	:	:	:	:	6.7	-0.8	1.1	0.9	0.0	0.0	0.0
Productivity per hour worked	:	:	:	:	:	:	:	-4.6	1.7	-0.2	1.4	2.2	2.3	2.3
Harmonised CPI	:	:	:	3.3	2.3	1.1	4.9	2.0	2.8	4.0	1.9	2.0	2.4	2.2
Price delator GDP	5.3	-0.5	1.8	2.8	2.4	2.3	3.7	3.2	2.2	5.0	2.4	2.8	2.3	2.3
Nominal compensation per employee	:	:	4.7	5.7	3.2	4.6	2.2	1.0	4.1	9.3	3.5	4.4	3.5	3.5
Real compensation per employee (GDP deflator)	:	:	2.8	2.8	0.8	2.3	-1.4	-2.1	1.8	4.1	1.0	1.5	1.2	1.2
Real compensation per employee (private consumption deflator)	:	:	2.7	3.3	2.4	2.6	-2.6	-0.9	1.6	5.7	1.3	1.5	0.3	1.0
Nominal unit labour costs	:	:	3.3	3.7	0.0	1.7	-0.5	-0.8	3.1	8.4	1.1	2.1	1.2	1.1
Real unit labour costs	:	:	1.5	0.9	-2.4	-0.6	-4.1	-3.9	0.8	3.2	-1.3	-0.7	-1.1	-1.1

Latvia	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.2	-0.9	3.8	8.3	4.7	3.3	6.9	8.0	6.5	7.2	8.5	10.2	8.5	7.6
Occupied Population	-10.1	-10.4	-1.9	4.4	-0.3	-1.8	-2.9	2.2	1.6	1.7	1.1	1.5	1.0	0.7
Labour productivity	13.7	10.6	5.8	3.7	5.0	5.2	10.1	5.7	4.8	5.4	7.4	8.5	7.4	6.8
Annual average hours worked	:	:	:	:	:	-0.5	0.7	-0.4	-0.4	0.9	-2.7	0.5	0.5	0.5
Productivity per hour worked	:	:	:	:	:	5.7	9.4	6.2	5.2	4.4	10.3	8.0	6.9	6.3
Harmonised CPI	:	:	:	8.1	4.3	2.1	2.6	2.5	2.0	2.9	6.2	6.9	6.7	5.6
Price delator GDP	36.2	15.1	14.9	7.0	4.6	4.8	3.8	1.7	3.6	3.6	6.8	9.0	7.3	6.2
Nominal compensation per employee	63.9	8.8	27.3	13.0	6.2	7.5	6.9	3.4	4.0	11.1	15.1	14.4	15.0	12.0
Real compensation per employee (GDP deflator)	20.3	-5.5	10.9	5.6	1.5	2.6	3.0	1.7	0.4	7.3	7.7	4.9	7.2	5.5
Real compensation per employee (private consumption deflator)	:	:	9.5	4.0	1.5	5.7	3.3	1.1	1.8	7.9	8.5	3.0	7.8	6.1
Nominal unit labour costs	44.2	-1.7	20.4	8.9	1.1	2.2	-2.9	-2.2	-0.8	5.5	7.2	5.4	7.1	4.9
Real unit labour costs	5.8	-14.6	4.8	1.8	-3.3	-2.4	-6.5	-3.9	-4.2	1.9	0.3	-3.3	-0.2	-1.3

Lithuania	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	-9.8	3.3	4.7	7.0	7.3	-1.7	3.9	6.4	6.8	10.5	7.0	7.5	6.5	6.2
Occupied Population	-5.8	-1.9	0.9	0.6	-0.8	-2.2	-4.0	-3.3	4.0	2.3	-0.1	2.6	0.9	0.6
Labour productivity	-4.2	5.3	3.7	6.4	8.1	0.5	8.3	10.1	2.6	8.0	7.1	4.7	5.5	5.6
Annual average hours worked	:	:	:	:	:	:	:	0.1	-1.7	-1.2	1.2	2.8	0.2	0.1
Productivity per hour worked	:	:	:	:	:	:	:	10.0	4.4	9.3	5.9	1.9	5.3	5.5
Harmonised CPI	:	:	24.7	10.3	5.4	1.5	1.1	1.6	0.3	-1.1	1.2	2.7	3.5	3.3
Price delator GDP	61.6	46.4	20.6	14.0	5.0	-0.6	1.8	-0.5	0.2	-1.1	2.8	5.9	4.6	2.8
Nominal compensation per employee	67.7	67.5	32.7	23.3	15.5	2.5	1.3	3.8	5.1	8.9	8.2	8.7	8.9	8.2
Real compensation per employee (GDP deflator)	3.7	14.4	10.0	8.2	9.9	3.1	-0.5	4.3	4.9	10.1	5.2	2.6	4.1	5.3
Real compensation per employee (private consumption deflator)	:	:	12.3	12.6	9.5	2.9	2.8	1.3	5.2	11.9	7.0	5.2	5.2	4.7
Nominal unit labour costs	75.1	59.1	28.0	15.9	6.8	1.9	-6.5	-5.7	2.4	0.8	1.0	3.8	3.2	2.4
Real unit labour costs	8.3	8.6	6.1	1.7	1.7	2.6	-8.1	-5.3	2.2	1.9	-1.7	-2.0	-1.4	-0.3

Luxembourg	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	3.8	1.4	1.5	5.9	6.5	8.4	8.4	2.5	3.6	2.0	4.2	4.0	4.4	4.5
Occupied Population	2.7	2.6	2.6	3.1	4.5	5.0	5.6	5.5	2.9	1.8	2.3	2.9	3.0	3.0
Labour productivity	1.1	-1.1	-1.0	2.8	1.9	3.3	2.7	-2.9	0.7	0.2	1.9	1.1	1.3	1.4
Annual average hours worked	-1.2	1.0	-1.2	-0.1	-0.6	-0.1	-0.1	-0.9	-0.5	-1.3	-2.0	0.0	0.0	0.0
Productivity per hour worked	2.3	-2.1	0.2	2.9	2.5	3.4	2.9	-2.0	1.2	1.5	4.0	1.1	1.3	1.4
Harmonised CPI	:	:	1.2	1.4	1.0	1.0	3.8	2.4	2.1	2.5	3.2	3.8	4.1	3.4
Price delator GDP	3.5	2.3	3.0	-1.9	-0.4	5.3	2.0	0.1	2.7	4.8	1.0	4.2	3.1	3.0
Nominal compensation per employee	3.9	1.4	1.9	2.6	0.9	4.0	5.3	3.5	3.9	1.8	4.1	4.6	3.5	3.0
Real compensation per employee (GDP deflator)	0.4	-0.9	-1.1	4.6	1.3	-1.3	3.3	3.4	1.2	-2.8	3.0	0.4	0.3	0.0
Real compensation per employee (private consumption deflator)	1.3	-0.6	0.5	1.2	-0.8	1.5	1.3	1.5	3.2	-0.4	1.7	1.8	0.3	0.5
Nominal unit labour costs	2.8	2.5	2.9	-0.1	-1.0	0.7	2.5	6.5	3.2	1.6	2.1	3.5	2.1	1.6
Real unit labour costs	-0.7	0.2	-0.1	1.8	-0.6	-4.4	0.5	6.4	0.5	-3.0	1.1	-0.6	-1.0	-1.3

Hungary	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.9	1.5	1.3	4.6	4.9	4.2	5.2	4.3	3.8	3.4	5.2	3.6	4.6	4.2
Occupied Population	-2.0	-3.4	-0.5	0.1	1.8	3.3	1.2	0.3	0.0	1.3	-0.7	0.0	0.1	0.5
Labour productivity	5.0	5.1	1.8	4.5	3.1	1.2	3.7	3.8	3.9	2.6	5.8	3.2	4.1	3.8
Annual average hours worked	7.0	0.3	-0.2	1.3	-0.4	0.8	-0.2	-2.0	0.4	-1.4	-0.1	-0.1	0.0	0.0
Productivity per hour worked	-1.9	4.7	2.0	3.1	3.4	0.0	4.2	6.2	3.4	3.5	6.0	3.8	4.4	3.6
Harmonised CPI	:	:	23.5	18.5	14.2	10.0	10.0	9.1	5.2	4.7	6.8	3.5	2.3	3.3
Price delator GDP	19.5	26.7	21.2	18.5	12.6	8.4	9.9	8.3	8.7	6.7	4.1	2.9	2.3	2.8
Nominal compensation per employee	17.9	21.5	20.2	21.0	13.9	5.2	15.4	15.9	12.7	10.0	9.7	8.9	5.1	4.2
Real compensation per employee (GDP deflator)	-1.4	-4.1	-0.8	2.1	1.1	-3.0	5.0	7.1	3.7	3.1	5.4	5.8	2.7	1.3
Real compensation per employee (private consumption deflator)	:	:	-2.2	2.5	0.2	-4.6	5.7	7.4	9.4	5.4	4.9	3.3	2.3	0.4
Nominal unit labour costs	12.3	15.6	18.0	15.8	10.4	3.9	11.3	11.6	8.5	7.2	3.7	5.5	0.9	0.4
Real unit labour costs	-6.1	-8.7	-2.6	-2.2	-2.0	-4.2	1.2	3.1	-0.2	0.5	-0.3	2.5	-1.4	-2.3

Malta	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	5.7	6.2	4.0	4.9	3.4	4.1	6.4	0.3	1.5	-2.5	-1.5	2.5	1.7	1.9
Occupied Population	0.5	3.2	1.5	-0.1	0.5	-0.4	2.3	1.8	0.6	1.0	-0.8	1.5	0.3	0.5
Labour productivity	5.2	3.0	2.5	5.0	2.9	4.5	4.0	-1.4	0.9	-3.5	-0.7	0.9	1.4	1.4
Annual average hours worked	:	:	:	:	:	:	:	-3.0	-0.5	-2.5	4.2	-3.0	0.0	0.0
Productivity per hour worked	:	:	:	:	:	:	:	1.6	1.4	-1.0	-4.7	4.0	1.4	1.4
Harmonised CPI	:	:	:	3.9	3.7	2.3	3.0	2.5	2.6	1.9	2.7	2.5	2.9	2.7
Price delator GDP	3.5	4.8	0.8	2.3	2.3	1.8	1.7	2.1	1.9	4.4	1.6	2.7	3.5	2.9
Nominal compensation per employee	6.4	9.0	6.3	3.5	4.7	5.1	2.1	4.8	2.2	3.3	1.6	1.4	2.9	3.0
Real compensation per employee (GDP deflator)	2.8	4.0	5.4	1.2	2.4	3.2	0.5	2.7	0.3	-1.0	0.1	-1.3	-0.6	0.1
Real compensation per employee (private consumption deflator)	:	:	4.3	0.1	1.9	4.5	4.0	3.0	0.7	2.5	-1.8	-1.5	-0.3	0.2
Nominal unit labour costs	1.1	5.9	3.7	-1.4	1.8	0.5	-1.8	6.3	1.3	7.0	2.3	0.5	1.5	1.6
Real unit labour costs	-2.3	1.0	2.9	-3.6	-0.5	-1.3	-3.4	4.1	-0.6	2.5	0.7	-2.2	-1.9	-1.3

Netherlands	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.9	3.0	3.4	4.3	3.9	4.7	3.9	1.9	0.1	-0.1	1.7	1.1	2.6	2.6
Occupied Population	0.6	2.3	2.3	3.2	2.6	2.6	2.2	2.1	0.5	-0.6	-1.4	-0.4	1.2	1.2
Labour productivity	3.1	1.0	0.8	1.1	1.0	2.3	2.1	0.6	0.3	0.7	3.4	1.7	1.8	1.8
Annual average hours worked	-0.8	-1.3	3.3	-0.5	-0.9	-1.5	1.3	0.0	-1.1	0.0	-0.1	0.1	0.2	0.2
Productivity per hour worked	3.0	2.1	-2.2	1.5	2.1	3.5	0.3	-0.1	0.7	0.5	3.3	1.3	1.2	1.2
Harmonised CPI	2.1	1.4	1.4	1.9	1.8	2.0	2.3	5.1	3.9	2.2	1.4	1.5	1.8	2.1
Price delator GDP	2.3	2.0	1.3	2.6	1.9	1.8	4.1	5.1	3.8	2.5	0.9	1.6	1.3	1.4
Nominal compensation per employee	3.0	1.5	1.4	2.5	3.8	4.1	5.1	5.7	5.2	4.0	3.3	2.2	2.2	2.7
Real compensation per employee (GDP deflator)	0.7	-0.5	0.1	-0.2	1.9	2.3	1.0	0.5	1.3	1.5	2.5	0.7	0.9	1.4
Real compensation per employee (private consumption deflator)	0.1	0.1	-0.5	0.1	1.8	2.1	1.3	1.2	2.1	1.8	2.2	0.5	0.2	0.7
Nominal unit labour costs	-0.1	0.5	0.6	1.4	2.8	1.7	3.0	5.0	4.8	3.3	-0.1	0.6	0.4	0.9
Real unit labour costs	-2.3	-1.5	-0.7	-1.2	0.9	-0.1	-1.1	0.0	1.0	0.7	-0.9	-1.0	-0.9	-0.4

Austria	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	2.7	1.9	2.6	1.8	3.6	3.3	3.4	0.8	1.0	1.4	2.4	1.9	2.5	2.2
Occupied Population	0.0	-0.2	0.4	0.9	1.3	1.6	1.0	0.6	-0.1	0.1	0.0	0.6	0.6	0.9
Labour productivity	2.7	1.9	3.1	1.4	2.2	2.1	2.3	0.3	1.2	1.2	2.2	1.3	1.9	1.3
Annual average hours worked	:	:	1.1	0.2	-0.3	-1.6	-0.4	-0.1	0.1	0.0	0.3	0.0	0.2	0.2
Productivity per hour worked	:	:	1.2	0.7	2.5	3.3	2.7	0.3	1.0	1.3	2.2	1.3	1.7	1.1
Harmonised CPI	2.7	1.6	1.8	1.2	0.8	0.5	2.0	2.3	1.7	1.3	2.0	2.1	1.7	1.6
Price delator GDP	2.7	1.9	1.0	0.0	0.3	0.6	1.8	1.8	1.3	1.4	1.9	2.0	1.9	1.8
Nominal compensation per employee	4.1	3.2	1.7	1.1	2.7	2.2	2.1	1.4	2.1	1.9	2.3	3.0	3.4	3.0
Real compensation per employee (GDP deflator)	1.4	1.2	0.7	1.2	2.3	1.5	0.3	-0.4	0.9	0.5	0.3	1.0	1.5	1.2
Real compensation per employee (private consumption deflator)	1.3	1.1	-0.2	-0.3	2.3	1.4	-0.5	-0.5	1.1	0.4	0.3	1.0	1.7	1.3
Nominal unit labour costs	1.3	1.3	-1.4	-0.2	0.4	0.1	-0.2	1.0	0.9	0.7	0.0	1.7	1.5	1.6
Real unit labour costs	-1.3	-0.7	-2.3	-0.2	0.1	-0.5	-1.9	-0.7	-0.3	-0.7	-1.9	-0.3	-0.3	-0.1

Poland	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	5.3	7.0	6.2	7.1	5.0	4.5	4.2	1.1	1.4	3.8	5.3	3.2	4.5	4.6
Occupied Population*	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Labour productivity	7.0	6.0	5.0	5.6	3.8	8.8	5.8	3.4	4.5	5.1	3.9	0.9	2.0	2.8
Annual average hours worked	:	:	:	:	:	:	:	-0.7	0.3	0.3	-0.3	0.0	0.0	0.1
Productivity per hour worked	:	:	:	:	:	:	:	4.1	4.3	4.8	4.2	0.9	2.0	2.7
Harmonised CPI	:	:	:	15.0	11.8	7.2	10.1	5.3	1.9	0.7	3.6	2.2	1.0	2.0
Price delator GDP	37.2	28.0	17.9	13.9	11.1	6.1	7.3	3.5	2.2	0.4	4.0	2.8	0.4	1.5
Nominal compensation per employee	41.3	34.1	27.2	20.3	14.0	13.6	11.0	10.1	2.3	1.8	1.9	0.5	4.4	5.2
Real compensation per employee (GDP deflator)	3.0	4.8	7.9	5.6	2.7	7.1	3.4	6.4	0.0	1.4	-2.0	-2.3	4.0	3.7
Real compensation per employee (private consumption deflator)	2.5	5.4	7.2	4.9	3.2	7.1	0.9	6.0	-1.0	1.4	-1.2	-1.3	3.9	3.5
Nominal unit labour costs	32.1	26.5	21.2	13.9	9.9	4.5	4.8	6.5	-2.2	-3.1	-1.9	-0.4	2.3	2.3
Real unit labour costs	-3.8	-1.2	2.7	0.0	-1.0	-1.5	-2.3	2.9	-4.3	-3.5	-5.7	-3.2	1.9	0.9

Portugal	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	1.0	4.3	3.6	4.2	4.8	3.9	3.9	2.0	0.8	-1.1	1.1	0.3	0.9	1.1
Occupied Population	-1.0	-0.7	1.6	1.6	2.7	1.9	1.7	1.7	0.4	-0.4	0.1	0.0	0.2	0.3
Labour productivity	2.0	5.1	2.0	2.6	2.0	2.0	2.1	0.3	0.4	-0.7	1.0	0.3	0.7	0.8
Annual average hours worked	-0.7	3.7	-2.6	-1.7	-0.2	0.7	-2.4	0.2	0.2	-1.1	1.0	-0.2	0.0	0.0
Productivity per hour worked	2.7	1.3	4.7	4.4	2.2	1.3	4.6	0.1	0.2	0.4	0.0	0.5	0.7	0.8
Harmonised CPI	5.0	4.0	2.9	1.9	2.2	2.2	2.8	4.4	3.7	3.3	2.5	2.1	2.7	2.4
Price delator GDP	7.3	3.4	2.6	3.8	3.7	3.3	3.0	3.7	3.9	2.7	2.8	2.7	1.7	2.8
Nominal compensation per employee	5.6	7.2	6.1	6.0	5.3	5.4	6.7	5.3	4.4	3.1	2.4	2.9	2.7	2.5
Real compensation per employee (GDP deflator)	-1.6	3.7	3.5	2.1	1.5	2.1	3.6	1.6	0.4	0.4	-0.3	0.1	1.0	-0.3
Real compensation per employee (private consumption deflator)	0.0	2.9	3.2	3.0	2.9	3.1	3.2	1.9	1.3	0.3	-0.1	0.3	-0.1	0.0
Nominal unit labour costs	3.5	2.1	4.1	3.3	3.2	3.3	4.5	5.1	4.0	3.9	1.4	2.6	2.0	1.7
Real unit labour costs	-3.5	-1.3	1.4	-0.5	-0.5	0.0	1.4	1.3	0.1	1.1	-1.3	-0.2	0.3	-1.1

Employment in Europe 2006

Slovenia	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	5.3	4.1	3.7	4.8	3.9	5.4	4.1	2.7	3.5	2.7	4.2	3.9	4.3	4.1
Occupied Population	:	:	-2.0	-1.9	-0.2	1.4	0.8	0.5	1.5	-0.2	0.4	0.7	0.6	0.4
Labour productivity	:	:	5.9	6.9	4.1	3.9	3.3	2.2	1.9	2.9	3.7	3.1	3.7	3.6
Annual average hours worked	:	:	:	-1.2	-0.1	0.6	0.6	0.3	-3.0	0.4	-2.6	1.0	1.0	1.0
Productivity per hour worked	:	:	:	8.2	4.2	3.3	2.6	1.8	5.1	2.5	6.5	2.1	2.7	2.6
Harmonised CPI	:	:	9.9	8.3	7.9	6.1	8.9	8.6	7.5	5.7	3.7	2.5	2.4	2.5
Price delator GDP	22.6	23.0	11.1	8.4	6.8	6.4	5.4	8.7	7.9	5.8	3.2	1.0	2.2	2.5
Nominal compensation per employee	:	:	13.6	12.6	8.9	7.7	12.4	11.6	8.5	7.8	7.7	5.0	5.2	5.0
Real compensation per employee (GDP deflator)	:	:	2.3	3.9	1.9	1.2	6.7	2.6	0.6	1.9	4.3	4.0	3.0	2.5
Real compensation per employee (private consumption deflator)	:	:	2.6	3.7	1.9	1.2	4.2	3.6	0.6	2.2	4.0	3.3	2.9	2.5
Nominal unit labour costs	:	:	7.3	5.3	4.6	3.6	8.9	9.2	6.5	4.7	3.8	1.8	1.4	1.3
Real unit labour costs	:	:	-3.4	-2.8	-2.1	-2.6	3.3	0.4	-1.3	-1.0	0.6	0.8	-0.7	-1.1

Slovakia	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	6.2	5.8	6.1	4.6	4.2	1.5	2.0	3.2	4.1	4.2	5.4	6.1	6.1	6.5
Occupied Population	:	0.2	2.3	-1.2	-0.4	-2.7	-1.8	0.6	-0.5	1.8	-0.3	1.4	1.2	0.9
Labour productivity	:	5.6	3.7	5.9	4.7	4.3	3.9	2.6	4.7	2.3	5.8	4.7	4.8	5.5
Annual average hours worked	:	:	-2.1	-0.3	-2.0	0.6	0.1	-0.7	-2.9	-2.8	2.3	0.2	-0.3	0.1
Productivity per hour worked	:	:	6.0	6.3	6.8	3.6	3.8	3.3	7.8	5.3	3.4	4.5	5.1	5.4
Harmonised CPI	:	:	5.8	6.0	6.7	10.4	12.2	7.2	3.5	8.4	7.5	2.8	4.4	2.7
Price delator GDP	13.4	9.9	4.3	6.7	5.2	6.5	8.5	5.0	4.6	4.7	6.0	2.4	4.0	2.8
Nominal compensation per employee	:	20.6	7.2	15.4	13.2	6.9	11.9	6.2	9.3	8.1	9.2	6.0	7.3	6.5
Real compensation per employee (GDP deflator)	:	9.7	2.7	8.2	7.6	0.4	3.2	1.1	4.5	3.2	3.0	3.6	3.2	3.6
Real compensation per employee (private consumption deflator)	:	10.4	2.1	8.9	7.0	-1.6	1.0	0.6	5.8	1.3	1.7	3.3	3.4	4.0
Nominal unit labour costs	:	14.1	3.3	9.0	8.2	2.5	7.7	3.5	4.4	5.6	3.2	1.3	2.4	1.0
Real unit labour costs	:	3.9	-1.0	2.1	2.8	-3.7	-0.7	-1.5	-0.2	0.8	-2.7	-1.1	-1.5	-1.8

Finland	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	3.6	3.9	3.7	6.1	5.2	3.9	5.0	2.6	1.6	1.8	3.5	2.9	3.6	2.9
Occupied Population	-1.4	1.8	1.4	3.3	2.0	2.5	2.2	1.5	1.0	0.1	0.4	1.3	1.4	0.8
Labour productivity	5.0	2.1	2.3	2.7	3.1	1.4	2.7	1.1	0.7	1.7	3.1	1.6	2.2	2.0
Annual average hours worked	1.1	0.1	-0.1	-0.2	-0.5	0.2	-0.8	-0.9	-0.3	-0.5	0.2	-0.6	0.1	0.1
Productivity per hour worked	3.9	2.1	2.4	2.9	3.7	1.1	3.6	2.1	1.0	2.1	2.8	2.1	2.1	2.0
Harmonised CPI	1.6	0.4	1.1	1.2	1.3	1.3	2.9	2.7	2.0	1.3	0.1	0.8	1.4	1.4
Price delator GDP	1.4	4.8	-0.2	2.2	3.4	0.9	2.6	3.0	1.3	-0.4	0.6	0.6	0.8	0.9
Nominal compensation per employee	3.4	4.1	2.6	1.6	4.5	2.2	3.7	4.7	1.8	2.8	3.5	3.6	2.8	2.5
Real compensation per employee (GDP deflator)	2.0	-0.6	2.8	-0.6	1.0	1.3	1.1	1.6	0.5	3.2	3.0	2.9	2.1	1.7
Real compensation per employee (private consumption deflator)	3.0	3.2	1.9	-0.3	2.3	0.7	-0.6	2.0	-0.4	3.2	2.8	3.1	1.6	1.3
Nominal unit labour costs	-1.6	1.9	0.3	-1.1	1.3	0.8	1.0	3.5	1.1	1.1	0.5	2.0	0.6	0.5
Real unit labour costs	-2.9	-2.7	0.5	-3.2	-2.1	-0.1	-1.6	0.5	-0.1	1.5	-0.1	1.4	-0.1	-0.3

Sweden	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	3.9	3.9	1.3	2.3	3.7	4.5	4.3	1.1	2.0	1.7	3.7	2.7	3.4	3.0
Occupied Population	-0.9	1.5	-0.8	-1.3	1.5	2.1	2.4	1.9	0.2	-0.3	-0.5	0.3	1.6	1.0
Labour productivity	4.8	2.3	2.2	3.7	2.1	2.4	1.9	-0.8	1.8	2.0	4.3	2.4	1.8	2.0
Annual average hours worked	2.4	0.3	0.5	0.3	-0.1	0.6	-1.4	-1.4	-1.4	-1.1	1.4	0.2	-0.5	-0.4
Productivity per hour worked	2.4	2.0	1.7	3.4	2.2	1.8	3.3	0.6	3.3	3.2	2.9	2.2	2.4	2.5
Harmonised CPI	2.9	2.7	1.0	1.8	1.0	0.5	1.3	2.7	1.9	2.3	1.0	0.8	1.1	1.8
Price delator GDP	2.7	3.6	1.0	1.7	0.6	0.9	1.4	2.1	1.6	2.0	0.8	1.1	1.5	2.1
Nominal compensation per employee	5.9	2.8	7.3	4.8	2.6	1.3	7.5	4.5	2.9	3.0	3.7	3.8	3.7	4.3
Real compensation per employee (GDP deflator)	3.1	-0.8	6.3	3.0	1.9	0.4	6.0	2.4	1.3	1.0	2.8	2.6	2.2	2.1
Real compensation per employee (private consumption deflator)	3.0	-0.3	6.2	3.1	2.0	0.0	6.2	2.4	1.1	1.2	2.3	2.8	2.4	2.7
Nominal unit labour costs	1.0	0.4	5.0	1.1	0.5	-1.0	5.5	5.4	1.0	1.0	-0.6	1.4	1.9	2.2
Real unit labour costs	-1.7	-3.0	4.0	-0.6	-0.1	-1.9	4.1	3.2	-0.6	-1.0	-1.4	0.3	0.3	0.1

United Kingdom	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	4.3	2.9	2.8	3.0	3.3	3.0	3.8	2.4	2.1	2.7	3.3	1.9	2.4	2.8
Occupied Population	0.8	1.2	0.9	1.8	1.0	1.4	1.2	0.8	0.8	1.0	1.0	1.0	0.4	0.6
Labour productivity	3.5	1.7	1.8	1.2	2.3	1.6	2.6	1.5	1.3	1.7	2.2	0.9	2.0	2.2
Annual average hours worked	0.8	-0.1	-0.1	-0.1	-0.3	-0.7	-0.7	0.1	-1.1	-0.7	-0.3	-0.6	-0.6	-0.6
Productivity per hour worked	2.7	1.8	1.8	1.3	2.6	2.4	3.3	1.4	2.4	2.4	2.5	1.5	2.6	2.9
Harmonised CPI	2.0	2.7	2.5	1.8	1.6	1.3	0.8	1.2	1.3	1.4	1.3	2.1	2.0	2.0
Price delator GDP	1.6	2.7	3.5	2.9	2.7	2.2	1.3	2.2	3.1	3.1	2.6	2.2	2.1	2.4
Nominal compensation per employee	2.9	3.0	3.0	3.9	6.3	4.5	5.7	5.1	3.3	4.9	4.3	4.5	4.3	4.4
Real compensation per employee (GDP deflator)	1.3	0.3	-0.4	1.0	3.6	2.2	4.3	2.8	0.2	1.7	1.7	2.2	2.2	2.0
Real compensation per employee (private consumption deflator)	0.8	-0.3	-0.3	1.4	3.7	2.8	4.5	2.8	1.7	2.9	2.6	1.9	2.2	2.3
Nominal unit labour costs	-0.5	1.3	1.2	2.6	3.9	2.8	3.0	3.5	2.0	3.1	2.0	3.6	2.3	2.2
Real unit labour costs	-2.1	-1.4	-2.2	-0.2	1.2	0.6	1.7	1.3	-1.1	0.0	-0.6	1.3	0.1	-0.2

Bulgaria	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	1.8	2.9	-9.4	-5.6	4.0	2.3	5.4	4.1	4.9	4.5	5.7	5.5	5.4	5.7
Occupied Population	0.6	1.3	0.1	-3.9	-0.2	-2.1	-3.5	-0.4	0.4	6.3	2.2	2.0	1.0	0.8
Labour productivity	1.2	1.6	-9.5	-1.7	4.2	4.4	9.2	4.5	4.5	-1.7	3.4	3.5	4.3	4.9
Annual average hours worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Productivity per hour worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Harmonised CPI	:	:	:	:	18.7	2.6	10.3	7.4	5.8	2.3	6.1	5.0	7.0	3.5
Price delator GDP	72.7	62.8	120.8	948.3	23.7	3.7	6.7	6.7	3.8	2.3	4.8	3.8	4.7	4.1
Nominal compensation per employee	:	:	72.7	848.0	52.5	6.0	10.2	12.3	4.7	1.0	6.6	6.9	9.4	9.3
Real compensation per employee (GDP deflator)	:	:	-21.8	-9.6	23.3	2.2	3.3	5.3	0.9	-1.3	1.7	2.9	4.5	5.0
Real compensation per employee (private consumption deflator)	:	:	-21.3	-12.6	31.6	3.7	5.4	6.0	0.7	0.5	2.3	2.2	2.7	6.1
Nominal unit labour costs	:	:	90.8	864.7	46.4	1.4	0.9	7.5	0.2	2.7	3.1	3.3	4.9	4.2
Real unit labour costs	:	:	-13.6	-8.0	18.4	-2.2	-5.4	0.8	-3.4	0.4	-1.7	-0.5	0.2	0.1

Croatia	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	:	:	5.9	6.8	2.5	-0.9	2.9	4.4	5.2	4.3	3.8	4.3	4.4	4.5
Occupied Population	:	:	:	:	:	:	:	0.5	0.8	2.5	1.2	0.8	1.0	1.2
Labour productivity	:	:	:	:	:	:	:	3.9	4.4	1.8	2.5	3.5	3.4	3.2
Annual average hours worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Productivity per hour worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Harmonised CPI	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Price delator GDP	:	:	3.6	7.4	8.4	3.8	4.7	4.0	2.9	3.2	3.3	2.8	3.3	3.5
Nominal compensation per employee	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Real compensation per employee (GDP deflator)	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Real compensation per employee (private consumption deflator)	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Nominal unit labour costs	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Real unit labour costs	:	:	:	:	:	:	:	:	:	:	:	:	:	:

Macedonia FYR	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	-1.8	-1.1	1.2	1.4	3.4	4.3	4.5	-4.5	0.9	2.8	4.1	4.0	4.3	4.7
Occupied Population	:	:	:	:	5.5	0.9	0.9	8.9	-6.3	-2.9	-2.4	4.3	1.2	1.5
Labour productivity	:	:	:	:	-2.0	3.4	3.6	-12.3	7.7	5.8	6.6	-0.3	3.1	3.2
Annual average hours worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Productivity per hour worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Harmonised CPI	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Price delator GDP	151.9	17.1	2.9	3.9	1.4	2.7	8.2	3.6	3.4	0.3	1.3	1.7	2.1	1.5
Nominal compensation per employee	:	:	:	:	2.9	7.4	1.7	-1.1	1.4	:	:	:	:	:
Real compensation per employee (GDP deflator)	:	:	:	:	1.5	4.6	-6.0	-4.6	-1.9	:	:	:	:	:
Real compensation per employee (private consumption deflator)	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Nominal unit labour costs	:	:	:	:	5.0	3.9	-1.8	12.8	-5.8	:	:	:	:	:
Real unit labour costs	:	:	:	:	3.6	1.2	-9.3	8.9	-8.9	:	:	:	:	:

Romania	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	3.9	7.1	3.9	-6.1	-4.8	-1.2	2.1	5.7	5.1	5.2	8.4	4.1	5.5	5.1
Occupied Population	-0.5	-5.2	-1.2	-3.8	-2.3	-4.5	2.5	-0.8	-2.7	-0.1	0.4	0.2	0.2	0.2
Labour productivity	4.5	13.0	5.2	-2.3	-2.5	3.5	-0.3	6.6	8.1	5.4	8.0	3.9	5.3	4.9
Annual average hours worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Productivity per hour worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Harmonised CPI	:	:	38.8	154.8	59.1	45.8	45.7	34.5	22.5	15.3	11.9	9.1	7.8	5.7
Price delator GDP	139.0	35.3	45.3	147.2	55.3	47.7	44.2	37.4	23.4	24.0	15.0	12.0	8.7	6.5
Nominal compensation per employee	132.6	54.3	52.7	107.2	89.3	41.2	74.9	44.8	25.9	27.7	22.1	16.7	13.8	10.9
Real compensation per employee (GDP deflator)	-2.7	14.1	5.1	-16.2	21.9	-4.4	21.3	5.4	2.0	3.1	6.2	4.2	4.7	4.2
Real compensation per employee (private consumption deflator)	-3.8	12.8	6.4	-19.4	26.8	-3.5	25.1	6.7	3.7	10.9	8.8	9.4	5.4	4.6
Nominal unit labour costs	122.7	36.5	45.1	112.1	94.3	36.5	75.5	35.8	16.5	21.3	13.0	12.3	8.1	5.7
Real unit labour costs	-6.8	0.9	-0.1	-14.2	25.1	-7.6	21.7	-1.1	-5.6	-2.2	-1.7	0.3	-0.6	-0.7

Turkey	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Real GDP	-5.5	7.2	7.0	7.5	3.1	-4.7	7.4	-7.5	7.9	5.8	8.9	7.4	5.8	5.5
Occupied Population	2.4	3.7	2.1	-2.5	2.8	2.1	-2.1	-0.3	-0.8	-1.0	3.0	1.2	1.7	2.0
Labour productivity	-7.7	3.4	4.8	10.3	0.3	-6.7	9.7	-7.3	8.8	6.8	5.7	6.1	4.0	3.5
Annual average hours worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Productivity per hour worked	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Harmonised CPI	:	:	:	85.6	82.1	61.4	53.2	56.8	47.0	25.3	10.1	8.1	7.1	6.0
Price delator GDP	106.4	87.2	77.8	81.5	75.7	55.6	49.9	54.8	44.1	22.5	9.9	8.0	7.2	5.8
Nominal compensation per employee	61.8	71.2	90.3	103.0	76.2	84.4	44.9	43.6	37.9	27.9	16.5	16.3	12.1	11.1
Real compensation per employee (GDP deflator)	-21.6	-8.5	7.0	11.8	0.3	18.6	-3.3	-7.3	-4.4	4.4	6.0	7.7	4.6	5.0
Real compensation per employee (private consumption deflator)	-22.5	-11.1	13.4	11.7	-4.1	15.4	-3.5	-9.6	-2.1	5.5	8.5	6.4	5.0	4.7
Nominal unit labour costs	75.3	65.6	81.5	84.2	75.7	97.6	32.1	54.8	26.7	19.7	10.2	9.6	7.8	7.3
Real unit labour costs	-15.1	-11.5	2.0	1.4	0.0	27.0	-11.8	0.0	-12.1	-2.3	0.3	1.5	0.6	1.4

Source: DG ECFIN's AMECO database and European Commission 2006 Spring Forecasts.
Note: In the case of Cyprus, the Czech Republic, Greece and Poland, employment growth figures from AMECO and QLFD differ significantly due to methodological and/or data source differences. For this reason no employment growth data is shown for these countries.

2

Annex

Key employment indicators

Introduction to key employment indicators tables

The figures in the following "key employment indicators" tables refer to data available up to mid-June 2006.

The source for the indicator values is Eurostat, EU Labour Force Survey (annual averages), except for the following indicators which are from Eurostat, National Accounts:

3.   Total employment levels (except for EL, PL, SK, SI (2004, 2005) and RO)

10.   Share of self-employed in total employment

13.   Share of total employment in Services

14.   Share of total employment in Industry

15.   Share of total employment in Agriculture

Notes for particular Member States/tables:

(a) Missing quarters are estimated by Eurostat before the transition to a continuous quarterly survey takes place in each country.

(b) General comments and breaks in series:

- •   PT (EU-LFS indicators): break in 1998
- •   UK (EU-LFS indicators): break in 2000
- •   IT/AT (EU-LFS indicators): break in 2004
- •   SE (EU-LFS indicators): break in 2005
- •   ES (EU-LFS indicators): break in 2005 due to the questionnaire revision; the impact has been estimated at +0.4 percentage points on employment rate (16-64 years old), +0.2 p.p. on activity rate (16-64 years old) and -0.4 p.p. on unemployment rate
- •   DE (EU-LFS indicators): 1999 – 2004 national estimates, break in 2005

(c) Comments on specific indicators

Indicator 1	EU25 estimate; LT (1998 – 2001) estimate; MT (2000 – 2001) estimate; PL estimate
Indicator 3	IE 1990 – 1994 estimates; CY 1999: break in series; LT 1995: break in series; PT 2003 – 2005 forecast; BG 2004-2005 forecast; RO 2003 – 2005 forecast;
	TR 2000 – 2005 forecast; HR 2005 forecast; EL estimates based on units of 1000 jobs; AT figures in units of 1000 jobs
Indicator 9	EU-LFS spring results, BE 1999 – 2000: estimate
Indicator 11-12	DE 1999 – 2004, CY 1999 – 2003: spring results
Indicator 10, 13-15	PL 2003, EU25 2003: break in series
Indicator 20 to 23	Based on EU LFS estimated monthly results (harmonised unemployment series); SE 2005: provisional; for Indicator 20 EU-25 and EU-15: estimate

Employment in Europe 2006

Key employment indicators: European Union of 25 Member States (EU-25)

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	443940	445176	447442	448693	450166	451702	453831
2. Population aged 15-64	:	:	:	296106	297250	298248	298633	300049	301203	302348	303157	305076
3. Total employment (000)	:	183192	184352	186343	189301	191693	194777	197286	198299	198994	199951	201662
4. Population in employment aged 15-64	:	:	:	179443	181892	184747	186362	188387	189124	190217	191802	194551
5. Employment rate (% population aged 15-64)	:	:	:	60.6	61.2	61.9	62.4	62.8	62.8	62.9	63.3	63.8
6. Employment rate (% population aged 15-24)	:	:	:	36.5	37.1	37.7	38.1	38.1	37.5	36.9	36.8	36.8
7. Employment rate (% population aged 25-54)	:	:	:	74.3	74.8	75.6	76.0	76.3	76.3	76.4	76.8	77.2
8. Employment rate (% population aged 55-64)	:	:	:	35.7	35.8	36.2	36.6	37.5	38.7	40.2	41.0	42.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	58.2	58.2	58.1	57.9	58.1
10. Self-employed (% total employment)	:	16.7	16.7	16.6	16.5	16.1	15.9	15.5	15.4	15.7	15.8	15.6
11. Part-time employment (% total employment)	:	:	:	16.0	15.9	16.1	16.2	16.3	16.6	17.0	17.7	18.4
12. Fixed-term contracts (% total employment)	:	:	:	11.7	11.8	12.2	12.6	12.9	12.9	13.0	13.7	14.5
13. Employment in Services (% total employment)	:	65.2	65.8	66.1	66.5	67.3	68.0	68.4	69.0	69.6	70.0	70.4
14. Employment in Industry (% total employment)	:	28.6	28.1	27.9	27.7	27.1	26.6	26.2	25.7	25.3	24.9	24.7
15. Employment in Agriculture (% total employment)	:	6.2	6.1	6.0	5.8	5.6	5.4	5.3	5.2	5.1	5.0	4.9
16. Activity rate (% population aged 15-64)	:	:	:	67.7	68.0	68.5	68.7	68.7	69.0	69.3	69.7	70.2
17. Activity rate (% of population aged 15-24)	:	:	:	45.7	46.0	46.5	46.5	46.2	45.7	45.3	45.1	45.2
18. Activity rate (% of population aged 25-54)	:	:	:	81.7	82.0	82.4	82.6	82.5	82.8	83.1	83.6	83.9
19. Activity rate (% of population aged 55-64)	:	:	:	39.1	39.0	39.3	39.5	40.1	41.4	43.1	43.9	45.5
20. Total unemployment (000)	:	:	:	:	19194	18801	18025	17768	18703	19371	19638	19034
21. Unemployment rate (% labour force 15+)	:	:	:	:	9.4	9.1	8.6	8.4	8.8	9.0	9.1	8.7
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	19.3	18.5	17.4	17.7	18.3	18.8	18.9	18.5
23. Long-term unemployment rate (% labour force)	:	:	:	:	4.4	4.1	3.9	3.8	3.9	4.1	4.1	3.9
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	9.2	8.9	8.7	8.4	8.0	8.2	8.4	8.3	8.4

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	216195	216499	217749	218467	219285	220038	221215
2. Population aged 15-64	:	:	:	147511	148788	148788	148673	149448	150056	150690	151108	152081
3. Total employment (000)	:	:	:	108079	108981	109747	110869	111849	111852	111890	111936	112652
4. Population in employment aged 15-64	:	:	:	103535	104663	105668	105917	106619	106493	106753	107121	108410
5. Employment rate (% population aged 15-64)	:	:	:	70.2	70.6	71.0	71.2	71.3	71.0	70.8	70.9	71.3
6. Employment rate (% population aged 15-24)	:	:	:	40.3	40.7	41.3	41.4	41.4	40.5	39.8	39.8	39.7
7. Employment rate (% population aged 25-54)	:	:	:	85.1	85.4	85.7	86.0	85.9	85.4	85.2	85.2	85.5
8. Employment rate (% population aged 55-64)	:	:	:	46.6	46.6	46.7	46.9	47.7	48.8	50.3	50.7	51.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	70.0	69.6	69.2	68.9	69.1
10. Self-employed (% total employment)	:	19.4	19.3	19.2	19.2	18.9	18.7	18.4	18.4	18.9	19.0	18.7
11. Part-time employment (% total employment)	:	:	:	5.9	6.0	6.1	6.1	6.2	6.5	6.6	7.0	7.4
12. Fixed-term contracts (% total employment)	:	:	:	11.1	11.3	11.6	12.0	12.1	12.1	12.4	13.2	14.0
13. Employment in Services (% total employment)	:	55.5	55.9	56.2	56.5	57.3	58.0	58.3	58.8	59.2	59.5	59.7
14. Employment in Industry (% total employment)	:	37.6	37.2	37.0	36.9	36.3	35.9	35.6	35.2	34.9	34.6	34.5
15. Employment in Agriculture (% total employment)	:	6.9	6.9	6.8	6.6	6.4	6.1	6.1	6.0	6.0	5.9	5.8
16. Activity rate (% population aged 15-64)	:	:	:	77.4	77.4	77.6	77.4	77.3	77.3	77.5	77.5	77.8
17. Activity rate (% of population aged 15-24)	:	:	:	49.7	49.8	50.2	49.9	49.8	49.2	48.8	48.5	48.7
18. Activity rate (% of population aged 25-54)	:	:	:	92.2	92.2	92.2	92.1	91.8	91.8	91.8	91.9	92.1
19. Activity rate (% of population aged 55-64)	:	:	:	51.0	50.8	50.7	50.6	51.1	52.2	53.8	54.5	55.5
20. Total unemployment (000)	:	:	:	:	9211	9036	8656	8634	9249	9640	9765	9496
21. Unemployment rate (% labour force 15+)	:	:	:	:	8.0	7.8	7.4	7.3	7.8	8.1	8.1	7.9
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	17.5	16.9	16.0	16.5	17.5	18.4	18.4	18.2
23. Long-term unemployment rate (% labour force)	:	:	:	:	3.6	3.4	3.3	3.2	3.3	3.6	3.6	3.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	9.4	9.1	8.9	8.5	8.4	8.7	9.0	8.8	9.0

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	227740	228673	229691	230224	230879	231663	232615
2. Population aged 15-64	:	:	:	148597	148998	149460	149960	150602	151147	151658	152049	152996
3. Total employment (000)	:	:	:	78264	80319	81946	83908	85437	86447	87104	88016	89010
4. Population in employment aged 15-64	:	:	:	75912	77233	79082	80445	81769	82631	83464	84681	86141
5. Employment rate (% population aged 15-64)	:	:	:	51.1	51.8	52.9	53.6	54.3	54.7	55.0	55.7	56.3
6. Employment rate (% population aged 15-24)	:	:	:	32.6	33.4	34.2	34.7	34.8	34.5	33.9	33.8	33.8
7. Employment rate (% population aged 25-54)	:	:	:	63.4	64.2	65.4	66.1	66.8	67.1	67.6	68.5	68.9
8. Employment rate (% population aged 55-64)	:	:	:	25.5	25.5	26.3	26.9	27.8	29.2	30.7	31.7	33.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	46.7	47.1	47.3	47.2	47.6
10. Self-employed (% total employment)	:	12.9	13.2	13.0	12.8	12.4	12.1	11.8	11.6	11.7	11.7	11.6
11. Part-time employment (% total employment)	:	:	:	29.8	29.3	29.6	29.5	29.6	29.7	30.3	31.4	32.3
12. Fixed-term contracts (% total employment)	:	:	:	12.4	12.5	12.9	13.4	13.7	13.8	13.8	14.3	15.0
13. Employment in Services (% total employment)	:	78.9	79.5	79.9	80.2	80.6	81.0	81.3	82.0	82.6	83.1	83.5
14. Employment in Industry (% total employment)	:	15.9	15.5	15.3	15.2	14.9	14.6	14.3	13.8	13.4	13.0	12.6
15. Employment in Agriculture (% total employment)	:	5.2	5.0	4.8	4.6	4.5	4.4	4.4	4.2	4.1	3.9	3.9
16. Activity rate (% population aged 15-64)	:	:	:	58.1	58.7	59.5	60.0	60.2	60.7	61.2	62.0	62.5
17. Activity rate (% of population aged 15-24)	:	:	:	41.7	42.1	42.8	43.0	42.5	42.2	41.6	41.6	41.7
18. Activity rate (% of population aged 25-54)	:	:	:	71.0	71.7	72.6	73.1	73.2	73.8	74.4	75.4	75.7
19. Activity rate (% of population aged 55-64)	:	:	:	28.0	28.0	28.6	29.1	29.7	31.2	32.9	34.0	36.0
20. Total unemployment (000)	:	:	:	:	9982	9765	9369	9134	9454	9731	9873	9538
21. Unemployment rate (% labour force 15+)	:	:	:	:	11.2	10.8	10.2	9.8	10.0	10.2	10.3	9.8
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	21.3	20.3	18.9	19.2	19.2	19.2	19.4	18.9
23. Long-term unemployment rate (% labour force)	:	:	:	:	5.5	5.1	4.8	4.6	4.6	4.7	4.7	4.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	9.1	8.7	8.6	8.3	7.7	7.7	7.7	7.8	7.9

Source: Eurostat
Note: Indicator 1: estimate; Indicator 20: 2005 estimate; Indicators 10, 13-15: 2003 break in series.

Key employment indicators: European Union of 15 Member States (EU-15)

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	364791	365962	367055	367997	368337	369708	370902	373067	374831	376752	378380	380563
2. Population aged 15-64	244783	245359	246161	246691	247585	248341	248387	249436	250392	251628	252203	253973
3. Total employment (000)	153488	154724	155667	157216	159900	162900	166410	168798	169929	170644	171655	172921
4. Population in employment aged 15-64	146392	147394	148358	149723	152118	155322	157530	159763	160760	161887	163256	165469
5. Employment rate (% population aged 15-64)	59.8	60.1	60.3	60.7	61.4	62.5	63.4	64.0	64.2	64.3	64.7	65.2
6. Employment rate (% population aged 15-24)	38.1	37.5	36.9	37.2	38.2	39.6	40.5	40.9	40.6	39.9	40.0	39.8
7. Employment rate (% population aged 25-54)	72.9	73.2	73.5	73.9	74.6	75.7	76.5	77.0	77.1	77.1	77.6	77.8
8. Employment rate (% population aged 55-64)	35.7	36.0	36.3	36.4	36.6	37.1	37.8	38.8	40.2	41.7	42.5	44.1
9. FTE employment rate (% population aged 15-64)	:	55.6	55.5	55.7	56.3	57.1	58.0	58.6	58.8	58.7	58.5	58.7
10. Self-employed (% total employment)	16.0	15.9	15.8	15.6	15.3	15.0	14.8	14.5	14.4	14.7	14.8	14.7
11. Part-time employment (% total employment)	15.4	15.8	16.3	16.7	17.3	17.6	17.7	17.9	18.1	18.5	19.4	20.2
12. Fixed-term contracts (% total employment)	11.5	12.0	12.0	12.4	13.0	13.4	13.7	13.5	13.1	13.1	13.6	14.3
13. Employment in Services (% total employment)	67.3	67.8	68.3	68.7	69.0	69.7	70.2	70.6	71.2	71.7	72.2	72.5
14. Employment in Industry (% total employment)	27.6	27.4	26.9	26.7	26.5	26.0	25.6	25.3	24.9	24.4	24.0	23.8
15. Employment in Agriculture (% total employment)	5.1	4.9	4.7	4.6	4.5	4.3	4.2	4.1	4.0	3.9	3.8	3.7
16. Activity rate (% population aged 15-64)	67.2	67.2	67.7	67.9	68.3	68.9	69.2	69.2	69.7	70.1	70.6	71.0
17. Activity rate (% of population aged 15-24)	48.6	47.5	47.0	47.0	47.4	48.2	48.2	47.8	47.8	47.5	47.6	47.8
18. Activity rate (% of population aged 25-54)	80.4	80.5	81.1	81.3	81.7	82.2	82.4	82.3	82.8	83.1	83.7	83.9
19. Activity rate (% of population aged 55-64)	38.9	39.1	39.8	40.1	40.1	40.3	40.8	41.5	42.9	44.5	45.5	47.1
20. Total unemployment (000)	17463	16889	17105	16773	15948	14809	13443	12863	13662	14465	14790	14463
21. Unemployment rate (% labour force 15+)	10.5	10.1	10.2	9.9	9.3	8.6	7.7	7.3	7.6	8.0	8.1	7.9
22. Youth unemployment rate (% labour force 15-24)	21.9	21.1	21.4	20.7	19.1	17.2	15.3	15.2	15.7	16.5	16.7	16.7
23. Long-term unemployment rate (% labour force)	5.0	4.9	4.9	4.8	4.4	3.9	3.4	3.1	3.1	3.3	3.4	3.3
24. Youth unemployment ratio (% population aged 15-24)	10.5	10.0	10.2	9.7	9.2	8.5	7.7	6.9	7.2	7.6	7.6	8.0

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	177562	178230	178831	179352	179733	180510	180781	182005	182988	184035	184826	186010
2. Population aged 15-64	122062	122388	122877	123214	123821	124227	123917	124526	125034	125688	125955	126816
3. Total employment (000)	90363	90876	91010	91688	92793	94016	95397	96351	96405	96467	96479	96852
4. Population in employment aged 15-64	85931	86312	86473	87043	88222	89549	90156	91021	91034	91322	91518	92429
5. Employment rate (% population aged 15-64)	70.4	70.5	70.4	70.6	71.2	72.1	72.8	73.1	72.8	72.7	72.7	72.9
6. Employment rate (% population aged 15-24)	41.3	41.0	40.3	40.7	41.7	43.1	43.9	44.3	43.6	42.8	42.9	42.7
7. Employment rate (% population aged 25-54)	85.2	85.4	85.2	85.3	85.8	86.5	87.2	87.3	86.8	86.5	86.4	86.6
8. Employment rate (% population aged 55-64)	47.5	47.2	47.3	47.2	47.3	47.5	48.0	48.9	50.1	51.6	52.2	53.1
9. FTE employment rate (% population aged 15-64)	:	69.3	68.9	69.1	69.7	70.3	71.1	71.5	71.2	70.7	70.3	70.4
10. Self-employed (% total employment)	18.4	18.5	18.5	18.3	18.1	17.8	17.6	17.4	17.4	17.8	18.0	17.8
11. Part-time employment (% total employment)	4.9	5.2	5.4	5.7	6.0	6.1	6.1	6.2	6.6	6.7	7.2	7.7
12. Fixed-term contracts (% total employment)	10.7	11.3	11.2	11.7	12.3	12.6	12.8	12.5	12.2	12.2	12.9	13.6
13. Employment in Services (% total employment)	57.6	58.1	58.5	58.8	59.0	59.6	60.0	60.4	60.8	61.2	61.6	61.8
14. Employment in Industry (% total employment)	36.6	36.4	36.1	35.9	35.8	35.3	35.0	34.8	34.5	34.1	33.8	33.6
15. Employment in Agriculture (% total employment)	5.8	5.5	5.4	5.3	5.2	5.1	5.0	4.8	4.8	4.7	4.6	4.6
16. Activity rate (% population aged 15-64)	78.2	77.8	77.9	78.0	78.1	78.3	78.3	78.3	78.4	78.6	78.6	78.9
17. Activity rate (% of population aged 15-24)	52.2	51.0	50.6	50.5	51.0	51.7	51.6	51.4	51.2	51.0	50.9	51.2
18. Activity rate (% of population aged 25-54)	92.9	92.7	92.7	92.6	92.6	92.7	92.7	92.4	92.4	92.4	92.4	92.5
19. Activity rate (% of population aged 55-64)	51.8	51.4	51.8	51.8	51.7	51.5	51.6	52.2	53.4	55.1	55.8	56.8
20. Total unemployment (000)	8831	8347	8480	8177	7621	7035	6344	6115	6624	7093	7262	7173
21. Unemployment rate (% labour force 15+)	9.2	8.7	8.8	8.4	7.8	7.2	6.4	6.1	6.6	7.0	7.2	7.0
22. Youth unemployment rate (% labour force 15-24)	20.3	18.9	19.4	18.6	17.1	15.3	13.8	13.7	14.8	16.0	16.2	16.4
23. Long-term unemployment rate (% labour force)	4.1	4.1	4.1	4.0	3.6	3.2	2.8	2.6	2.6	2.9	3.0	2.9
24. Youth unemployment ratio (% population aged 15-24)	10.8	10.0	10.3	9.8	9.3	8.6	7.7	7.1	7.6	8.1	8.0	8.5

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	187224	187727	188222	188644	188602	189197	190121	191062	191843	192717	193554	194553
2. Population aged 15-64	122723	122973	123286	123479	123764	124113	124469	124910	125358	125940	126247	127157
3. Total employment (000)	63125	63849	64657	65528	67107	68884	71013	72447	73524	74177	75176	76069
4. Population in employment aged 15-64	60464	61083	61886	62682	63898	65774	67375	68742	69726	70565	71739	73040
5. Employment rate (% population aged 15-64)	49.3	49.7	50.2	50.8	51.6	53.0	54.1	55.0	55.6	56.0	56.8	57.4
6. Employment rate (% population aged 15-24)	34.9	34.0	33.4	33.7	34.7	36.0	36.9	37.4	37.5	37.0	37.0	36.8
7. Employment rate (% population aged 25-54)	60.4	61.0	61.8	62.3	63.2	64.7	65.8	66.7	67.3	67.7	68.8	69.1
8. Employment rate (% population aged 55-64)	24.7	25.3	25.8	26.1	26.3	27.1	28.0	29.1	30.7	32.2	33.2	35.4
9. FTE employment rate (% population aged 15-64)	:	42.3	42.5	42.8	43.2	44.3	45.4	46.2	46.8	47.1	47.1	47.4
10. Self-employed (% total employment)	12.5	12.2	12.0	11.8	11.5	11.1	10.9	10.7	10.5	10.7	10.7	10.7
11. Part-time employment (% total employment)	30.4	31.0	31.5	32.2	33.0	33.2	33.2	33.3	33.3	33.9	35.1	36.2
12. Fixed-term contracts (% total employment)	12.6	13.0	12.9	13.4	13.8	14.3	14.7	14.6	14.3	14.1	14.4	15.0
13. Employment in Services (% total employment)	80.6	81.0	81.6	82.0	82.4	83.0	83.4	83.8	84.3	84.9	85.4	85.7
14. Employment in Industry (% total employment)	15.2	14.9	14.5	14.2	14.0	13.7	13.4	13.1	12.7	12.2	11.9	11.5
15. Employment in Agriculture (% total employment)	4.3	4.1	3.8	3.7	3.6	3.4	3.2	3.1	3.0	2.9	2.8	2.7
16. Activity rate (% population aged 15-64)	56.3	56.6	57.4	57.9	58.6	59.5	60.0	60.2	61.0	61.6	62.6	63.2
17. Activity rate (% of population aged 15-24)	45.0	44.0	43.4	43.4	43.8	44.6	44.7	44.2	44.3	44.0	44.2	44.4
18. Activity rate (% of population aged 25-54)	67.8	68.3	69.4	70.0	70.7	71.6	72.1	72.3	73.1	73.9	75.0	75.3
19. Activity rate (% of population aged 55-64)	26.7	27.4	28.4	28.9	29.0	29.6	30.3	31.1	32.8	34.3	35.5	37.8
20. Total unemployment (000)	8631	8543	8625	8597	8327	7774	7099	6748	7038	7372	7528	7290
21. Unemployment rate (% labour force 15+)	12.2	12.0	12.0	11.8	11.3	10.4	9.3	8.7	9.0	9.3	9.3	8.9
22. Youth unemployment rate (% labour force 15-24)	23.7	23.5	23.6	23.0	21.4	19.4	17.1	16.9	16.8	17.0	17.3	17.1
23. Long-term unemployment rate (% labour force)	6.1	6.1	6.0	5.9	5.5	4.8	4.3	3.8	3.8	3.9	4.0	3.7
24. Youth unemployment ratio (% population aged 15-24)	10.1	10.0	10.0	9.7	9.1	8.5	7.8	6.8	6.8	7.0	7.3	7.6

Source: Eurostat
Note: Indicator 20: 2005 estimate.

Employment in Europe 2006

Key employment indicators: Belgium												
All	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
1. Total population (000)	10072	10103	10126	10153	10175	10214	10239	10263	10310	10356	10396	10477
2. Population aged 15-64	6686	6697	6696	6700	6702	6710	6719	6728	6758	6791	6818	6876
3. Total employment (000)	3812	3869	3882	3901	3961	4013	4092	4150	4144	4141	4165	4203
4. Population in employment aged 15-64	3724	3755	3765	3807	3850	3980	4068	4033	4047	4047	4114	4199
5. Employment rate (% population aged 15-64)	55.7	56.1	56.2	56.8	57.4	59.3	60.5	59.9	59.9	59.6	60.3	61.1
6. Employment rate (% population aged 15-24)	28.2	27.4	26.8	26.3	26.8	28.2	29.1	29.7	29.4	27.4	27.8	27.5
7. Employment rate (% population aged 25-54)	72.8	73.2	73.5	74.1	74.3	76.2	77.4	76.6	76.5	76.5	77.3	78.3
8. Employment rate (% population aged 55-64)	22.5	22.9	21.9	22.1	22.9	24.6	26.3	25.1	26.6	28.1	30.0	31.8
9. FTE employment rate (% population aged 15-64)	53.2	53.4	53.3	53.8	53.9	55.7	57.4	55.7	55.3	54.7	55.8	56.3
10. Self-employed (% total employment)	18.3	18.3	18.3	18.2	17.7	17.4	17.0	16.6	16.5	16.4	16.2	16.2
11. Part-time employment (% total employment)	13.3	14.0	14.5	15.2	16.5	18.4	18.9	18.5	19.1	20.5	21.4	22.0
12. Fixed-term contracts (% total employment)	5.2	5.4	6.0	6.6	8.2	9.9	9.1	8.8	8.1	8.4	8.7	8.9
13. Employment in Services (% total employment)	72.3	72.6	73.2	73.7	74.1	74.7	75.0	75.3	76.1	76.6	77.2	77.6
14. Employment in Industry (% total employment)	24.8	24.5	24.1	23.6	23.3	22.8	22.6	22.5	21.8	21.3	20.8	20.5
15. Employment in Agriculture (% total employment)	2.9	2.9	2.8	2.7	2.6	2.5	2.3	2.2	2.1	2.0	2.0	1.9
16. Activity rate (% population aged 15-64)	61.8	62.1	62.3	62.7	63.5	64.9	65.1	64.2	64.8	64.9	65.9	66.7
17. Activity rate (% of population aged 15-24)	36.0	34.8	33.7	33.2	33.8	35.7	35.3	35.7	35.7	35.0	35.3	35.0
18. Activity rate (% of population aged 25-54)	79.6	80.2	80.6	80.8	81.2	82.3	82.4	81.2	81.9	82.3	83.4	84.6
19. Activity rate (% of population aged 55-64)	23.5	23.9	22.9	23.2	24.1	25.9	27.1	25.9	27.7	28.9	31.2	33.3
20. Total unemployment (000)	406	407	401	390	400	371	302	286	331	362	379	390
21. Unemployment rate (% labour force 15+)	9.8	9.7	9.5	9.2	9.3	8.5	6.9	6.6	7.5	8.2	8.4	8.4
22. Youth unemployment rate (% labour force 15-24)	23.2	22.9	22.1	22.0	22.1	21.1	16.7	16.8	17.7	21.8	21.2	21.5
23. Long-term unemployment rate (% labour force)	5.6	5.8	5.7	5.4	5.6	4.8	3.7	3.2	3.7	3.7	4.1	4.4
24. Youth unemployment ratio (% population aged 15-24)	7.8	7.4	6.9	7.0	7.0	7.5	6.2	6.1	6.3	7.6	7.5	7.5
Male												
1. Total population (000)	4927	4944	4954	4966	4977	4994	5006	5018	5042	5067	5086	5127
2. Population aged 15-64	3366	3373	3372	3374	3375	3380	3384	3388	3403	3420	3443	3459
3. Total employment (000)	2297	2327	2327	2319	2332	2325	2367	2402	2382	2357	2369	2369
4. Population in employment aged 15-64	2243	2258	2256	2263	2265	2302	2351	2331	2323	2300	2337	2361
5. Employment rate (% population aged 15-64)	66.6	66.9	66.9	67.1	67.1	68.1	69.5	68.8	68.3	67.3	67.9	68.3
6. Employment rate (% population aged 15-24)	31.0	30.5	30.7	30.2	30.4	31.2	32.8	33.2	32.2	29.9	30.1	29.7
7. Employment rate (% population aged 25-54)	86.1	86.2	86.1	86.0	85.6	86.3	87.3	86.5	86.1	85.0	85.8	86.1
8. Employment rate (% population aged 55-64)	32.7	33.5	31.8	31.7	32.1	33.8	36.4	35.1	36.0	37.8	39.1	41.7
9. FTE employment rate (% population aged 15-64)	67.0	67.2	67.0	67.1	66.9	68.6	70.7	68.6	67.6	66.7	67.6	67.4
10. Self-employed (% total employment)	19.8	19.5	19.8	19.8	19.3	18.8	18.8	18.6	18.5	18.3	18.6	18.6
11. Part-time employment (% total employment)	2.7	3.0	3.2	3.5	3.9	5.1	5.5	5.2	5.6	6.4	6.8	7.6
12. Fixed-term contracts (% total employment)	3.4	3.8	4.3	4.7	6.0	7.3	6.7	6.3	5.8	6.2	6.4	6.8
13. Employment in Services (% total employment)	62.9	63.2	63.9	64.4	64.5	64.6	65.1	65.5	66.5	67.2	67.6	68.3
14. Employment in Industry (% total employment)	33.6	33.4	32.9	32.5	32.4	32.4	31.9	31.7	30.9	30.3	29.9	29.4
15. Employment in Agriculture (% total employment)	3.5	3.4	3.2	3.2	3.1	3.0	3.0	2.8	2.6	2.5	2.5	2.4
16. Activity rate (% population aged 15-64)	72.2	72.4	72.4	72.5	72.8	73.4	73.7	73.2	73.2	72.9	73.4	73.9
17. Activity rate (% of population aged 15-24)	38.3	37.3	36.7	36.2	37.0	38.4	38.7	39.6	38.9	38.4	37.7	37.6
18. Activity rate (% of population aged 25-54)	92.2	92.3	92.4	92.1	91.8	92.0	91.8	91.0	91.3	90.9	91.8	92.2
19. Activity rate (% of population aged 55-64)	34.2	34.9	33.4	33.3	33.9	35.3	37.5	36.3	37.5	38.9	40.4	43.4
20. Total unemployment (000)	189	186	182	179	189	178	141	147	167	192	191	196
21. Unemployment rate (% labour force 15+)	7.7	7.6	7.4	7.3	7.7	7.1	5.6	5.9	6.7	7.6	7.5	7.6
22. Youth unemployment rate (% labour force 15-24)	21.6	20.5	18.6	18.5	20.2	19.4	14.5	16.0	17.2	22.2	20.2	21.0
23. Long-term unemployment rate (% labour force)	4.1	4.5	4.3	4.2	4.5	4.0	3.0	2.9	3.2	3.3	3.7	3.8
24. Youth unemployment ratio (% population aged 15-24)	7.3	6.8	6.0	6.0	6.6	7.2	5.9	6.4	6.7	8.5	7.6	7.9
Female												
1. Total population (000)	5145	5159	5172	5187	5198	5220	5233	5245	5267	5289	5310	5350
2. Population aged 15-64	3321	3324	3324	3326	3327	3331	3336	3341	3355	3371	3375	3417
3. Total employment (000)	1515	1542	1555	1581	1629	1688	1725	1749	1762	1784	1796	1834
4. Population in employment aged 15-64	1482	1498	1510	1545	1585	1678	1717	1702	1724	1746	1777	1838
5. Employment rate (% population aged 15-64)	44.6	45.0	45.4	46.5	47.6	50.4	51.5	51.0	51.4	51.8	52.6	53.8
6. Employment rate (% population aged 15-24)	25.4	24.2	22.8	22.2	23.0	25.1	25.4	26.0	26.5	24.7	25.4	25.2
7. Employment rate (% population aged 25-54)	59.2	60.0	60.7	61.8	62.8	65.8	67.2	66.5	66.8	67.8	68.5	70.4
8. Employment rate (% population aged 55-64)	12.8	12.9	12.4	12.9	14.0	15.7	16.6	15.5	17.5	18.7	21.1	22.1
9. FTE employment rate (% population aged 15-64)	39.5	39.6	39.7	40.5	40.9	42.9	44.2	43.0	43.2	42.9	44.3	45.5
10. Self-employed (% total employment)	15.9	16.4	16.0	15.7	15.4	15.5	14.5	13.9	13.8	13.8	13.0	13.0
11. Part-time employment (% total employment)	29.3	30.5	31.4	32.4	34.5	36.9	37.4	36.9	37.4	39.1	40.5	40.5
12. Fixed-term contracts (% total employment)	7.7	7.7	8.3	9.2	11.2	13.2	12.3	12.0	11.2	11.1	11.7	11.4
13. Employment in Services (% total employment)	85.9	86.2	86.5	86.9	87.5	88.2	88.5	88.5	88.7	88.9	89.5	89.3
14. Employment in Industry (% total employment)	12.0	11.6	11.4	11.1	10.7	10.0	10.1	10.1	9.8	9.7	9.2	9.3
15. Employment in Agriculture (% total employment)	2.1	2.1	2.1	2.0	1.8	1.8	1.5	1.4	1.5	1.4	1.3	1.4
16. Activity rate (% population aged 15-64)	51.2	51.7	52.1	52.9	54.0	56.3	56.4	55.1	56.3	56.9	58.2	59.5
17. Activity rate (% of population aged 15-24)	33.7	32.4	30.8	30.3	30.5	32.8	31.8	31.7	32.4	31.4	32.8	32.3
18. Activity rate (% of population aged 25-54)	66.8	67.7	68.5	69.2	70.3	72.4	72.7	71.2	72.4	73.6	74.8	76.8
19. Activity rate (% of population aged 55-64)	13.5	13.5	12.9	13.5	14.8	16.8	17.1	15.9	18.2	19.2	22.1	23.4
20. Total unemployment (000)	218	220	219	211	211	192	161	138	164	170	188	194
21. Unemployment rate (% labour force 15+)	12.7	12.7	12.5	11.9	11.6	10.3	8.5	7.5	8.6	8.9	9.5	9.5
22. Youth unemployment rate (% labour force 15-24)	25.0	25.6	26.5	26.4	24.5	23.0	19.5	17.8	18.3	21.3	22.4	22.1
23. Long-term unemployment rate (% labour force)	7.6	7.7	7.6	7.1	7.1	5.9	4.6	3.5	4.3	4.2	4.7	5.0
24. Youth unemployment ratio (% population aged 15-24)	8.4	8.2	8.1	8.1	7.5	7.8	6.5	5.7	5.9	6.7	7.3	7.1

Source: Eurostat
Note: Indicator 9: 1999 – 2000 estimates.

Key employment indicators: Czech Republic

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	10250	10235	10222	10176	10171	10179	10196	10229
2. Population aged 15-64	:	:	:	:	7070	7089	7116	7121	7149	7182	7231	7270
3. Total employment (000)	4923	4959	4968	4933	4863	4761	4727	4724	4760	4910	4931	4966
4. Population in employment aged 15-64	:	:	:	:	4759	4653	4625	4631	4677	4647	4639	4710
5. Employment rate (% population aged 15-64)	:	:	:	:	67.3	65.6	65.0	65.0	65.4	64.7	64.2	64.8
6. Employment rate (% population aged 15-24)	:	:	:	:	41.5	38.3	36.4	34.2	32.2	30.0	27.8	27.5
7. Employment rate (% population aged 25-54)	:	:	:	:	83.7	81.9	81.6	82.1	82.5	81.7	81.4	82.0
8. Employment rate (% population aged 55-64)	:	:	:	:	37.1	37.5	36.3	37.1	40.8	42.3	42.7	44.5
9. FTE employment rate (% population aged 15-64)	:	:	:	67.8	65.6	63.9	63.2	63.4	64.7	64.1	63.3	63.9
10. Self-employed (% total employment)	10.5	11.9	12.1	12.3	13.6	14.4	15.0	15.1	16.0	19.2	18.8	18.0
11. Part-time employment (% total employment)	:	:	:	:	5.7	5.6	5.3	4.9	4.9	5.0	4.9	4.9
12. Fixed-term contracts (% total employment)	:	:	:	:	6.7	7.6	8.1	8.0	8.1	9.2	9.1	8.6
13. Employment in Services (% total employment)	50.9	51.6	52.3	53.1	53.6	54.6	55.4	55.2	55.5	57.7	57.6	57.9
14. Employment in Industry (% total employment)	42.2	41.9	41.6	41.2	41.0	40.2	39.5	40.1	39.7	38.1	38.4	38.3
15. Employment in Agriculture (% total employment)	6.9	6.6	6.1	5.8	5.5	5.2	5.1	4.8	4.8	4.2	4.0	3.8
16. Activity rate (% population aged 15-64)	:	:	:	:	72.0	72.0	71.3	70.8	70.6	70.2	70.0	70.4
17. Activity rate (% of population aged 15-24)	:	:	:	:	47.7	46.7	44.4	41.5	38.7	36.8	35.2	34.0
18. Activity rate (% of population aged 25-54)	:	:	:	:	88.5	88.6	88.4	88.4	88.2	87.8	87.8	88.3
19. Activity rate (% of population aged 55-64)	:	:	:	:	38.6	39.4	38.2	39.0	42.4	44.2	45.1	46.9
20. Total unemployment (000)	:	168	170	231	328	444	445	411	373	398	426	410
21. Unemployment rate (% labour force 15+)	:	:	:	:	6.4	8.6	8.7	8.0	7.3	7.8	8.3	7.9
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	12.8	17.7	17.8	17.3	16.9	18.6	21.0	19.2
23. Long-term unemployment rate (% labour force)	:	:	:	:	2.0	3.2	4.2	4.2	3.7	3.8	4.2	4.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	6.2	8.4	8.0	7.3	6.5	6.8	7.4	6.5

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	4964	4954	4949	4932	4934	4941	4959	4987
2. Population aged 15-64	:	:	:	:	3517	3524	3538	3545	3563	3582	3616	3646
3. Total employment (000)	:	:	:	:	2737	2671	2652	2653	2683	2772	2782	2820
4. Population in employment aged 15-64	:	:	:	:	2671	2607	2589	2595	2632	2619	2615	2671
5. Employment rate (% population aged 15-64)	:	:	:	:	76.0	74.0	73.2	73.2	73.9	73.1	72.3	73.3
6. Employment rate (% population aged 15-24)	:	:	:	:	47.3	42.3	39.3	37.1	35.3	32.3	30.1	31.3
7. Employment rate (% population aged 25-54)	:	:	:	:	91.3	89.5	89.3	89.7	90.2	89.7	89.2	89.8
8. Employment rate (% population aged 55-64)	:	:	:	:	53.2	53.6	51.7	52.6	57.2	57.5	57.2	59.3
9. FTE employment rate (% population aged 15-64)	:	:	:	77.3	75.7	73.6	72.6	72.6	73.9	73.2	72.1	73.3
10. Self-employed (% total employment)	:	:	:	:	17.2	18.2	18.8	19.0	20.2	24.2	24.0	22.8
11. Part-time employment (% total employment)	:	:	:	:	2.6	2.4	2.2	2.2	2.2	2.3	2.3	2.1
12. Fixed-term contracts (% total employment)	:	:	:	:	5.7	6.2	7.1	7.2	7.0	7.9	7.8	7.6
13. Employment in Services (% total employment)	:	:	:	:	42.7	43.6	44.5	44.4	44.8	47.4	47.4	47.8
14. Employment in Industry (% total employment)	:	:	:	:	50.7	50.1	49.3	49.6	49.3	47.5	47.7	47.6
15. Employment in Agriculture (% total employment)	:	:	:	:	6.6	6.3	6.2	6.0	5.9	5.2	4.9	4.6
16. Activity rate (% population aged 15-64)	:	:	:	:	80.0	79.9	79.1	78.6	78.6	78.0	77.9	78.4
17. Activity rate (% of population aged 15-24)	:	:	:	:	53.5	51.4	48.3	45.2	42.3	39.6	38.7	38.9
18. Activity rate (% of population aged 25-54)	:	:	:	:	95.1	95.1	94.9	94.9	94.8	94.4	94.6	94.8
19. Activity rate (% of population aged 55-64)	:	:	:	:	55.1	56.2	54.5	55.0	59.3	59.9	60.2	62.1
20. Total unemployment (000)	:	67	73	100	143	207	208	190	169	174	201	187
21. Unemployment rate (% labour force 15+)	:	:	:	:	5.0	7.3	7.3	6.7	5.9	6.2	7.1	6.5
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	11.5	17.4	18.5	17.6	16.6	18.3	22.2	19.3
23. Long-term unemployment rate (% labour force)	:	:	:	:	1.5	2.4	3.5	3.4	3.0	2.9	3.4	3.4
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	6.3	9.1	9.1	8.1	7.0	7.3	8.6	7.5

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	5286	5281	5273	5244	5238	5238	5237	5242
2. Population aged 15-64	:	:	:	:	3554	3565	3578	3576	3586	3601	3615	3624
3. Total employment (000)	:	:	:	:	2126	2090	2076	2071	2077	2138	2148	2146
4. Population in employment aged 15-64	:	:	:	:	2087	2045	2036	2036	2045	2028	2024	2039
5. Employment rate (% population aged 15-64)	:	:	:	:	58.7	57.4	56.9	56.9	57.0	56.3	56.0	56.3
6. Employment rate (% population aged 15-24)	:	:	:	:	35.8	34.3	33.5	31.4	29.2	27.6	25.4	23.4
7. Employment rate (% population aged 25-54)	:	:	:	:	76.0	74.2	73.7	74.4	74.7	73.5	73.4	74.0
8. Employment rate (% population aged 55-64)	:	:	:	:	22.9	23.2	22.4	23.1	25.9	28.4	29.4	30.9
9. FTE employment rate (% population aged 15-64)	:	:	:	58.5	55.7	54.5	53.9	54.2	55.6	55.1	54.6	54.6
10. Self-employed (% total employment)	:	:	:	:	9.1	9.5	10.1	10.1	10.6	12.7	12.2	11.7
11. Part-time employment (% total employment)	:	:	:	:	9.9	9.9	9.3	8.5	8.3	8.5	8.3	8.6
12. Fixed-term contracts (% total employment)	:	:	:	:	7.7	9.1	9.4	8.9	9.3	10.7	10.7	9.8
13. Employment in Services (% total employment)	:	:	:	:	67.4	68.6	69.2	68.8	69.4	70.9	70.9	71.1
14. Employment in Industry (% total employment)	:	:	:	:	28.5	27.6	27.1	27.9	27.2	26.1	26.3	26.2
15. Employment in Agriculture (% total employment)	:	:	:	:	4.1	3.8	3.7	3.2	3.4	3.0	2.8	2.7
16. Activity rate (% population aged 15-64)	:	:	:	:	64.0	64.1	63.6	63.2	62.7	62.5	62.2	62.4
17. Activity rate (% of population aged 15-24)	:	:	:	:	42.0	42.0	40.6	37.9	35.2	34.0	31.5	28.9
18. Activity rate (% of population aged 25-54)	:	:	:	:	81.9	82.0	81.8	81.8	81.5	81.0	80.9	81.6
19. Activity rate (% of population aged 55-64)	:	:	:	:	23.9	24.4	23.7	24.6	27.2	30.0	31.3	32.9
20. Total unemployment (000)	:	101	98	132	185	237	237	221	205	224	225	224
21. Unemployment rate (% labour force 15+)	:	:	:	:	8.1	10.3	10.3	9.7	9.0	9.9	9.9	9.8
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	14.4	18.1	17.0	16.9	17.2	18.8	19.5	19.1
23. Long-term unemployment rate (% labour force)	:	:	:	:	2.6	4.2	5.2	5.1	4.6	5.0	5.3	5.3
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	6.2	7.8	7.0	6.5	6.1	6.4	6.1	5.5

Source: Eurostat

Employment in Europe 2006

Key employment indicators: Denmark

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	5152	5198	5210	5232	5255	5277	5298	5321	5339	5359	5379	5396
2. Population aged 15-64	3484	3496	3514	3516	3523	3525	3532	3545	3538	3548	3559	3566
3. Total employment (000)	2605	2629	2655	2687	2727	2753	2764	2785	2784	2750	2751	2771
4. Population in employment aged 15-64	2518	2567	2594	2633	2646	2680	2694	2700	2684	2666	2693	2706
5. Employment rate (% population aged 15-64)	72.3	73.4	73.8	74.9	75.1	76.0	76.3	76.2	75.9	75.1	75.7	75.9
6. Employment rate (% population aged 15-24)	61.6	64.6	65.2	66.6	65.3	65.5	66.0	62.3	63.5	59.6	62.3	62.3
7. Employment rate (% population aged 25-54)	80.3	81.3	81.9	82.4	83.1	83.9	84.2	84.4	84.1	83.5	83.7	84.5
8. Employment rate (% population aged 55-64)	50.9	49.8	49.1	51.7	52.0	54.5	55.7	58.0	57.9	60.2	60.3	59.5
9. FTE employment rate (% population aged 15-64)	65.6	66.8	67.0	68.1	67.8	69.7	69.3	69.8	69.7	68.4	68.6	68.1
10. Self-employed (% total employment)	8.1	7.6	7.4	7.2	6.9	6.8	6.6	6.5	6.6	6.5	6.3	6.3
11. Part-time employment (% total employment)	21.7	21.8	21.9	22.5	22.3	21.6	21.3	20.1	20.0	21.3	22.2	22.1
12. Fixed-term contracts (% total employment)	11.6	11.6	10.9	10.6	9.9	9.6	9.7	9.2	9.1	9.3	9.5	9.8
13. Employment in Services (% total employment)	71.3	71.1	71.6	72.1	72.6	73.3	73.6	74.0	74.5	75.1	75.5	75.7
14. Employment in Industry (% total employment)	24.2	24.6	24.2	23.9	23.6	23.1	23.0	22.7	22.1	21.7	21.3	21.2
15. Employment in Agriculture (% total employment)	4.4	4.3	4.1	4.0	3.8	3.6	3.4	3.3	3.3	3.2	3.2	3.1
16. Activity rate (% population aged 15-64)	79.5	79.8	79.8	79.8	79.7	80.6	80.0	79.9	79.6	79.5	80.1	79.8
17. Activity rate (% of population aged 15-24)	69.0	72.2	73.0	72.9	71.3	72.3	70.7	68.0	68.6	65.6	67.9	68.1
18. Activity rate (% of population aged 25-54)	88.0	87.6	87.8	87.4	87.7	88.2	87.9	87.9	87.8	87.8	88.2	88.1
19. Activity rate (% of population aged 55-64)	55.4	54.6	52.8	55.0	55.1	57.5	58.2	60.5	60.4	63.3	63.9	62.8
20. Total unemployment (000)	213	188	178	148	137	147	123	130	131	155	160	140
21. Unemployment rate (% labour force 15+)	7.7	6.7	6.3	5.2	4.9	5.2	4.3	4.5	4.6	5.4	5.5	4.8
22. Youth unemployment rate (% labour force 15-24)	10.2	9.6	9.7	7.7	7.3	9.1	6.2	8.3	7.4	9.2	8.2	8.6
23. Long-term unemployment rate (% labour force)	2.5	2.0	1.8	1.5	1.3	1.1	0.9	0.9	0.9	1.1	1.2	1.1
24. Youth unemployment ratio (% population aged 15-24)	7.4	7.6	7.8	6.3	5.9	6.8	4.8	5.7	5.1	6.0	5.6	5.9

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	2538	2560	2573	2579	2584	2609	2620	2632	2640	2650	2662	2671
2. Population aged 15-64	1760	1766	1774	1775	1780	1783	1783	1792	1786	1794	1798	1799
3. Total employment (000)	1414	1449	1457	1462	1472	1483	1481	1490	1488	1480	1471	1480
4. Population in employment aged 15-64	1363	1411	1420	1428	1423	1441	1441	1438	1429	1429	1433	1436
5. Employment rate (% population aged 15-64)	77.5	79.9	80.0	80.5	79.9	80.8	80.8	80.2	80.0	79.6	79.7	79.8
6. Employment rate (% population aged 15-24)	63.0	67.5	67.5	68.5	64.8	68.2	68.5	64.5	65.5	61.5	63.4	63.9
7. Employment rate (% population aged 25-54)	85.5	87.0	88.0	88.3	88.5	88.6	88.5	88.2	88.4	87.9	87.6	88.3
8. Employment rate (% population aged 55-64)	62.8	64.7	61.7	62.7	61.3	62.6	64.1	65.5	64.5	67.3	67.3	65.6
9. FTE employment rate (% population aged 15-64)	74.0	76.6	76.4	76.9	76.2	77.6	76.9	76.9	76.7	75.4	75.7	75.6
10. Self-employed (% total employment)	10.3	9.9	9.8	9.5	9.1	9.1	8.8	9.0	9.1	8.7	8.6	8.5
11. Part-time employment (% total employment)	10.5	10.8	11.4	12.2	11.1	10.4	10.2	10.2	11.1	11.6	12.1	12.7
12. Fixed-term contracts (% total employment)	10.8	10.7	10.6	10.2	9.2	8.6	8.5	7.7	7.9	8.2	8.7	8.5
13. Employment in Services (% total employment)	60.0	60.4	61.4	61.1	61.6	62.3	62.7	63.2	64.0	64.4	64.9	65.3
14. Employment in Industry (% total employment)	33.7	33.8	32.9	33.1	32.9	32.4	32.4	31.9	31.2	30.9	30.5	30.2
15. Employment in Agriculture (% total employment)	6.3	5.9	5.7	5.8	5.5	5.3	4.8	4.9	4.8	4.7	4.6	4.5
16. Activity rate (% population aged 15-64)	84.2	85.4	85.2	84.8	83.8	84.9	84.2	83.8	83.6	83.8	84.0	83.6
17. Activity rate (% of population aged 15-24)	70.7	74.3	74.5	74.2	70.6	74.9	73.4	70.2	70.7	67.7	69.7	70.0
18. Activity rate (% of population aged 25-54)	92.2	92.1	92.7	92.4	92.0	92.3	91.7	91.4	91.9	91.8	91.5	91.7
19. Activity rate (% of population aged 55-64)	68.2	70.3	66.1	66.3	64.4	65.5	66.7	68.4	67.1	70.4	71.3	68.7
20. Total unemployment (000)	106	86	81	68	59	70	59	63	65	74	78	68
21. Unemployment rate (% labour force 15+)	7.1	5.6	5.3	4.4	3.9	4.6	3.9	4.1	4.3	4.8	5.1	4.4
22. Youth unemployment rate (% labour force 15-24)	10.3	8.2	8.5	6.8	7.1	9.3	6.6	8.1	7.3	9.2	8.9	8.6
23. Long-term unemployment rate (% labour force)	2.2	1.8	1.5	1.2	0.9	1.0	0.8	0.8	0.7	1.2	1.1	1.1
24. Youth unemployment ratio (% population aged 15-24)	7.7	6.8	7.1	5.7	5.8	6.7	5.0	5.7	5.2	6.2	6.2	6.1

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	2615	2638	2637	2654	2671	2669	2678	2689	2699	2708	2717	2725
2. Population aged 15-64	1727	1733	1743	1744	1743	1743	1749	1752	1752	1753	1762	1767
3. Total employment (000)	1191	1180	1198	1225	1255	1270	1283	1295	1296	1270	1280	1291
4. Population in employment aged 15-64	1155	1157	1174	1205	1223	1239	1253	1261	1256	1237	1261	1270
5. Employment rate (% population aged 15-64)	66.9	66.7	67.4	69.1	70.2	71.1	71.6	72.0	71.7	70.5	71.6	71.9
6. Employment rate (% population aged 15-24)	59.8	61.4	62.5	64.2	65.8	62.7	63.3	60.1	61.4	57.6	61.1	60.5
7. Employment rate (% population aged 25-54)	75.1	75.4	75.7	76.7	77.6	79.2	79.8	80.6	79.8	79.0	79.8	80.6
8. Employment rate (% population aged 55-64)	38.9	35.9	37.1	40.3	42.0	45.8	46.6	49.7	50.4	52.9	53.3	53.5
9. FTE employment rate (% population aged 15-64)	57.5	57.3	58.0	59.7	59.8	62.1	62.2	63.0	63.1	61.8	61.9	61.1
10. Self-employed (% total employment)	5.5	4.8	4.6	4.4	4.3	4.2	4.1	3.5	3.8	4.0	3.7	3.8
11. Part-time employment (% total employment)	35.0	35.4	34.7	34.9	35.5	34.7	34.1	31.6	30.3	32.7	33.8	33.0
12. Fixed-term contracts (% total employment)	12.4	12.6	11.4	11.0	10.6	10.7	11.1	10.7	10.3	10.4	10.3	11.3
13. Employment in Services (% total employment)	84.4	84.1	84.1	85.1	85.3	85.8	85.9	86.3	86.5	87.4	87.6	87.4
14. Employment in Industry (% total employment)	13.3	13.5	13.7	13.1	12.9	12.6	12.2	12.1	11.9	11.1	10.9	11.0
15. Employment in Agriculture (% total employment)	2.3	2.4	2.2	1.8	1.8	1.6	1.9	1.6	1.6	1.5	1.5	1.6
16. Activity rate (% population aged 15-64)	74.6	74.0	74.2	74.7	75.6	76.1	75.6	75.9	75.5	75.1	76.2	75.9
17. Activity rate (% of population aged 15-24)	67.0	69.8	71.1	71.0	71.8	69.7	67.8	65.8	66.4	63.5	66.0	66.2
18. Activity rate (% of population aged 25-54)	83.9	83.0	82.8	82.5	83.5	84.1	84.0	84.4	83.7	83.7	84.8	84.5
19. Activity rate (% of population aged 55-64)	42.8	40.2	40.2	43.5	45.3	48.9	49.0	51.9	52.9	55.9	56.5	56.8
20. Total unemployment (000)	107	102	97	80	78	77	63	67	66	81	81	72
21. Unemployment rate (% labour force 15+)	8.5	8.1	7.5	6.2	6.0	5.8	4.8	5.0	5.0	6.1	6.0	5.3
22. Youth unemployment rate (% labour force 15-24)	10.1	11.3	11.0	8.8	7.4	8.9	5.8	8.5	7.5	9.2	7.4	8.6
23. Long-term unemployment rate (% labour force)	2.8	2.2	2.1	1.9	1.7	1.3	1.1	1.0	1.0	1.0	1.3	1.2
24. Youth unemployment ratio (% population aged 15-24)	7.2	8.5	8.5	6.8	6.0	7.0	4.5	5.8	5.0	5.9	4.9	5.7

Source: Eurostat

Key employment indicators: Germany

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	80406	80594	80712	80645	80895	80962	81132	81345	81558	81598	81589	81529
2. Population aged 15-64	54910	54838	55007	55001	55188	55145	55062	54973	54852	54675	54450	54764
3. Total employment (000)	37514	37603	37496	37462	37910	38425	39145	39315	39091	38719	38869	38779
4. Population in employment aged 15-64	35530	35433	35238	35015	35281	35931	36105	36179	35883	35512	35413	35837
5. Employment rate (% population aged 15-64)	64.7	64.6	64.1	63.7	63.9	65.2	65.6	65.8	65.4	65.0	65.0	65.4
6. Employment rate (% population aged 15-24)	49.8	47.7	45.5	44.6	45.3	47.2	47.2	47.0	45.7	44.2	41.9	42.0
7. Employment rate (% population aged 25-54)	76.7	76.9	76.7	76.6	77.2	78.7	79.3	79.3	78.7	77.9	78.1	77.4
8. Employment rate (% population aged 55-64)	36.6	37.7	37.9	38.1	37.7	37.8	37.6	37.9	38.9	39.9	41.8	45.4
9. FTE employment rate (% population aged 15-64)	59.8	59.7	58.7	57.9	57.7	58.3	58.6	58.6	58.1	57.5	56.6	56.7
10. Self-employed (% total employment)	9.9	10.0	10.0	10.2	10.2	10.0	10.0	10.1	10.2	10.5	10.9	11.2
11. Part-time employment (% total employment)	15.8	16.3	16.7	17.6	18.4	19.0	19.4	20.3	20.8	21.7	22.3	24.0
12. Fixed-term contracts (% total employment)	10.4	10.5	11.2	11.8	12.4	13.1	12.7	12.4	12.0	12.2	12.4	14.2
13. Employment in Services (% total employment)	63.9	64.6	65.7	66.5	67.1	68.0	68.7	69.3	70.1	70.7	71.3	71.9
14. Employment in Industry (% total employment)	33.1	32.6	31.7	31.0	30.4	29.5	28.9	28.3	27.6	27.0	26.4	25.9
15. Employment in Agriculture (% total employment)	3.0	2.9	2.6	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.2	2.2
16. Activity rate (% population aged 15-64)	70.8	70.5	70.4	70.6	70.8	71.2	71.1	71.5	71.7	72.1	72.6	73.8
17. Activity rate (% of population aged 15-24)	54.5	52.2	50.4	49.8	50.1	51.6	51.5	51.3	50.7	50.0	48.0	49.7
18. Activity rate (% of population aged 25-54)	83.5	83.4	83.6	84.1	84.6	85.2	85.3	85.5	85.6	86.0	86.5	86.4
19. Activity rate (% of population aged 55-64)	41.5	42.9	43.9	44.9	44.5	43.7	42.9	42.9	43.9	45.5	47.8	52.0
20. Total unemployment (000)	3286	3172	3388	3644	3542	3205	2922	3047	3340	3695	3931	3893
21. Unemployment rate (% labour force 15+)	8.3	8.0	8.5	9.1	8.8	7.9	7.2	7.4	8.2	9.0	9.5	9.5
22. Youth unemployment rate (% labour force 15-24)	15.6	14.9	15.6	16.2	15.0	12.7	10.6	12.8	14.2	14.7	15.1	15.0
23. Long-term unemployment rate (% labour force)	3.7	3.9	4.1	4.6	4.5	4.1	3.7	3.7	3.9	4.5	5.4	5.0
24. Youth unemployment ratio (% population aged 15-24)	4.8	4.5	4.9	5.2	4.8	4.5	4.3	4.2	5.0	5.8	6.0	7.7

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	39073	39184	39275	39283	39426	39501	39593	39736	39877	39931	39947	39938
2. Population aged 15-64	27788	27709	27761	27789	27865	27813	27751	27715	27642	27549	27451	27559
3. Total employment (000)	21756	21690	21466	21382	21544	21679	21972	21954	21649	21337	21389	21294
4. Population in employment aged 15-64	20592	20427	20158	19970	20027	20245	20230	20175	19845	19540	19434	19635
5. Employment rate (% population aged 15-64)	74.1	73.7	72.6	71.9	71.9	72.8	72.9	72.8	71.8	70.9	70.8	71.2
6. Employment rate (% population aged 15-24)	51.4	49.6	47.9	47.0	47.8	49.8	49.7	49.3	46.9	45.4	43.6	43.7
7. Employment rate (% population aged 25-54)	87.2	87.0	86.1	85.7	85.8	86.9	87.2	86.9	85.6	84.3	83.9	83.7
8. Employment rate (% population aged 55-64)	48.1	48.5	47.8	47.5	47.2	46.8	46.4	46.5	47.3	48.2	50.7	53.5
9. FTE employment rate (% population aged 15-64)	73.3	73.2	71.7	70.6	70.3	70.8	71.1	70.9	69.9	68.9	67.8	68.5
10. Self-employed (% total employment)	11.4	11.6	11.8	12.1	12.2	12.2	12.1	12.1	12.4	12.8	13.2	13.4
11. Part-time employment (% total employment)	3.3	3.6	3.8	4.3	4.7	4.9	5.0	5.3	5.8	6.1	6.5	7.8
12. Fixed-term contracts (% total employment)	9.8	10.1	11.0	11.6	12.2	12.8	12.5	12.2	11.8	12.1	12.7	14.4
13. Employment in Services (% total employment)	52.6	53.2	54.2	54.9	55.7	56.5	57.3	58.0	58.7	59.4	60.2	61.1
14. Employment in Industry (% total employment)	44.2	43.7	43.0	42.2	41.5	40.7	39.9	39.2	38.5	37.8	37.0	36.2
15. Employment in Agriculture (% total employment)	3.2	3.0	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.7
16. Activity rate (% population aged 15-64)	80.1	79.6	79.3	79.2	79.2	79.2	78.9	79.0	78.8	79.1	79.2	80.6
17. Activity rate (% of population aged 15-24)	56.6	54.5	53.6	53.3	53.6	54.9	54.7	54.3	53.1	52.7	50.8	52.5
18. Activity rate (% of population aged 25-54)	93.4	93.1	93.0	93.3	93.4	93.6	93.4	93.5	93.2	93.2	93.0	93.6
19. Activity rate (% of population aged 55-64)	53.8	54.4	54.6	55.1	54.8	53.7	52.4	52.2	53.0	54.9	57.8	61.2
20. Total unemployment (000)	1322	1303	1488	1627	1589	1459	1359	1426	1614	1844	1975	1986
21. Unemployment rate (% labour force 15+)	5.9	5.8	6.6	7.3	7.1	6.4	6.0	6.3	7.1	8.2	8.7	8.9
22. Youth unemployment rate (% labour force 15-24)	11.3	10.9	12.5	13.6	12.3	10.4	9.4	10.9	13.0	14.9	15.3	15.6
23. Long-term unemployment rate (% labour force)	2.5	2.6	3.0	3.4	3.4	3.2	3.0	3.0	3.3	3.9	4.8	4.7
24. Youth unemployment ratio (% population aged 15-24)	5.2	5.0	5.7	6.2	5.8	5.1	5.0	5.0	6.2	7.2	7.2	8.8

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	41333	41410	41437	41362	41469	41461	41539	41610	41681	41668	41642	41590
2. Population aged 15-64	27122	27129	27246	27212	27324	27332	27311	27258	27210	27126	26999	27206
3. Total employment (000)	15759	15913	16030	16080	16366	16746	17173	17361	17443	17382	17480	17485
4. Population in employment aged 15-64	14938	15007	15080	15045	15254	15686	15876	16004	16038	15972	15979	16202
5. Employment rate (% population aged 15-64)	55.1	55.3	55.3	55.3	55.8	57.4	58.1	58.7	58.9	58.9	59.2	59.6
6. Employment rate (% population aged 15-24)	48.1	45.7	43.0	42.1	42.7	44.5	44.6	44.7	44.5	43.0	40.2	40.2
7. Employment rate (% population aged 25-54)	65.8	66.4	67.0	67.3	68.3	70.3	71.2	71.6	71.6	71.4	72.1	71.0
8. Employment rate (% population aged 55-64)	25.2	27.1	28.2	28.7	28.3	28.8	29.0	29.4	30.6	31.6	33.0	37.5
9. FTE employment rate (% population aged 15-64)	46.2	46.1	45.8	45.2	45.0	45.8	46.1	46.5	46.4	46.2	45.5	45.2
10. Self-employed (% total employment)	7.8	7.8	7.5	7.6	7.5	7.2	7.3	7.6	7.6	7.6	7.9	8.6
11. Part-time employment (% total employment)	33.2	33.7	33.9	35.3	36.4	37.2	37.9	39.3	39.5	40.8	41.6	43.8
12. Fixed-term contracts (% total employment)	11.0	11.1	11.4	12.1	12.6	13.4	13.1	12.7	12.2	12.3	12.2	14.0
13. Employment in Services (% total employment)	78.9	79.5	80.6	81.2	81.6	82.2	82.7	83.0	83.5	84.0	84.3	84.7
14. Employment in Industry (% total employment)	18.3	17.9	17.2	16.6	16.4	15.8	15.4	15.2	14.7	14.3	14.1	13.7
15. Employment in Agriculture (% total employment)	2.8	2.7	2.2	2.1	2.1	2.0	1.9	1.8	1.8	1.7	1.6	1.6
16. Activity rate (% population aged 15-64)	61.3	61.3	61.4	61.8	62.2	63.0	63.3	63.8	64.4	65.1	65.8	66.9
17. Activity rate (% of population aged 15-24)	52.5	49.9	47.1	46.2	46.6	48.3	48.2	48.1	48.3	47.3	45.0	46.8
18. Activity rate (% of population aged 25-54)	73.2	73.3	73.9	74.6	75.5	76.6	76.9	77.4	77.9	78.6	79.7	79.0
19. Activity rate (% of population aged 55-64)	29.3	31.5	33.3	34.7	34.1	33.7	33.5	33.6	34.8	36.2	37.8	43.1
20. Total unemployment (000)	1964	1869	1900	2016	1953	1746	1563	1622	1727	1851	1956	1907
21. Unemployment rate (% labour force 15+)	11.4	10.9	11.0	11.6	11.1	9.9	8.7	8.9	9.4	10.1	10.5	10.3
22. Youth unemployment rate (% labour force 15-24)	20.2	19.0	18.9	19.0	17.9	15.2	11.9	14.8	15.4	14.4	14.9	14.3
23. Long-term unemployment rate (% labour force)	5.4	5.5	5.7	6.2	6.0	5.2	4.6	4.6	4.8	5.2	6.1	5.4
24. Youth unemployment ratio (% population aged 15-24)	4.4	4.1	4.1	4.2	3.9	3.8	3.6	3.4	3.8	4.3	4.9	6.6

Source: Eurostat
Note: EU-LFS indicators: 1999 – 2004 national estimates, break in 2005; Indicators 11 & 12: 1999 – 2004 spring results.

Employment in Europe 2006

Key employment indicators: Estonia

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	1386	1374	1366	1361	1356	1350	1348	1343
2. Population aged 15-64	:	:	:	:	914	914	916	916	912	911	910	910
3. Total employment (000)	675	634	619	619	607	581	572	577	584	592	592	604
4. Population in employment aged 15-64	:	:	:	:	590	562	554	559	566	573	573	586
5. Employment rate (% population aged 15-64)	:	:	:	:	64.6	61.5	60.4	61.0	62.0	62.9	63.0	64.4
6. Employment rate (% population aged 15-24)	:	:	:	:	35.5	30.1	28.3	28.1	28.2	29.3	27.2	29.1
7. Employment rate (% population aged 25-54)	:	:	:	:	78.8	76.7	75.6	76.0	76.8	77.8	78.8	79.6
8. Employment rate (% population aged 55-64)	:	:	:	:	50.2	47.5	46.3	48.5	51.6	52.3	52.4	56.1
9. FTE employment rate (% population aged 15-64)	:	:	:	64.6	65.0	61.6	59.5	59.9	60.9	61.3	61.8	63.4
10. Self-employed (% total employment)	9.1	6.9	7.5	7.8	8.6	8.6	9.0	8.2	8.1	8.9	9.6	8.1
11. Part-time employment (% total employment)	:	:	:	:	8.6	8.1	8.1	8.2	7.7	8.5	8.0	7.8
12. Fixed-term contracts (% total employment)	:	:	:	:	2.1	2.5	3.0	2.5	2.7	2.5	2.6	2.7
13. Employment in Services (% total employment)	53.6	55.8	56.7	57.9	58.2	60.0	59.7	60.4	61.9	61.6	59.5	61.0
14. Employment in Industry (% total employment)	32.3	34.0	33.6	33.0	33.0	32.0	33.2	32.8	31.2	32.3	34.7	33.7
15. Employment in Agriculture (% total employment)	14.1	10.2	9.7	9.1	8.8	8.0	7.1	6.8	6.9	6.1	5.8	5.3
16. Activity rate (% population aged 15-64)	:	:	:	:	72.2	70.4	70.2	70.0	69.3	70.1	70.0	70.1
17. Activity rate (% of population aged 15-24)	:	:	:	:	42.5	38.9	37.4	36.5	34.2	36.9	34.7	34.6
18. Activity rate (% of population aged 25-54)	:	:	:	:	88.0	87.1	87.0	86.3	85.4	85.7	86.5	86.0
19. Activity rate (% of population aged 55-64)	:	:	:	:	53.5	51.3	51.3	53.2	55.7	56.3	55.7	59.0
20. Total unemployment (000)	:	:	69	64	61	74	84	82	67	66	64	52
21. Unemployment rate (% labour force 15+)	:	:	:	9.6	9.2	11.3	12.8	12.4	10.3	10.0	9.7	7.9
22. Youth unemployment rate (% labour force 15-24)	:	:	:	17.0	15.2	22.0	23.9	23.2	17.6	20.6	21.7	15.9
23. Long-term unemployment rate (% labour force)	:	:	:	:	4.2	5.0	5.9	6.0	5.4	4.6	5.0	4.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	7.0	8.7	9.1	8.5	6.0	7.6	7.5	5.5

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	639	632	628	627	624	621	619	616
2. Population aged 15-64	:	:	:	:	434	434	438	439	435	435	433	434
3. Total employment (000)	:	:	:	:	310	294	291	293	297	302	298	299
4. Population in employment aged 15-64	:	:	:	:	302	286	282	285	289	292	288	291
5. Employment rate (% population aged 15-64)	:	:	:	:	69.6	65.8	64.3	65.0	66.5	67.2	66.4	67.0
6. Employment rate (% population aged 15-24)	:	:	:	:	40.0	34.9	31.7	33.9	34.6	35.9	32.8	33.1
7. Employment rate (% population aged 25-54)	:	:	:	:	82.0	78.6	78.4	78.7	80.3	81.0	81.6	81.9
8. Employment rate (% population aged 55-64)	:	:	:	:	62.0	58.9	55.9	56.7	58.4	58.9	56.4	59.3
9. FTE employment rate (% population aged 15-64)	:	:	:	70.2	71.0	66.3	63.8	65.0	66.5	66.0	65.7	66.0
10. Self-employed (% total employment)	:	:	:	:	11.0	10.7	11.5	10.9	10.7	11.8	12.9	11.1
11. Part-time employment (% total employment)	:	:	:	:	5.9	5.9	5.3	5.1	4.8	5.4	5.4	4.9
12. Fixed-term contracts (% total employment)	:	:	:	:	2.9	3.5	4.4	3.3	3.9	3.2	3.5	3.4
13. Employment in Services (% total employment)	:	:	:	:	47.2	49.0	48.1	48.0	49.8	50.0	48.0	49.1
14. Employment in Industry (% total employment)	:	:	:	:	41.1	40.6	42.4	42.3	40.7	41.7	44.0	43.7
15. Employment in Agriculture (% total employment)	:	:	:	:	11.7	10.4	9.6	9.7	9.5	8.3	8.0	7.2
16. Activity rate (% population aged 15-64)	:	:	:	:	79.0	76.8	75.6	74.9	74.6	75.0	74.4	73.6
17. Activity rate (% of population aged 15-24)	:	:	:	:	49.9	46.3	42.0	42.4	40.4	43.1	41.6	39.7
18. Activity rate (% of population aged 25-54)	:	:	:	:	92.0	90.5	90.9	90.2	90.1	89.6	90.1	89.2
19. Activity rate (% of population aged 55-64)	:	:	:	:	68.1	66.0	63.6	62.5	63.7	64.4	60.7	62.9
20. Total unemployment (000)	:	:	39	35	34	42	46	42	36	34	35	29
21. Unemployment rate (% labour force 15+)	:	:	:	10.3	9.9	12.5	13.8	12.6	10.8	10.2	10.4	8.8
22. Youth unemployment rate (% labour force 15-24)	:	:	:	18.9	16.7	21.9	23.8	19.4	14.3	16.9	21.2	16.6
23. Long-term unemployment rate (% labour force)	:	:	:	:	4.4	5.5	6.7	6.6	6.3	4.8	5.6	4.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	9.9	11.4	10.3	8.5	5.8	7.3	8.8	6.6

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	748	742	738	734	732	729	729	727
2. Population aged 15-64	:	:	:	:	480	480	479	478	478	476	476	476
3. Total employment (000)	:	:	:	:	297	286	281	283	287	291	295	305
4. Population in employment aged 15-64	:	:	:	:	290	278	272	274	277	281	286	296
5. Employment rate (% population aged 15-64)	:	:	:	:	60.3	57.8	56.9	57.4	57.9	59.0	60.0	62.1
6. Employment rate (% population aged 15-24)	:	:	:	:	32.0	26.0	24.8	21.9	21.6	22.7	21.6	25.1
7. Employment rate (% population aged 25-54)	:	:	:	:	75.9	74.8	73.1	73.5	73.6	74.8	76.2	77.5
8. Employment rate (% population aged 55-64)	:	:	:	:	41.6	39.2	39.0	42.1	46.5	47.3	49.4	53.7
9. FTE employment rate (% population aged 15-64)	:	:	:	59.5	59.6	57.3	55.7	55.2	55.9	57.0	58.3	61.2
10. Self-employed (% total employment)	:	:	:	:	6.0	6.4	6.4	5.4	5.4	5.9	6.3	5.1
11. Part-time employment (% total employment)	:	:	:	:	11.4	10.4	10.9	11.3	10.7	11.8	10.6	10.6
12. Fixed-term contracts (% total employment)	:	:	:	:	1.3	1.6	1.7	1.8	1.5	1.8	1.8	2.0
13. Employment in Services (% total employment)	:	:	:	:	69.7	71.3	71.7	73.1	74.4	73.5	71.0	72.5
14. Employment in Industry (% total employment)	:	:	:	:	24.5	23.1	23.8	23.1	21.4	22.7	25.4	24.0
15. Employment in Agriculture (% total employment)	:	:	:	:	5.8	5.6	4.5	3.8	4.2	3.8	3.6	3.5
16. Activity rate (% population aged 15-64)	:	:	:	:	66.4	65.0	65.3	65.5	64.4	65.7	66.0	66.9
17. Activity rate (% of population aged 15-24)	:	:	:	:	36.3	32.5	32.7	30.3	27.9	30.6	27.8	29.5
18. Activity rate (% of population aged 25-54)	:	:	:	:	84.2	83.9	83.3	82.7	81.0	82.2	83.2	83.1
19. Activity rate (% of population aged 55-64)	:	:	:	:	43.1	40.9	42.0	46.0	49.8	50.3	51.9	56.0
20. Total unemployment (000)	:	:	30	29	27	32	38	39	31	32	29	23
21. Unemployment rate (% labour force 15+)	:	:	:	8.9	8.3	10.1	11.8	12.2	9.7	9.9	8.9	7.1
22. Youth unemployment rate (% labour force 15-24)	:	:	:	14.4	13.1	22.1	24.1	28.5	22.5	26.0	22.4	14.9
23. Long-term unemployment rate (% labour force)	:	:	:	:	4.1	4.5	5.0	5.4	4.4	4.4	4.4	4.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	4.3	6.5	7.9	8.4	6.3	8.0	6.2	4.4

Source: Eurostat

Key employment indicators: Greece

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	10206	10238	10255	10269	10390	10437	10472	10504	10542	10578	10616	10657
2. Population aged 15-64	6761	6771	6787	6812	7000	7043	7078	7099	7111	7119	7129	7132
3. Total employment (000)	3793	3832	3867	3880	4018	4031	4089	4086	4176	4275	4313	4369
4. Population in employment aged 15-64	3666	3702	3732	3754	3917	3937	3996	3999	4087	4181	4235	4287
5. Employment rate (% population aged 15-64)	54.2	54.7	55.0	55.1	56.0	55.9	56.5	56.3	57.5	58.7	59.4	60.1
6. Employment rate (% population aged 15-24)	26.8	26.3	25.4	25.3	28.4	27.2	27.6	26.2	26.5	25.3	26.8	25.0
7. Employment rate (% population aged 25-54)	68.5	68.9	69.5	69.7	70.0	69.9	70.5	70.6	71.6	72.9	73.5	74.0
8. Employment rate (% population aged 55-64)	40.1	41.0	41.2	41.0	39.0	39.3	39.0	38.2	39.2	41.3	39.4	41.6
9. FTE employment rate (% population aged 15-64)	53.8	54.2	54.6	54.4	55.4	55.2	56.1	56.0	57.1	58.4	58.8	59.5
10. Self-employed (% total employment)	:	45.8	45.6	45.4	45.1	43.9	43.3	42.3	43.0	42.5	40.6	40.8
11. Part-time employment (% total employment)	4.7	4.8	5.0	4.8	5.6	5.8	4.5	4.0	4.4	4.3	4.6	5.0
12. Fixed-term contracts (% total employment)	9.4	9.4	10.0	10.3	12.5	12.6	13.5	13.2	11.7	11.2	11.9	11.8
13. Employment in Services (% total employment)	:	55.9	56.0	57.0	57.7	58.0	58.8	59.2	60.1	60.9	62.6	62.7
14. Employment in Industry (% total employment)	:	24.5	24.7	24.2	24.3	23.9	23.9	24.0	23.8	23.7	22.9	22.9
15. Employment in Agriculture (% total employment)	:	19.6	19.4	18.8	18.0	18.1	17.3	16.8	16.2	15.5	14.5	14.4
16. Activity rate (% population aged 15-64)	59.7	60.4	61.1	61.3	63.2	63.8	63.8	63.3	64.2	65.2	66.5	66.8
17. Activity rate (% of population aged 15-24)	37.2	37.1	37.0	36.8	40.8	39.8	39.0	36.5	36.2	34.6	36.7	33.7
18. Activity rate (% of population aged 25-54)	73.7	74.3	75.2	75.7	77.1	77.9	78.1	77.8	78.8	79.8	81.1	81.5
19. Activity rate (% of population aged 55-64)	41.4	42.4	42.5	42.3	40.4	40.9	40.5	39.9	40.9	42.7	41.3	43.2
20. Total unemployment (000)	370	386	411	421	483	539	522	494	480	460	506	477
21. Unemployment rate (% labour force 15+)	8.9	9.2	9.6	9.8	10.9	12.0	11.3	10.8	10.3	9.7	10.5	9.8
22. Youth unemployment rate (% labour force 15-24)	27.7	28.5	31.0	30.8	30.1	31.9	29.2	28.2	26.8	26.8	26.9	26.0
23. Long-term unemployment rate (% labour force)	4.4	4.6	5.2	5.3	5.8	6.5	6.2	5.5	5.3	5.3	5.6	5.1
24. Youth unemployment ratio (% population aged 15-24)	10.5	10.7	11.6	11.5	12.5	12.6	11.4	10.3	9.7	9.3	9.9	8.8

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	4932	4928	4928	4943	5100	5123	5139	5154	5172	5190	5207	5227
2. Population aged 15-64	3257	3255	3258	3276	3466	3488	3507	3519	3529	3537	3545	3551
3. Total employment (000)	2447	2453	2461	2453	2556	2547	2573	2574	2615	2663	2671	2697
4. Population in employment aged 15-64	2358	2361	2368	2363	2487	2480	2508	2514	2550	2595	2613	2636
5. Employment rate (% population aged 15-64)	72.4	72.5	72.7	72.1	71.7	71.1	71.5	71.4	72.2	73.4	73.7	74.2
6. Employment rate (% population aged 15-24)	33.6	33.1	31.4	31.1	34.6	32.4	32.7	30.7	31.5	30.9	32.3	30.1
7. Employment rate (% population aged 25-54)	89.9	89.8	90.2	89.7	88.8	88.2	88.5	88.5	88.7	89.3	89.3	89.5
8. Employment rate (% population aged 55-64)	58.9	59.6	59.8	59.1	56.0	55.7	55.2	55.3	55.9	58.7	56.4	58.8
9. FTE employment rate (% population aged 15-64)	72.7	72.8	73.2	72.3	72.4	71.4	71.9	71.9	72.8	73.9	74.1	74.8
10. Self-employed (% total employment)	:	47.0	46.8	46.9	46.6	45.5	45.1	44.7	45.3	44.8	43.8	43.7
11. Part-time employment (% total employment)	2.8	2.7	3.0	2.6	3.2	3.4	2.6	2.2	2.3	2.2	2.2	2.3
12. Fixed-term contracts (% total employment)	9.4	9.1	9.7	9.9	11.8	11.4	11.8	11.6	10.5	9.7	10.5	10.1
13. Employment in Services (% total employment)	:	52.5	52.5	53.3	52.9	53.3	53.7	53.4	54.2	54.8	56.3	56.0
14. Employment in Industry (% total employment)	:	29.8	30.1	29.7	30.5	30.1	30.1	30.7	30.7	30.7	30.3	30.7
15. Employment in Agriculture (% total employment)	:	17.7	17.4	17.0	16.6	16.6	16.1	15.9	15.1	14.5	13.5	13.4
16. Activity rate (% population aged 15-64)	77.2	77.5	77.6	77.2	77.6	77.5	77.5	77.4	77.1	77.6	78.3	79.0	79.2
17. Activity rate (% of population aged 15-24)	42.0	41.4	40.2	40.0	44.2	42.1	41.7	39.1	39.3	38.1	40.0	37.0
18. Activity rate (% of population aged 25-54)	94.5	94.6	94.7	94.5	94.4	94.5	94.4	94.1	94.1	94.3	94.6	94.6
19. Activity rate (% of population aged 55-64)	61.0	61.8	61.8	61.1	57.9	57.9	57.3	57.7	58.1	60.6	58.9	60.8
20. Total unemployment (000)	157	161	159	166	190	214	207	201	191	176	188	176
21. Unemployment rate (% labour force 15+)	6.0	6.2	6.1	6.4	7.1	7.9	7.5	7.3	6.8	6.2	6.6	6.1
22. Youth unemployment rate (% labour force 15-24)	19.7	19.8	21.5	22.0	21.7	23.2	21.6	21.6	19.9	18.9	19.1	18.7
23. Long-term unemployment rate (% labour force)	2.4	2.5	2.7	2.8	3.1	3.8	3.6	3.3	3.1	3.0	3.0	2.6
24. Youth unemployment ratio (% population aged 15-24)	8.3	8.3	8.7	8.9	9.6	9.7	9.0	8.5	7.8	7.2	7.6	6.9

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	5274	5310	5327	5326	5289	5314	5333	5350	5369	5388	5409	5431
2. Population aged 15-64	3504	3517	3529	3536	3534	3555	3572	3580	3582	3583	3584	3581
3. Total employment (000)	1345	1379	1406	1427	1462	1484	1515	1512	1561	1611	1642	1672
4. Population in employment aged 15-64	1308	1341	1364	1391	1430	1457	1489	1485	1537	1586	1621	1651
5. Employment rate (% population aged 15-64)	37.3	38.1	38.7	39.3	40.5	41.0	41.7	41.5	42.9	44.3	45.2	46.1
6. Employment rate (% population aged 15-24)	20.6	20.3	20.0	20.0	22.0	21.9	22.4	21.7	21.4	19.8	21.3	19.8
7. Employment rate (% population aged 25-54)	48.2	49.1	49.9	50.8	51.5	51.9	52.7	52.8	54.5	56.4	57.6	58.5
8. Employment rate (% population aged 55-64)	23.0	24.1	24.3	24.6	23.5	24.4	24.3	22.9	24.0	25.5	24.0	25.8
9. FTE employment rate (% population aged 15-64)	36.1	36.9	37.4	37.8	38.9	39.3	40.5	40.5	41.7	43.2	43.8	44.5
10. Self-employed (% total employment)	:	43.7	43.5	42.8	42.4	41.1	40.1	38.2	39.2	38.8	35.5	36.0
11. Part-time employment (% total employment)	8.0	8.4	8.7	8.5	10.0	10.0	7.8	7.2	8.0	7.7	8.5	9.3
12. Fixed-term contracts (% total employment)	9.5	10.0	10.5	11.1	13.8	14.4	16.1	15.7	13.6	13.3	14.0	14.3
13. Employment in Services (% total employment)	:	61.9	62.0	63.5	66.1	66.1	67.3	69.1	69.9	70.9	72.9	73.5
14. Employment in Industry (% total employment)	:	15.1	15.2	14.6	13.4	13.3	13.2	12.6	12.1	12.0	10.9	10.5
15. Employment in Agriculture (% total employment)	:	23.0	22.8	21.9	20.4	20.6	19.4	18.3	17.9	17.1	16.2	16.0
16. Activity rate (% population aged 15-64)	43.4	44.6	45.8	46.6	49.0	50.3	50.5	49.7	51.0	52.2	54.1	54.5
17. Activity rate (% of population aged 15-24)	33.0	33.2	34.2	33.8	37.4	37.5	36.2	33.8	33.1	31.2	33.4	30.4
18. Activity rate (% of population aged 25-54)	54.0	55.2	56.8	57.9	60.0	61.5	62.0	61.7	63.4	65.2	67.6	68.2
19. Activity rate (% of population aged 55-64)	23.6	24.7	25.0	25.3	24.4	25.5	25.4	23.9	25.2	26.4	25.2	27.1
20. Total unemployment (000)	213	225	252	254	293	325	315	293	289	284	318	302
21. Unemployment rate (% labour force 15+)	13.7	14.1	15.2	15.2	16.7	18.1	17.2	16.2	15.6	15.0	16.2	15.3
22. Youth unemployment rate (% labour force 15-24)	37.0	38.3	41.0	40.4	39.7	41.4	38.2	35.9	35.3	36.6	36.3	34.8
23. Long-term unemployment rate (% labour force)	7.7	8.1	9.3	9.2	10.0	10.7	10.2	9.1	8.6	8.9	9.4	8.9
24. Youth unemployment ratio (% population aged 15-24)	12.4	12.9	14.2	13.8	15.4	15.6	13.8	12.1	11.7	11.4	12.1	10.6

Source: Eurostat
Note: Indicator 3: estimates based on units of 1000 jobs.

Employment in Europe 2006

Key employment indicators: Spain

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	38669	38726	38944	39182	39352	39555	39927	40427	41063	41753	42440	43141
2. Population aged 15-64	26245	26400	26638	26794	26936	27085	27373	27742	28231	28729	29227	29755
3. Total employment (000)	13318	13569	13796	14293	14932	15617	16412	16944	17346	17792	18255	18904
4. Population in employment aged 15-64	12091	12393	12764	13251	13809	14583	15399	16039	16527	17188	17861	18834
5. Employment rate (% population aged 15-64)	46.1	46.9	47.9	49.5	51.3	53.8	56.3	57.8	58.5	59.8	61.1	63.3
6. Employment rate (% population aged 15-24)	24.1	24.4	24.1	25.3	27.1	30.5	32.5	34.0	34.0	34.4	35.2	38.3
7. Employment rate (% population aged 25-54)	58.4	59.5	60.6	62.1	63.7	66.2	68.4	69.5	70.2	71.4	72.7	74.4
8. Employment rate (% population aged 55-64)	32.6	32.3	33.2	34.1	35.1	35.0	37.0	39.2	39.6	40.7	41.3	43.1
9. FTE employment rate (% population aged 15-64)	44.3	45.1	45.7	47.2	48.9	51.5	53.9	55.4	56.2	57.3	58.3	59.2
10. Self-employed (% total employment)	19.1	18.8	18.6	17.3	16.9	16.3	15.8	15.6	15.2	14.8	14.7	14.4
11. Part-time employment (% total employment)	6.7	7.5	7.6	7.9	7.8	8.0	7.9	8.0	8.0	8.2	8.7	12.4
12. Fixed-term contracts (% total employment)	34.2	35.2	33.8	33.5	33.0	32.9	32.2	32.2	31.8	31.8	32.5	33.3
13. Employment in Services (% total employment)	63.7	63.9	63.9	63.6	63.7	63.8	63.8	63.7	63.8	64.1	64.4	64.3
14. Employment in Industry (% total employment)	27.9	28.2	28.3	28.9	29.2	29.6	29.9	30.2	30.2	30.1	29.9	30.1
15. Employment in Agriculture (% total employment)	8.4	7.9	7.8	7.4	7.1	6.6	6.3	6.1	6.0	5.9	5.7	5.6
16. Activity rate (% population aged 15-64)	58.9	59.0	61.6	62.4	63.0	63.9	65.4	64.7	66.2	67.6	68.7	69.7
17. Activity rate (% of population aged 15-24)	42.1	40.7	41.5	41.4	41.8	43.1	43.9	43.0	43.7	44.5	45.1	47.7
18. Activity rate (% of population aged 25-54)	71.6	72.1	75.2	75.8	76.2	76.9	78.0	76.6	78.2	79.6	80.6	80.9
19. Activity rate (% of population aged 55-64)	36.0	35.6	37.6	38.5	39.2	38.8	40.9	41.9	42.7	43.8	44.4	45.9
20. Total unemployment (000)	3092	2956	2929	2785	2545	2159	1980	1877	2095	2174	2161	1913
21. Unemployment rate (% labour force 15+)	19.5	18.4	17.8	16.7	15.0	12.5	11.1	10.3	11.1	11.1	10.7	9.2
22. Youth unemployment rate (% labour force 15-24)	42.3	39.7	39.2	36.4	33.1	27.3	24.3	23.2	24.2	24.6	23.4	19.7
23. Long-term unemployment rate (% labour force)	10.8	10.3	9.4	8.7	7.5	5.7	4.6	3.7	3.7	3.7	3.4	2.2
24. Youth unemployment ratio (% population aged 15-24)	18.0	16.3	17.4	16.1	14.7	12.7	11.4	9.1	9.7	10.1	9.9	9.4

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	18894	18949	19033	19144	19241	19338	19545	19825	20172	20532	20894	21268
2. Population aged 15-64	12970	13065	13270	13348	13437	13514	13693	13908	14185	14456	14727	15019
3. Total employment (000)	8846	8951	9044	9329	9701	10029	10395	10652	10811	10959	11107	11347
4. Population in employment aged 15-64	8016	8165	8342	8604	8970	9364	9749	10077	10296	10583	10864	11294
5. Employment rate (% population aged 15-64)	61.8	62.5	62.9	64.5	66.8	69.3	71.2	72.5	72.6	73.2	73.8	75.2
6. Employment rate (% population aged 15-24)	29.0	29.5	28.6	30.0	32.5	36.2	38.2	40.2	39.7	39.9	40.8	43.5
7. Employment rate (% population aged 25-54)	77.8	78.6	79.0	80.2	82.2	84.5	85.7	85.9	85.7	85.9	86.1	86.9
8. Employment rate (% population aged 55-64)	49.1	48.4	50.0	51.2	52.6	52.2	54.9	57.7	58.4	59.2	58.9	59.7
9. FTE employment rate (% population aged 15-64)	60.7	61.5	61.9	63.4	65.8	68.6	70.4	71.9	72.1	72.6	73.0	73.5
10. Self-employed (% total employment)	19.8	19.5	19.6	18.5	18.1	17.7	17.4	17.2	17.1	16.7	16.6	16.3
11. Part-time employment (% total employment)	2.6	2.9	3.0	3.0	2.9	2.9	2.8	2.8	2.6	2.6	2.8	4.5
12. Fixed-term contracts (% total employment)	32.1	33.5	32.3	32.3	32.1	31.6	30.9	30.6	29.9	29.9	30.6	31.7
13. Employment in Services (% total employment)	54.1	54.0	53.9	53.3	53.2	52.9	52.8	52.3	52.2	51.9	51.7	51.3
14. Employment in Industry (% total employment)	36.2	36.9	36.9	38.0	38.5	39.3	39.7	40.5	40.7	41.1	41.4	42.0
15. Employment in Agriculture (% total employment)	9.7	9.1	9.1	8.7	8.3	7.8	7.5	7.2	7.2	7.0	6.9	6.7
16. Activity rate (% population aged 15-64)	75.7	75.0	76.2	76.7	77.3	77.9	78.8	78.4	79.1	80.0	80.4	80.9
17. Activity rate (% of population aged 15-24)	47.2	44.9	44.8	44.9	45.8	47.2	48.0	48.2	48.8	49.5	50.2	52.3
18. Activity rate (% of population aged 25-54)	92.0	91.7	92.9	92.8	92.9	93.0	93.1	91.7	92.1	92.5	92.5	92.4
19. Activity rate (% of population aged 55-64)	55.3	54.0	56.5	57.4	58.2	57.6	60.2	61.2	62.1	62.9	62.7	63.2
20. Total unemployment (000)	1630	1493	1474	1360	1181	956	859	822	914	959	956	863
21. Unemployment rate (% labour force 15+)	16.2	14.8	14.3	13.1	11.2	9.0	7.9	7.5	8.1	8.2	8.0	7.0
22. Youth unemployment rate (% labour force 15-24)	37.1	33.2	32.6	29.7	25.9	20.5	18.1	17.3	19.2	20.2	19.2	16.7
23. Long-term unemployment rate (% labour force)	6.9	6.6	6.7	6.1	4.9	3.6	2.8	2.3	2.3	2.4	2.2	1.4
24. Youth unemployment ratio (% population aged 15-24)	18.2	15.4	16.2	14.9	13.2	11.0	9.8	8.0	9.0	9.7	9.4	8.7

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	19773	19775	19911	20039	20111	20217	20382	20602	20891	21221	21547	21873
2. Population aged 15-64	13278	13336	13368	13446	13499	13571	13681	13834	14046	14273	14500	14736
3. Total employment (000)	4471	4618	4752	4964	5231	5588	6017	6292	6535	6834	7148	7557
4. Population in employment aged 15-64	4075	4228	4422	4648	4839	5219	5650	5962	6230	6605	6997	7540
5. Employment rate (% population aged 15-64)	30.7	31.7	33.1	34.6	35.8	38.5	41.3	43.1	44.4	46.3	48.3	51.2
6. Employment rate (% population aged 15-24)	19.4	19.5	19.6	20.6	21.6	24.6	26.7	27.5	28.0	28.6	29.3	32.8
7. Employment rate (% population aged 25-54)	38.9	40.3	42.2	43.8	45.1	47.9	51.0	52.9	54.4	56.6	58.9	61.5
8. Employment rate (% population aged 55-64)	17.5	17.5	17.6	18.0	18.8	18.9	20.2	21.7	21.9	23.3	24.6	27.4
9. FTE employment rate (% population aged 15-64)	28.2	28.9	29.8	31.2	32.2	34.6	37.5	38.9	40.3	41.9	43.5	44.9
10. Self-employed (% total employment)	17.7	17.5	16.7	15.0	14.6	13.6	13.1	12.8	12.1	11.8	11.6	11.5
11. Part-time employment (% total employment)	15.0	16.4	16.5	17.0	16.8	17.1	16.8	16.8	16.8	17.1	17.9	24.2
12. Fixed-term contracts (% total employment)	38.0	38.3	36.6	35.5	34.6	35.0	34.2	34.7	34.8	34.6	35.2	35.7
13. Employment in Services (% total employment)	81.6	81.9	81.8	82.1	82.5	82.6	82.0	82.5	82.6	83.4	84.0	84.2
14. Employment in Industry (% total employment)	12.5	12.3	12.8	12.7	12.6	12.9	13.6	13.3	13.3	12.6	12.2	12.1
15. Employment in Agriculture (% total employment)	6.0	5.7	5.4	5.2	4.9	4.5	4.4	4.1	4.1	4.1	3.8	3.8
16. Activity rate (% population aged 15-64)	42.4	43.3	47.1	48.2	48.9	50.0	52.0	50.9	53.1	55.1	56.8	58.3
17. Activity rate (% of population aged 15-24)	37.3	36.7	38.1	37.9	37.7	39.0	39.7	37.7	38.5	39.2	39.8	42.9
18. Activity rate (% of population aged 25-54)	51.2	52.6	57.4	58.8	59.5	60.7	62.8	61.3	64.1	66.5	68.3	69.0
19. Activity rate (% of population aged 55-64)	18.2	18.5	20.1	20.7	21.4	21.2	22.7	23.7	24.4	25.7	27.2	29.6
20. Total unemployment (000)	1463	1463	1455	1425	1364	1203	1121	1055	1181	1215	1205	1050
21. Unemployment rate (% labour force 15+)	25.4	24.6	23.8	22.6	21.1	18.0	16.0	14.8	15.7	15.3	14.5	12.2
22. Youth unemployment rate (% labour force 15-24)	49.0	47.9	47.7	45.1	42.4	36.3	32.5	31.2	31.1	30.8	29.2	23.5
23. Long-term unemployment rate (% labour force)	17.3	16.4	13.9	13.0	11.6	9.0	7.4	6.0	5.9	5.7	5.1	3.4
24. Youth unemployment ratio (% population aged 15-24)	17.9	17.2	18.5	17.3	16.2	14.4	13.0	10.1	10.5	10.6	10.5	10.1

Source: Eurostat
Note: EU-LFS indicators: break in 2005 due to the questionnaire revision; the impact has been estimated at +0.4 percentage points on employment rate (16-64 years old), +0.2 p.p. on activity rate (16-64 years old) and -0.4 p.p. on unemployment rate.

Key employment indicators: France

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	56059	56245	56424	56549	56661	56943	57326	57726	57987	58509	58850	59224
2. Population aged 15-64	36664	36778	36866	36927	36976	37172	37430	37682	37825	38184	38451	38683
3. Total employment (000)	22494	22694	22779	22879	23227	23697	24332	24764	24919	24951	24963	25030
4. Population in employment aged 15-64	21657	21893	21937	21994	22242	22645	23237	23659	23840	24161	24277	24425
5. Employment rate (% population aged 15-64)	59.1	59.5	59.5	59.6	60.2	60.9	62.1	62.8	63.0	63.3	63.1	63.1
6. Employment rate (% population aged 15-24)	26.2	26.1	25.3	24.8	25.6	27.1	28.6	29.5	29.9	30.6	30.4	30.1
7. Employment rate (% population aged 25-54)	76.6	77.1	76.9	76.7	77.1	77.7	78.8	79.4	79.5	79.5	79.6	79.8
8. Employment rate (% population aged 55-64)	29.6	29.6	29.4	29.0	28.3	28.8	29.9	31.9	34.7	36.8	37.3	37.9
9. FTE employment rate (% population aged 15-64)	56.2	56.6	56.7	56.5	56.9	57.3	58.7	59.9	60.4	59.0	58.8	58.5
10. Self-employed (% total employment)	11.2	10.7	10.4	10.1	9.7	9.5	9.2	8.9	8.8	8.8	8.8	8.9
11. Part-time employment (% total employment)	15.2	15.8	16.3	17.0	17.3	17.1	16.7	16.3	16.4	16.5	16.7	17.2
12. Fixed-term contracts (% total employment)	11.5	12.4	12.8	13.4	13.9	14.5	15.2	14.6	13.5	12.7	12.9	13.3
13. Employment in Services (% total employment)	71.2	71.6	72.1	72.7	73.2	73.8	74.1	74.4	74.8	75.2	75.6	75.9
14. Employment in Industry (% total employment)	24.0	23.8	23.4	22.9	22.5	22.1	21.9	21.8	21.4	21.1	20.8	20.5
15. Employment in Agriculture (% total employment)	4.8	4.6	4.5	4.4	4.3	4.1	4.0	3.8	3.7	3.7	3.6	3.6
16. Activity rate (% population aged 15-64)	67.5	67.8	68.1	68.1	68.4	68.7	68.7	68.7	69.1	69.4	69.5	69.5
17. Activity rate (% of population aged 15-24)	36.5	35.8	35.2	34.4	34.6	35.7	35.6	36.2	36.9	38.1	38.5	38.4
18. Activity rate (% of population aged 25-54)	85.9	86.3	86.4	86.2	86.4	86.4	86.3	86.1	86.3	86.2	86.5	86.7
19. Activity rate (% of population aged 55-64)	31.7	31.9	32.0	31.5	30.9	31.2	32.1	33.8	36.7	38.8	39.6	40.0
20. Total unemployment (000)	2926	2787	2946	2940	2837	2711	2385	2226	2399	2593	2639	2627
21. Unemployment rate (% labour force 15+)	11.7	11.1	11.6	11.5	11.1	10.5	9.1	8.4	8.9	9.5	9.6	9.5
22. Youth unemployment rate (% labour force 15-24)	28.6	27.0	28.5	28.4	25.6	23.4	20.1	19.4	20.0	21.1	21.9	22.3
23. Long-term unemployment rate (% labour force)	4.5	4.4	4.5	4.7	4.5	4.1	3.5	3.0	3.1	3.7	3.9	3.9
24. Youth unemployment ratio (% population aged 15-24)	10.3	9.8	9.9	9.6	9.1	8.6	7.0	6.6	7.0	7.5	8.1	8.2

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	27110	27203	27288	27345	27405	27575	27789	28010	28152	28401	28564	28748
2. Population aged 15-64	18046	18102	18152	18178	18202	18331	18485	18631	18697	18869	19005	19100
3. Total employment (000)	12536	12624	12652	12676	12817	13055	13396	13605	13584	13542	13488	13475
4. Population in employment aged 15-64	12057	12164	12165	12169	12264	12466	12786	12992	12986	13102	13111	13145
5. Employment rate (% population aged 15-64)	66.8	67.2	67.0	66.9	67.4	68.0	69.2	69.7	69.5	69.4	69.0	68.8
6. Employment rate (% population aged 15-24)	28.6	28.8	28.1	27.4	28.4	30.3	31.9	33.3	33.6	34.0	34.0	33.9
7. Employment rate (% population aged 25-54)	86.4	86.7	86.3	86.0	86.1	86.5	87.7	88.1	87.4	87.1	86.9	87.0
8. Employment rate (% population aged 55-64)	34.3	33.8	33.6	33.2	32.5	32.3	33.6	36.2	38.7	40.9	41.0	40.7
9. FTE employment rate (% population aged 15-64)	67.0	67.5	67.4	67.3	67.7	67.8	69.1	70.3	70.4	67.8	67.6	66.9
10. Self-employed (% total employment)	13.1	12.6	12.4	12.1	11.8	11.5	11.2	10.9	10.9	10.9	11.1	11.3
11. Part-time employment (% total employment)	4.8	5.1	5.3	5.5	5.6	5.5	5.3	5.0	5.2	5.4	5.3	5.7
12. Fixed-term contracts (% total employment)	10.4	11.4	11.7	12.4	13.0	13.7	14.2	13.2	11.9	11.4	11.8	12.6
13. Employment in Services (% total employment)	61.3	61.5	61.9	62.5	63.1	63.7	64.0	64.3	64.6	64.8	65.3	65.4
14. Employment in Industry (% total employment)	32.9	32.9	32.5	31.9	31.4	31.0	30.9	30.9	30.6	30.5	30.1	29.9
15. Employment in Agriculture (% total employment)	5.8	5.6	5.6	5.5	5.4	5.2	5.0	4.9	4.8	4.7	4.6	4.7
16. Activity rate (% population aged 15-64)	74.9	75.0	75.2	75.1	75.2	75.3	75.2	75.2	75.5	75.5	75.3	75.1
17. Activity rate (% of population aged 15-24)	38.6	38.0	37.9	36.9	37.5	39.2	38.8	39.9	40.9	42.1	42.5	42.5
18. Activity rate (% of population aged 25-54)	95.2	95.2	95.2	94.9	94.6	94.4	94.2	94.0	93.8	93.5	93.5	93.5
19. Activity rate (% of population aged 55-64)	36.9	36.5	36.6	36.2	35.4	35.1	36.0	38.3	41.2	43.2	43.5	43.1
20. Total unemployment (000)	1380	1286	1389	1397	1323	1260	1076	1010	1154	1259	1287	1278
21. Unemployment rate (% labour force 15+)	10.1	9.4	10.0	10.1	9.5	9.0	7.6	7.0	7.9	8.6	8.7	8.7
22. Youth unemployment rate (% labour force 15-24)	26.0	23.5	25.7	25.9	23.3	21.5	18.0	17.4	18.9	20.4	20.8	21.0
23. Long-term unemployment rate (% labour force)	3.8	3.6	3.7	3.9	3.8	3.4	2.9	2.4	2.6	3.4	3.5	3.5
24. Youth unemployment ratio (% population aged 15-24)	10.0	9.2	9.8	9.6	9.1	8.9	6.9	6.6	7.2	8.1	8.5	8.5

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	28948	29042	29136	29204	29257	29368	29537	29716	29835	30108	30286	30476
2. Population aged 15-64	18617	18676	18714	18749	18775	18842	18945	19051	19128	19315	19446	19584
3. Total employment (000)	9959	10070	10128	10204	10410	10642	10936	11160	11335	11409	11475	11555
4. Population in employment aged 15-64	9600	9729	9772	9825	9979	10178	10451	10667	10854	11059	11166	11280
5. Employment rate (% population aged 15-64)	51.6	52.1	52.2	52.4	53.1	54.0	55.2	56.0	56.7	57.3	57.4	57.6
6. Employment rate (% population aged 15-24)	24.0	23.4	22.7	22.3	22.8	23.9	25.3	25.7	26.2	27.1	26.7	26.3
7. Employment rate (% population aged 25-54)	67.0	67.6	67.7	67.7	68.3	69.0	70.1	71.1	71.7	72.0	72.5	72.9
8. Employment rate (% population aged 55-64)	25.2	25.6	25.5	25.0	24.4	25.4	26.3	27.8	30.8	32.9	33.8	35.2
9. FTE employment rate (% population aged 15-64)	45.8	46.2	46.5	46.2	46.7	47.2	48.7	50.0	50.9	50.9	50.6	50.8
10. Self-employed (% total employment)	8.7	8.3	7.8	7.5	7.2	6.9	6.7	6.4	6.3	6.3	6.2	6.1
11. Part-time employment (% total employment)	28.3	29.1	30.0	31.2	31.6	31.4	30.8	30.1	29.8	29.7	30.0	30.7
12. Fixed-term contracts (% total employment)	12.8	13.6	14.1	14.5	14.8	15.4	16.4	16.2	15.3	14.2	14.0	14.0
13. Employment in Services (% total employment)	83.2	83.8	84.4	84.8	85.2	85.6	86.1	86.2	86.8	87.2	87.4	87.9
14. Employment in Industry (% total employment)	13.2	12.8	12.4	12.1	11.8	11.5	11.3	11.2	10.8	10.4	10.1	9.9
15. Employment in Agriculture (% total employment)	3.6	3.4	3.2	3.1	3.0	2.8	2.7	2.6	2.4	2.4	2.5	2.2
16. Activity rate (% population aged 15-64)	60.3	60.8	61.1	61.2	61.9	62.3	62.4	62.4	63.0	63.5	63.9	64.1
17. Activity rate (% of population aged 15-24)	34.5	33.7	32.7	31.9	31.9	32.3	32.3	32.4	32.9	34.1	34.4	34.3
18. Activity rate (% of population aged 25-54)	76.9	77.5	77.8	77.8	78.4	78.6	78.5	78.5	78.9	79.2	79.8	80.2
19. Activity rate (% of population aged 55-64)	26.9	27.5	27.7	27.2	26.7	27.5	28.3	29.5	32.3	34.6	35.9	37.1
20. Total unemployment (000)	1546	1502	1556	1543	1514	1451	1310	1217	1245	1333	1352	1349
21. Unemployment rate (% labour force 15+)	13.6	13.1	13.5	13.3	12.9	12.2	10.9	10.0	10.0	10.5	10.5	10.5
22. Youth unemployment rate (% labour force 15-24)	31.3	30.7	31.6	31.2	28.3	25.6	22.5	21.8	21.4	21.9	23.2	23.8
23. Long-term unemployment rate (% labour force)	5.3	5.3	5.4	5.5	5.3	4.9	4.3	3.6	3.5	4.1	4.3	4.4
24. Youth unemployment ratio (% population aged 15-24)	10.6	10.3	10.0	9.6	9.0	8.4	7.0	6.7	6.8	7.0	7.7	7.9

Source: Eurostat

Employment in Europe 2006

Key employment indicators: Ireland

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	3524	3543	3572	3621	3709	3753	3800	3859	3926	3991	4059	4149
2. Population aged 15-64	2244	2284	2335	2388	2457	2503	2546	2601	2661	2711	2761	2831
3. Total employment (000)	1231	1285	1331	1405	1526	1621	1696	1748	1779	1814	1870	1959
4. Population in employment aged 15-64	1190	1242	1293	1374	1489	1584	1660	1712	1742	1776	1830	1915
5. Employment rate (% population aged 15-64)	53.0	54.4	55.4	57.6	60.6	63.3	65.2	65.8	65.5	65.5	66.3	67.6
6. Employment rate (% population aged 15-24)	37.1	37.6	37.6	41.4	45.6	49.1	50.4	49.3	47.6	47.5	47.7	48.7
7. Employment rate (% population aged 25-54)	63.0	64.9	66.5	68.1	70.9	73.4	75.3	76.3	76.1	75.9	76.8	77.9
8. Employment rate (% population aged 55-64)	38.8	39.2	39.7	40.4	41.7	43.7	45.3	46.8	48.0	49.0	49.5	51.6
9. FTE employment rate (% population aged 15-64)	49.6	50.8	51.5	53.2	55.6	58.7	60.7	60.8	60.9	60.6	61.0	62.5
10. Self-employed (% total employment)	:	20.5	19.9	19.4	19.8	19.2	18.6	18.1	17.9	17.7	17.6	17.0
11. Part-time employment (% total employment)	11.1	11.6	11.4	13.6	16.5	16.4	16.4	16.5	16.5	16.9	16.8	:
12. Fixed-term contracts (% total employment)	9.6	10.0	9.3	9.0	7.2	5.1	5.9	5.3	5.3	5.2	4.1	3.7
13. Employment in Services (% total employment)	:	61.1	61.8	62.0	62.4	63.0	63.5	64.0	65.1	65.8	66.2	66.6
14. Employment in Industry (% total employment)	:	28.3	28.3	28.8	28.6	28.4	28.8	28.8	27.9	27.5	27.6	27.6
15. Employment in Agriculture (% total employment)	:	10.6	9.9	9.2	9.0	8.6	7.7	7.2	7.0	6.6	6.2	5.9
16. Activity rate (% population aged 15-64)	61.8	61.9	62.5	64.1	65.6	67.1	68.2	68.6	68.6	68.8	69.5	70.8
17. Activity rate (% of population aged 15-24)	48.0	46.6	45.8	49.1	51.4	53.7	54.2	53.1	52.0	52.3	52.4	53.3
18. Activity rate (% of population aged 25-54)	71.9	72.7	74.0	75.0	76.2	77.3	78.3	78.9	79.1	79.1	79.9	80.9
19. Activity rate (% of population aged 55-64)	42.2	42.3	42.5	43.0	43.9	45.4	46.5	48.0	49.3	50.2	50.8	53.1
20. Total unemployment (000)	203	178	174	152	123	97	75	72	83	90	89	89
21. Unemployment rate (% labour force 15+)	14.3	12.3	11.7	9.9	7.5	5.7	4.3	4.0	4.5	4.7	4.5	4.3
22. Youth unemployment rate (% labour force 15-24)	23.0	19.5	18.2	15.4	11.3	8.6	6.9	7.2	8.5	9.1	8.9	8.6
23. Long-term unemployment rate (% labour force)	9.2	7.6	7.0	5.6	3.9	2.4	1.6	1.3	1.4	1.6	1.6	1.5
24. Youth unemployment ratio (% population aged 15-24)	10.9	9.0	8.2	7.7	5.8	4.6	3.8	3.8	4.4	4.8	4.7	4.6

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	1752	1763	1780	1804	1842	1864	1888	1919	1951	1983	2018	2067
2. Population aged 15-64	1126	1147	1173	1199	1233	1256	1280	1307	1337	1361	1387	1425
3. Total employment (000)	774	802	821	854	918	966	1005	1030	1037	1053	1083	1128
4. Population in employment aged 15-64	742	770	792	829	889	936	976	1002	1008	1024	1053	1095
5. Employment rate (% population aged 15-64)	65.9	67.1	67.5	69.1	72.1	74.5	76.3	76.6	75.4	75.2	75.9	76.9
6. Employment rate (% population aged 15-24)	38.5	39.7	39.8	43.9	48.7	52.3	54.2	53.1	50.6	50.5	50.7	51.5
7. Employment rate (% population aged 25-54)	79.7	81.0	81.8	82.6	84.9	86.9	88.2	88.6	87.4	87.0	87.8	88.4
8. Employment rate (% population aged 55-64)	59.6	59.8	59.2	58.9	60.2	61.7	63.2	64.6	65.0	64.6	65.0	65.7
9. FTE employment rate (% population aged 15-64)	63.9	65.2	65.2	67.0	70.1	73.7	76.1	75.9	74.7	74.4	74.9	76.1
10. Self-employed (% total employment)	:	27.2	26.4	25.9	26.7	26.3	25.5	25.2	25.2	24.9	25.0	24.2
11. Part-time employment (% total employment)	4.9	5.1	4.9	6.0	7.5	7.2	6.9	6.6	6.5	6.6	6.1	:
12. Fixed-term contracts (% total employment)	8.1	8.3	7.2	6.9	5.6	4.1	4.9	4.4	4.5	4.4	3.7	3.1
13. Employment in Services (% total employment)	:	49.7	50.3	50.1	49.8	50.0	50.5	50.4	51.1	51.7	51.8	51.6
14. Employment in Industry (% total employment)	:	35.1	35.6	36.5	37.0	37.1	37.9	38.6	38.2	38.1	38.5	39.1
15. Employment in Agriculture (% total employment)	:	15.2	14.1	13.4	13.2	12.9	11.6	10.9	10.7	10.1	9.8	9.3
16. Activity rate (% population aged 15-64)	76.9	76.4	76.3	77.1	78.2	79.1	79.9	79.9	79.2	79.3	79.9	80.6
17. Activity rate (% of population aged 15-24)	51.0	49.9	49.0	52.4	55.0	57.2	58.1	57.3	55.7	56.0	55.9	56.6
18. Activity rate (% of population aged 25-54)	91.1	90.9	91.3	91.1	91.5	91.8	92.0	91.8	91.2	91.0	91.8	92.1
19. Activity rate (% of population aged 55-64)	64.9	64.5	63.3	62.9	63.4	64.2	65.0	66.4	66.7	66.3	66.9	67.7
20. Total unemployment (000)	126	109	106	93	76	58	45	44	52	55	55	54
21. Unemployment rate (% labour force 15+)	14.2	12.2	11.5	9.9	7.7	5.7	4.3	4.1	4.7	5.0	4.9	4.6
22. Youth unemployment rate (% labour force 15-24)	24.8	20.8	19.0	16.0	11.6	8.5	6.8	7.6	9.3	9.7	9.3	9.1
23. Long-term unemployment rate (% labour force)	9.7	8.1	7.5	6.2	4.7	3.0	2.0	1.7	1.8	1.9	2.0	1.9
24. Youth unemployment ratio (% population aged 15-24)	12.4	10.2	9.2	8.5	6.3	4.9	4.0	4.3	5.1	5.5	5.2	5.1

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	1771	1781	1792	1818	1867	1890	1912	1940	1975	2008	2041	2081
2. Population aged 15-64	1118	1138	1162	1189	1224	1247	1267	1293	1324	1350	1375	1406
3. Total employment (000)	457	483	510	551	608	656	691	718	742	761	787	831
4. Population in employment aged 15-64	449	473	501	545	600	648	683	710	734	752	777	820
5. Employment rate (% population aged 15-64)	40.1	41.6	43.2	45.9	49.0	52.0	53.9	54.9	55.4	55.7	56.5	58.3
6. Employment rate (% population aged 15-24)	35.7	35.4	35.2	38.8	42.4	45.7	46.6	45.5	44.5	44.4	44.7	45.9
7. Employment rate (% population aged 25-54)	46.5	49.0	51.2	53.8	57.1	60.0	62.4	64.0	64.7	64.8	65.8	67.3
8. Employment rate (% population aged 55-64)	18.2	18.6	20.2	21.6	23.1	25.6	27.2	28.7	30.8	33.1	33.7	37.3
9. FTE employment rate (% population aged 15-64)	35.3	36.4	37.8	39.3	41.0	43.5	45.1	45.7	47.0	46.7	47.1	49.0
10. Self-employed (% total employment)	:	9.3	9.3	9.4	9.5	8.7	8.6	7.9	7.6	7.6	7.5	7.1
11. Part-time employment (% total employment)	21.6	22.4	22.0	25.4	30.0	30.1	30.3	30.7	30.6	31.0	31.5	:
12. Fixed-term contracts (% total employment)	11.6	12.1	11.9	11.7	9.3	6.4	7.2	6.2	6.3	6.0	4.6	4.2
13. Employment in Services (% total employment)	:	79.6	80.1	80.0	81.3	82.1	82.4	83.4	84.8	85.4	86.0	86.9
14. Employment in Industry (% total employment)	:	17.3	16.7	17.1	16.1	15.5	15.5	14.8	13.5	12.9	12.6	11.8
15. Employment in Agriculture (% total employment)	:	3.1	3.1	2.9	2.6	2.4	2.1	1.8	1.7	1.7	1.4	1.3
16. Activity rate (% population aged 15-64)	46.7	47.3	48.6	51.1	52.9	55.0	56.3	57.1	57.8	58.3	59.0	60.8
17. Activity rate (% of population aged 15-24)	44.9	43.1	42.3	45.5	47.7	50.1	50.1	48.8	48.1	48.5	48.8	49.9
18. Activity rate (% of population aged 25-54)	52.9	54.6	56.8	59.1	60.9	62.9	64.7	66.0	66.9	67.2	68.0	69.6
19. Activity rate (% of population aged 55-64)	19.8	20.2	21.6	22.9	24.2	26.6	27.8	29.4	31.6	33.8	34.4	38.2
20. Total unemployment (000)	77	68	68	60	47	39	30	28	32	35	33	35
21. Unemployment rate (% labour force 15+)	14.6	12.5	11.8	9.9	7.3	5.6	4.2	3.8	4.1	4.3	4.1	4.0
22. Youth unemployment rate (% labour force 15-24)	20.8	17.9	17.2	14.6	11.0	8.6	7.0	6.9	7.6	8.4	8.5	7.9
23. Long-term unemployment rate (% labour force)	8.3	6.7	6.1	4.6	2.8	1.6	1.0	0.8	0.8	1.0	1.0	0.8
24. Youth unemployment ratio (% population aged 15-24)	9.2	7.7	7.2	6.7	5.3	4.3	3.5	3.3	3.7	4.1	4.2	4.0

Source: Eurostat
Note: Indicator 3: 1994 estimate.

Key employment indicators: Italy

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	56343	56493	56605	56746	56857	56906	57044	57229	57382	57399	57442	58077
2. Population aged 15-64	38587	38634	38623	38648	38676	38633	38642	38645	38676	38692	38292	38588
3. Total employment (000)	21884	21841	21965	22035	22252	22494	22930	23423	23793	24150	24232	24281
4. Population in employment aged 15-64	19818	19691	19788	19837	20091	20357	20753	21169	21478	21710	22060	22214
5. Employment rate (% population aged 15-64)	51.4	51.0	51.2	51.3	51.9	52.7	53.7	54.8	55.5	56.1	57.6	57.6
6. Employment rate (% population aged 15-24)	26.5	25.6	25.3	25.2	25.7	25.7	26.4	26.3	25.8	25.2	27.6	25.7
7. Employment rate (% population aged 25-54)	65.9	65.6	65.7	65.7	66.3	67.0	68.0	69.2	70.1	70.7	72.2	72.3
8. Employment rate (% population aged 55-64)	29.3	28.4	28.6	27.9	27.7	27.6	27.7	28.0	28.9	30.3	30.5	31.4
9. FTE employment rate (% population aged 15-64)	50.4	49.8	50.0	50.1	50.5	51.0	51.7	52.7	53.6	54.3	54.3	54.4
10. Self-employed (% total employment)	26.7	26.9	26.9	26.8	26.7	26.4	26.4	25.9	25.5	25.6	25.6	24.5
11. Part-time employment (% total employment)	5.9	6.3	6.5	6.8	7.3	7.9	8.4	8.4	8.6	8.5	12.7	12.8
12. Fixed-term contracts (% total employment)	6.8	7.4	7.4	7.9	8.6	9.5	10.1	9.8	9.9	9.9	11.8	12.3
13. Employment in Services (% total employment)	62.6	63.1	63.9	64.2	64.5	65.1	65.8	66.1	66.4	66.8	67.1	67.4
14. Employment in Industry (% total employment)	31.1	30.9	30.4	30.3	30.3	29.9	29.4	29.2	29.1	29.0	28.8	28.6
15. Employment in Agriculture (% total employment)	6.3	6.0	5.7	5.6	5.3	4.9	4.8	4.7	4.5	4.2	4.1	4.0
16. Activity rate (% population aged 15-64)	57.8	57.8	58.1	58.2	59.0	59.6	60.1	60.6	61.1	61.5	62.7	62.5
17. Activity rate (% of population aged 15-24)	39.4	38.8	38.4	38.3	38.8	38.3	38.4	36.6	35.5	34.6	36.1	33.8
18. Activity rate (% of population aged 25-54)	71.7	71.9	72.2	72.4	73.2	73.8	74.3	75.1	75.7	76.3	77.5	77.4
19. Activity rate (% of population aged 55-64)	30.3	29.5	29.8	29.2	29.0	29.0	29.0	29.2	30.2	31.5	31.8	32.6
20. Total unemployment (000)	2422	2544	2555	2584	2634	2559	2388	2164	2062	2048	1960	1889
21. Unemployment rate (% labour force 15+)	10.6	11.2	11.2	11.3	11.3	10.9	10.1	9.1	8.6	8.4	8.0	7.7
22. Youth unemployment rate (% labour force 15-24)	29.1	30.3	30.4	30.2	29.9	28.7	27.0	24.1	23.1	23.7	23.6	24.0
23. Long-term unemployment rate (% labour force)	6.5	7.1	7.3	7.3	6.8	6.7	6.3	5.7	5.1	4.9	4.0	3.9
24. Youth unemployment ratio (% population aged 15-24)	12.9	13.2	13.1	13.1	13.1	12.6	11.9	10.3	9.7	9.4	8.5	8.1

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	27236	27310	27372	27462	27541	27567	27651	27764	27858	27873	27830	28192
2. Population aged 15-64	19066	19110	19128	19174	19220	19206	19232	19258	19293	19309	19047	19248
3. Total employment (000)	14285	14199	14193	14192	14254	14305	14485	14649	14816	14990	14733	14784
4. Population in employment aged 15-64	12910	12776	12761	12748	12840	12920	13076	13201	13332	13438	13353	13460
5. Employment rate (% population aged 15-64)	67.7	66.9	66.7	66.5	66.8	67.3	68.0	68.5	69.1	69.6	70.1	69.9
6. Employment rate (% population aged 15-24)	31.4	30.4	30.2	30.2	30.7	30.3	30.7	30.4	30.3	29.7	32.1	30.4
7. Employment rate (% population aged 25-54)	85.4	84.5	84.2	83.9	84.0	84.3	84.9	85.5	86.0	86.5	86.7	86.6
8. Employment rate (% population aged 55-64)	46.3	44.6	43.9	42.0	41.4	41.2	40.9	40.4	41.3	42.8	42.2	42.7
9. FTE employment rate (% population aged 15-64)	67.2	66.3	66.2	66.0	66.3	66.7	67.0	67.6	68.4	69.0	68.9	69.0
10. Self-employed (% total employment)	29.0	29.6	29.7	29.7	29.7	29.4	29.7	29.5	29.1	29.1	29.0	28.1
11. Part-time employment (% total employment)	2.7	2.9	3.0	3.1	3.4	3.5	3.7	3.5	3.5	3.2	4.8	4.6
12. Fixed-term contracts (% total employment)	5.7	6.2	6.5	6.9	7.5	8.2	8.7	8.3	8.4	8.2	9.9	10.5
13. Employment in Services (% total employment)	57.0	57.3	57.8	58.2	58.3	58.5	59.0	59.1	59.1	59.2	58.3	58.3
14. Employment in Industry (% total employment)	36.7	36.6	36.2	36.0	36.1	36.1	35.7	35.7	35.9	36.1	37.0	37.1
15. Employment in Agriculture (% total employment)	6.3	6.1	6.0	5.9	5.6	5.4	5.3	5.2	5.0	4.7	4.8	4.6
16. Activity rate (% population aged 15-64)	74.2	73.5	73.4	73.2	73.6	73.8	74.1	74.1	74.3	74.7	74.7	74.6
17. Activity rate (% of population aged 15-24)	44.6	43.7	43.2	43.1	43.8	42.8	42.5	40.6	39.9	39.2	40.5	38.7
18. Activity rate (% of population aged 25-54)	91.0	90.4	90.3	90.0	90.3	90.5	90.6	90.7	91.0	91.5	91.4	91.2
19. Activity rate (% of population aged 55-64)	47.9	46.4	45.7	43.9	43.5	43.2	42.7	42.3	43.0	44.4	44.0	44.3
20. Total unemployment (000)	1180	1223	1227	1232	1248	1202	1118	1008	960	936	925	902
21. Unemployment rate (% labour force 15+)	8.3	8.6	8.7	8.7	8.8	8.4	7.8	7.1	6.7	6.5	6.4	6.2
22. Youth unemployment rate (% labour force 15-24)	25.6	26.1	25.8	25.4	25.4	24.7	23.1	20.4	19.4	20.5	20.7	21.5
23. Long-term unemployment rate (% labour force)	4.9	5.3	5.5	5.6	5.3	5.2	4.8	4.4	4.0	3.8	2.9	2.9
24. Youth unemployment ratio (% population aged 15-24)	13.2	13.2	13.0	12.8	13.0	12.5	11.7	10.2	9.6	9.5	8.4	8.3

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	29108	29183	29233	29284	29316	29339	29393	29465	29524	29525	29612	29885
2. Population aged 15-64	19522	19525	19496	19475	19457	19428	19410	19388	19383	19384	19245	19340
3. Total employment (000)	7599	7642	7773	7842	7998	8189	8445	8775	8977	9159	9499	9497
4. Population in employment aged 15-64	6909	6916	7027	7089	7250	7437	7677	7968	8146	8272	8706	8754
5. Employment rate (% population aged 15-64)	35.4	35.4	36.0	36.4	37.3	38.3	39.6	41.1	42.0	42.7	45.2	45.3
6. Employment rate (% population aged 15-24)	21.8	20.9	20.4	20.3	20.7	21.3	22.1	22.1	21.3	20.6	23.1	20.8
7. Employment rate (% population aged 25-54)	46.3	46.6	47.3	47.6	48.5	49.6	50.9	52.8	54.0	54.9	57.8	57.9
8. Employment rate (% population aged 55-64)	13.7	13.5	14.5	14.8	15.0	15.0	15.3	16.2	17.3	18.5	19.6	20.8
9. FTE employment rate (% population aged 15-64)	34.0	33.8	34.3	34.5	35.0	35.7	36.7	38.1	39.2	39.9	40.2	40.3
10. Self-employed (% total employment)	22.5	22.1	21.9	21.5	21.4	21.0	20.6	20.1	19.7	19.8	20.2	18.9
11. Part-time employment (% total employment)	12.0	12.7	12.9	13.4	14.3	15.6	16.5	16.6	16.9	17.3	25.0	25.6
12. Fixed-term contracts (% total employment)	8.7	9.3	8.8	9.4	10.3	11.5	12.2	11.9	12.0	12.2	14.5	14.7
13. Employment in Services (% total employment)	72.9	73.5	74.6	74.7	75.2	76.4	77.0	77.5	78.1	78.9	80.2	81.0
14. Employment in Industry (% total employment)	20.9	20.7	20.2	20.2	20.2	19.4	19.0	18.5	18.1	17.8	16.6	16.0
15. Employment in Agriculture (% total employment)	6.2	5.8	5.2	5.1	4.7	4.2	4.0	4.0	3.8	3.3	3.2	3.0
16. Activity rate (% population aged 15-64)	41.9	42.3	43.0	43.5	44.6	45.5	46.3	47.3	47.9	48.3	50.6	50.4
17. Activity rate (% of population aged 15-24)	34.4	34.1	33.7	33.6	33.9	34.0	34.3	32.6	31.0	29.9	31.7	28.7
18. Activity rate (% of population aged 25-54)	52.6	53.4	54.1	54.6	56.0	57.1	57.9	59.3	60.3	60.9	63.6	63.6
19. Activity rate (% of population aged 55-64)	14.2	14.1	15.2	15.5	15.7	15.8	16.1	16.9	18.1	19.3	20.4	21.5
20. Total unemployment (000)	1241	1321	1328	1352	1386	1358	1271	1157	1103	1112	1036	986
21. Unemployment rate (% labour force 15+)	14.6	15.4	15.2	15.3	15.4	14.8	13.6	12.2	11.5	11.3	10.5	10.1
22. Youth unemployment rate (% labour force 15-24)	33.6	35.6	36.2	36.2	35.5	33.8	31.9	28.7	27.8	27.6	27.2	27.4
23. Long-term unemployment rate (% labour force)	9.2	10.0	10.2	10.0	9.1	9.0	8.4	7.6	6.9	6.6	5.5	5.2
24. Youth unemployment ratio (% population aged 15-24)	12.5	13.2	13.3	13.3	13.2	12.7	12.1	10.5	9.7	9.2	8.6	7.9

Source: Eurostat
Note: EU-LFS indicators: break in 2004.

Employment in Europe 2006

Key employment indicators: Cyprus

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	668	674	681	690	714	727
2. Population aged 15-64	:	:	:	:	:	:	438	444	449	460	479	494
3. Total employment (000)	:	:	288	287	290	313	330	346	353	356	362	367
4. Population in employment aged 15-64	:	:	:	:	:	:	288	301	308	318	330	338
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	65.7	67.8	68.6	69.2	68.9	68.5
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	37.0	38.4	37.0	37.6	37.5	36.7
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	78.3	80.8	82.2	82.6	82.4	81.8
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	49.4	49.1	49.4	50.4	49.9	50.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	62.7	64.0	66.2	67.4	67.8	68.0	66.9
10. Self-employed (% total employment)	:	:	:	:	:	25.2	25.8	25.2	23.6	23.6	23.6	23.6
11. Part-time employment (% total employment)	:	:	:	:	:	6.5	8.4	8.4	7.2	8.9	8.6	8.9
12. Fixed-term contracts (% total employment)	:	:	:	:	:	10.3	10.7	10.8	9.1	12.5	12.9	14.0
13. Employment in Services (% total employment)	:	:	:	:	:	70.7	71.8	72.5	72.8	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	21.1	20.4	19.9	19.9	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	8.2	7.8	7.6	7.3	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	69.1	70.6	71.2	72.4	72.6	72.4
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	41.0	41.8	40.2	41.3	42.4	42.6
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	81.9	83.5	84.7	85.8	86.0	85.7
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	51.3	51.7	51.3	52.7	52.4	52.4
20. Total unemployment (000)	:	:	:	16	16	17	15	13	12	14	17	20
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	4.8	3.9	3.6	4.1	4.7	5.3
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	9.9	8.3	8.1	8.7	10.5	14.0
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	1.2	0.8	0.8	1.0	1.2	1.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	4.1	3.4	3.2	3.7	4.9	5.9

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	324	327	330	333	347	354
2. Population aged 15-64	:	:	:	:	:	:	211	214	216	221	232	240
3. Total employment (000)	:	:	:	:	:	:	193	197	198	198	204	208
4. Population in employment aged 15-64	:	:	:	:	:	:	166	170	171	174	185	190
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	78.7	79.3	78.9	78.8	79.8	79.2
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	39.6	39.8	38.0	38.7	41.6	40.5
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	92.6	93.4	93.0	92.2	92.5	91.8
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	67.3	66.9	67.3	68.9	70.8	70.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	78.5	78.9	79.3	79.5	79.3	80.3	79.7
10. Self-employed (% total employment)	:	:	:	:	:	:	31.6	31.4	29.4	30.0	29.5	29.2
11. Part-time employment (% total employment)	:	:	:	:	:	3.4	4.5	5.0	4.0	5.5	4.8	5.0
12. Fixed-term contracts (% total employment)	:	:	:	:	:	8.2	7.6	7.1	5.8	8.1	8.5	9.0
13. Employment in Services (% total employment)	:	:	:	:	:	:	64.3	63.9	63.7	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	27.0	27.4	27.8	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	8.7	8.7	8.5	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	81.4	81.5	81.3	82.2	83.0	82.9
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	42.4	42.5	41.3	42.6	46.3	46.6
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	95.3	95.3	95.2	95.2	95.2	95.3
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	69.6	69.5	69.7	73.2	74.2	73.2
20. Total unemployment (000)	:	:	:	5	6	6	6	5	5	7	7	9
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	3.1	2.7	2.9	3.6	3.6	4.4
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	6.6	6.5	8.0	8.6	9.4	13.1
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	0.5	0.6	0.5	0.7	0.9	0.8
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	2.8	2.7	3.3	3.9	4.7	6.1

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	344	347	351	356	367	373
2. Population aged 15-64	:	:	:	:	:	:	227	230	233	239	247	254
3. Total employment (000)	:	:	:	:	:	:	137	149	155	158	157	159
4. Population in employment aged 15-64	:	:	:	:	:	:	122	132	138	144	145	148
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	53.5	57.2	59.1	60.4	58.7	58.4
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	34.7	37.1	36.0	36.6	33.8	33.2
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	64.6	69.0	72.0	73.6	72.8	72.2
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	32.1	32.2	32.2	32.7	30.0	31.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	48.0	50.2	54.1	56.3	57.2	56.6	55.0
10. Self-employed (% total employment)	:	:	:	:	:	:	17.5	17.0	16.3	15.7	16.0	16.3
11. Part-time employment (% total employment)	:	:	:	:	:	11.1	13.9	12.9	11.3	13.2	13.6	14.0
12. Fixed-term contracts (% total employment)	:	:	:	:	:	12.9	14.3	14.8	12.7	17.1	17.7	19.5
13. Employment in Services (% total employment)	:	:	:	:	:	:	82.1	83.6	84.1	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	11.2	10.3	10.0	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	6.6	6.1	5.9	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	57.7	60.6	61.8	63.3	62.8	62.5
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	39.9	41.2	39.2	40.2	39.0	39.0
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	69.0	72.3	74.9	76.9	77.2	76.5
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	33.7	34.7	33.8	33.2	31.6	32.8
20. Total unemployment (000)	:	:	:	11	10	11	10	8	7	7	9	11
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	7.1	5.5	4.4	4.7	6.0	6.5
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	12.9	9.9	8.2	8.8	11.7	14.9
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	2.2	1.2	1.0	1.3	1.6	1.8
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	5.1	4.1	3.1	3.6	5.1	5.7

Source: Eurostat
Note: Indicator 3: 1999 break in series; Indicators 11 & 12: 1999 – 2003 spring results.

Key employment indicators: Latvia

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	2424	2402	2384	2366	2344	2330	2319	2305
2. Population aged 15-64	:	:	:	:	1602	1601	1600	1594	1590	1588	1587	1583
3. Total employment (000)	1083	970	952	993	991	973	944	965	987	997	1008	1024
4. Population in employment aged 15-64	:	:	:	:	959	941	920	935	960	982	988	1002
5. Employment rate (% population aged 15-64)	:	:	:	:	59.9	58.8	57.5	58.6	60.4	61.8	62.3	63.3
6. Employment rate (% population aged 15-24)	:	:	:	:	33.3	32.3	29.6	28.8	31.0	31.5	30.5	32.6
7. Employment rate (% population aged 25-54)	:	:	:	:	76.0	74.6	73.6	75.4	76.1	77.7	77.9	78.4
8. Employment rate (% population aged 55-64)	:	:	:	:	36.3	36.6	36.0	36.9	41.7	44.1	47.9	49.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	58.2	57.2	56.0	57.6	59.9	61.1	60.8	62.3
10. Self-employed (% total employment)	:	14.9	14.7	19.5	17.3	16.3	14.9	15.0	13.8	13.0	13.2	11.6
11. Part-time employment (% total employment)	:	:	:	:	12.8	12.1	11.3	10.3	9.7	10.3	10.4	8.3
12. Fixed-term contracts (% total employment)	:	:	:	:	8.0	7.6	6.7	6.7	13.9	11.1	9.5	8.4
13. Employment in Services (% total employment)	54.2	54.8	56.2	53.6	55.9	58.0	59.9	59.2	60.4	60.8	60.9	62.3
14. Employment in Industry (% total employment)	26.5	27.4	26.7	25.3	25.5	25.5	25.8	26.0	24.8	25.9	26.5	26.5
15. Employment in Agriculture (% total employment)	19.3	17.8	17.2	21.0	18.7	16.5	14.3	14.8	14.9	13.3	12.5	11.2
16. Activity rate (% population aged 15-64)	:	:	:	:	69.8	68.5	67.2	67.7	68.8	69.2	69.7	69.6
17. Activity rate (% of population aged 15-24)	:	:	:	:	45.0	42.5	38.1	36.9	39.1	38.4	37.2	37.7
18. Activity rate (% of population aged 25-54)	:	:	:	:	87.1	86.0	85.5	86.2	85.7	86.3	86.3	85.6
19. Activity rate (% of population aged 55-64)	:	:	:	:	40.6	39.9	39.7	41.4	46.3	47.9	52.3	53.8
20. Total unemployment (000)	:	163	176	178	165	158	150	143	138	119	118	101
21. Unemployment rate (% labour force 15+)	:	:	:	:	14.3	14.0	13.7	12.9	12.2	10.5	10.4	8.9
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	26.8	23.6	21.4	23.0	22.0	18.0	18.1	13.6
23. Long-term unemployment rate (% labour force)	:	:	:	:	7.9	7.6	7.9	7.2	5.5	4.4	4.6	4.1
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	11.7	10.2	8.5	8.2	8.1	6.9	6.8	5.1

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	1117	1105	1098	1089	1078	1071	1068	1062
2. Population aged 15-64	:	:	:	:	765	765	765	764	762	761	764	763
3. Total employment (000)	:	:	:	:	513	506	483	487	504	512	516	528
4. Population in employment aged 15-64	:	:	:	:	498	490	471	473	490	503	507	515
5. Employment rate (% population aged 15-64)	:	:	:	:	65.1	64.1	61.5	61.9	64.3	66.1	66.4	67.6
6. Employment rate (% population aged 15-24)	:	:	:	:	37.7	36.9	34.7	32.8	36.4	37.1	36.4	38.7
7. Employment rate (% population aged 25-54)	:	:	:	:	79.5	77.8	74.8	76.7	78.1	80.7	80.4	81.7
8. Employment rate (% population aged 55-64)	:	:	:	:	48.1	49.9	48.4	46.2	50.5	51.3	55.8	55.2
9. FTE employment rate (% population aged 15-64)	:	:	:	:	63.0	63.0	60.7	61.5	63.5	66.3	66.8	66.7
10. Self-employed (% total employment)	:	:	:	:	18.4	17.3	16.2	17.2	15.6	14.9	14.3	13.4
11. Part-time employment (% total employment)	:	:	:	:	12.5	11.0	9.7	8.6	7.6	7.9	7.7	6.3
12. Fixed-term contracts (% total employment)	:	:	:	:	10.2	10.0	8.8	8.5	17.0	13.1	11.6	10.7
13. Employment in Services (% total employment)	:	:	:	:	46.8	48.7	50.3	48.1	48.5	49.0	49.5	50.0
14. Employment in Industry (% total employment)	:	:	:	:	32.1	32.9	33.5	34.0	33.1	34.2	35.2	35.5
15. Employment in Agriculture (% total employment)	:	:	:	:	21.1	18.5	16.2	18.0	18.4	16.8	15.4	14.5
16. Activity rate (% population aged 15-64)	:	:	:	:	76.4	75.1	72.7	72.6	74.1	74.1	74.3	74.4
17. Activity rate (% of population aged 15-24)	:	:	:	:	50.0	49.0	44.1	42.2	44.6	44.5	43.3	43.8
18. Activity rate (% of population aged 25-54)	:	:	:	:	91.4	90.2	88.2	89.0	89.2	89.7	89.7	89.4
19. Activity rate (% of population aged 55-64)	:	:	:	:	55.8	54.4	54.0	52.9	57.1	56.1	60.4	61.0
20. Total unemployment (000)	:	100	107	100	90	85	82	81	78	62	62	53
21. Unemployment rate (% labour force 15+)	:	:	:	:	15.1	14.4	14.4	14.2	13.3	10.6	10.6	9.1
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	27.4	25.5	21.2	23.4	20.4	16.6	16.0	11.8
23. Long-term unemployment rate (% labour force)	:	:	:	:	8.3	7.6	8.3	8.1	6.4	4.3	4.8	4.4
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	12.3	12.1	9.4	9.4	8.2	7.4	6.9	5.2

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	1307	1297	1286	1277	1266	1258	1251	1244
2. Population aged 15-64	:	:	:	:	836	836	835	831	828	826	823	820
3. Total employment (000)	:	:	:	:	478	467	462	478	483	486	492	496
4. Population in employment aged 15-64	:	:	:	:	461	451	449	462	471	478	482	487
5. Employment rate (% population aged 15-64)	:	:	:	:	55.1	53.9	53.8	55.7	56.8	57.9	58.5	59.3
6. Employment rate (% population aged 15-24)	:	:	:	:	28.8	27.6	24.4	24.6	25.4	25.7	24.4	26.2
7. Employment rate (% population aged 25-54)	:	:	:	:	72.7	71.6	72.5	74.3	74.3	74.9	75.5	75.3
8. Employment rate (% population aged 55-64)	:	:	:	:	27.5	26.6	26.7	30.0	35.2	38.8	41.9	45.3
9. FTE employment rate (% population aged 15-64)	:	:	:	:	53.8	52.0	51.6	54.1	56.7	56.5	55.2	58.1
10. Self-employed (% total employment)	:	:	:	:	16.1	15.1	13.5	12.8	11.9	11.0	12.1	9.7
11. Part-time employment (% total employment)	:	:	:	:	13.1	13.2	12.8	11.9	12.0	12.7	13.2	10.4
12. Fixed-term contracts (% total employment)	:	:	:	:	5.7	5.1	4.6	5.0	10.8	9.1	7.3	6.2
13. Employment in Services (% total employment)	:	:	:	:	65.5	68.1	69.9	70.6	72.6	73.0	72.9	75.4
14. Employment in Industry (% total employment)	:	:	:	:	18.4	17.5	17.7	17.8	16.2	17.2	17.5	16.9
15. Employment in Agriculture (% total employment)	:	:	:	:	16.1	14.4	12.3	11.6	11.2	9.7	9.6	7.7
16. Activity rate (% population aged 15-64)	:	:	:	:	63.9	62.4	62.1	63.2	63.9	64.7	65.3	65.1
17. Activity rate (% of population aged 15-24)	:	:	:	:	39.8	35.8	31.9	31.5	33.4	32.1	31.0	31.3
18. Activity rate (% of population aged 25-54)	:	:	:	:	83.2	82.2	83.1	83.5	82.3	83.0	83.1	82.0
19. Activity rate (% of population aged 55-64)	:	:	:	:	29.2	29.1	29.0	32.8	38.2	41.8	46.1	48.5
20. Total unemployment (000)	:	63	69	79	75	73	69	62	60	57	56	48
21. Unemployment rate (% labour force 15+)	:	:	:	:	13.6	13.6	12.9	11.5	11.0	10.4	10.2	8.7
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	26.0	20.8	21.6	22.3	24.3	20.0	21.3	16.2
23. Long-term unemployment rate (% labour force)	:	:	:	:	7.5	7.6	7.5	6.3	4.6	4.4	4.3	3.7
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	11.1	8.1	7.5	6.9	8.1	6.4	6.6	5.1

Source: Eurostat

Employment in Europe 2006

Key employment indicators: Lithuania

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	3563	3537	3513	3483	3453	3445	3434	3424
2. Population aged 15-64	:	:	:	:	2344	2330	2319	2312	2303	2305	2311	2322
3. Total employment (000)	1675	1483	1497	1506	1494	1462	1403	1357	1411	1443	1441	1479
4. Population in employment aged 15-64	:	:	:	:	1460	1438	1370	1329	1379	1408	1413	1454
5. Employment rate (% population aged 15-64)	:	:	:	:	62.3	61.7	59.1	57.5	59.9	61.1	61.2	62.6
6. Employment rate (% population aged 15-24)	:	:	:	:	33.1	31.1	25.9	22.7	23.8	22.5	20.3	21.2
7. Employment rate (% population aged 25-54)	:	:	:	:	78.2	77.6	75.2	74.1	76.9	78.9	79.4	81.0
8. Employment rate (% population aged 55-64)	:	:	:	:	39.5	40.9	40.4	38.9	41.6	44.7	47.1	49.2
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	59.4	58.0	60.3	62.0	60.3	62.4
10. Self-employed (% total employment)	16.3	18.7	22.8	23.5	20.3	19.9	20.1	19.2	20.0	20.3	18.5	16.9
11. Part-time employment (% total employment)	:	:	:	:	:	:	10.2	9.9	10.8	9.6	8.4	7.1
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	4.4	5.8	7.2	7.2	6.3	5.5
13. Employment in Services (% total employment)	47.5	51.5	51.7	54.3	52.2	53.5	54.7	55.8	54.8	54.2	56.1	57.0
14. Employment in Industry (% total employment)	29.2	29.2	28.3	28.1	28.6	27.2	26.7	27.0	27.4	28.0	28.1	29.0
15. Employment in Agriculture (% total employment)	23.4	19.3	20.1	17.6	19.1	19.3	18.6	17.2	17.8	17.8	15.8	14.0
16. Activity rate (% population aged 15-64)	:	:	:	:	72.1	72.2	70.8	69.7	69.6	69.9	69.1	68.4
17. Activity rate (% of population aged 15-24)	:	:	:	:	43.2	42.2	36.9	33.1	30.9	30.0	26.2	25.1
18. Activity rate (% of population aged 25-54)	:	:	:	:	89.8	90.0	89.0	88.5	88.5	88.8	88.7	87.9
19. Activity rate (% of population aged 55-64)	:	:	:	:	42.4	43.4	45.1	44.9	46.9	50.5	52.6	52.8
20. Total unemployment (000)	:	:	:	:	226	235	277	273	220	204	184	133
21. Unemployment rate (% labour force 15+)	:	:	:	:	13.2	13.7	16.4	16.5	13.5	12.4	11.4	8.3
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	25.5	26.4	30.6	30.9	22.5	25.1	22.7	15.7
23. Long-term unemployment rate (% labour force)	:	:	:	:	7.5	5.3	8.0	9.3	7.2	6.0	5.8	4.3
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	10.2	11.1	11.0	10.4	7.1	7.5	5.9	3.9

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	1672	1658	1645	1626	1611	1607	1601	1597
2. Population aged 15-64	:	:	:	:	1128	1121	1116	1109	1104	1108	1113	1119
3. Total employment (000)	:	:	:	:	:	:	690	667	710	728	736	753
4. Population in employment aged 15-64	:	:	:	:	747	721	675	653	692	709	720	740
5. Employment rate (% population aged 15-64)	:	:	:	:	66.2	64.3	60.5	58.9	62.7	64.0	64.7	66.1
6. Employment rate (% population aged 15-24)	:	:	:	:	37.4	33.8	28.9	24.6	27.1	26.3	24.0	24.8
7. Employment rate (% population aged 25-54)	:	:	:	:	79.2	77.3	74.0	73.3	78.0	79.8	81.7	83.3
8. Employment rate (% population aged 55-64)	:	:	:	:	54.4	54.4	50.6	49.2	51.5	55.3	57.6	59.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	61.6	59.9	64.4	65.8	64.8	66.9
10. Self-employed (% total employment)	:	:	:	:	:	:	23.1	23.1	23.1	23.5	20.8	19.1
11. Part-time employment (% total employment)	:	:	:	:	:	:	9.2	8.4	9.4	7.4	6.5	5.1
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	5.9	7.6	9.8	9.6	8.7	7.6
13. Employment in Services (% total employment)	:	:	:	:	:	:	44.2	44.6	44.6	44.4	46.2	46.4
14. Employment in Industry (% total employment)	:	:	:	:	:	:	33.4	33.7	34.0	34.4	35.7	37.0
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	22.4	21.6	21.4	21.1	18.1	16.6
16. Activity rate (% population aged 15-64)	:	:	:	:	78.2	76.6	74.5	73.7	73.6	73.5	72.8	72.1
17. Activity rate (% of population aged 15-24)	:	:	:	:	50.9	47.4	42.2	38.3	35.2	34.1	30.9	29.5
18. Activity rate (% of population aged 25-54)	:	:	:	:	92.4	91.0	89.9	89.7	90.5	90.5	90.7	90.1
19. Activity rate (% of population aged 55-64)	:	:	:	:	58.2	59.0	58.1	59.0	59.8	62.0	63.7	63.8
20. Total unemployment (000)	:	:	:	:	130	132	159	156	117	105	91	67
21. Unemployment rate (% labour force 15+)	:	:	:	:	14.6	15.1	18.6	18.6	14.2	12.7	11.0	8.2
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	30.1	29.5	32.3	34.4	22.6	22.9	22.5	16.0
23. Long-term unemployment rate (% labour force)	:	:	:	:	7.9	6.1	9.4	10.8	7.6	6.0	5.5	4.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	13.4	13.5	13.3	13.8	8.1	7.8	7.0	4.7

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	1891	1879	1868	1856	1842	1839	1832	1827
2. Population aged 15-64	:	:	:	:	1216	1209	1204	1203	1200	1197	1197	1202
3. Total employment (000)	:	:	:	:	:	:	713	690	701	715	705	726
4. Population in employment aged 15-64	:	:	:	:	713	717	695	676	687	699	693	714
5. Employment rate (% population aged 15-64)	:	:	:	:	58.6	59.4	57.7	56.2	57.2	58.4	57.8	59.4
6. Employment rate (% population aged 15-24)	:	:	:	:	28.6	28.2	22.8	20.9	20.5	18.5	16.5	17.4
7. Employment rate (% population aged 25-54)	:	:	:	:	77.4	77.9	76.3	74.8	75.8	78.0	77.3	78.8
8. Employment rate (% population aged 55-64)	:	:	:	:	28.3	30.6	32.6	31.1	34.1	36.7	39.3	41.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	57.3	56.2	56.5	58.4	56.1	58.1
10. Self-employed (% total employment)	:	:	:	:	:	:	17.1	15.4	16.8	17.1	16.1	14.6
11. Part-time employment (% total employment)	:	:	:	:	:	:	11.1	11.4	12.3	11.8	10.5	9.1
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	3.1	4.2	4.9	4.8	3.9	3.6
13. Employment in Services (% total employment)	:	:	:	:	:	:	64.8	66.5	65.2	64.0	66.5	68.0
14. Employment in Industry (% total employment)	:	:	:	:	:	:	20.2	20.5	20.7	21.6	20.2	20.7
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	15.0	13.0	14.1	14.4	13.3	11.3
16. Activity rate (% population aged 15-64)	:	:	:	:	66.5	68.2	67.3	66.0	65.8	66.5	65.6	64.9
17. Activity rate (% of population aged 15-24)	:	:	:	:	35.5	36.9	31.5	27.8	26.6	25.8	21.4	20.5
18. Activity rate (% of population aged 25-54)	:	:	:	:	87.3	89.1	88.2	87.4	86.7	87.2	86.8	85.8
19. Activity rate (% of population aged 55-64)	:	:	:	:	30.4	31.6	35.2	34.3	37.2	41.8	44.2	44.5
20. Total unemployment (000)	:	:	:	:	96	103	118	117	102	98	94	66
21. Unemployment rate (% labour force 15+)	:	:	:	:	11.7	12.3	14.1	14.3	12.8	12.2	11.8	8.3
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	18.4	22.4	28.3	26.3	22.2	28.1	22.9	15.3
23. Long-term unemployment rate (% labour force)	:	:	:	:	7.0	4.4	6.5	7.7	6.8	6.0	6.2	4.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	6.8	8.7	8.7	6.9	6.1	7.3	4.9	3.1

Source: Eurostat
Note: Indicator 1: 1998 – 2001 estimate; Indicator 3: 1995 break in series.

Key employment indicators: Luxembourg

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	397	404	411	416	420	425	430	433	436	443	446	450
2. Population aged 15-64	272	275	278	280	282	285	288	293	295	300	301	304
3. Total employment (000)	210	216	221	228	238	250	264	278	287	292	298	307
4. Population in employment aged 15-64	163	162	165	168	171	176	181	185	187	186	188	193
5. Employment rate (% population aged 15-64)	59.9	58.7	59.2	59.9	60.5	61.7	62.7	63.1	63.4	62.2	62.5	63.6
6. Employment rate (% population aged 15-24)	42.1	38.3	36.6	34.5	32.9	31.8	31.9	32.3	31.2	27.0	23.3	24.9
7. Employment rate (% population aged 25-54)	73.2	72.2	73.3	74.4	75.1	76.9	78.2	78.7	79.0	77.8	79.3	80.7
8. Employment rate (% population aged 55-64)	23.5	23.7	22.9	23.9	25.1	26.4	26.7	25.6	28.1	30.3	30.4	31.7
9. FTE employment rate (% population aged 15-64)	58.0	56.6	57.4	58.3	58.0	59.1	60.4	60.0	60.9	58.3	58.2	59.2
10. Self-employed (% total employment)	8.4	8.3	8.3	8.2	7.9	7.7	7.3	7.0	6.9	6.8	6.7	6.6
11. Part-time employment (% total employment)	8.0	8.5	8.0	8.2	9.1	9.8	10.4	10.4	10.7	13.4	16.4	17.4
12. Fixed-term contracts (% total employment)	4.3	4.1	4.2	4.1	4.9	5.2	5.3	5.6	5.1	3.1	4.8	5.3
13. Employment in Services (% total employment)	70.0	70.4	71.4	72.1	73.0	74.3	75.4	76.1	76.5	77.1	77.4	77.9
14. Employment in Industry (% total employment)	27.7	27.6	26.6	25.9	25.3	24.1	23.1	22.5	22.1	21.5	21.3	20.9
15. Employment in Agriculture (% total employment)	2.3	2.1	2.0	2.0	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.3
16. Activity rate (% population aged 15-64)	62.0	60.6	61.2	61.6	62.1	63.2	64.1	64.4	65.2	64.6	65.8	66.6
17. Activity rate (% of population aged 15-24)	45.6	41.4	40.1	37.2	35.2	34.1	34.1	34.5	33.8	30.4	28.0	28.8
18. Activity rate (% of population aged 25-54)	75.3	74.1	75.3	76.1	76.9	78.5	79.7	80.0	81.0	80.4	83.0	83.9
19. Activity rate (% of population aged 55-64)	23.7	23.7	23.0	24.1	25.3	26.7	27.0	25.7	28.2	30.7	30.9	32.4
20. Total unemployment (000)	5	5	5	5	5	4	4	4	5	7	10	9
21. Unemployment rate (% labour force 15+)	3.2	2.9	2.9	2.7	2.7	2.4	2.3	2.1	2.8	3.7	5.1	4.5
22. Youth unemployment rate (% labour force 15-24)	7.1	7.2	8.2	7.9	6.9	6.9	7.2	7.3	8.2	11.2	16.5	13.8
23. Long-term unemployment rate (% labour force)	0.9	0.7	0.8	0.9	0.9	0.7	0.6	0.6	0.7	0.9	1.1	1.2
24. Youth unemployment ratio (% population aged 15-24)	3.4	3.2	3.5	2.7	2.3	2.3	2.2	2.2	2.6	3.3	4.7	3.9

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	196	199	203	206	208	211	212	214	216	219	221	223
2. Population aged 15-64	138	140	141	142	142	144	146	148	149	151	152	153
3. Total employment (000)	136	141	143	146	150	158	167	176	178	173	176	179
4. Population in employment aged 15-64	104	104	104	105	106	107	109	111	112	111	111	112
5. Employment rate (% population aged 15-64)	74.9	74.4	74.3	74.3	74.5	74.5	75.0	75.0	75.1	73.3	72.8	73.3
6. Employment rate (% population aged 15-24)	43.3	39.6	38.3	36.9	34.9	34.1	35.0	34.6	34.3	28.0	26.0	28.4
7. Employment rate (% population aged 25-54)	92.5	92.2	92.1	92.1	92.8	92.8	92.9	93.2	93.1	91.6	92.2	92.8
8. Employment rate (% population aged 55-64)	34.1	35.1	35.5	35.4	35.2	35.8	37.2	35.9	37.7	39.7	38.3	38.3
9. FTE employment rate (% population aged 15-64)	74.8	74.7	74.6	75.0	74.9	74.7	75.9	74.9	76.0	72.9	72.9	73.7
10. Self-employed (% total employment)	8.1	8.8	9.0	8.8	8.8	8.2	8.1	7.7	7.9	7.3	7.5	7.2
11. Part-time employment (% total employment)	1.1	1.4	1.1	1.0	1.5	1.5	1.7	1.4	1.8	1.6	2.5	2.5
12. Fixed-term contracts (% total employment)	3.5	3.8	4.0	3.5	4.7	5.2	4.6	5.2	4.7	2.4	4.1	4.9
13. Employment in Services (% total employment)	58.8	60.1	60.8	61.2	63.0	64.3	65.2	66.1	66.3	67.8	68.9	69.1
14. Employment in Industry (% total employment)	38.6	37.6	36.7	36.3	35.1	34.0	33.0	32.2	32.0	30.6	29.7	29.4
15. Employment in Agriculture (% total employment)	2.6	2.3	2.5	2.4	1.9	1.7	1.8	1.7	1.7	1.6	1.4	1.5
16. Activity rate (% population aged 15-64)	77.1	76.1	76.1	75.8	75.9	75.9	76.3	76.3	76.7	75.5	75.6	76.0
17. Activity rate (% of population aged 15-24)	47.0	42.8	42.1	39.2	37.1	36.3	37.2	37.1	36.6	31.0	29.6	32.1
18. Activity rate (% of population aged 25-54)	94.7	93.9	93.7	93.6	94.3	94.2	94.2	94.4	94.9	94.1	95.3	95.5
19. Activity rate (% of population aged 55-64)	34.2	35.1	35.6	35.6	35.2	36.2	37.9	36.1	37.9	40.1	38.8	39.4
20. Total unemployment (000)	3	2	2	2	2	2	2	2	2	3	4	4
21. Unemployment rate (% labour force 15+)	2.6	2.0	2.2	2.0	1.9	1.8	1.8	1.7	2.1	3.0	3.7	3.5
22. Youth unemployment rate (% labour force 15-24)	7.1	6.6	8.0	6.5	6.5	6.1	6.6	7.5	6.6	9.7	11.8	11.8
23. Long-term unemployment rate (% labour force)	0.9	0.6	0.7	0.7	0.7	0.6	0.5	0.5	0.6	1.0	0.8	1.2
24. Youth unemployment ratio (% population aged 15-24)	3.7	3.2	3.8	2.3	2.2	2.2	2.2	2.5	2.3	3.0	3.6	3.8

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	201	204	208	210	212	215	218	219	221	224	224	227
2. Population aged 15-64	134	136	138	139	140	141	142	145	146	148	149	151
3. Total employment (000)	74	74	78	82	88	92	97	103	108	118	123	129
4. Population in employment aged 15-64	59	58	60	63	65	69	71	74	76	76	77	81
5. Employment rate (% population aged 15-64)	44.4	42.6	43.8	45.3	46.2	48.6	50.1	50.9	51.6	50.9	51.9	53.7
6. Employment rate (% population aged 15-24)	40.9	36.9	34.8	32.1	30.8	29.4	28.8	29.8	28.0	26.1	20.5	21.3
7. Employment rate (% population aged 25-54)	52.9	51.4	53.9	56.1	56.9	60.5	63.0	63.9	64.6	63.8	66.2	68.4
8. Employment rate (% population aged 55-64)	13.3	12.6	10.8	12.9	15.5	17.2	16.4	15.2	18.4	20.6	22.2	24.9
9. FTE employment rate (% population aged 15-64)	40.8	38.1	39.9	41.3	41.2	43.5	44.6	45.1	45.7	43.7	43.3	44.4
10. Self-employed (% total employment)	8.8	7.5	7.0	7.1	6.5	6.7	6.0	5.8	5.3	6.2	5.5	5.8
11. Part-time employment (% total employment)	20.5	21.8	20.5	21.0	22.0	24.0	25.1	25.8	25.3	30.7	36.3	38.2
12. Fixed-term contracts (% total employment)	5.8	4.7	4.6	5.0	5.2	5.2	6.6	6.4	5.6	4.2	5.8	5.8
13. Employment in Services (% total employment)	89.5	89.7	90.6	91.2	90.2	91.7	92.7	92.6	92.7	91.9	91.1	91.7
14. Employment in Industry (% total employment)	8.7	8.6	8.2	7.6	8.4	6.9	6.3	6.5	6.4	7.1	7.9	7.5
15. Employment in Agriculture (% total employment)	1.9	1.7	1.3	1.2	1.3	1.4	1.1	0.9	0.8	0.9	1.0	0.8
16. Activity rate (% population aged 15-64)	46.4	44.6	45.9	47.1	48.1	50.3	51.6	52.2	53.6	53.5	55.8	57.0
17. Activity rate (% of population aged 15-24)	44.1	40.0	38.0	35.1	33.2	31.7	30.9	31.8	30.9	29.7	26.4	25.5
18. Activity rate (% of population aged 25-54)	55.0	53.5	56.1	58.0	59.1	62.3	64.7	65.3	66.8	66.5	70.4	72.2
19. Activity rate (% of population aged 55-64)	13.4	12.7	10.8	13.0	15.8	17.4	16.4	15.2	18.5	21.2	22.6	25.1
20. Total unemployment (000)	3	3	3	3	3	2	2	2	3	4	6	5
21. Unemployment rate (% labour force 15+)	4.1	4.3	4.2	3.9	4.0	3.3	3.1	2.7	3.8	4.7	7.0	5.9
22. Youth unemployment rate (% labour force 15-24)	7.1	7.8	8.4	9.5	7.3	7.9	7.9	7.0	10.0	12.7	21.8	16.4
23. Long-term unemployment rate (% labour force)	1.0	1.0	1.1	1.3	1.1	0.9	0.6	0.6	0.9	0.9	1.4	1.2
24. Youth unemployment ratio (% population aged 15-24)	3.2	3.1	3.2	3.1	2.4	2.3	2.1	2.0	2.9	3.6	5.9	4.1

Source: Eurostat

Employment in Europe 2006

Key employment indicators: Hungary

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	10098	10075	10016	9972	9924	10038	10012	9980	9944	9932
2. Population aged 15-64	:	:	6835	6833	6801	6783	6764	6851	6849	6836	6826	6815
3. Total employment (000)	:	3619	3601	3608	3672	3796	3844	3854	3856	3906	3879	3879
4. Population in employment aged 15-64	:	:	3564	3579	3653	3769	3806	3850	3850	3897	3875	3879
5. Employment rate (% population aged 15-64)	:	:	52.1	52.4	53.7	55.6	56.3	56.2	56.2	57.0	56.8	56.9
6. Employment rate (% population aged 15-24)	:	:	27.9	29.8	33.9	34.9	33.5	30.7	28.5	26.8	23.6	21.8
7. Employment rate (% population aged 25-54)	:	:	70.2	69.8	70.3	72.3	73.0	73.1	73.0	73.7	73.6	73.7
8. Employment rate (% population aged 55-64)	:	:	17.7	17.7	17.3	19.4	22.2	23.5	25.6	28.9	31.1	33.0
9. FTE employment rate (% population aged 15-64)	:	:	52.1	52.0	53.1	55.4	56.0	56.0	56.2	56.9	56.5	56.6
10. Self-employed (% total employment)	:	17.8	17.9	17.2	16.0	15.6	15.1	14.4	13.8	13.4	14.2	13.8
11. Part-time employment (% total employment)	:	:	:	3.7	3.8	3.8	3.5	3.6	3.6	4.4	4.7	4.1
12. Fixed-term contracts (% total employment)	:	:	:	6.6	6.5	6.2	7.1	7.5	7.3	7.5	6.8	7.0
13. Employment in Services (% total employment)	:	58.7	58.6	58.5	58.0	58.8	59.8	59.5	59.8	61.3	62.0	62.7
14. Employment in Industry (% total employment)	:	33.1	33.0	33.5	34.4	34.3	33.9	34.3	34.2	33.4	32.9	32.4
15. Employment in Agriculture (% total employment)	:	8.2	8.4	8.0	7.6	6.9	6.4	6.2	6.1	5.4	5.1	4.9
16. Activity rate (% population aged 15-64)	:	:	57.9	57.6	58.7	59.8	60.1	59.6	59.7	60.6	60.5	61.3
17. Activity rate (% of population aged 15-24)	:	:	34.6	35.9	40.0	40.1	38.3	34.6	32.6	31.0	27.9	27.1
18. Activity rate (% of population aged 25-54)	:	:	76.8	75.8	75.9	77.1	77.3	77.1	77.0	77.8	77.9	78.7
19. Activity rate (% of population aged 55-64)	:	:	18.8	18.8	18.3	19.9	22.9	24.2	26.4	29.8	32.0	34.3
20. Total unemployment (000)	:	391	380	355	337	283	263	235	240	245	253	302
21. Unemployment rate (% labour force 15+)	:	:	9.6	9.0	8.4	7.0	6.4	5.7	5.8	5.9	6.1	7.2
22. Youth unemployment rate (% labour force 15-24)	:	:	18.5	17.0	15.0	12.7	12.5	11.3	12.7	13.4	15.5	19.4
23. Long-term unemployment rate (% labour force)	:	:	5.2	4.5	4.2	3.3	3.1	2.6	2.5	2.4	2.7	3.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	6.7	6.1	6.0	5.1	4.8	3.9	4.1	4.1	4.3	5.2

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	4801	4799	4773	4750	4726	4756	4742	4722	4703	4698
2. Population aged 15-64	:	:	3322	3334	3324	3315	3313	3340	3338	3329	3329	3328
3. Total employment (000)	:	:	:	2006	2022	2086	2111	2106	2104	2118	2106	2104
4. Population in employment aged 15-64	:	:	1975	1990	2011	2069	2089	2102	2100	2113	2102	2101
5. Employment rate (% population aged 15-64)	:	:	59.5	59.7	60.5	62.4	63.1	62.9	62.9	63.5	63.1	63.1
6. Employment rate (% population aged 15-24)	:	:	31.3	33.6	37.6	38.7	37.3	34.4	31.2	29.8	26.3	24.4
7. Employment rate (% population aged 25-54)	:	:	77.7	77.4	76.8	78.7	79.2	79.4	79.7	80.1	80.5	80.3
8. Employment rate (% population aged 55-64)	:	:	27.2	27.0	27.0	29.7	33.2	34.1	35.5	37.8	38.4	40.6
9. FTE employment rate (% population aged 15-64)	:	:	60.1	60.4	60.5	63.2	63.6	63.4	63.6	64.0	63.7	63.5
10. Self-employed (% total employment)	:	:	:	21.1	19.5	19.3	18.8	17.8	17.0	16.9	17.7	17.1
11. Part-time employment (% total employment)	:	:	:	2.0	2.3	2.4	2.0	2.2	2.3	2.8	3.2	2.7
12. Fixed-term contracts (% total employment)	:	:	:	7.0	7.1	6.5	7.7	8.1	7.9	8.3	7.5	7.6
13. Employment in Services (% total employment)	:	:	:	48.7	47.7	48.4	49.9	49.9	49.8	50.6	51.1	51.4
14. Employment in Industry (% total employment)	:	:	:	40.4	41.9	42.0	41.3	41.7	42.0	41.7	41.6	41.9
15. Employment in Agriculture (% total employment)	:	:	:	10.8	10.5	9.6	8.9	8.4	8.2	7.7	7.3	6.8
16. Activity rate (% population aged 15-64)	:	:	66.6	66.2	66.6	67.6	67.9	67.2	67.1	67.6	67.2	67.9
17. Activity rate (% of population aged 15-24)	:	:	39.6	41.3	45.1	45.0	43.2	39.2	36.0	34.6	31.4	30.3
18. Activity rate (% of population aged 25-54)	:	:	85.7	84.5	83.5	84.3	84.4	84.2	84.3	84.8	85.0	85.5
19. Activity rate (% of population aged 55-64)	:	:	28.9	28.8	28.5	30.8	34.5	35.4	36.9	38.9	39.7	42.3
20. Total unemployment (000)	:	236	226	214	199	169	160	143	139	139	137	159
21. Unemployment rate (% labour force 15+)	:	:	10.2	9.7	9.0	7.5	7.0	6.3	6.2	6.1	6.1	7.0
22. Youth unemployment rate (% labour force 15-24)	:	:	19.9	18.6	16.6	13.7	13.7	12.3	13.2	13.8	16.2	19.6
23. Long-term unemployment rate (% labour force)	:	:	5.8	4.9	4.5	3.7	3.5	3.0	2.8	2.5	2.8	3.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	8.3	7.7	7.5	6.2	5.9	4.8	4.8	4.8	5.1	6.0

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	5297	5275	5243	5222	5199	5282	5270	5258	5241	5234
2. Population aged 15-64	:	:	3513	3500	3477	3468	3452	3511	3512	3506	3497	3486
3. Total employment (000)	:	:	:	1602	1649	1711	1734	1748	1751	1788	1773	1775
4. Population in employment aged 15-64	:	:	1588	1588	1642	1700	1717	1747	1750	1785	1773	1777
5. Employment rate (% population aged 15-64)	:	:	45.2	45.4	47.2	49.0	49.7	49.8	49.8	50.9	50.7	51.0
6. Employment rate (% population aged 15-24)	:	:	24.4	26.0	30.2	31.1	29.7	26.9	25.8	23.8	20.8	19.2
7. Employment rate (% population aged 25-54)	:	:	62.9	62.5	63.9	66.1	66.9	67.0	66.5	67.4	67.0	67.2
8. Employment rate (% population aged 55-64)	:	:	10.1	10.3	9.6	11.3	13.3	14.9	17.6	21.8	25.0	26.7
9. FTE employment rate (% population aged 15-64)	:	:	44.5	43.9	46.0	47.9	48.7	48.8	49.1	50.0	49.5	49.9
10. Self-employed (% total employment)	:	:	:	12.4	11.6	11.2	10.5	10.2	10.0	9.2	10.1	9.8
11. Part-time employment (% total employment)	:	:	:	5.6	5.5	5.5	5.2	5.2	5.1	6.2	6.3	5.8
12. Fixed-term contracts (% total employment)	:	:	:	6.1	5.8	5.8	6.5	6.8	6.6	6.7	6.1	6.4
13. Employment in Services (% total employment)	:	:	:	70.9	70.6	71.4	71.7	71.1	71.7	73.9	74.9	76.1
14. Employment in Industry (% total employment)	:	:	:	24.7	25.3	25.0	24.9	25.5	24.7	23.5	22.6	21.2
15. Employment in Agriculture (% total employment)	:	:	:	4.4	4.1	3.7	3.3	3.4	3.6	2.6	2.6	2.7
16. Activity rate (% population aged 15-64)	:	:	49.7	49.3	51.2	52.3	52.7	52.4	52.7	53.9	54.0	55.1
17. Activity rate (% of population aged 15-24)	:	:	29.6	30.5	34.7	35.0	33.3	29.9	29.3	27.3	24.3	23.8
18. Activity rate (% of population aged 25-54)	:	:	68.2	67.2	68.6	70.0	70.4	70.1	69.9	71.0	70.9	72.1
19. Activity rate (% of population aged 55-64)	:	:	10.7	10.8	10.2	11.4	13.5	15.1	18.0	22.4	25.8	27.7
20. Total unemployment (000)	:	154	153	140	138	115	103	92	101	106	116	143
21. Unemployment rate (% labour force 15+)	:	:	8.8	8.1	7.8	6.3	5.6	5.0	5.4	5.6	6.1	7.4
22. Youth unemployment rate (% labour force 15-24)	:	:	16.6	14.8	13.0	11.3	10.9	10.0	11.9	12.8	14.4	19.0
23. Long-term unemployment rate (% labour force)	:	:	4.5	4.0	3.8	2.9	2.5	2.1	2.2	2.3	2.6	3.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	5.2	4.5	4.5	4.0	3.6	3.0	3.5	3.5	3.5	4.5

Source: Eurostat

Key employment indicators: Malta

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	389	393	396	399	400	402
2. Population aged 15-64	:	:	:	:	:	:	263	267	269	271	272	274
3. Total employment (000)	128	132	134	134	134	135	146	149	150	151	150	152
4. Population in employment aged 15-64	:	:	:	:	:	:	143	145	147	147	147	148
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	54.2	54.3	54.4	54.2	54.0	53.9
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	52.8	52.3	50.5	47.2	46.2	45.3
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	60.6	61.0	61.6	61.8	62.1	62.4
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	28.5	29.4	30.1	32.5	31.5	30.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	54.2	53.4	53.7	53.0	52.6	51.1
10. Self-employed (% total employment)	12.5	12.1	11.9	11.9	11.9	11.9	11.8	11.2	11.2	11.5	11.7	11.7
11. Part-time employment (% total employment)	:	:	:	:	:	:	6.8	7.4	8.3	9.2	8.7	9.6
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	4.1	4.0	4.3	3.6	4.0	4.5
13. Employment in Services (% total employment)	:	:	:	62.3	62.0	63.1	63.7	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	35.7	36.0	35.0	34.3	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	2.0	2.0	2.0	1.9	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	58.0	58.1	58.5	58.6	58.2	58.1
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	58.7	60.8	58.8	56.5	55.3	54.4
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	64.3	63.8	65.0	65.4	65.3	65.7
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	29.6	30.1	30.7	33.4	32.3	31.9
20. Total unemployment (000)	:	7	8	10	10	11	10	12	12	12	12	12
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	6.7	7.6	7.5	7.6	7.3	7.3
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	13.7	18.8	17.1	17.3	16.2	16.7
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	4.4	3.7	3.3	3.2	3.4	3.4
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	5.9	8.5	8.3	9.3	9.2	9.1

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	193	195	196	198	198	199
2. Population aged 15-64	:	:	:	:	:	:	132	134	135	136	137	138
3. Total employment (000)	:	:	:	:	:	:	102	105	104	105	105	105
4. Population in employment aged 15-64	:	:	:	:	:	:	99	103	101	102	103	102
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	75.0	76.2	74.7	74.5	75.1	73.8
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	53.4	54.3	51.7	49.1	50.4	46.7
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	88.1	90.0	88.5	88.3	88.8	88.9
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	50.8	50.4	50.8	53.8	53.4	50.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	76.5	76.3	75.7	75.3	75.5	72.0
10. Self-employed (% total employment)	:	:	:	:	:	:	14.4	13.6	14.1	13.8	14.5	14.7
11. Part-time employment (% total employment)	:	:	:	:	:	:	3.0	3.2	3.9	3.8	4.1	4.5
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	3.4	2.8	3.4	3.0	3.1	3.7
13. Employment in Services (% total employment)	:	:	:	:	:	:	59.5	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	38.0	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	2.5	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	80.5	81.3	80.1	80.2	80.2	79.1
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	60.9	64.8	61.1	58.8	59.9	56.4
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	93.5	94.0	93.2	93.5	93.3	93.2
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	52.7	51.6	52.0	55.5	54.7	53.1
20. Total unemployment (000)	:	5	5	6	7	7	7	8	7	8	7	7
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	6.4	6.9	6.6	6.9	6.6	6.6
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	14.9	20.5	17.6	16.8	15.7	17.0
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	4.5	3.9	3.5	3.5	3.6	3.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	7.5	10.5	9.4	9.7	9.5	9.7

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	196	198	200	201	202	203
2. Population aged 15-64	:	:	:	:	:	:	131	133	134	135	136	136
3. Total employment (000)	:	:	:	:	:	:	44	44	46	47	45	47
4. Population in employment aged 15-64	:	:	:	:	:	:	43	43	45	45	44	46
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	33.1	32.1	33.9	33.6	32.7	33.7
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	52.2	50.2	49.2	45.2	41.8	43.9
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	32.7	31.4	34.2	34.7	34.8	35.4
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	8.4	10.2	10.9	13.0	11.5	12.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	31.7	30.4	31.7	30.6	29.7	30.1
10. Self-employed (% total employment)	:	:	:	:	:	:	5.9	5.6	4.6	6.4	5.3	5.2
11. Part-time employment (% total employment)	:	:	:	:	:	:	15.5	17.5	18.3	21.3	19.3	21.1
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	5.6	6.4	5.9	4.8	5.8	6.1
13. Employment in Services (% total employment)	:	:	:	:	:	:	73.5	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	25.8	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	0.7	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	35.2	34.6	36.7	36.8	36.0	36.9
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	56.3	56.6	56.4	54.0	50.6	52.4
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	34.6	33.1	36.2	36.8	36.8	37.6
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	8.8	10.3	11.1	13.1	11.9	12.4
20. Total unemployment (000)	:	2	3	3	3	4	4	5	5	5	4	4
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	7.4	9.3	9.2	9.1	8.8	8.8
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	12.3	16.9	16.6	17.8	16.8	16.3
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	4.2	2.7	2.4	2.4	2.9	3.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	4.1	6.4	7.2	8.8	8.8	8.5

Source: Eurostat
Note: Indicator 1: 2000 – 2001 estimate.

Employment in Europe 2006

Key employment indicators: Netherlands

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	15132	15217	15290	15383	15485	15591	15680	15837	15964	16037	16119	16107
2. Population aged 15-64	10457	10494	10532	10575	10618	10670	10722	10801	10871	10920	10960	10943
3. Total employment (000)	7036	7143	7308	7544	7742	7946	8124	8283	8324	8274	8157	8128
4. Population in employment aged 15-64	6687	6789	6981	7248	7458	7650	7819	8005	8089	8042	8014	8013
5. Employment rate (% population aged 15-64)	64.0	64.7	66.3	68.5	70.2	71.7	72.9	74.1	74.4	73.6	73.1	73.2
6. Employment rate (% population aged 15-24)	53.9	54.6	54.9	58.6	61.9	64.5	68.7	70.4	70.0	68.3	65.9	65.2
7. Employment rate (% population aged 25-54)	74.1	74.9	76.8	78.7	80.0	81.1	81.7	82.8	82.8	82.6	82.5	82.9
8. Employment rate (% population aged 55-64)	29.1	28.9	30.5	32.0	33.9	36.4	38.2	39.6	42.3	44.3	45.2	46.1
9. FTE employment rate (% population aged 15-64)	51.3	51.4	52.1	54.1	55.6	56.8	57.5	58.1	58.1	57.2	56.5	56.4
10. Self-employed (% total employment)	15.9	15.7	15.8	15.8	15.3	14.4	14.2	13.7	13.5	13.6	13.7	13.7
11. Part-time employment (% total employment)	36.7	37.4	38.0	37.9	38.9	39.7	41.5	42.2	43.9	45.0	45.5	46.1
12. Fixed-term contracts (% total employment)	11.3	11.4	12.3	11.8	13.0	12.3	13.7	14.3	14.4	14.5	14.8	15.5
13. Employment in Services (% total employment)	73.4	74.2	74.8	75.1	75.8	76.1	76.4	77.5	77.9	78.5	79.0	79.5
14. Employment in Industry (% total employment)	22.3	21.8	21.2	20.9	20.6	20.3	20.1	19.0	18.7	18.1	17.6	17.3
15. Employment in Agriculture (% total employment)	4.3	4.0	4.0	3.9	3.6	3.5	3.5	3.4	3.4	3.4	3.3	3.3
16. Activity rate (% population aged 15-64)	68.8	69.3	70.3	72.0	73.0	74.1	75.2	75.8	76.5	76.5	76.6	76.9
17. Activity rate (% of population aged 15-24)	61.0	62.1	61.6	64.5	67.4	69.3	72.9	73.8	73.7	72.9	71.6	71.0
18. Activity rate (% of population aged 25-54)	79.1	79.4	80.7	82.0	82.5	83.3	83.7	84.3	84.8	85.3	85.9	86.5
19. Activity rate (% of population aged 55-64)	30.0	30.0	31.7	33.0	34.5	37.3	39.0	40.2	43.3	45.5	46.9	48.1
20. Total unemployment (000)	489	478	443	374	296	253	230	183	232	311	387	402
21. Unemployment rate (% labour force 15+)	6.8	6.6	6.0	4.9	3.8	3.2	2.8	2.2	2.8	3.7	4.6	4.7
22. Youth unemployment rate (% labour force 15-24)	10.9	11.4	11.1	9.1	7.6	6.8	5.7	4.5	5.0	6.3	8.0	8.2
23. Long-term unemployment rate (% labour force)	3.3	3.1	3.0	2.3	1.5	1.2	0.8	0.6	0.7	1.0	1.6	1.9
24. Youth unemployment ratio (% population aged 15-24)	7.2	7.5	6.7	5.9	5.5	4.8	4.2	3.4	3.7	4.6	5.7	5.8

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	7508	7560	7595	7642	7690	7741	7789	7865	7930	7969	8012	7992
2. Population aged 15-64	5296	5323	5342	5363	5382	5405	5431	5469	5502	5525	5543	5519
3. Total employment (000)	4159	4227	4291	4409	4492	4548	4640	4695	4681	4621	4542	4492
4. Population in employment aged 15-64	3944	4006	4087	4227	4314	4372	4460	4526	4536	4479	4447	4411
5. Employment rate (% population aged 15-64)	74.5	75.3	76.5	78.8	80.2	80.9	82.1	82.8	82.4	81.1	80.2	79.9
6. Employment rate (% population aged 15-24)	53.4	55.2	55.3	60.2	62.8	64.6	70.0	71.2	70.6	68.9	66.3	65.5
7. Employment rate (% population aged 25-54)	87.4	88.0	89.3	90.7	91.4	91.7	92.2	92.7	91.8	90.6	90.2	90.3
8. Employment rate (% population aged 55-64)	40.7	39.7	41.4	44.3	47.5	49.6	50.2	51.1	54.6	56.7	56.9	56.9
9. FTE employment rate (% population aged 15-64)	68.9	69.0	69.7	71.7	73.1	73.8	74.7	75.0	74.7	73.2	72.0	71.7
10. Self-employed (% total employment)	17.1	17.0	17.7	17.6	17.1	16.0	16.1	15.3	15.5	16.0	15.9	16.1
11. Part-time employment (% total employment)	16.3	16.7	16.9	17.2	18.1	18.0	19.3	20.0	21.2	22.0	22.3	22.6
12. Fixed-term contracts (% total employment)	8.6	9.1	9.3	9.3	10.5	9.7	11.2	11.9	12.1	12.9	13.4	14.3
13. Employment in Services (% total employment)	63.2	64.5	65.2	65.6	66.7	67.0	67.2	68.6	68.8	69.1	69.6	70.1
14. Employment in Industry (% total employment)	31.5	30.3	29.7	29.5	28.9	28.7	28.6	27.4	27.0	26.6	26.1	25.7
15. Employment in Agriculture (% total employment)	5.4	5.2	5.0	4.8	4.4	4.3	4.2	4.1	4.2	4.3	4.3	4.2
16. Activity rate (% population aged 15-64)	79.7	79.7	80.3	81.9	82.6	82.9	84.1	84.3	84.5	84.0	83.9	83.7
17. Activity rate (% of population aged 15-24)	61.8	62.1	62.1	65.9	68.1	68.8	73.7	74.4	74.5	73.5	72.0	71.2
18. Activity rate (% of population aged 25-54)	92.4	92.4	92.8	93.5	93.4	93.4	93.9	94.0	93.6	93.5	93.7	93.8
19. Activity rate (% of population aged 55-64)	41.8	41.1	42.7	45.3	48.2	50.6	51.2	51.8	55.8	58.2	59.1	59.5
20. Total unemployment (000)	256	234	205	163	132	104	102	83	116	165	204	209
21. Unemployment rate (% labour force 15+)	6.0	5.5	4.8	3.7	3.0	2.3	2.2	1.8	2.5	3.5	4.3	4.4
22. Youth unemployment rate (% labour force 15-24)	11.6	10.7	10.5	7.9	7.4	5.2	4.9	4.3	5.2	6.3	7.9	8.0
23. Long-term unemployment rate (% labour force)	3.1	2.9	2.6	1.8	1.3	0.9	0.6	0.5	0.6	1.0	1.5	1.9
24. Youth unemployment ratio (% population aged 15-24)	8.4	6.9	6.7	5.7	5.2	4.2	3.7	3.2	3.9	4.6	5.7	5.7

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	7624	7657	7695	7741	7795	7850	7890	7972	8035	8068	8107	8116
2. Population aged 15-64	5160	5171	5190	5213	5236	5266	5291	5332	5368	5395	5417	5424
3. Total employment (000)	2877	2916	3017	3135	3251	3398	3484	3588	3644	3653	3615	3636
4. Population in employment aged 15-64	2744	2783	2894	3022	3145	3278	3359	3479	3553	3562	3567	3603
5. Employment rate (% population aged 15-64)	53.2	53.8	55.8	58.0	60.1	62.3	63.5	65.2	66.2	66.0	65.8	66.4
6. Employment rate (% population aged 15-24)	54.4	54.0	54.5	57.0	61.0	64.4	67.3	69.6	69.5	67.8	65.4	64.9
7. Employment rate (% population aged 25-54)	60.3	61.3	63.7	66.3	68.3	70.2	70.8	72.5	73.6	74.4	74.6	75.5
8. Employment rate (% population aged 55-64)	17.7	18.3	19.7	19.9	20.3	23.1	26.1	28.0	29.9	31.8	33.4	35.2
9. FTE employment rate (% population aged 15-64)	33.8	33.8	34.5	36.6	38.3	40.0	40.5	41.6	42.0	41.7	41.5	41.7
10. Self-employed (% total employment)	14.3	13.8	13.2	13.3	12.7	12.3	11.8	11.4	10.9	10.4	10.9	10.8
11. Part-time employment (% total employment)	66.1	67.4	68.1	67.3	67.6	68.9	71.0	71.3	73.1	74.1	74.7	75.1
12. Fixed-term contracts (% total employment)	15.1	14.6	16.3	15.3	16.4	15.6	16.8	17.4	17.1	16.4	16.5	16.9
13. Employment in Services (% total employment)	88.5	88.6	89.1	88.9	88.6	88.8	88.9	89.5	89.9	90.4	90.8	90.9
14. Employment in Industry (% total employment)	8.8	9.1	8.4	8.5	8.8	8.7	8.7	7.9	7.8	7.4	7.1	7.0
15. Employment in Agriculture (% total employment)	2.6	2.3	2.4	2.6	2.6	2.5	2.4	2.6	2.3	2.2	2.1	2.1
16. Activity rate (% population aged 15-64)	57.7	58.6	60.1	61.8	63.2	65.2	66.0	67.1	68.3	68.7	69.2	70.0
17. Activity rate (% of population aged 15-24)	60.4	62.3	61.1	63.0	66.8	69.8	72.0	73.1	73.0	72.3	71.1	70.8
18. Activity rate (% of population aged 25-54)	65.3	66.0	68.2	70.1	71.3	72.9	73.2	74.3	75.7	77.0	77.9	79.0
19. Activity rate (% of population aged 55-64)	18.5	19.0	20.9	20.9	20.9	24.0	26.7	28.4	30.6	32.6	34.4	36.5
20. Total unemployment (000)	233	244	238	211	164	150	128	100	116	145	183	194
21. Unemployment rate (% labour force 15+)	7.9	8.1	7.7	6.6	5.0	4.4	3.6	2.8	3.1	3.9	4.8	5.1
22. Youth unemployment rate (% labour force 15-24)	10.2	12.1	11.8	10.4	7.9	8.5	6.5	4.8	4.8	6.3	8.1	8.4
23. Long-term unemployment rate (% labour force)	3.6	3.4	3.7	3.1	1.8	1.5	1.0	0.7	0.9	1.1	1.6	1.9
24. Youth unemployment ratio (% population aged 15-24)	6.0	8.2	6.7	6.1	5.8	5.4	4.7	3.6	3.5	4.6	5.7	5.9

Source: Eurostat

Key employment indicators: Austria

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	7837	7887	7899	7908	7915	7930	7944	7963	7893	7998	8045	8109
2. Population aged 15-64	5283	5309	5316	5324	5333	5345	5375	5404	5356	5459	5485	5516
3. Total employment (000)	3925	3918	3932	3967	4017	4083	4122	4147	4142	4146	4145	4183
4. Population in employment aged 15-64	3620	3650	3607	3611	3621	3666	3678	3707	3682	3763	3716	3786
5. Employment rate (% population aged 15-64)	68.5	68.8	67.8	67.8	67.9	68.6	68.5	68.5	68.7	68.9	67.8	68.6
6. Employment rate (% population aged 15-24)	60.4	57.4	55.3	54.7	54.5	54.1	52.4	51.3	51.7	51.1	51.9	53.1
7. Employment rate (% population aged 25-54)	79.7	80.6	80.3	80.8	81.0	81.9	82.6	82.9	83.6	84.0	82.6	82.6
8. Employment rate (% population aged 55-64)	27.2	29.7	29.1	28.3	28.4	29.7	28.8	28.9	29.1	30.3	28.8	31.8
9. FTE employment rate (% population aged 15-64)	:	65.8	63.6	63.5	63.8	63.9	63.5	63.4	62.9	63.1	60.6	60.7
10. Self-employed (% total employment)	20.8	20.2	20.6	20.6	20.7	20.7	20.5	20.4	20.5	20.4	20.0	19.9
11. Part-time employment (% total employment)	12.6	13.6	14.0	14.7	15.7	16.4	16.3	18.2	19.0	18.7	19.8	21.1
12. Fixed-term contracts (% total employment)	4.8	6.8	7.9	7.8	7.9	7.9	8.0	7.9	7.4	6.9	9.6	9.1
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	71.1	71.4	70.8	70.9	71.0	71.2	71.0	71.0	71.6	72.0	71.3	72.4
17. Activity rate (% of population aged 15-24)	63.6	60.6	59.1	58.5	58.0	59.2	55.4	54.5	55.1	55.0	57.4	59.2
18. Activity rate (% of population aged 25-54)	82.4	83.5	83.5	84.2	84.4	84.7	85.3	85.4	86.6	87.3	86.3	86.4
19. Activity rate (% of population aged 55-64)	28.1	30.8	30.4	29.6	29.8	29.1	30.5	30.1	30.8	32.0	29.9	33.0
20. Total unemployment (000)	146	148	163	164	170	150	138	138	163	166	191	208
21. Unemployment rate (% labour force 15+)	3.8	3.9	4.3	4.4	4.5	3.9	3.6	3.6	4.2	4.3	4.8	5.2
22. Youth unemployment rate (% labour force 15-24)	5.7	5.6	6.3	6.7	6.4	5.4	5.3	5.8	6.7	8.1	9.6	10.3
23. Long-term unemployment rate (% labour force)	1.1	1.0	1.2	1.3	1.3	1.2	1.0	0.9	1.1	1.1	1.3	1.3
24. Youth unemployment ratio (% population aged 15-24)	3.1	3.2	3.8	3.9	3.5	3.0	2.8	3.1	3.4	3.9	5.6	6.1

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	3782	3809	3815	3819	3821	3830	3840	3854	3805	3877	3898	3939
2. Population aged 15-64	2639	2656	2658	2659	2661	2663	2678	2693	2653	2718	2728	2745
3. Total employment (000)	2235	2238	2239	2251	2275	2303	2324	2319	2280	2288	2282	2291
4. Population in employment aged 15-64	2062	2085	2054	2049	2050	2067	2069	2060	2026	2076	2043	2070
5. Employment rate (% population aged 15-64)	78.1	78.5	77.3	77.1	77.0	77.6	77.3	76.4	76.4	76.4	74.9	75.4
6. Employment rate (% population aged 15-24)	63.4	61.0	58.8	58.3	57.9	58.6	57.0	55.6	56.0	55.7	56.0	56.8
7. Employment rate (% population aged 25-54)	90.3	91.0	90.1	90.4	90.5	90.8	91.3	90.6	91.1	91.1	89.4	89.1
8. Employment rate (% population aged 55-64)	38.4	42.2	41.6	40.3	40.5	42.6	41.2	40.1	39.6	40.4	38.9	41.3
9. FTE employment rate (% population aged 15-64)	:	78.3	76.0	75.9	76.4	76.9	76.2	76.0	74.8	74.9	72.6	72.0
10. Self-employed (% total employment)	21.1	20.5	20.8	21.1	21.4	21.6	21.6	21.8	22.2	22.3	23.1	22.9
11. Part-time employment (% total employment)	3.6	3.8	3.7	4.1	4.4	4.2	4.1	4.8	5.1	4.7	4.9	6.1
12. Fixed-term contracts (% total employment)	4.3	6.6	7.8	7.5	8.0	7.9	7.4	7.2	7.6	7.1	10.2	9.3
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	80.8	81.1	80.5	80.3	80.3	80.5	80.1	79.4	79.6	79.9	78.5	79.3
17. Activity rate (% of population aged 15-24)	66.4	64.1	62.7	62.0	61.2	63.9	60.3	59.2	59.9	60.3	61.7	63.6
18. Activity rate (% of population aged 25-54)	93.1	93.6	93.4	93.9	94.1	93.9	94.0	93.7	94.3	94.6	92.9	92.8
19. Activity rate (% of population aged 55-64)	39.7	44.0	43.8	42.5	42.8	42.2	43.6	42.1	42.1	42.9	40.6	43.0
20. Total unemployment (000)	64	65	76	76	79	71	65	66	85	84	96	108
21. Unemployment rate (% labour force 15+)	3.0	3.1	3.6	3.6	3.8	3.3	3.1	3.1	4.0	4.0	4.4	4.9
22. Youth unemployment rate (% labour force 15-24)	4.5	4.5	5.3	5.5	5.0	4.3	4.7	5.2	6.4	7.3	9.4	10.7
23. Long-term unemployment rate (% labour force)	0.8	0.7	0.9	1.0	1.0	0.9	0.9	0.7	1.0	1.1	1.3	1.3
24. Youth unemployment ratio (% population aged 15-24)	3.0	3.1	4.0	3.7	3.3	2.9	3.0	3.4	3.9	4.5	5.7	6.8

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	4056	4078	4083	4089	4093	4100	4104	4109	4088	4120	4147	4170
2. Population aged 15-64	2644	2653	2658	2665	2672	2682	2696	2711	2704	2741	2757	2770
3. Total employment (000)	1690	1680	1693	1716	1742	1780	1799	1828	1861	1857	1862	1891
4. Population in employment aged 15-64	1559	1565	1553	1562	1571	1599	1608	1647	1656	1688	1673	1717
5. Employment rate (% population aged 15-64)	58.9	59.0	58.4	58.6	58.8	59.6	59.6	60.7	61.3	61.6	60.7	62.0
6. Employment rate (% population aged 15-24)	57.4	53.8	51.8	51.1	51.2	49.7	47.9	47.1	47.4	46.5	47.9	49.4
7. Employment rate (% population aged 25-54)	68.8	70.1	70.3	71.0	71.3	73.0	73.8	75.2	76.2	76.9	75.8	76.0
8. Employment rate (% population aged 55-64)	17.2	18.2	17.3	17.0	17.1	17.6	17.2	18.4	19.3	20.8	19.3	22.9
9. FTE employment rate (% population aged 15-64)	:	53.4	51.2	51.3	51.3	51.0	51.0	50.9	51.2	51.7	49.0	50.0
10. Self-employed (% total employment)	20.6	19.9	20.3	19.9	19.8	19.5	19.0	18.7	18.4	18.0	16.2	16.3
11. Part-time employment (% total employment)	24.5	26.8	27.6	28.5	30.5	32.2	32.2	35.0	35.9	36.0	38.0	39.3
12. Fixed-term contracts (% total employment)	5.4	6.9	8.1	8.1	7.7	8.0	8.8	8.7	7.3	6.7	9.0	8.8
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	61.4	61.7	61.2	61.5	61.7	62.0	62.0	62.5	63.7	64.3	64.2	65.6
17. Activity rate (% of population aged 15-24)	60.7	57.0	55.4	55.1	54.9	54.7	50.5	49.7	50.3	49.8	53.3	54.8
18. Activity rate (% of population aged 25-54)	71.5	73.1	73.3	74.3	74.6	75.5	76.5	77.2	79.0	79.9	79.6	79.9
19. Activity rate (% of population aged 55-64)	17.6	18.7	17.9	17.4	17.7	16.8	18.0	18.8	20.1	21.7	19.9	23.5
20. Total unemployment (000)	83	83	86	89	90	79	73	72	78	82	96	100
21. Unemployment rate (% labour force 15+)	5.0	5.0	5.3	5.4	5.4	4.7	4.3	4.2	4.4	4.7	5.3	5.5
22. Youth unemployment rate (% labour force 15-24)	7.0	6.8	7.4	7.9	7.9	6.6	6.0	6.5	7.1	8.9	9.8	9.9
23. Long-term unemployment rate (% labour force)	1.6	1.5	1.5	1.6	1.8	1.5	1.2	1.1	1.2	1.1	1.4	1.4
24. Youth unemployment ratio (% population aged 15-24)	3.2	3.2	3.6	4.0	3.7	3.0	2.7	2.8	2.9	3.2	5.4	5.4

Source: Eurostat
Note: In the case of Austria, employment in agriculture – as derived from national accounts – includes a significant number of persons with occasional or small jobs. When calculated on the basis of the LFS and limited to the main job, the share of agriculture in employment is found to be significantly lower, and the shares in services and industry somewhat higher. Due to the substantial differences in the estimates of sectoral employment shares, no data is provided.
Note: EU-LFS indicators: break in 2004; Indicator 3: figures in units of 1000 jobs.

Employment in Europe 2006

Key employment indicators: Poland

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	37922	37978	37985	38033	38109	38070	37657	37601	37527
2. Population aged 15-64	:	:	:	25005	25247	25461	25739	25986	26159	26031	26142	26211
3. Total employment (000)	:	:	:	15230	15378	15089	14526	14206	13782	13617	13794	14116
4. Population in employment aged 15-64	:	:	:	14726	14894	14664	14155	13866	13470	13324	13504	13834
5. Employment rate (% population aged 15-64)	:	:	:	58.9	59.0	57.6	55.0	53.4	51.5	51.2	51.7	52.8
6. Employment rate (% population aged 15-24)	:	:	:	28.9	28.5	25.9	24.5	24.0	21.7	21.2	21.7	22.5
7. Employment rate (% population aged 25-54)	:	:	:	74.7	75.3	73.8	70.9	69.2	67.4	67.5	68.2	69.6
8. Employment rate (% population aged 55-64)	:	:	:	33.9	32.1	31.9	28.4	27.4	26.1	26.9	26.2	27.2
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	52.9	50.7	50.3	50.2	51.1
10. Self-employed (% total employment)	:	36.5	36.9	36.8	37.6	37.3	37.7	36.6	37.0	29.0	28.8	28.8
11. Part-time employment (% total employment)	:	:	:	10.6	10.4	10.5	10.5	10.3	10.8	10.5	10.8	10.8
12. Fixed-term contracts (% total employment)	:	:	:	4.8	4.7	4.6	5.8	11.7	15.4	19.4	22.7	25.7
13. Employment in Services (% total employment)	:	42.7	42.8	44.0	45.3	46.0	46.5	46.7	47.0	53.8	53.9	:
14. Employment in Industry (% total employment)	:	31.2	30.4	30.1	29.5	28.3	27.2	25.1	24.3	27.0	26.9	:
15. Employment in Agriculture (% total employment)	:	26.1	26.8	25.9	25.2	25.7	26.3	28.3	28.7	19.3	19.2	:
16. Activity rate (% population aged 15-64)	:	:	:	65.9	65.7	65.9	65.8	65.5	64.6	63.9	64.0	64.4
17. Activity rate (% of population aged 15-24)	:	:	:	36.7	36.2	36.1	37.8	39.7	37.8	36.4	35.9	35.7
18. Activity rate (% of population aged 25-54)	:	:	:	82.6	82.6	82.5	82.4	81.9	81.5	81.4	81.9	82.5
19. Activity rate (% of population aged 55-64)	:	:	:	35.8	34.1	34.5	31.3	30.2	29.1	30.1	29.6	30.5
20. Total unemployment (000)	:	2279	2241	1849	1730	2300	2788	3170	3431	3323	3230	3045
21. Unemployment rate (% labour force 15+)	:	:	:	10.9	10.2	13.4	16.1	18.2	19.9	19.6	19.0	17.7
22. Youth unemployment rate (% labour force 15-24)	:	:	:	23.2	22.5	30.1	35.1	39.5	42.5	41.9	39.6	36.9
23. Long-term unemployment rate (% labour force)	:	:	:	5.0	4.7	5.8	7.4	9.2	10.9	11.0	10.3	10.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	7.8	7.7	10.2	13.3	15.7	16.1	15.2	14.2	13.2

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	18308	18335	18339	18371	18408	18381	18169	18139	18104
2. Population aged 15-64	:	:	:	12321	12447	12561	12713	12832	12919	12873	12940	12986
3. Total employment (000)	:	:	:	8496	8542	8304	8004	7797	7529	7432	7565	7809
4. Population in employment aged 15-64	:	:	:	8227	8279	8064	7783	7592	7352	7271	7400	7643
5. Employment rate (% population aged 15-64)	:	:	:	66.8	66.5	64.2	61.2	59.2	56.9	56.5	57.2	58.9
6. Employment rate (% population aged 15-24)	:	:	:	33.9	32.7	29.5	27.3	26.6	24.2	23.9	24.8	25.4
7. Employment rate (% population aged 25-54)	:	:	:	82.8	83.1	80.5	77.6	75.4	73.0	73.0	73.9	76.1
8. Employment rate (% population aged 55-64)	:	:	:	43.1	41.5	40.6	36.7	35.6	34.5	35.2	34.1	35.9
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	59.2	56.7	56.1	56.4	57.9
10. Self-employed (% total employment)	:	:	:	39.1	40.1	40.1	40.6	39.1	39.9	31.6	31.1	31.2
11. Part-time employment (% total employment)	:	:	:	8.3	8.1	8.0	8.2	8.3	8.5	8.2	8.2	8.0
12. Fixed-term contracts (% total employment)	:	:	:	5.6	5.3	5.2	6.5	12.4	16.4	20.8	23.7	26.5
13. Employment in Services (% total employment)	:	:	:	:	:	37.3	37.8	37.9	38.3	44.2	44.2	:
14. Employment in Industry (% total employment)	:	:	:	:	:	36.6	35.5	33.4	32.2	35.7	35.7	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	26.1	26.7	28.7	29.5	20.1	20.1	:
16. Activity rate (% population aged 15-64)	:	:	:	73.3	72.8	72.5	71.7	71.5	70.6	70.0	70.1	70.8
17. Activity rate (% of population aged 15-24)	:	:	:	41.7	40.5	40.1	40.9	43.1	41.6	40.5	39.7	39.5
18. Activity rate (% of population aged 25-54)	:	:	:	89.8	89.6	88.9	88.3	87.7	87.2	87.1	87.8	88.7
19. Activity rate (% of population aged 55-64)	:	:	:	45.5	44.1	44.3	40.4	39.6	38.7	39.7	39.1	40.9
20. Total unemployment (000)	:	1136	1098	840	782	1097	1347	1583	1779	1738	1681	1553
21. Unemployment rate (% labour force 15+)	:	:	:	9.1	8.5	11.8	14.4	16.9	19.1	19.0	18.2	16.6
22. Youth unemployment rate (% labour force 15-24)	:	:	:	20.4	20.2	28.5	33.3	38.3	41.9	40.9	37.7	35.7
23. Long-term unemployment rate (% labour force)	:	:	:	3.7	3.5	4.5	6.0	7.8	9.7	10.3	9.6	9.3
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	7.8	7.8	10.6	13.6	16.5	17.4	16.6	15.0	14.1

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	19610	19639	19642	19659	19699	19688	19487	19461	19422
2. Population aged 15-64	:	:	:	12685	12800	12899	13027	13153	13241	13158	13203	13225
3. Total employment (000)	:	:	:	6735	6837	6785	6522	6410	6253	6185	6229	6306
4. Population in employment aged 15-64	:	:	:	6501	6616	6603	6372	6274	6119	6054	6103	6191
5. Employment rate (% population aged 15-64)	:	:	:	51.3	51.7	51.2	48.9	47.7	46.2	46.0	46.2	46.8
6. Employment rate (% population aged 15-24)	:	:	:	24.0	24.3	22.4	21.8	21.5	19.3	18.3	18.6	19.6
7. Employment rate (% population aged 25-54)	:	:	:	66.6	67.5	67.0	64.3	63.0	61.9	62.1	62.6	63.1
8. Employment rate (% population aged 55-64)	:	:	:	26.1	24.1	24.5	21.4	20.4	18.9	19.8	19.4	19.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	46.7	44.9	44.7	44.2	44.5
10. Self-employed (% total employment)	:	:	:	34.0	34.4	33.9	34.1	33.6	33.4	25.8	25.9	25.8
11. Part-time employment (% total employment)	:	:	:	13.6	13.2	13.6	13.4	12.7	13.4	13.2	14.0	14.3
12. Fixed-term contracts (% total employment)	:	:	:	4.0	4.0	3.9	4.9	10.9	14.4	17.8	21.5	24.7
13. Employment in Services (% total employment)	:	:	:	:	:	56.9	57.2	57.0	57.4	65.2	65.5	:
14. Employment in Industry (% total employment)	:	:	:	:	:	17.9	17.1	15.2	14.8	16.5	16.2	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	25.2	25.7	27.7	27.8	18.3	18.2	:
16. Activity rate (% population aged 15-64)	:	:	:	58.8	58.8	59.4	59.9	59.7	58.7	58.0	57.9	58.1
17. Activity rate (% of population aged 15-24)	:	:	:	31.9	32.0	32.2	34.8	36.4	34.1	32.2	32.0	31.8
18. Activity rate (% of population aged 25-54)	:	:	:	75.4	75.6	76.1	76.5	76.2	75.8	75.8	76.0	76.4
19. Activity rate (% of population aged 55-64)	:	:	:	27.6	25.6	26.2	23.6	22.2	20.9	22.0	21.4	21.5
20. Total unemployment (000)	:	1143	1143	1009	948	1204	1441	1587	1652	1585	1550	1493
21. Unemployment rate (% labour force 15+)	:	:	:	13.0	12.2	15.3	18.1	19.8	20.9	20.4	19.9	19.1
22. Youth unemployment rate (% labour force 15-24)	:	:	:	26.6	25.1	32.0	37.2	41.0	43.3	43.1	41.9	38.3
23. Long-term unemployment rate (% labour force)	:	:	:	6.7	6.3	7.4	9.1	10.8	12.3	11.7	11.0	11.4
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	7.9	7.6	9.8	13.0	14.9	14.8	13.9	13.4	12.2

Source: Eurostat
Note: Indicator 1: estimate; Indicators 10, 13-15: 2003 break in series.

Key employment indicators: Portugal

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	9922	9970	10029	10081	10116	10156	10211	10284	10357	10435	10504	10563
2. Population aged 15-64	6914	6938	6924	6888	6842	6871	6909	6950	6992	7038	7084	7115
3. Total employment (000)	:	:	:	:	:	4840	4924	5004	5029	5010	5015	5017
4. Population in employment aged 15-64	4435	4419	4442	4527	4572	4633	4724	4796	4812	4792	4806	4800
5. Employment rate (% population aged 15-64)	64.1	63.7	64.1	65.7	66.8	67.4	68.4	69.0	68.8	68.1	67.8	67.5
6. Employment rate (% population aged 15-24)	43.1	40.6	40.7	43.1	42.5	42.6	42.2	42.9	42.2	38.8	37.1	36.1
7. Employment rate (% population aged 25-54)	77.7	77.8	77.9	78.7	80.1	80.6	81.8	82.3	81.5	81.0	81.1	80.8
8. Employment rate (% population aged 55-64)	46.8	46.0	47.3	48.5	49.6	50.1	50.7	50.2	51.4	51.6	50.3	50.5
9. FTE employment rate (% population aged 15-64)	62.1	61.9	61.8	62.5	65.1	65.6	66.7	67.5	67.6	66.5	66.3	65.9
10. Self-employed (% total employment)	:	:	:	:	:	25.2	24.5	24.6	24.3	24.5	24.1	24.1
11. Part-time employment (% total employment)	7.9	7.9	9.2	10.6	11.0	11.0	10.9	11.1	11.2	11.7	11.3	11.2
12. Fixed-term contracts (% total employment)	11.0	11.6	13.1	15.0	17.2	18.7	19.9	20.3	21.5	20.6	19.8	19.5
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	69.3	68.9	69.3	70.5	70.6	70.8	71.4	72.1	72.7	72.9	73.0	73.4
17. Activity rate (% of population aged 15-24)	50.6	48.1	48.1	49.8	47.6	46.8	46.3	47.3	47.7	45.4	43.8	43.0
18. Activity rate (% of population aged 25-54)	82.8	83.0	83.0	83.4	83.9	84.1	84.8	85.3	85.3	85.9	86.3	87.1
19. Activity rate (% of population aged 55-64)	48.4	47.5	49.0	50.2	51.3	51.8	52.4	51.9	53.4	54.0	53.2	53.8
20. Total unemployment (000)	329	345	347	329	260	232	210	214	270	342	367	420
21. Unemployment rate (% labour force 15+)	6.9	7.3	7.3	6.8	5.1	4.5	4.0	4.0	5.0	6.3	6.7	7.6
22. Youth unemployment rate (% labour force 15-24)	15.0	16.5	16.7	15.1	10.7	9.1	8.8	9.4	11.6	14.4	15.4	16.1
23. Long-term unemployment rate (% labour force)	2.6	3.1	3.3	3.2	2.2	1.8	1.7	1.5	1.7	2.2	3.0	3.7
24. Youth unemployment ratio (% population aged 15-24)	7.5	7.5	7.4	6.6	5.1	4.3	4.1	4.4	5.5	6.6	6.7	6.9

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	4781	4816	4855	4851	4871	4893	4922	4961	5001	5042	5083	5115
2. Population aged 15-64	3336	3368	3358	3347	3346	3365	3388	3414	3440	3467	3498	3516
3. Total employment (000)	:	:	:	:	:	2670	2712	2750	2757	2728	2726	2708
4. Population in employment aged 15-64	2485	2475	2482	2526	2538	2550	2593	2627	2632	2599	2595	2581
5. Employment rate (% population aged 15-64)	74.5	73.5	73.9	75.5	75.9	75.8	76.5	77.0	76.5	75.0	74.2	73.4
6. Employment rate (% population aged 15-24)	47.8	45.2	45.8	48.6	46.9	47.4	48.1	48.7	47.8	43.1	41.5	40.5
7. Employment rate (% population aged 25-54)	89.3	89.0	88.8	89.1	89.8	89.6	89.9	90.1	89.2	87.8	87.4	86.7
8. Employment rate (% population aged 55-64)	63.5	61.4	62.7	63.2	62.9	61.4	62.1	61.6	61.9	62.1	59.1	58.1
9. FTE employment rate (% population aged 15-64)	73.2	72.2	72.1	72.8	76.1	75.6	76.5	77.5	77.2	75.5	74.4	73.6
10. Self-employed (% total employment)	:	:	:	:	:	26.1	25.7	25.7	25.6	25.8	25.7	25.4
11. Part-time employment (% total employment)	4.5	4.2	5.1	5.9	6.1	6.4	6.4	6.7	7.0	7.3	7.1	7.0
12. Fixed-term contracts (% total employment)	9.8	10.5	12.5	14.1	16.1	17.2	18.3	18.4	19.9	19.0	18.7	18.7
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	78.4	77.7	78.1	79.3	79.3	79.1	79.2	79.6	80.0	79.6	79.1	79.0
17. Activity rate (% of population aged 15-24)	52.1	50.1	50.9	52.9	51.3	51.2	51.5	52.5	53.0	49.2	47.9	46.9
18. Activity rate (% of population aged 25-54)	93.6	93.5	93.1	93.1	93.1	92.9	92.5	92.6	92.5	92.3	92.2	92.4
19. Activity rate (% of population aged 55-64)	65.6	63.1	64.6	65.4	65.3	63.9	64.4	63.6	64.3	65.2	62.8	62.4
20. Total unemployment (000)	160	170	170	161	115	112	93	92	121	160	174	197
21. Unemployment rate (% labour force 15+)	6.1	6.5	6.5	6.1	4.1	4.0	3.2	3.2	4.1	5.4	5.9	6.7
22. Youth unemployment rate (% labour force 15-24)	13.3	15.0	14.3	12.0	8.5	7.4	6.6	7.3	9.7	12.4	13.6	13.6
23. Long-term unemployment rate (% labour force)	2.8	3.3	3.2	3.0	1.7	1.5	1.4	1.2	1.4	1.8	2.6	3.2
24. Youth unemployment ratio (% population aged 15-24)	4.2	4.9	5.1	4.3	4.4	3.8	3.4	3.8	5.2	6.1	6.5	6.4

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	5141	5153	5174	5230	5244	5263	5289	5323	5357	5393	5421	5448
2. Population aged 15-64	3577	3568	3566	3540	3496	3506	3521	3536	3553	3572	3586	3599
3. Total employment (000)	:	:	:	:	:	2169	2212	2253	2272	2282	2289	2309
4. Population in employment aged 15-64	1947	1941	1957	1999	2033	2084	2131	2168	2180	2193	2211	2219
5. Employment rate (% population aged 15-64)	54.4	54.4	54.9	56.5	58.2	59.4	60.5	61.3	61.4	61.4	61.7	61.7
6. Employment rate (% population aged 15-24)	37.8	35.4	34.9	37.4	38.1	37.7	36.2	37.0	36.5	34.4	32.5	31.4
7. Employment rate (% population aged 25-54)	67.1	67.4	67.8	68.9	70.7	72.0	73.9	74.7	74.0	74.3	74.9	74.9
8. Employment rate (% population aged 55-64)	32.9	32.6	34.3	36.1	38.0	40.3	40.6	40.3	42.2	42.4	42.5	43.7
9. FTE employment rate (% population aged 15-64)	52.0	52.3	52.2	53.1	54.8	56.0	57.3	57.9	58.4	57.9	58.5	58.5
10. Self-employed (% total employment)	:	:	:	:	:	24.1	23.1	23.1	22.9	22.9	22.2	22.6
11. Part-time employment (% total employment)	12.3	12.7	14.5	16.6	17.1	16.7	16.4	16.4	16.4	16.9	16.3	16.2
12. Fixed-term contracts (% total employment)	12.4	12.8	13.9	16.2	18.5	20.5	21.9	22.5	23.4	22.3	21.1	20.4
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	60.5	60.4	60.9	62.1	62.3	62.9	63.9	64.8	65.6	66.5	67.0	67.9
17. Activity rate (% of population aged 15-24)	47.7	44.6	44.3	46.3	43.9	42.5	41.0	42.1	42.4	41.5	39.5	38.9
18. Activity rate (% of population aged 25-54)	72.9	73.4	73.7	74.4	75.1	75.7	77.4	78.2	78.4	79.7	80.6	81.8
19. Activity rate (% of population aged 55-64)	34.1	33.9	36.0	37.6	39.1	41.2	41.8	41.5	43.8	44.0	44.8	46.1
20. Total unemployment (000)	170	175	178	168	144	120	117	122	149	181	193	223
21. Unemployment rate (% labour force 15+)	7.9	8.2	8.2	7.6	6.3	5.2	4.9	5.0	6.0	7.2	7.6	8.6
22. Youth unemployment rate (% labour force 15-24)	16.9	18.4	19.8	18.9	13.2	11.1	11.5	12.0	13.9	17.0	17.7	19.1
23. Long-term unemployment rate (% labour force)	2.6	3.2	3.5	3.5	2.8	2.1	2.0	1.9	2.1	2.7	3.4	4.2
24. Youth unemployment ratio (% population aged 15-24)	9.9	9.3	9.4	8.8	5.8	4.8	4.8	5.1	5.9	7.0	6.9	7.4

Source: Eurostat
Note: EU-LFS indicators: break in 1998; Indicator 3: 2003-2005 forecast.

Employment in Europe 2006

Key employment indicators: Slovenia												
All	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
1. Total population (000)	:	:	1993	1988	1985	1983	1989	1992	1995	1996	1997	1999
2. Population aged 15-64	:	:	1391	1387	1385	1384	1397	1399	1401	1405	1405	1402
3. Total employment (000)	:	912	894	877	875	888	895	899	913	911	943	949
4. Population in employment aged 15-64	:	:	857	868	872	861	877	893	889	879	917	925
5. Employment rate (% population aged 15-64)	:	:	61.6	62.6	62.9	62.2	62.8	63.8	63.4	62.6	65.3	66.0
6. Employment rate (% population aged 15-24)	:	:	37.8	40.0	37.5	34.0	32.8	30.5	30.6	29.1	33.8	34.1
7. Employment rate (% population aged 25-54)	:	:	81.4	81.0	81.6	81.7	82.6	83.6	83.4	82.5	83.8	83.8
8. Employment rate (% population aged 55-64)	:	:	19.1	21.8	23.9	22.0	22.7	25.5	24.5	23.5	29.0	30.7
9. FTE employment rate (% population aged 15-64)	:	:	60.5	60.9	61.8	60.8	61.5	62.4	62.7	60.9	63.3	64.1
10. Self-employed (% total employment)	:	18.8	18.3	18.7	18.5	18.5	18.0	17.6	17.6	17.4	17.3	17.1
11. Part-time employment (% total employment)	:	:	:	:	:	6.1	6.5	6.1	6.1	6.2	9.3	9.0
12. Fixed-term contracts (% total employment)	:	:	:	:	:	10.5	13.7	13.0	14.3	13.7	17.8	17.4
13. Employment in Services (% total employment)	:	45.9	47.5	47.9	48.6	49.5	50.0	50.6	52.3	53.0	53.8	54.5
14. Employment in Industry (% total employment)	:	39.9	38.9	38.6	38.3	38.1	38.1	37.9	36.7	36.2	35.7	35.2
15. Employment in Agriculture (% total employment)	:	14.2	13.6	13.5	13.1	12.4	11.9	11.5	11.0	10.8	10.5	10.2
16. Activity rate (% population aged 15-64)	:	:	66.2	67.3	68.2	67.3	67.5	68.1	67.8	67.1	69.8	70.7
17. Activity rate (% of population aged 15-24)	:	:	45.3	47.9	45.5	41.3	39.2	37.1	36.6	35.2	40.3	40.5
18. Activity rate (% of population aged 25-54)	:	:	86.0	85.7	87.0	87.1	87.4	88.0	88.1	87.5	88.6	88.8
19. Activity rate (% of population aged 55-64)	:	:	19.6	22.4	24.5	23.1	24.0	26.5	25.2	24.3	29.9	32.1
20. Total unemployment (000)	:	66	65	67	72	70	65	60	61	64	63	66
21. Unemployment rate (% labour force 15+)	:	:	6.9	6.9	7.4	7.3	6.7	6.2	6.3	6.7	6.3	6.5
22. Youth unemployment rate (% labour force 15-24)	:	:	17.5	17.2	17.8	17.7	16.3	17.8	16.5	17.3	16.1	15.9
23. Long-term unemployment rate (% labour force)	:	:	3.4	3.4	3.3	3.3	4.1	3.7	3.5	3.5	3.2	3.1
24. Youth unemployment ratio (% population aged 15-24)	:	:	7.5	7.9	8.1	7.3	6.4	6.6	6.1	6.1	6.5	6.5
Male												
1. Total population (000)	:	:	967	970	968	967	972	974	976	976	977	979
2. Population aged 15-64	:	:	696	701	702	701	707	709	710	712	712	713
3. Total employment (000)	:	:	:	:	:	480	484	489	496	497	513	516
4. Population in employment aged 15-64	:	:	459	470	471	466	475	487	484	479	499	502
5. Employment rate (% population aged 15-64)	:	:	66.0	67.0	67.2	66.5	67.2	68.6	68.2	67.4	70.0	70.4
6. Employment rate (% population aged 15-24)	:	:	39.4	43.5	39.5	35.8	35.7	34.1	34.4	33.7	38.8	38.1
7. Employment rate (% population aged 25-54)	:	:	84.9	84.3	85.2	85.2	85.7	87.0	86.7	85.7	86.4	86.4
8. Employment rate (% population aged 55-64)	:	:	27.6	29.4	31.8	31.1	32.3	35.9	35.4	33.2	40.9	43.1
9. FTE employment rate (% population aged 15-64)	:	:	65.5	65.8	66.2	65.5	66.1	67.9	67.7	66.1	68.3	69.1
10. Self-employed (% total employment)	:	:	:	:	:	21.2	20.6	20.2	20.5	20.5	19.6	19.5
11. Part-time employment (% total employment)	:	:	:	:	:	5.2	5.3	5.0	4.9	5.2	7.9	7.2
12. Fixed-term contracts (% total employment)	:	:	:	:	:	9.9	12.7	12.1	12.6	12.6	16.7	15.7
13. Employment in Services (% total employment)	:	:	:	:	:	40.7	41.9	42.1	43.7	43.7	44.3	44.9
14. Employment in Industry (% total employment)	:	:	:	:	:	47.2	46.5	46.4	45.2	45.2	45.2	45.0
15. Employment in Agriculture (% total employment)	:	:	:	:	:	12.1	11.6	11.5	11.1	11.1	10.5	10.1
16. Activity rate (% population aged 15-64)	:	:	71.1	71.9	72.6	71.8	71.9	72.8	72.5	72.0	74.5	75.1
17. Activity rate (% of population aged 15-24)	:	:	47.2	51.1	47.7	43.2	41.7	40.5	40.4	39.9	45.1	44.5
18. Activity rate (% of population aged 25-54)	:	:	89.9	89.1	90.7	90.6	90.6	91.1	91.2	90.6	91.0	91.1
19. Activity rate (% of population aged 55-64)	:	:	28.5	30.5	32.9	33.0	34.6	37.5	36.7	34.5	42.5	45.4
20. Total unemployment (000)	:	38	35	35	38	37	34	30	31	33	32	33
21. Unemployment rate (% labour force 15+)	:	:	7.0	6.8	7.3	7.1	6.5	5.6	5.9	6.3	5.8	6.1
22. Youth unemployment rate (% labour force 15-24)	:	:	17.1	15.4	16.9	16.8	14.6	15.7	15.0	15.6	13.9	14.5
23. Long-term unemployment rate (% labour force)	:	:	3.7	3.6	3.3	3.5	4.1	3.5	3.4	3.4	3.1	2.9
24. Youth unemployment ratio (% population aged 15-24)	:	:	7.9	7.6	8.2	7.4	6.1	6.4	6.1	6.2	6.2	6.5
Female												
1. Total population (000)	:	:	1025	1018	1017	1016	1017	1018	1019	1020	1020	1021
2. Population aged 15-64	:	:	696	686	683	683	689	690	691	693	693	690
3. Total employment (000)	:	:	:	:	:	407	411	410	417	413	430	434
4. Population in employment aged 15-64	:	:	398	398	400	394	403	406	405	400	419	423
5. Employment rate (% population aged 15-64)	:	:	57.1	58.0	58.6	57.7	58.4	58.8	58.6	57.6	60.5	61.3
6. Employment rate (% population aged 15-24)	:	:	36.1	36.4	35.4	32.2	29.7	26.8	26.5	24.3	28.6	29.8
7. Employment rate (% population aged 25-54)	:	:	77.8	77.5	77.8	78.0	79.3	80.1	80.0	79.3	81.2	81.1
8. Employment rate (% population aged 55-64)	:	:	11.5	14.6	16.1	13.4	13.8	15.8	14.2	14.6	17.8	18.5
9. FTE employment rate (% population aged 15-64)	:	:	55.6	55.9	57.2	56.1	56.8	56.9	57.6	55.5	58.1	58.9
10. Self-employed (% total employment)	:	:	:	:	:	15.4	14.9	14.4	14.1	13.6	14.5	14.3
11. Part-time employment (% total employment)	:	:	:	:	:	7.2	7.8	7.4	7.5	7.5	11.0	11.1
12. Fixed-term contracts (% total employment)	:	:	:	:	:	11.2	14.8	14.0	16.1	14.9	19.1	19.3
13. Employment in Services (% total employment)	:	:	:	:	:	60.3	59.9	60.9	62.6	64.4	65.4	66.3
14. Employment in Industry (% total employment)	:	:	:	:	:	27.0	27.8	27.7	26.5	25.1	24.1	23.4
15. Employment in Agriculture (% total employment)	:	:	:	:	:	12.7	12.3	11.4	10.9	10.5	10.5	10.4
16. Activity rate (% population aged 15-64)	:	:	61.4	62.7	63.6	62.6	62.9	63.2	63.0	62.1	65.0	66.1
17. Activity rate (% of population aged 15-24)	:	:	43.3	44.5	43.3	39.4	36.4	33.7	32.5	30.3	35.4	36.3
18. Activity rate (% of population aged 25-54)	:	:	82.0	82.1	83.1	83.4	84.2	84.7	84.9	84.3	86.1	86.4
19. Activity rate (% of population aged 55-64)	:	:	11.9	15.0	16.4	13.7	14.1	16.2	14.4	14.9	18.1	18.9
20. Total unemployment (000)	:	29	29	32	34	33	31	30	30	31	32	33
21. Unemployment rate (% labour force 15+)	:	:	6.7	7.1	7.5	7.6	7.1	6.8	6.8	7.1	6.8	7.0
22. Youth unemployment rate (% labour force 15-24)	:	:	18.0	19.3	18.8	18.6	18.5	20.4	18.5	19.8	19.2	17.8
23. Long-term unemployment rate (% labour force)	:	:	3.1	3.3	3.3	3.1	4.2	4.0	3.6	3.6	3.4	3.3
24. Youth unemployment ratio (% population aged 15-24)	:	:	7.2	8.1	7.9	7.1	6.7	6.9	6.0	6.0	6.8	6.4

Source: Eurostat

Key employment indicators: Slovak Republic

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	5358	5369	5377	5379	5384	5389	5370	5379
2. Population aged 15-64	:	:	:	:	3619	3657	3693	3723	3728	3733	3792	3824
3. Total employment (000)	:	:	:	:	2199	2132	2102	2121	2123	2162	2168	2215
4. Population in employment aged 15-64	:	:	:	:	2191	2125	2096	2115	2118	2155	2160	2207
5. Employment rate (% population aged 15-64)	:	:	:	:	60.6	58.1	56.8	56.8	56.8	57.7	57.0	57.7
6. Employment rate (% population aged 15-24)	:	:	:	:	35.0	31.0	29.0	27.7	27.0	27.4	26.3	25.6
7. Employment rate (% population aged 25-54)	:	:	:	:	78.5	76.1	74.7	74.8	75.0	76.0	74.7	75.3
8. Employment rate (% population aged 55-64)	:	:	:	:	22.8	22.3	21.3	22.4	22.8	24.6	26.8	30.3
9. FTE employment rate (% population aged 15-64)	:	:	:	:	60.6	58.0	56.4	55.7	55.8	57.0	55.7	56.7
10. Self-employed (% total employment)	6.3	6.6	6.5	6.5	7.1	8.0	8.3	8.8	9.1	10.1	12.3	13.0
11. Part-time employment (% total employment)	:	:	:	:	2.3	2.1	2.1	2.3	1.9	2.4	2.7	2.5
12. Fixed-term contracts (% total employment)	:	:	:	:	4.2	3.9	4.8	4.9	4.9	4.9	5.5	5.0
13. Employment in Services (% total employment)	50.1	53.9	54.4	54.3	56.2	57.9	59.4	60.2	60.8	61.6	61.8	62.6
14. Employment in Industry (% total employment)	39.7	37.2	37.6	38.1	36.8	36.0	35.1	34.5	34.3	34.0	34.3	33.7
15. Employment in Agriculture (% total employment)	10.2	8.9	8.0	7.6	7.0	6.2	5.6	5.3	5.0	4.4	3.9	3.7
16. Activity rate (% population aged 15-64)	:	:	:	:	69.3	69.5	69.9	70.4	69.9	70.0	69.7	68.9
17. Activity rate (% of population aged 15-24)	:	:	:	:	46.8	46.8	46.0	45.5	43.4	41.1	39.3	36.6
18. Activity rate (% of population aged 25-54)	:	:	:	:	87.4	87.6	88.4	88.9	88.6	89.5	88.9	88.0
19. Activity rate (% of population aged 55-64)	:	:	:	:	24.6	24.6	24.3	25.5	26.9	28.5	31.7	35.0
20. Total unemployment (000)	:	291	269	279	317	417	485	507	487	460	483	430
21. Unemployment rate (% labour force 15+)	:	:	:	:	12.6	16.4	18.8	19.3	18.7	17.6	18.2	16.3
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	25.1	33.8	36.9	39.2	37.7	33.4	33.1	30.1
23. Long-term unemployment rate (% labour force)	:	:	:	:	6.5	7.8	10.3	11.3	12.2	11.4	11.8	11.7
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	11.8	15.8	17.0	17.8	16.3	13.7	13.0	11.0

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	2593	2600	2604	2602	2608	2613	2601	2609
2. Population aged 15-64	:	:	:	:	1780	1802	1822	1836	1842	1847	1878	1899
3. Total employment (000)	:	:	:	:	1210	1164	1137	1143	1153	1174	1191	1232
4. Population in employment aged 15-64	:	:	:	:	1207	1159	1133	1139	1149	1170	1186	1227
5. Employment rate (% population aged 15-64)	:	:	:	:	67.8	64.3	62.2	62.0	62.4	63.3	63.2	64.6
6. Employment rate (% population aged 15-24)	:	:	:	:	38.0	32.9	29.8	28.9	28.7	29.3	28.0	28.1
7. Employment rate (% population aged 25-54)	:	:	:	:	84.9	81.7	79.6	79.0	79.5	80.5	80.0	81.4
8. Employment rate (% population aged 55-64)	:	:	:	:	39.1	36.8	35.4	37.7	39.1	41.0	43.8	47.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	69.0	65.2	62.7	61.5	61.7	63.2	62.5	63.9
10. Self-employed (% total employment)	:	:	:	:	9.5	10.8	11.3	11.9	12.6	13.5	16.5	17.6
11. Part-time employment (% total employment)	:	:	:	:	1.1	1.2	1.1	1.2	1.1	1.3	1.4	1.3
12. Fixed-term contracts (% total employment)	:	:	:	:	4.0	4.1	5.1	5.1	5.2	5.3	6.0	5.1
13. Employment in Services (% total employment)	:	:	:	:	44.4	46.1	47.7	48.4	49.4	50.1	50.6	51.3
14. Employment in Industry (% total employment)	:	:	:	:	46.6	45.8	44.7	44.3	44.0	43.8	43.9	43.5
15. Employment in Agriculture (% total employment)	:	:	:	:	9.0	8.2	7.6	7.2	6.6	6.0	5.5	5.1
16. Activity rate (% population aged 15-64)	:	:	:	:	77.2	76.9	76.8	77.4	76.7	76.7	76.5	76.5
17. Activity rate (% of population aged 15-24)	:	:	:	:	51.8	50.9	49.4	49.8	47.5	44.9	42.9	40.7
18. Activity rate (% of population aged 25-54)	:	:	:	:	93.7	93.7	93.9	94.0	93.4	94.1	93.8	93.8
19. Activity rate (% of population aged 55-64)	:	:	:	:	42.0	41.1	41.0	43.1	46.3	48.1	51.9	55.1
20. Total unemployment (000)	:	152	134	141	168	227	266	282	264	247	251	225
21. Unemployment rate (% labour force 15+)	:	:	:	:	12.2	16.3	18.9	19.8	18.6	17.4	17.4	15.5
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	26.6	35.3	39.7	42.1	39.5	34.8	34.7	31.0
23. Long-term unemployment rate (% labour force)	:	:	:	:	6.0	7.4	10.3	11.3	11.9	11.3	11.3	11.2
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	13.8	18.0	19.6	21.0	18.7	15.6	14.9	12.6

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	2766	2770	2774	2776	2776	2777	2768	2770
2. Population aged 15-64	:	:	:	:	1839	1855	1871	1886	1886	1886	1914	1926
3. Total employment (000)	:	:	:	:	988	968	964	978	970	988	977	983
4. Population in employment aged 15-64	:	:	:	:	985	966	963	976	969	985	974	980
5. Employment rate (% population aged 15-64)	:	:	:	:	53.5	52.1	51.5	51.8	51.4	52.2	50.9	50.9
6. Employment rate (% population aged 15-24)	:	:	:	:	32.1	29.0	28.2	26.5	25.3	25.4	24.6	23.1
7. Employment rate (% population aged 25-54)	:	:	:	:	72.1	70.6	69.8	70.7	70.6	71.5	69.3	69.2
8. Employment rate (% population aged 55-64)	:	:	:	:	9.4	10.3	9.8	9.8	9.5	11.2	12.6	15.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	52.4	51.0	50.2	50.1	50.0	50.9	49.1	49.6
10. Self-employed (% total employment)	:	:	:	:	4.2	4.6	4.8	5.1	5.0	6.1	7.2	7.1
11. Part-time employment (% total employment)	:	:	:	:	3.8	3.2	3.1	3.5	2.7	3.8	4.2	4.1
12. Fixed-term contracts (% total employment)	:	:	:	:	4.4	3.6	4.5	4.7	4.5	4.6	5.1	4.9
13. Employment in Services (% total employment)	:	:	:	:	69.9	71.4	72.7	73.3	73.5	74.4	74.7	75.9
14. Employment in Industry (% total employment)	:	:	:	:	25.5	24.7	24.1	23.5	23.3	23.0	23.2	22.1
15. Employment in Agriculture (% total employment)	:	:	:	:	4.6	3.8	3.3	3.2	3.2	2.6	2.1	2.0
16. Activity rate (% population aged 15-64)	:	:	:	:	61.7	62.3	63.2	63.7	63.2	63.5	63.0	61.5
17. Activity rate (% of population aged 15-24)	:	:	:	:	41.9	42.7	42.6	41.3	39.2	37.2	35.7	32.4
18. Activity rate (% of population aged 25-54)	:	:	:	:	81.1	81.5	82.9	83.9	83.9	84.8	84.1	82.1
19. Activity rate (% of population aged 55-64)	:	:	:	:	10.3	11.1	10.7	11.0	11.1	12.4	14.8	18.1
20. Total unemployment (000)	:	140	135	138	150	190	220	225	223	213	232	205
21. Unemployment rate (% labour force 15+)	:	:	:	:	13.1	16.4	18.6	18.7	18.7	17.7	19.2	17.2
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	23.4	32.1	33.8	35.7	35.5	31.7	31.0	28.8
23. Long-term unemployment rate (% labour force)	:	:	:	:	7.1	8.3	10.2	11.3	12.5	11.7	12.4	12.3
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	9.8	13.7	14.4	14.7	13.9	11.8	11.1	9.3

Source: Eurostat

Employment in Europe 2006

Key employment indicators: Finland												
All	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
1. Total population (000)	5070	5088	5105	5119	4171	4353	4920	5166	5180	5193	5205	5225
2. Population aged 15-64	3394	3398	3404	3413	3416	3441	3452	3450	3458	3464	3467	3476
3. Total employment (000)	2018	2053	2081	2150	2192	2247	2297	2330	2353	2355	2365	2391
4. Population in employment aged 15-64	2047	2094	2125	2160	2212	2282	2319	2350	2354	2345	2345	2378
5. Employment rate (% population aged 15-64)	60.3	61.6	62.4	63.3	64.6	66.4	67.2	68.1	68.1	67.7	67.6	68.4
6. Employment rate (% population aged 15-24)	28.4	29.8	30.6	34.2	36.1	40.0	41.1	41.8	40.7	39.7	39.4	40.5
7. Employment rate (% population aged 25-54)	75.1	76.4	77.3	77.7	79.1	80.4	80.9	81.5	81.6	81.1	81.0	81.7
8. Employment rate (% population aged 55-64)	33.2	34.4	35.4	35.6	36.2	39.0	41.6	45.7	47.8	49.6	50.9	52.7
9. FTE employment rate (% population aged 15-64)	:	56.5	57.5	59.5	60.6	64.2	64.9	65.7	65.8	65.2	64.8	65.5
10. Self-employed (% total employment)	14.0	13.7	13.5	13.3	12.4	12.4	12.2	11.9	11.8	11.8	11.8	11.6
11. Part-time employment (% total employment)	11.5	11.6	11.4	10.9	11.4	12.1	12.3	12.2	12.8	13.0	13.5	13.7
12. Fixed-term contracts (% total employment)	:	:	:	18.1	17.4	16.8	16.3	16.4	16.0	16.3	16.1	16.5
13. Employment in Services (% total employment)	64.8	65.0	65.5	65.5	65.9	66.0	66.3	67.0	67.9	68.5	69.0	69.4
14. Employment in Industry (% total employment)	26.8	27.2	27.2	27.5	27.8	27.8	27.8	27.4	26.8	26.3	25.8	25.8
15. Employment in Agriculture (% total employment)	8.5	7.9	7.3	7.0	6.3	6.2	6.0	5.6	5.4	5.3	5.2	4.9
16. Activity rate (% population aged 15-64)	72.0	72.6	72.9	72.4	72.3	73.9	74.5	75.0	74.9	74.5	74.2	74.7
17. Activity rate (% of population aged 15-24)	42.5	42.1	42.2	45.6	45.1	50.9	52.3	52.1	51.5	50.7	49.7	50.7
18. Activity rate (% of population aged 25-54)	87.1	87.7	87.7	86.9	87.0	87.7	87.9	88.0	88.0	87.5	87.4	87.7
19. Activity rate (% of population aged 55-64)	41.0	42.9	44.8	41.8	41.8	43.2	45.9	50.3	52.1	53.7	54.9	56.6
20. Total unemployment (000)	408	382	363	314	285	261	253	238	237	235	229	220
21. Unemployment rate (% labour force 15+)	16.6	15.4	14.6	12.7	11.4	10.2	9.8	9.1	9.1	9.0	8.8	8.4
22. Youth unemployment rate (% labour force 15-24)	34.0	29.7	28.0	25.2	23.5	21.4	21.4	19.8	21.0	21.8	20.7	20.1
23. Long-term unemployment rate (% labour force)	:	:	:	4.9	4.1	3.0	2.8	2.5	2.3	2.3	2.1	2.2
24. Youth unemployment ratio (% population aged 15-24)	14.1	12.3	11.6	11.4	10.8	10.9	11.2	10.3	10.8	11.0	10.3	10.2
Male												
1. Total population (000)	2456	2466	2476	2484	2049	2111	2386	2512	2521	2529	2536	2547
2. Population aged 15-64	1703	1705	1709	1715	1714	1729	1734	1733	1738	1741	1742	1747
3. Total employment (000)	1042	1076	1097	1134	1161	1180	1207	1221	1218	1222	1229	1238
4. Population in employment aged 15-64	1055	1095	1118	1136	1168	1196	1216	1227	1216	1213	1214	1228
5. Employment rate (% population aged 15-64)	62.0	64.2	65.4	66.2	67.8	69.2	70.1	70.8	70.0	69.7	69.7	70.3
6. Employment rate (% population aged 15-24)	28.8	31.7	32.3	36.1	38.3	41.7	42.2	42.9	41.1	40.1	39.4	40.4
7. Employment rate (% population aged 25-54)	76.5	79.0	80.2	80.6	82.4	83.5	84.3	84.7	83.8	83.3	83.8	84.4
8. Employment rate (% population aged 55-64)	35.2	35.6	37.8	38.1	38.4	40.1	42.9	46.6	48.5	51.0	51.4	52.8
9. FTE employment rate (% population aged 15-64)	:	59.1	60.5	63.5	64.8	68.4	69.3	69.8	69.3	68.4	68.3	68.7
10. Self-employed (% total employment)	18.1	17.7	17.3	16.9	15.6	15.9	15.8	15.4	15.3	15.2	15.3	15.2
11. Part-time employment (% total employment)	8.2	8.2	8.0	7.0	7.3	7.7	8.0	7.9	8.3	8.7	9.0	9.2
12. Fixed-term contracts (% total employment)	:	:	:	15.3	14.3	13.8	12.9	12.9	12.5	12.6	12.6	12.9
13. Employment in Services (% total employment)	50.8	50.9	51.4	51.2	51.9	51.7	51.7	52.7	53.4	53.8	54.6	54.7
14. Employment in Industry (% total employment)	38.4	39.1	39.3	39.9	40.0	40.2	40.4	39.9	39.6	39.2	38.3	38.6
15. Employment in Agriculture (% total employment)	10.8	9.9	9.3	8.9	8.1	8.1	7.9	7.4	7.0	7.0	7.1	6.7
16. Activity rate (% population aged 15-64)	75.4	75.9	76.1	75.5	75.6	76.7	77.2	77.6	77.0	76.8	76.4	76.6
17. Activity rate (% of population aged 15-24)	45.2	45.3	45.3	48.1	47.9	52.8	53.6	53.3	52.1	51.4	50.5	50.9
18. Activity rate (% of population aged 25-54)	90.2	90.8	90.6	89.7	89.9	90.6	90.8	90.9	90.5	90.1	90.1	90.3
19. Activity rate (% of population aged 55-64)	43.5	44.6	47.1	44.4	44.8	44.7	47.3	51.3	53.0	55.3	55.6	56.9
20. Total unemployment (000)	235	204	186	160	143	130	122	117	123	124	118	111
21. Unemployment rate (% labour force 15+)	18.1	15.7	14.3	12.3	10.9	9.8	9.1	8.6	9.1	9.2	8.7	8.2
22. Youth unemployment rate (% labour force 15-24)	37.2	30.7	29.5	25.4	22.8	20.8	21.1	19.6	21.2	21.9	22.0	20.6
23. Long-term unemployment rate (% labour force)	:	:	:	4.9	4.3	3.2	2.8	2.7	2.5	2.6	2.3	2.4
24. Youth unemployment ratio (% population aged 15-24)	16.4	13.5	13.0	12.0	11.1	11.0	11.3	10.4	11.0	11.3	11.1	10.5
Female												
1. Total population (000)	2614	2622	2629	2635	2122	2241	2534	2654	2659	2664	2669	2678
2. Population aged 15-64	1691	1693	1695	1698	1702	1712	1718	1717	1720	1723	1725	1728
3. Total employment (000)	975	977	985	1016	1032	1067	1089	1110	1134	1133	1136	1153
4. Population in employment aged 15-64	992	999	1007	1024	1044	1086	1103	1123	1138	1132	1131	1150
5. Employment rate (% population aged 15-64)	58.7	59.0	59.4	60.3	61.2	63.4	64.2	65.4	66.2	65.7	65.6	66.5
6. Employment rate (% population aged 15-24)	27.9	27.9	29.0	32.4	33.9	38.3	40.0	40.7	40.3	39.2	39.4	40.6
7. Employment rate (% population aged 25-54)	73.7	73.7	74.2	74.7	75.7	77.1	77.3	78.1	79.2	78.9	78.2	79.0
8. Employment rate (% population aged 55-64)	31.5	33.4	33.3	33.3	34.1	38.0	40.4	45.0	47.2	48.3	50.4	52.7
9. FTE employment rate (% population aged 15-64)	:	53.8	54.3	55.5	56.4	60.2	60.5	61.8	62.4	62.0	61.3	62.3
10. Self-employed (% total employment)	9.6	9.3	9.3	9.2	8.8	8.5	8.3	8.2	8.1	8.1	7.9	7.8
11. Part-time employment (% total employment)	14.9	15.4	15.2	15.3	15.9	16.9	17.0	16.8	17.5	17.7	18.4	18.6
12. Fixed-term contracts (% total employment)	:	:	:	21.0	20.5	19.8	19.8	19.9	19.5	20.0	19.5	20.0
13. Employment in Services (% total employment)	79.8	80.4	81.1	81.4	81.5	81.7	82.3	82.6	83.2	84.2	84.6	84.9
14. Employment in Industry (% total employment)	14.2	14.0	13.7	13.8	14.1	14.2	13.8	13.7	13.1	12.4	12.3	12.1
15. Employment in Agriculture (% total employment)	6.0	5.6	5.2	4.8	4.4	4.1	3.8	3.7	3.6	3.4	3.1	2.9
16. Activity rate (% population aged 15-64)	68.7	69.3	69.7	69.3	69.1	71.1	71.9	72.4	72.8	72.2	72.0	72.8
17. Activity rate (% of population aged 15-24)	39.8	38.9	39.2	43.1	42.5	49.1	51.0	50.9	50.9	50.0	48.9	50.4
18. Activity rate (% of population aged 25-54)	83.9	84.4	84.7	83.9	84.0	84.8	84.9	85.0	85.5	84.8	84.5	85.1
19. Activity rate (% of population aged 55-64)	38.6	41.4	42.7	39.4	38.9	41.8	44.5	49.4	51.2	52.2	54.3	56.4
20. Total unemployment (000)	174	178	176	154	142	131	131	121	114	111	111	109
21. Unemployment rate (% labour force 15+)	14.8	15.1	14.9	13.0	12.0	10.7	10.6	9.7	9.1	8.9	8.9	8.6
22. Youth unemployment rate (% labour force 15-24)	30.5	28.6	26.3	25.0	24.3	22.1	21.6	20.0	20.9	21.6	19.4	19.5
23. Long-term unemployment rate (% labour force)	:	:	:	5.0	3.9	2.8	2.7	2.3	2.0	2.0	2.0	1.9
24. Youth unemployment ratio (% population aged 15-24)	11.9	11.0	10.2	10.7	10.6	10.9	11.1	10.2	10.6	10.8	9.5	9.8

Source: Eurostat

Key employment indicators: Sweden

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	8706	8765	8789	8804	8818	8834	8857	8889	8930	8969	9006	9039
2. Population aged 15-64	5611	5638	5649	5658	5670	5686	5708	5739	5776	5821	5855	5896
3. Total employment (000)	4041	4103	4068	4015	4078	4163	4264	4345	4352	4337	4314	4327
4. Population in employment aged 15-64	3939	3997	3973	3930	3988	4078	4168	4249	4252	4242	4220	4272
5. Employment rate (% population aged 15-64)	70.2	70.9	70.3	69.5	70.3	71.7	73.0	74.0	73.6	72.9	72.1	72.5
6. Employment rate (% population aged 15-24)	36.5	37.6	35.9	35.6	37.7	39.9	42.2	44.2	42.8	41.2	39.2	38.7
7. Employment rate (% population aged 25-54)	82.3	82.9	82.0	80.9	81.4	82.7	83.9	84.6	84.1	83.5	82.9	83.9
8. Employment rate (% population aged 55-64)	62.0	62.0	63.4	62.6	63.0	63.9	64.9	66.7	68.0	68.6	69.1	69.4
9. FTE employment rate (% population aged 15-64)	:	63.9	62.8	61.9	62.4	63.8	65.1	68.4	68.1	67.6	66.2	66.0
10. Self-employed (% total employment)	5.6	5.6	5.5	5.6	5.5	5.5	5.4	5.1	4.9	4.7	4.8	4.8
11. Part-time employment (% total employment)	20.8	20.5	20.2	20.2	19.8	19.7	19.5	21.1	21.5	22.9	23.6	24.7
12. Fixed-term contracts (% total employment)	14.1	14.7	14.4	15.1	16.1	16.5	15.8	15.3	15.2	15.1	15.5	16.0
13. Employment in Services (% total employment)	73.1	72.4	72.6	72.8	72.9	73.3	73.7	73.9	74.4	74.8	75.0	75.4
14. Employment in Industry (% total employment)	23.6	24.4	24.4	24.3	24.4	24.0	23.6	23.6	23.2	22.8	22.6	22.3
15. Employment in Agriculture (% total employment)	3.3	3.2	3.1	2.9	2.8	2.7	2.7	2.5	2.4	2.3	2.3	2.3
16. Activity rate (% population aged 15-64)	76.7	77.0	77.1	76.5	76.2	76.8	77.3	77.9	77.6	77.3	77.2	78.7
17. Activity rate (% of population aged 15-24)	48.2	47.4	46.1	45.5	45.7	46.8	48.1	50.0	49.1	47.7	47.2	50.2
18. Activity rate (% of population aged 25-54)	88.2	88.7	88.5	87.8	87.3	87.6	87.9	88.0	87.7	87.7	87.7	89.5
19. Activity rate (% of population aged 55-64)	64.3	65.1	67.0	66.4	66.4	67.6	68.6	70.0	71.2	71.9	72.7	72.6
20. Total unemployment (000)	412	391	426	437	362	300	253	224	229	260	296	368
21. Unemployment rate (% labour force 15+)	9.4	8.8	9.6	9.9	8.2	6.7	5.6	4.9	4.9	5.6	6.3	7.8
22. Youth unemployment rate (% labour force 15-24)	22.0	19.1	20.5	20.6	16.1	12.3	10.5	10.9	11.9	13.4	16.3	22.6
23. Long-term unemployment rate (% labour force)	2.3	2.3	2.7	3.1	2.6	1.9	1.4	1.0	1.0	1.0	1.2	1.2
24. Youth unemployment ratio (% population aged 15-24)	11.7	9.9	10.2	10.0	8.0	6.9	5.9	5.9	6.3	6.5	8.0	11.5
Male												
1. Total population (000)	4265	4298	4315	4327	4340	4353	4371	4393	4421	4443	4463	4479
2. Population aged 15-64	2849	2862	2868	2873	2879	2887	2899	2916	2935	2957	2974	2993
3. Total employment (000)	2093	2139	2130	2106	2145	2186	2237	2269	2264	2256	2247	2270
4. Population in employment aged 15-64	2051	2092	2082	2061	2096	2137	2179	2208	2200	2195	2189	2228
5. Employment rate (% population aged 15-64)	72.0	73.1	72.6	71.7	72.8	74.0	75.1	75.7	74.9	74.2	73.6	74.4
6. Employment rate (% population aged 15-24)	40.9	42.1	40.3	39.3	41.2	43.0	44.2	43.7	41.8	40.4	38.6	37.7
7. Employment rate (% population aged 25-54)	82.7	84.0	83.3	82.5	83.4	84.4	85.8	86.6	85.9	85.3	85.0	86.6
8. Employment rate (% population aged 55-64)	65.4	65.2	66.7	65.1	66.1	67.3	67.8	69.4	70.4	70.8	71.2	72.0
9. FTE employment rate (% population aged 15-64)	:	69.5	67.9	67.3	68.5	69.3	70.0	73.6	72.9	72.3	70.9	71.4
10. Self-employed (% total employment)	8.2	8.1	8.1	8.1	7.8	7.7	7.7	7.2	7.1	6.7	6.9	6.8
11. Part-time employment (% total employment)	7.3	7.3	7.4	7.5	7.4	8.0	8.2	10.8	11.1	11.2	12.0	11.5
12. Fixed-term contracts (% total employment)	13.7	13.6	13.0	13.3	13.9	14.2	13.8	12.9	12.8	12.8	13.5	14.2
13. Employment in Services (% total employment)	58.6	57.8	58.2	58.7	59.1	59.7	60.3	60.6	61.0	61.4	61.7	62.4
14. Employment in Industry (% total employment)	36.0	37.1	36.8	36.7	36.6	36.2	35.5	35.6	35.3	35.0	34.7	34.1
15. Employment in Agriculture (% total employment)	5.4	5.1	5.0	4.6	4.2	4.1	4.2	3.8	3.7	3.6	3.6	3.5
16. Activity rate (% population aged 15-64)	79.1	79.6	79.6	79.0	79.0	79.4	79.8	79.9	79.4	79.2	79.1	80.9
17. Activity rate (% of population aged 15-24)	52.2	51.3	49.8	48.9	49.1	49.9	50.2	50.0	48.5	47.3	47.1	49.1
18. Activity rate (% of population aged 25-54)	89.5	90.4	90.2	89.7	89.6	89.7	90.2	90.4	89.8	89.9	90.0	92.4
19. Activity rate (% of population aged 55-64)	68.2	68.6	70.8	69.7	70.3	71.5	72.1	73.1	74.2	74.9	75.6	76.2
20. Total unemployment (000)	248	225	236	238	194	155	139	124	127	145	160	195
21. Unemployment rate (% labour force 15+)	10.8	9.7	10.1	10.2	8.4	6.6	5.9	5.2	5.3	6.0	6.5	7.9
22. Youth unemployment rate (% labour force 15-24)	24.9	20.4	21.3	21.1	16.4	12.2	11.0	11.9	12.0	13.0	15.7	23.0
23. Long-term unemployment rate (% labour force)	3.9	3.5	3.8	4.0	3.2	2.2	1.7	1.2	1.2	1.2	1.4	1.4
24. Youth unemployment ratio (% population aged 15-24)	11.3	9.2	9.5	9.6	7.9	7.0	6.0	6.3	6.7	6.9	8.4	11.4
Female												
1. Total population (000)	4438	4464	4472	4474	4477	4480	4486	4496	4510	4527	4543	4559
2. Population aged 15-64	2759	2773	2779	2783	2789	2797	2809	2823	2841	2864	2881	2903
3. Total employment (000)	1947	1964	1939	1909	1932	1977	2028	2076	2087	2081	2067	2057
4. Population in employment aged 15-64	1889	1907	1892	1871	1894	1942	1990	2041	2053	2047	2031	2044
5. Employment rate (% population aged 15-64)	68.5	68.8	68.1	67.2	67.9	69.4	70.9	72.3	72.2	71.5	70.5	70.4
6. Employment rate (% population aged 15-24)	32.2	33.2	31.8	31.9	34.3	36.9	40.1	44.7	43.8	42.1	39.7	39.8
7. Employment rate (% population aged 25-54)	81.9	81.8	80.7	79.1	79.5	80.9	81.9	82.5	82.4	81.7	80.9	81.1
8. Employment rate (% population aged 55-64)	59.1	59.2	60.5	60.4	60.0	60.7	62.1	64.0	65.6	66.3	67.0	66.7
9. FTE employment rate (% population aged 15-64)	:	58.5	57.8	56.7	56.4	58.5	60.2	63.3	63.4	63.0	61.6	60.8
10. Self-employed (% total employment)	2.8	2.8	2.7	2.8	2.9	3.0	2.9	2.8	2.6	2.4	2.5	2.6
11. Part-time employment (% total employment)	36.2	35.8	34.9	34.7	34.3	33.3	32.3	33.0	33.1	35.5	36.3	39.6
12. Fixed-term contracts (% total employment)	14.5	15.8	15.8	16.9	18.3	18.7	17.8	17.6	17.6	17.4	17.5	17.7
13. Employment in Services (% total employment)	87.7	87.4	87.4	87.3	87.3	87.6	87.9	88.0	88.6	89.1	89.2	89.4
14. Employment in Industry (% total employment)	11.1	11.4	11.5	11.5	11.5	11.2	10.9	10.9	10.3	9.9	9.8	9.6
15. Employment in Agriculture (% total employment)	1.2	1.2	1.1	1.2	1.2	1.2	1.2	1.1	1.1	1.0	1.0	1.0
16. Activity rate (% population aged 15-64)	74.4	74.6	74.7	74.0	73.5	74.2	74.8	75.7	75.8	75.4	75.2	76.3
17. Activity rate (% of population aged 15-24)	45.2	44.6	43.4	42.9	42.8	44.0	46.1	50.1	49.7	48.3	47.3	51.3
18. Activity rate (% of population aged 25-54)	86.7	86.8	86.7	85.6	85.0	85.4	85.5	85.5	85.5	85.4	85.3	86.5
19. Activity rate (% of population aged 55-64)	60.8	61.9	63.5	63.4	62.6	63.8	65.2	66.9	68.2	68.9	69.7	69.0
20. Total unemployment (000)	164	166	190	199	168	145	114	100	101	115	136	173
21. Unemployment rate (% labour force 15+)	7.8	7.8	9.0	9.5	8.0	6.8	5.3	4.5	4.6	5.2	6.1	7.7
22. Youth unemployment rate (% labour force 15-24)	19.0	17.7	19.8	20.1	15.8	12.4	9.9	9.9	11.8	13.7	16.9	22.1
23. Long-term unemployment rate (% labour force)	0.8	1.0	1.5	2.0	1.8	1.4	1.0	0.8	0.8	0.8	1.0	1.0
24. Youth unemployment ratio (% population aged 15-24)	12.9	11.4	11.7	11.0	8.5	7.1	6.0	5.4	5.9	6.2	7.6	11.5

Source: Eurostat
Note: EU-LFS indicators: break in 2005; Indicators 20 to 23: 2005 provisional.

Employment in Europe 2006

Key employment indicators: United Kingdom

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	57294	57491	57686	57891	58117	58373	57623	57820	57964	58135	58285	58421
2. Population aged 15-64	37273	37407	37592	37768	37965	38226	37550	37786	37991	38177	38364	38529
3. Total employment (000)	25497	25811	26056	26523	26796	27160	27477	27706	27919	28185	28467	28741
4. Population in employment aged 15-64	25307	25609	25955	26415	26773	27139	26731	26982	27097	27277	27485	27610
5. Employment rate (% population aged 15-64)	67.9	68.5	69.0	69.9	70.5	71.0	71.2	71.4	71.3	71.5	71.6	71.7
6. Employment rate (% population aged 15-24)	54.8	55.2	55.7	56.5	56.7	56.6	56.6	56.6	56.1	55.3	55.4	54.0
7. Employment rate (% population aged 25-54)	76.7	77.2	77.7	78.6	79.3	79.9	80.2	80.4	80.4	80.6	80.8	81.2
8. Employment rate (% population aged 55-64)	47.4	47.5	47.7	48.3	49.0	49.6	50.7	52.2	53.4	55.4	56.2	56.9
9. FTE employment rate (% population aged 15-64)	58.7	59.2	59.4	60.2	60.7	60.9	61.3	61.7	61.6	61.5	61.6	61.9
10. Self-employed (% total employment)	13.8	13.8	13.5	13.0	12.5	12.2	11.9	11.9	12.0	12.7	12.8	12.7
11. Part-time employment (% total employment)	24.0	24.1	24.6	24.6	24.5	24.6	25.2	25.1	25.4	25.8	25.8	25.4
12. Fixed-term contracts (% total employment)	6.9	7.2	7.3	7.6	7.3	7.0	6.9	6.7	6.4	6.1	6.0	5.7
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	75.3	75.2	75.3	75.4	75.4	75.7	75.4	75.2	75.2	75.2	75.2	75.3
17. Activity rate (% of population aged 15-24)	66.3	65.8	66.1	66.1	65.8	65.3	64.8	64.1	63.7	63.0	62.9	61.9
18. Activity rate (% of population aged 25-54)	83.5	83.5	83.5	83.5	83.5	84.0	83.9	83.6	83.7	83.7	83.7	84.1
19. Activity rate (% of population aged 55-64)	52.1	51.3	51.4	51.5	51.5	52.1	52.9	54.1	55.3	57.2	57.9	58.5
20. Total unemployment (000)	2611	2383	2228	1927	1740	1683	1541	1446	1487	1447	1372	1406
21. Unemployment rate (% labour force 15+)	9.3	8.5	7.9	6.8	6.1	5.9	5.4	5.0	5.1	4.9	4.7	4.7
22. Youth unemployment rate (% labour force 15-24)	16.4	15.3	14.9	13.7	13.1	12.7	12.2	11.9	12.1	12.3	12.1	12.9
23. Long-term unemployment rate (% labour force)	4.1	3.5	3.1	2.5	1.9	1.7	1.4	1.3	1.1	1.1	1.0	1.0
24. Youth unemployment ratio (% population aged 15-24)	11.5	10.6	10.3	9.6	9.1	8.7	8.2	7.6	7.7	7.7	7.6	7.9

Male												
1. Total population (000)	28112	28240	28368	28499	28638	28800	28029	28149	28230	28328	28405	28476
2. Population aged 15-64	18724	18807	18915	19004	19118	19264	18527	18635	18744	18833	18917	18983
3. Total employment (000)	14089	14278	14375	14661	14828	15011	14853	14961	15025	15179	15298	15394
4. Population in employment aged 15-64	13947	14126	14283	14565	14785	14965	14414	14532	14543	14640	14720	14737
5. Employment rate (% population aged 15-64)	74.5	75.1	75.5	76.6	77.3	77.7	77.8	78.0	77.6	77.7	77.8	77.6
6. Employment rate (% population aged 15-24)	56.6	57.3	57.5	58.4	58.7	58.7	58.6	58.9	57.6	56.9	56.6	55.3
7. Employment rate (% population aged 25-54)	84.1	84.7	84.8	85.8	86.6	87.0	87.5	87.5	87.4	87.6	87.7	87.8
8. Employment rate (% population aged 55-64)	56.5	56.2	57.1	58.4	59.1	59.7	60.1	61.7	62.6	64.8	65.7	66.0
9. FTE employment rate (% population aged 15-64)	71.7	72.2	72.2	73.2	73.8	73.7	74.2	74.5	73.6	73.5	73.6	73.3
10. Self-employed (% total employment)	18.4	18.4	18.0	17.2	16.3	16.0	15.6	15.9	16.0	16.9	17.2	17.1
11. Part-time employment (% total employment)	7.5	7.8	8.4	8.5	8.5	8.8	8.9	9.1	9.6	10.2	10.3	10.4
12. Fixed-term contracts (% total employment)	5.9	6.3	6.4	6.6	6.4	6.3	6.1	6.0	5.6	5.4	5.5	5.2
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	84.3	83.8	83.7	83.4	83.2	83.4	82.8	82.6	82.3	82.3	82.0	81.9
17. Activity rate (% of population aged 15-24)	70.8	70.1	70.4	69.8	69.3	69.0	67.9	67.9	66.7	66.0	65.4	64.7
18. Activity rate (% of population aged 25-54)	93.1	92.7	92.2	91.7	91.6	91.9	91.8	91.3	91.3	91.3	91.0	91.1
19. Activity rate (% of population aged 55-64)	64.0	62.4	62.8	63.3	63.1	63.2	63.3	64.6	65.3	67.4	68.1	68.3
20. Total unemployment (000)	1711	1537	1437	1187	1058	1014	914	866	887	869	801	820
21. Unemployment rate (% labour force 15+)	11.0	9.9	9.2	7.6	6.8	6.5	5.8	5.5	5.6	5.5	5.0	5.1
22. Youth unemployment rate (% labour force 15-24)	19.1	17.5	17.5	15.4	14.8	14.2	13.3	13.2	13.7	13.8	13.4	14.5
23. Long-term unemployment rate (% labour force)	5.4	4.7	4.2	3.3	2.4	2.2	1.9	1.7	1.4	1.4	1.2	1.3
24. Youth unemployment ratio (% population aged 15-24)	14.2	12.9	12.8	11.4	10.7	10.2	9.3	9.0	9.1	9.2	8.7	9.4

Female												
1. Total population (000)	29182	29251	29318	29391	29479	29573	29594	29672	29735	29807	29880	29945
2. Population aged 15-64	18549	18600	18678	18764	18847	18963	19023	19150	19247	19343	19447	19546
3. Total employment (000)	11408	11534	11681	11862	11967	12149	12624	12745	12894	13006	13170	13347
4. Population in employment aged 15-64	11359	11483	11672	11850	11988	12174	12317	12450	12553	12637	12764	12873
5. Employment rate (% population aged 15-64)	61.2	61.7	62.5	63.1	63.6	64.2	64.7	65.0	65.2	65.3	65.6	65.9
6. Employment rate (% population aged 15-24)	52.9	53.1	53.9	54.5	54.6	54.4	54.6	54.2	54.5	53.7	54.1	52.5
7. Employment rate (% population aged 25-54)	69.2	69.7	70.5	71.3	71.8	72.7	73.2	73.5	73.7	73.8	74.2	74.8
8. Employment rate (% population aged 55-64)	38.6	39.0	38.7	38.5	39.2	39.9	41.7	43.0	44.5	46.3	47.0	48.1
9. FTE employment rate (% population aged 15-64)	46.5	47.0	47.4	48.1	48.3	49.2	49.7	50.2	50.7	50.7	50.8	51.5
10. Self-employed (% total employment)	8.1	8.0	7.9	7.9	7.8	7.4	7.5	7.2	7.3	7.7	7.6	7.7
11. Part-time employment (% total employment)	44.4	44.4	44.6	44.6	44.4	44.0	44.3	43.9	43.8	44.0	43.9	42.7
12. Fixed-term contracts (% total employment)	7.9	8.2	8.4	8.6	8.4	7.8	7.9	7.5	7.2	6.8	6.5	6.2
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	66.3	66.5	66.9	67.3	67.4	67.9	68.2	68.0	68.3	68.3	68.6	68.8
17. Activity rate (% of population aged 15-24)	61.5	61.3	61.6	62.2	62.0	61.5	61.7	60.4	60.7	60.0	60.5	59.1
18. Activity rate (% of population aged 25-54)	73.9	74.1	74.6	75.0	75.2	76.0	76.2	76.2	76.4	76.4	76.7	77.4
19. Activity rate (% of population aged 55-64)	40.8	40.7	40.3	40.0	40.4	41.2	42.8	43.9	45.6	47.3	47.9	49.0
20. Total unemployment (000)	900	846	791	740	682	669	628	580	601	579	571	586
21. Unemployment rate (% labour force 15+)	7.2	6.8	6.3	5.8	5.3	5.1	4.8	4.4	4.5	4.3	4.2	4.3
22. Youth unemployment rate (% labour force 15-24)	13.3	12.8	12.0	11.7	11.3	11.0	11.1	10.3	10.2	10.5	10.7	11.1
23. Long-term unemployment rate (% labour force)	2.4	2.0	1.7	1.5	1.2	1.0	0.9	0.8	0.7	0.7	0.6	0.7
24. Youth unemployment ratio (% population aged 15-24)	8.6	8.2	7.7	7.7	7.4	7.1	7.1	6.2	6.2	6.3	6.4	6.5

Source: Eurostat
Note: EU-LFS indicators: break in 2000.

Key employment indicators: Bulgaria

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	6835	7884	7877	7821	7786	7747
2. Population aged 15-64	:	:	:	:	:	:	5491	5375	5357	5308	5306	5283
3. Total employment (000)	:	:	3286	3157	3153	3088	2980	2968	2979	3166	3236	3301
4. Population in employment aged 15-64	:	:	:	:	:	:	2768	2672	2709	2785	2877	2947
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	50.4	49.7	50.6	52.5	54.2	55.8
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	19.7	19.8	19.4	20.7	21.5	21.6
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	68.5	67.2	67.6	69.2	71.2	73.0
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	20.8	24.0	27.0	30.0	32.5	34.7
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	50.3	50.6	52.5	54.5	55.7
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	:	3.2	2.5	2.3	2.4	2.1
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	:	6.3	5.3	6.5	7.4	6.4
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	60.7	62.5	61.9	60.9	61.8	62.1
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	30.5	33.2	30.9	28.8	28.9	27.9
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	80.6	81.9	80.7	79.1	79.9	80.2
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	24.0	29.2	31.8	33.9	36.2	38.0
20. Total unemployment (000)	:	343	329	417	362	402	561	663	609	449	400	334
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	16.4	19.5	18.1	13.7	12.0	10.1
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	33.7	38.8	37.0	28.2	25.8	22.4
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	9.4	12.1	12.0	8.9	7.2	6.0
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	10.8	13.4	11.5	8.1	7.5	6.2

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	3270	3818	3820	3792	3775	3754
2. Population aged 15-64	:	:	:	:	:	:	2684	2647	2643	2616	2623	2614
3. Total employment (000)	:	:	:	:	:	:	1587	1554	1565	1676	1717	1763
4. Population in employment aged 15-64	:	:	:	:	:	:	1469	1394	1418	1466	1520	1569
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	54.7	52.7	53.7	56.0	57.9	60.0
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	21.8	20.1	20.5	21.7	23.2	23.9
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	70.8	68.4	69.0	71.4	73.5	75.7
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	33.2	34.2	37.0	40.5	42.2	45.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	53.5	53.9	56.3	58.3	59.8
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	:	2.9	2.1	1.9	2.1	1.7
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	:	6.6	5.9	7.0	7.7	6.7
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	66.2	67.0	66.4	65.4	66.4	67.0
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	34.9	35.6	34.2	31.5	31.8	31.1
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	83.3	84.2	83.0	81.8	82.9	83.3
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	38.4	41.7	43.7	45.6	47.2	49.9
20. Total unemployment (000)	:	180	171	220	190	213	303	364	337	246	222	183
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	16.7	20.2	18.9	14.1	12.5	10.3
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	36.1	42.0	40.1	31.0	27.0	23.3
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	9.6	12.6	12.5	9.2	7.3	6.0
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	13.1	15.4	13.8	9.8	8.6	7.3

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	3566	4066	4057	4030	4010	3993
2. Population aged 15-64	:	:	:	:	:	:	2807	2729	2714	2692	2683	2669
3. Total employment (000)	:	:	:	:	:	:	1394	1414	1414	1490	1520	1539
4. Population in employment aged 15-64	:	:	:	:	:	:	1299	1278	1290	1319	1357	1378
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	46.3	46.8	47.5	49.0	50.6	51.7
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	17.7	19.4	18.4	19.6	19.6	19.4
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	66.3	65.9	66.1	67.1	68.8	70.3
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	10.3	14.7	18.2	21.0	24.2	25.5
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	47.2	47.5	48.8	50.8	51.6
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	:	3.6	3.0	2.6	2.7	2.5
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	:	5.9	4.7	6.0	7.0	6.2
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	55.6	58.1	57.5	56.5	57.2	57.3
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	26.3	30.9	27.6	26.1	25.9	24.5
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	78.0	79.6	78.4	76.4	76.8	77.2
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	11.8	18.0	21.5	23.8	26.8	27.8
20. Total unemployment (000)	:	163	158	196	173	189	258	299	272	203	178	152
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	16.2	18.6	17.3	13.2	11.5	9.8
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	30.7	35.3	33.2	24.8	24.3	21.1
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	9.2	11.4	11.4	8.6	7.0	6.0
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	8.6	11.5	9.3	6.5	6.3	5.2

Source: Eurostat
Note: In the case of Bulgaria, employment in agriculture – as derived from national accounts – includes a significant number of persons with occasional or small jobs. When calculated on the basis of the LFS and limited to the main job, the share of agriculture in employment is found to be significantly lower and the sha-res in services and industry somewhat higher. Due to the substantial differences in the estimates of sectoral employment shares, no data is provided.
Note: Indicator 3: 2004 – 2005 forecast.

Employment in Europe 2006

Key employment indicators: Romania

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	22328	22377	22346	22334	22326	22309	21686	21638	21609
2. Population aged 15-64	:	:	:	15158	15190	15189	15231	15277	15327	14933	14964	15021
3. Total employment (000)	:	:	:	10867	10770	10649	10653	10603	9591	9155	9103	9115
4. Population in employment aged 15-64	:	:	:	9912	9754	9598	9590	9529	8833	8602	8635	8651
5. Employment rate (% population aged 15-64)	:	:	:	65.4	64.2	63.2	63.0	62.4	57.6	57.6	57.7	57.6
6. Employment rate (% population aged 15-24)	:	:	:	36.5	35.5	33.5	33.1	32.6	28.7	26.4	27.9	24.9
7. Employment rate (% population aged 25-54)	:	:	:	80.6	79.0	78.1	77.5	76.6	72.7	73.1	72.9	73.3
8. Employment rate (% population aged 55-64)	:	:	:	52.1	51.5	49.6	49.5	48.2	37.3	38.1	36.9	39.4
9. FTE employment rate (% population aged 15-64)	:	:	:	67.5	65.6	64.5	0.0	62.9	58.4	58.5	58.3	58.2
10. Self-employed (% total employment)	38.1	36.3	37.2	40.2	41.2	44.7	46.2	46.1	44.6	46.2	42.0	43.7
11. Part-time employment (% total employment)	:	:	:	14.9	15.8	15.9	16.5	16.6	11.8	11.5	10.6	10.2
12. Fixed-term contracts (% total employment)	:	:	:	3.0	3.0	3.0	2.8	3.0	1.0	2.0	2.5	2.4
13. Employment in Services (% total employment)	29.1	31.9	30.3	30.4	31.2	30.4	31.3	31.6	33.9	:	:	:
14. Employment in Industry (% total employment)	34.4	33.6	34.3	32.0	30.7	28.4	27.3	27.5	29.9	:	:	:
15. Employment in Agriculture (% total employment)	36.5	34.4	35.5	37.6	38.1	41.2	41.4	40.9	36.2	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	69.9	68.9	68.4	68.4	67.3	63.4	62.2	63.0	62.3
17. Activity rate (% of population aged 15-24)	:	:	:	45.6	44.1	42.1	41.4	40.0	37.4	32.9	35.8	31.2
18. Activity rate (% of population aged 25-54)	:	:	:	84.5	83.2	83.2	83.0	81.6	78.6	78.0	78.3	78.2
19. Activity rate (% of population aged 55-64)	:	:	:	52.5	51.8	50.1	50.0	48.7	37.9	38.8	37.9	40.4
20. Total unemployment (000)	:	1163	764	630	638	732	792	747	786	687	767	781
21. Unemployment rate (% labour force 15+)	:	:	:	5.3	5.4	6.2	6.8	6.6	7.5	6.8	7.6	7.7
22. Youth unemployment rate (% labour force 15-24)	:	:	:	16.3	15.8	17.2	17.2	17.6	21.0	19.5	23.2	23.8
23. Long-term unemployment rate (% labour force)	:	:	:	2.5	2.3	2.8	3.5	3.2	4.0	4.2	4.5	4.4
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	9.1	8.6	8.6	8.3	7.5	8.7	6.5	7.8	6.3

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	10866	10888	10866	10864	10863	10855	10549	10527	10521
2. Population aged 15-64	:	:	:	7463	7484	7481	7512	7543	7577	7397	7423	7467
3. Total employment (000)	:	:	:	5834	5767	5672	5661	5625	5170	4989	4926	4979
4. Population in employment aged 15-64	:	:	:	5366	5271	5164	5155	5115	4817	4718	4705	4760
5. Employment rate (% population aged 15-64)	:	:	:	71.9	70.4	69.0	68.6	67.8	63.6	63.8	63.4	63.7
6. Employment rate (% population aged 15-24)	:	:	:	40.4	39.4	36.9	35.8	35.2	31.4	29.9	30.7	28.2
7. Employment rate (% population aged 25-54)	:	:	:	87.4	85.3	84.3	83.7	82.8	79.6	80.1	79.2	80.0
8. Employment rate (% population aged 55-64)	:	:	:	60.7	59.5	56.9	56.0	54.3	42.7	43.5	43.1	46.7
9. FTE employment rate (% population aged 15-64)	:	:	:	75.6	73.3	71.3	70.5	69.4	65.1	65.2	64.3	65.1
10. Self-employed (% total employment)	:	:	:	36.3	38.1	42.1	44.4	44.5	43.3	45.5	42.4	44.3
11. Part-time employment (% total employment)	:	:	:	12.6	13.5	13.8	14.6	14.9	10.9	10.9	10.2	10.0
12. Fixed-term contracts (% total employment)	:	:	:	3.0	3.0	3.0	2.8	3.2	1.1	2.2	2.9	2.8
13. Employment in Services (% total employment)	:	:	:	27.4	28.1	27.5	28.5	29.5	31.2	:	:	:
14. Employment in Industry (% total employment)	:	:	:	38.1	36.6	33.8	32.2	31.7	34.3	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	34.4	35.3	38.7	39.3	38.8	34.4	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	76.6	75.7	75.2	75.0	73.6	70.4	69.3	70.0	69.4
17. Activity rate (% of population aged 15-24)	:	:	:	49.5	49.0	47.2	46.0	43.8	41.5	37.5	40.5	35.9
18. Activity rate (% of population aged 25-54)	:	:	:	91.4	90.0	90.2	90.0	88.5	86.4	85.8	85.7	85.8
19. Activity rate (% of population aged 55-64)	:	:	:	61.4	60.1	57.7	56.9	55.3	43.9	44.6	44.9	48.4
20. Total unemployment (000)	:	508	355	315	345	422	447	418	441	396	469	439
21. Unemployment rate (% labour force 15+)	:	:	:	5.0	5.5	6.8	7.2	6.9	7.8	7.2	8.6	8.0
22. Youth unemployment rate (% labour force 15-24)	:	:	:	14.8	15.6	18.6	18.3	17.9	20.7	19.1	25.0	24.2
23. Long-term unemployment rate (% labour force)	:	:	:	2.1	2.2	2.8	3.6	3.3	4.1	4.4	5.2	4.7
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	9.1	9.5	10.3	10.2	8.6	10.1	7.6	9.8	7.7

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	11462	11489	11480	11471	11463	11454	11136	11111	11089
2. Population aged 15-64	:	:	:	7694	7706	7708	7719	7733	7750	7536	7541	7554
3. Total employment (000)	:	:	:	5034	5003	4977	4992	4978	4421	4166	4178	4135
4. Population in employment aged 15-64	:	:	:	4548	4484	4435	4435	4414	4016	3884	3930	3891
5. Employment rate (% population aged 15-64)	:	:	:	59.1	58.2	57.5	57.5	57.1	51.8	51.5	52.1	51.5
6. Employment rate (% population aged 15-24)	:	:	:	32.7	31.6	30.2	30.5	30.0	26.1	22.9	25.1	21.6
7. Employment rate (% population aged 25-54)	:	:	:	74.0	72.7	72.0	71.2	70.6	65.9	66.0	66.6	66.5
8. Employment rate (% population aged 55-64)	:	:	:	44.6	44.5	43.3	43.8	42.9	32.6	33.3	31.4	33.1
9. FTE employment rate (% population aged 15-64)	:	:	:	59.6	58.2	57.9	0.0	56.5	51.9	51.8	52.4	51.4
10. Self-employed (% total employment)	:	:	:	44.6	44.8	47.6	48.2	47.9	46.2	47.0	41.5	43.0
11. Part-time employment (% total employment)	:	:	:	17.5	18.3	18.2	18.6	18.4	13.0	12.2	11.2	10.5
12. Fixed-term contracts (% total employment)	:	:	:	3.0	3.0	3.1	2.8	2.8	0.8	1.7	2.0	1.9
13. Employment in Services (% total employment)	:	:	:	33.9	34.8	33.7	34.5	33.9	37.1	:	:	:
14. Employment in Industry (% total employment)	:	:	:	24.8	23.9	22.2	21.7	22.8	24.6	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	41.3	41.3	44.1	43.8	43.3	38.3	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	63.5	62.3	61.8	61.9	61.1	56.6	55.3	56.2	55.3
17. Activity rate (% of population aged 15-24)	:	:	:	41.8	39.3	37.1	36.8	36.3	33.4	28.2	31.0	26.5
18. Activity rate (% of population aged 25-54)	:	:	:	77.7	76.4	76.3	76.0	74.8	70.8	70.1	70.9	70.7
19. Activity rate (% of population aged 55-64)	:	:	:	44.8	44.5	43.5	43.9	43.1	32.8	33.6	31.9	33.5
20. Total unemployment (000)	:	655	409	315	294	311	344	328	346	290	298	342
21. Unemployment rate (% labour force 15+)	:	:	:	5.7	5.3	5.6	6.3	6.2	7.1	6.3	6.5	7.5
22. Youth unemployment rate (% labour force 15-24)	:	:	:	18.2	16.1	15.4	15.8	17.4	21.3	20.1	20.9	23.3
23. Long-term unemployment rate (% labour force)	:	:	:	2.9	2.5	2.7	3.4	3.2	4.0	4.0	3.6	3.9
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	9.1	7.7	6.9	6.3	6.3	7.3	5.3	5.8	4.9

Source: Eurostat
Note: Indicator 3: 2003 – 2005 forecast.

Key employment indicators: Croatia

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	:	:	4206	4218	4215	4217
2. Population aged 15-64	:	:	:	:	:	:	:	:	2773	2778	2751	2746
3. Total employment (000)	:	:	1539	1588	1541	1490	1549	1465	1526	1535	1561	1574
4. Population in employment aged 15-64	:	:	:	:	:	:	:	:	1482	1482	1505	1511
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	53.4	53.4	54.7	55.0
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	:	:	26.2	24.9	26.5	25.8
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	:	:	70.2	70.1	70.9	71.8
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	:	:	24.8	28.4	30.1	32.6
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	28.5	25.9	24.7	24.8	23.8	24.3	23.5	24.2	23.4	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	:	:	8.3	8.5	8.5	10.1
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	:	:	10.9	11.3	12.2	12.4
13. Employment in Services (% total employment)	:	:	50.9	52.5	53.5	52.8	56.6	54.3	55.0	53.4	53.7	:
14. Employment in Industry (% total employment)	:	:	29.2	29.7	29.8	30.7	28.9	30.1	29.7	29.8	29.9	:
15. Employment in Agriculture (% total employment)	:	:	19.9	17.8	16.7	16.5	14.5	15.6	15.3	16.9	16.5	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	:	:	62.9	62.4	63.7	63.3
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	:	:	40.6	38.7	39.6	38.1
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	:	:	80.3	79.8	80.7	80.6
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	:	:	26.8	30.4	32.3	35.1
20. Total unemployment (000)	:	:	:	:	:	:	:	:	:	:	:	:
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	:	:	14.7	14.1	13.6	:
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	:	:	:	:	:	:
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	:	:	8.9	8.4	7.3	7.4
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	:	:	14.4	13.9	13.1	12.3

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	:	:	1999	2000	2012	2006
2. Population aged 15-64	:	:	:	:	:	:	:	:	1352	1361	1357	1354
3. Total employment (000)	:	:	:	:	:	:	:	:	:	850	865	867
4. Population in employment aged 15-64	:	:	:	:	:	:	:	:	818	821	838	835
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	60.5	60.3	61.8	61.7
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	:	:	29.2	28.6	30.9	30.0
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	:	:	77.6	77.2	77.7	77.9
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	:	:	34.2	38.1	40.9	43.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	25.2	24.2	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	:	:	6.6	6.3	6.3	7.3
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	:	:	11.3	11.8	12.1	12.4
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	45.2	45.5	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	38.5	38.9	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	16.2	15.6	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	:	:	69.9	69.5	70.5	70.0
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	:	:	44.8	43.4	43.8	43.0
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	:	:	86.7	86.2	86.6	85.9
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	:	:	37.4	41.1	44.0	47.2
20. Total unemployment (000)	:	:	:	:	:	:	:	:	:	:	:	:
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	:	:	13.2	12.8	12.0	:
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	:	:	:	:	:	:
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	:	:	7.4	7.4	6.0	6.5
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	:	:	15.5	14.8	12.9	13.0

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	:	:	2207	2218	2203	2211
2. Population aged 15-64	:	:	:	:	:	:	:	:	1421	1417	1394	1392
3. Total employment (000)	:	:	:	:	:	:	:	:	:	685	696	706
4. Population in employment aged 15-64	:	:	:	:	:	:	:	:	664	661	667	676
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	46.7	46.7	47.8	48.6
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	:	:	23.2	21.0	21.7	21.3
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	:	:	63.1	63.2	64.3	65.7
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	:	:	16.9	20.3	21.0	23.8
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	23.0	22.5	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	:	:	10.5	11.2	11.2	13.4
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	:	:	10.4	10.7	12.4	12.3
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	63.4	63.9	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	18.9	18.6	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	17.7	17.5	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	:	:	56.2	55.6	57.1	56.7
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	:	:	36.3	33.9	35.1	32.9
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	:	:	74.0	73.5	74.9	75.3
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	:	:	17.9	21.3	22.3	24.9
20. Total unemployment (000)	:	:	:	:	:	:	:	:	:	:	:	:
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	:	:	16.5	15.6	15.6	:
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	:	:	:	:	:	:
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	:	:	10.7	9.5	8.9	8.4
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	:	:	13.2	12.9	13.4	11.6

Source: Eurostat
Note: Indicator 3: 2005 forecast.

Employment in Europe 2006

Key employment indicators: Turkey

All	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	66183	67294	68390	69478	70551	71606
2. Population aged 15-64	:	:	:	:	:	:	42601	43446	44224	44980	45624	46610
3. Total employment (000)	20355	21104	21539	21007	21594	22051	21970	21744	21357	21150	21794	22061
4. Population in employment aged 15-64	:	:	:	:	:	:	20789	20778	20755	20593	21014	21444
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	48.8	47.8	46.9	45.8	46.1	46.0
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	37.0	35.3	33.3	30.6	31.6	31.3
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	56.5	55.6	54.8	54.2	54.1	54.2
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	36.3	35.8	35.7	33.5	33.2	31.0
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	9.2	6.2	6.9	6.3	6.9	5.9
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
13. Employment in Services (% total employment)	32.3	31.6	32.5	34.3	34.3	33.7	:	:	:	:	:	:
14. Employment in Industry (% total employment)	22.0	20.8	21.7	23.3	22.7	20.5	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	45.7	47.6	45.8	42.4	43.0	45.8	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	52.3	52.3	52.3	51.3	51.5	51.4
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	42.6	42.1	41.1	38.6	39.3	38.7
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	59.4	59.5	59.7	59.3	59.2	59.4
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	37.1	36.6	37.0	34.8	34.3	32.1
20. Total unemployment (000)	:	:	:	:	:	:	1496	1958	2473	2496	2479	:
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	6.5	8.3	10.3	10.5	10.3	10.3
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	13.0	16.1	19.1	20.5	19.6	:
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	1.4	1.8	3.1	2.5	4.0	:
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	5.6	6.8	7.9	7.9	7.7	7.4

Male	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	33049	33609	34152	34692	35224	35743
2. Population aged 15-64	:	:	:	:	:	:	21274	21708	22099	22479	22799	23296
3. Total employment (000)	:	:	:	:	:	:	:	15715	15164	15178	16026	16340
4. Population in employment aged 15-64	:	:	:	:	:	:	15284	15059	14778	14820	15469	15895
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	71.8	69.4	66.9	65.9	67.8	68.2
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	50.2	46.8	42.4	39.6	42.5	42.8
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	85.0	82.4	80.2	79.9	81.2	81.5
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	52.4	51.0	48.7	45.4	46.9	45.4
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	5.5	3.2	4.0	3.7	3.9	3.3
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	77.0	76.1	75.1	74.0	76.0	76.2
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	58.1	56.4	53.3	50.5	53.2	53.0
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	89.5	88.6	88.2	87.7	89.2	89.4
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	53.9	52.6	51.0	47.7	49.0	47.5
20. Total unemployment (000)	:	:	:	:	:	:	1110	1478	1829	1822	1864	:
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	6.6	8.7	10.7	10.7	10.5	10.4
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	13.6	17.1	20.4	21.5	20.0	:
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	1.2	1.6	2.9	2.3	3.9	:
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	7.9	9.6	10.8	10.8	10.6	10.2

Female	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Total population (000)	:	:	:	:	:	:	33134	33685	34238	34786	35328	35863
2. Population aged 15-64	:	:	:	:	:	:	21327	21738	22125	22500	22825	23314
3. Total employment (000)	:	:	:	:	:	:	:	6029	6193	5972	5768	5721
4. Population in employment aged 15-64	:	:	:	:	:	:	5505	5720	5976	5774	5544	5551
5. Employment rate (% population aged 15-64)	:	:	:	:	:	:	25.8	26.3	27.0	25.7	24.3	23.8
6. Employment rate (% population aged 15-24)	:	:	:	:	:	:	24.5	24.4	24.5	22.1	21.1	20.3
7. Employment rate (% population aged 25-54)	:	:	:	:	:	:	27.3	28.1	28.8	27.8	26.3	26.3
8. Employment rate (% population aged 55-64)	:	:	:	:	:	:	20.8	21.2	23.3	22.1	20.0	17.1
9. FTE employment rate (% population aged 15-64)	:	:	:	:	:	:	:	:	:	:	:	:
10. Self-employed (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
11. Part-time employment (% total employment)	:	:	:	:	:	:	19.6	14.0	13.7	12.8	15.3	13.5
12. Fixed-term contracts (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
13. Employment in Services (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
14. Employment in Industry (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
15. Employment in Agriculture (% total employment)	:	:	:	:	:	:	:	:	:	:	:	:
16. Activity rate (% population aged 15-64)	:	:	:	:	:	:	27.6	28.5	29.9	28.7	26.9	26.4
17. Activity rate (% of population aged 15-24)	:	:	:	:	:	:	27.8	28.4	29.5	27.2	26.0	25.1
18. Activity rate (% of population aged 25-54)	:	:	:	:	:	:	28.6	29.7	31.1	30.3	28.4	28.4
19. Activity rate (% of population aged 55-64)	:	:	:	:	:	:	20.9	21.4	23.6	22.4	20.1	17.3
20. Total unemployment (000)	:	:	:	:	:	:	386	480	644	674	615	:
21. Unemployment rate (% labour force 15+)	:	:	:	:	:	:	6.3	7.4	9.4	10.1	9.7	10.2
22. Youth unemployment rate (% labour force 15-24)	:	:	:	:	:	:	12.0	14.3	17.0	18.8	18.9	:
23. Long-term unemployment rate (% labour force)	:	:	:	:	:	:	1.9	2.3	3.5	3.0	4.5	:
24. Youth unemployment ratio (% population aged 15-24)	:	:	:	:	:	:	3.3	4.1	5.0	5.1	4.9	4.8

Source: Eurostat
Note: Indicator 3: 2000 – 2005 forecast.

Data sources and definitions

Data Sources

Most of the data used in this report originates from Eurostat, the Statistical Office of the European Communities. The main data sources used are:

•   the European Union Labour Force Survey (LFS)
•   the Eurostat Quarterly Labour Force Data (QLFD) series
•   the Eurostat Harmonised Series on Unemployment
•   the Labour Market Policy Database (LMP)
•   the Annual Macroeconomic Database (AMECO)

The **European Union Labour Force Survey (LFS)** is the EU's harmonised survey on labour market developments. The survey has been carried out since 1983 in the EU Members States, with some providing quarterly results from a continuous labour force survey, others conducting a single annual survey in the spring. Since 2005, all EU Member States conduct a quarterly survey. If not mentioned otherwise, results based on the LFS refer to surveys conducted in the spring ("second quarter" in all countries except for France and Austria ("first quarter")) of each year. It also provides data for Bulgaria, Croatia and Romania.

The **Quarterly Labour Force Data (QLFD)** series is a harmonised, consistent series of quarterly employment statistics based on LFS, completed through estimates when quarterly data are not available. It covers all the EU-15 (for the period of 1991 to present) and all New Member States and Candidate Countries (since 1996 or later, depending on data availability) except the Former Yugoslav Republic of Macedonia. The QLFD consist of two series: 1) population, employment and unemployment, and 2) employment by economic activity and employment status. The first series is based mainly on the EU LFS. Data cover the population living in private households only (collective households are excluded) and refer to the place of residence (household residence concept). They are broken down by gender and aggregate age group (15-24, 25-54, 55-64, 15-64). Unemployment data are also broken down by job search duration (less than 6 months, 6-11, 12-23, 24 or more). The second series is based on the ESA 1995 national accounts employment data. Data cover all people employed in resident producer units (domestic concept), including persons living in collective households. They are broken down by sex, working time status (full-time/part-time) and contract status (permanent/temporary) using LFS distributions. All key employment indicators – with the exception of the full-time equivalent employment rate and the unemployment rates – are based on the QLFD series. They represent yearly averages if not stated otherwise. Where the QLFD series does not provide the relevant breakdowns, the original LFS data were used in this report.

For the unemployment related indicators, the main source is the Eurostat **Harmonised series on unemployment**. This is a dataset on unemployment collected by Eurostat and comprising of yearly averages, quarterly and monthly data. It is based on LFS and register data on unemployment from national sources. Monthly data from national surveys or from registers of the public employment services are used to extrapolate the LFS data and to compile monthly unemployment estimates. This data set does not cover skills and long-term unemployment; for that analysis the LFS was used instead.

The **Labour Market Policy** (**LMP**) database aims to collect detailed information on labour market policy actions undertaken by the Member States in a way that is consistent and comparable between different types of measures and between countries. It includes all labour market measures which can be ascribed as public interventions in the labour market aimed at reaching its efficient functioning and to correct disequilibria, and which can be distinguished from other general public employment policy measures in that they act selectively to favour particular groups in the labour market. The database aims to cover information on the whole territory of each country within the European Economic Area. LMPs are generally grouped into either active or passive measures. Active labour market policies aim to increase the likelihood of employment or improve earnings prospects for the unemployed persons/groups who find it difficult to enter the labour market. The main

aim of passive labour market policies is to provide income support to unemployed people or early retirees, without, *a priori*, attempting to directly improve their labour market performance.

Macroeconomic indicators are obtained from the DG Economic and Financial Affairs' **Annual Macroeconomic Database (AMECO)** and are based on ESA 95 national accounts. The database comprises *inter alia* information on GDP, productivity, real unit labour costs and employment growth. The data is collected by Eurostat from the Member States' National Statistical Offices. Besides regular weekly updates this database is revised twice a year in the framework of the Commission's Spring and Autumn Economic Forecasts.

Other data sources:

Furthermore, data from other International Organisations were used where appropriate, in particular the OECD (Organisation for Economic Co-operation and Development) labour market statistics database, the OECD Main Industrial Indicators, and the OECD Social expenditures database.

Definitions and Data Sources of Macroeconomic Indicators

Sources: AMECO and national accounts (ESA 95)

1. Real GDP: gross domestic product (GDP) at 2000 market prices, annual change
2. Occupied population: occupied population, total economy, annual change
3. Labour productivity: GDP at 2000 market prices per person employed, annual change
4. Annual average hours worked, annual change
5. Productivity per hours worked: gross domestic product per hours worked, annual change
6. Harmonised CPI: harmonised consumer price index, annual change
7. Price deflator GDP: price deflator gross domestic product at market prices, annual change
8. Nominal compensation per employee, total economy, annual change
9. Real compensation per employee: deflator gross domestic product, total economy, annual change
10. Real compensation per employee total economy (private consumption deflator), annual change
11. NULC: nominal unit labour costs, total economy, annual change.
12. RULC: real unit labour costs, total economy, annual change

# Definitions and Data Sources of Key Employment Indicators

Sources: QLFD, spring LFS, Eurostat harmonised series on unemployment

1. Total population in 000s (source: Eurostat QLFD)
2. Total Population aged 15-64 (the "working age population") in 000s (source: Eurostat QLFD)
3. Total Employment in 000s (source: Eurostat QLFD)
4. Population in employment aged 15-64 in 000s (source: Eurostat QLFD)
5-8. Employment rate, Employed divided by population in the corresponding age bracket (source: Eurostat QLFD)
9. Full-time equivalent employment rates. The full-time equivalent employment rate is calculated by dividing the full-time equivalent employment by the total population in the 15-64 age-group. Full-time equivalent employment is defined as total hours worked on both main and second job divided by the average annual number of hours worked in full-time jobs (source: spring LFS).
10. Self-employed in total employment, Number of self-employed as the share of total employment (source: Eurostat QLFD)
11. Part-time employment in total employment, Number of part-time employed as a share of total employment (source: Eurostat QLFD)
12. Fixed-term contracts in total employment (total employees), Number of employees with contracts of limited duration as a share of total employees (source: Eurostat QLFD)

13.   Employment in services, Employed in services as a share of total employment (source: Eurostat QLFD)
14.   Employment in industry, Employed in industry as a share of total employment (source: Eurostat QLFD
15.   Employment in agriculture, Employed in agriculture as a share of total employment (source: Eurostat QLFD)
16-19. Activity rate, Labour force (employed and unemployed) as a share of total population in the corresponding age bracket (source: Eurostat QLFD)
20.   Total Unemployment in 000s (source: Eurostat harmonised series on unemployment)
21-22. Unemployment rates, Unemployed as a share of the labour force (employed and unemployed) in the corresponding age bracket (source: Eurostat harmonised series on unemployment)
23.   Long-term unemployment rate, Those unemployed for a duration of 12 months of more as a share of the labour force (source: Eurostat harmonised series on unemployment)
24.   Youth unemployment ratio, Young unemployed (aged 15-24) as a share of total population in the same age bracket (source: Eurostat QLFD)
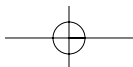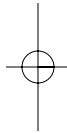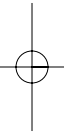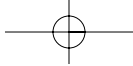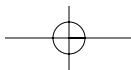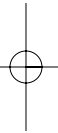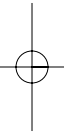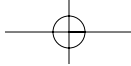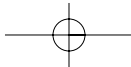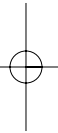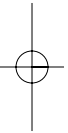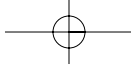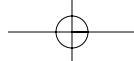
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