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Labour Market and Wage Developments in Europe

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Foreword

«Ensuring fairer and more predictable work contracts is a basis for more resilient economies and societies in the EU. This report shows that the EU labour market continued to improve in 2016 and 2017, with employment surpassing 2008 levels.

However it also stresses that important gaps exist when it comes to employment and income protection between workers with permanent full-time jobs and those in non-standard forms of employment. While the improvements in the labour market are encouraging and reflect the reforms implemented over last years, we need to make sure that the recovery benefits all. The European Pillar of Social Rights is one of the key initiatives launched by the European Commission to ensure that our labour markets are fit for purpose in the 21st century and that economic and social progress goes hand in hand».

Marianne Thyssen
Commissioner for Employment,
Social Affairs, Skills and Labour Mobility

European Commission
Directorate-General for Employment, Social Affairs and Inclusion

Labour Market and Wage Developments in Europe 2017

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Comments on the report would be gratefully received at the following email address: EMPL-A3-UNIT@ec.europa.eu.

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The labour market recovery has strengthened

In 2016 and 2017, the labour market recovery in Europe continued at a rapid pace, with EU employment surpassing pre-crisis levels in 2016 and unemployment rates approaching levels prior to the recession. In August 2017, the unemployment rate reached 7.6% in the EU and 9.1% in the euro area, still above the low points reached before the 2008 crisis. The fall in unemployment continued to be stronger than expected based on the pace of economic growth. All countries benefitted from the economic recovery, as reflected in the lower dispersion of unemployment rates.

Yet, the extent of unused labour resources remains high

In spite of the relatively job-rich economic growth, the extent of unused labour resources remain high in most EU countries, as suggested by broader measures of unemployment that include involuntary part-time and discouraged workers (i.e. individuals who have given up searching because they think that no job is available for them). The analysis in the report suggests that these broad indicators of unused labour resources have reacted less swiftly to the recovery than the headline unemployment rate. The number of discouraged workers continued to increase for more than a year after the start of the recovery, and has fallen only gradually since then. Similar dynamics are observed for the underemployed part-time workers. This suggests that jobseekers' expectations about labour market conditions took time to adjust to the improved employment outlook. Effective and innovative employment policies will have to play a key role in supporting a fast return to work, in particular for those marginally attached to the labour market.

The job-finding chances of unemployed people have strongly improved

In 2016, the rate at which unemployed people managed to find jobs markedly improved in the EU, including for long-term unemployed (job seekers with spells of unemployment longer than 12 months). As a consequence, the long-term unemployment rate dropped to 4% in the EU (5% for the euro area), about 1.5 percentage points above the level reached at the onset of the 2008 crisis (2 percentage points for the euro area). Almost all Member States, including countries most hit by the sovereign debt crisis, recorded improvements in the rate of job finding, partly as a consequence of the labour market reforms implemented. As a result, the share of long-term unemployed in these countries has also declined. The analysis in the report suggests that in many Member States these improvements are due to a more effective process of matching job seekers with available jobs.

The growth in job vacancies accelerated

Since the second quarter of 2016, the growth in the number of vacancies has accelerated in the EU, while the fall in unemployment continued at an unchanged pace. This could be a warning sign that unemployment is getting closer to its structural level (i.e. the level of unemployment that remains also in good economic times), at least in some countries. To prevent joblessness becoming entrenched, activation, training and job-search assistance measures need to be adequate to cope with a still high number of long-term unemployed and accompanied by measures that encourage job creation.

Participation in the labour market keeps rising

In the first quarter of 2017, labour market participation rates in the EU and the euro area reached 73%, about 3 and 2 percentage points respectively above their pre-crisis levels. This reflects a longer-term trend of rising participation of women and older workers, which nonetheless is still low in several Member States. During the crisis period, the increased activity of family members willing to contribute to household income in a situation of

increased uncertainty has contributed to the overall rise in the labour supply.

Wage growth remains modest overall…

In 2016, wages in the euro area rose by 1.2%, essentially the same rate as in the previous year; this is well below the rate implied by the pre-crisis relationship between wage growth and unemployment. The analysis in the report suggests that wage growth is held back by a number of factors including relatively low productivity growth (despite recent improvements), weak inflation expectations and remaining labour reserves. Although inflation is likely to pick up as the recovery gains strength, the findings point to the risk that low inflation expectations could become self-fulfilling if they have a strong influence on wage negotiations. With low wage growth, a slowdown in inflation makes the absorption of the unemployed more difficult.

… but there are differences across the EU, with faster wage growth in some Eastern European Member States

In 2016, wages increased in almost all Member States, including in countries such as Greece and Portugal where they declined in the previous years. Wage growth was highest (above 5%) in the Baltic States, Hungary and Romania, Member States with comparatively low wage levels, pointing to cross-country convergence. Yet in a number of Member States wage growth has remained modest even as the recovery gained strength. In 2016, the increase in euro area wages adjusted for consumer price inflation was stronger than in 2015. At the country level, recent developments in real wages were in line with productivity growth in most Member States, except for the Baltic States, Bulgaria and Slovakia (where wage growth was faster than productivity growth) as well as Croatia, Malta and Portugal (where wage growth was slower).

The unwinding of euro-area imbalances continued

Developments in 2016 were overall consistent with the unwinding of euro-area imbalances accumulated before 2008; nominal unit labour costs have continued to grow faster in countries that had recorded current account surpluses before the crisis than in countries previously characterised by current account deficits. Moreover, the economic rebalancing of the second group has entailed a shift in employment from non-tradable to tradable sectors.

Non-standard employment has strongly increased in the last decades

In the last decades, labour markets have been characterized by a significant increase in non-standard work arrangements, both in terms of expansion of traditional forms of atypical employment and of a proliferation of new working arrangements. More flexible working arrangements respond to firms' needs to adjust their workforce in response to changes in economic conditions. For many individuals, they represent an opportunity to develop new skills and find a better work-life balance. Yet, atypical forms of employment may lead to segmented labour markets, i.e. a persistent divide between workers holding different types of contracts, with negative implications both in terms of economic efficiency and equity. Segmented labour markets exhibit weak investments in human capital, low productivity growth, and low pay. At the level of the macro-economy, less stable employment makes income and consumption more volatile, reducing the stabilisation capacity of the economy during recessions.

A special chapter investigates causes of labour market segmentation

This report includes an analytical chapter on the structural and institutional determinants of labour market segmentation, focussing in particular on temporary employment and "solo self-employment" (i.e. self-employment without employees), a category where bogus dependent employment is likely to be found. In segmented labour markets there is a dichotomy between more protected, high-wage jobs and less protected low-wage jobs. In general, there are barriers which prevent workers in less protected jobs from obtaining better ones and have their human capital rewarded. These barriers may arise from structural features if an economy is specialised in sectors where labour demand is more volatile and characterised by weak long-term commitments between employers and employees. But differences in regulation across different types of contracts also contribute to labour market segmentation.

Structural factors have a strong impact on the likelihood of temporary contracts…

Being less educated, working part-time and being employed in agriculture, construction or services increases the likelihood of temporary employment and solo self-employment. While people in fixed-term contracts are predominantly young, the likelihood of being a self-employed without employees rises with age.

…but also institutional factors play a role

Strict employment protection legislation on open-ended contracts increases the chance that an individual works on a temporary contract, in particular for new labour market entrants, highly educated individuals or people working in market services. The effect of collective bargaining coverage is ambiguous and depends, among other things, on how inclusive unions are. The analysis suggests that an increase in collective bargaining coverage from low levels may lead to stronger protection of those in open-ended employment at the expense of those in temporary employment. In this case, the likelihood of temporary employment may increase. At high levels of coverage, unions are more likely to be concerned about the job security and quality of temporary as well as permanent workers. A high gap between the social security contributions of permanent employees and self-employed is positively correlated with the share of solo self-employed in total employment, in particular when the enforcement of the rules of law is weak. The analysis also suggests that the probability of becoming solo self-employed is higher when the public administration is less efficient; in contrast, solo self-employment is less predominant in countries where it is easy to start a new business.

Institutions affect the time people spend working for the same employer, even on temporary contracts

The analysis reveals that countries with the longest average job tenure for permanent contracts have also the highest job tenure for temporary contracts, with little transition between both types of contracts, which points to a segmented labour market. Yet, this may also suggest that the employment situation of those in temporary jobs is not as precarious as it is often assumed as employees often manage to have long-term relationships with the same employer and are subject to the same if not stricter protection rules against dismissals. In most countries, the average job tenure increased in the period 2005-2015. Changes in the composition of contracts had a stronger impact on the job tenure of young workers. In particular, in countries where there was a steep decline in job duration for young workers, this was mainly driven by an increase in the share of temporary contracts.

Workers on temporary contracts earn lower wages

In almost all Member States, wages of temporary workers are lower than those of permanent workers, even after controlling for individual and job characteristics that account for the productivity of individual workers. The wage penalty − i.e. the wage gap between workers with temporary and permanent contracts − is the highest in Poland and Luxembourg where, controlling for personal and job characteristics, permanent employees earn on average respectively 19% and 17% more than temporary employees. In contrast, it is negligible in Bulgaria, Estonia, Romania and Latvia. In general, the wage penalty is found to be high in countries where the share of temporary contracts is high, which suggests rationing of permanent work. In these countries, workers search open-ended positions but employers restrain their demand on the basis of the cost advantage that hiring a temporary employee may provide. Moreover, the wage penalty for temporary workers increases with the level of education, which means that the wage gap between permanent and temporary workers is higher at high than at low levels of education.

Reforms lessened inequality in most countries since 2008

As a consequence of the crisis, income inequality increased in slightly more than half of the EU countries between 2008 and 2015. However, the overall effect of tax and benefit reforms during the same period worked in the opposite direction, to reduce inequality, in most countries including those most affected by the financial crisis.

The focus of structural reforms is gradually shifting from adjustment measures to improving the resilience of European economies and societies at large

After having been largely driven by the need to respond to the challenges posed or amplified by the crisis, reform activity recently turned to responding to longer-term structural challenges: the emergence of new forms of work, the need to ensure an effective social protection coverage for a more diverse workforce and society, as well as the need to adapt labour market and social policy settings so as to build resilient economic and social structures. Reforms observed in the Member States since 2016 fit in this trend, with measures aimed at reinforcing the welfare systems, strengthening wage setting frameworks, modernising working time legislation and enhancing the labour market integration of immigrant and mobile workers. Moreover, active labour market policies have continued to be at the forefront of policy making, with particular attention to developing the skills of a more adaptable and mobile workforce.

The reform momentum needs to be maintained

Looking forward, maintaining the momentum for structural reforms requires broad social support. In this regard, an effective social dialogue is a key element for the development, ownership and implementation of a credible economic reform agenda. The experience of the crisis, which temporarily halted the previous trend of socio-economic convergence in the EU, also highlighted the need for improved policy coordination in the economic and social spheres, with a view to ensuring comparable levels of efficiency and effectiveness in national policy settings across Europe. This is particularly relevant for the euro area.

At the EU level, the European Pillar of Social Rights aims to serve as a reference framework for national reforms

The proposal for a European Pillar of Social Rights, adopted by the Commission in April 2017, provides a first response to these challenges especially when it comes to ensuring secure and flexible employment and fair wages for a more diverse workforce. Its encompassing principles are intended to serve as a reference framework for the conduct of employment and social policies at national level, helping to guide reform priorities looking forward. To support this process, the Commission intends to use the European Semester as the main vehicle for its implementation. In this context, it has started developing benchmarks and plans to monitor progress on the ground through a new Social Scoreboard.

Part I

Labour market and wage developments

1. GENERAL LABOUR MARKET CONDITIONS IN THE EURO AREA AND THE EU

The improvement in labour market conditions continued throughout 2016 and the beginning of 2017 in both the EU and the euro area, with a steady reduction in unemployment. Employment growth picked up spurred by an increase in domestic demand; at the same time, the average number of hours worked remained below the pre-crisis average but consistent with its downward trend.

Wage growth has remained modest even as the recovery gained strength. This can be explained by low inflationary pressures, also affecting expectations, low productivity growth, as well as reserves in the labour market including discouraged and underemployed part-time workers.

Both a decline in the job-separation rates (job losses) and an increase in the job-finding rates contributed to the observed reduction in unemployment. As the labour market recovery strengthened, improvements in job-finding chances extended also to the long-term unemployed. As a consequence, long-term unemployment also decreased.

1.1. INTRODUCTION

The EU labour market recovery continued in 2016 spurred by the dynamism of domestic demand, strong consumer and business confidence and favourable macroeconomic policies. By the first half of 2017, EU employment had surpassed its pre-crisis peak (nearly so for the euro area). The unemployment rate continued to fall. While it remained above levels seen before 2008, increases caused by the sovereign debt crisis in 2011 have been more than compensated. Job separation rates continued to fall while job finding rates continued to improve, shortening the duration of unemployment. Despite the recovery in labour demand, wage growth remained moderate throughout 2016.

Against this background, this chapter analyses the main features of the current labour market adjustment by looking at aggregate developments in the EU and the euro area. It compares the EU labour market performance with that of other developed economies and assesses the role of cyclical and structural factors in unemployment dynamics, labour market flows, and the role played by relevant variables including employment, participation, working hours and labour costs.

The analysis digs deeper into a number of issues, including various measures of idle labour resources ("labour market slack") beyond the unemployment rate, as well as the role of average working hours in the cyclical adjustment of the euro-area labour market. In light of the subdued wage dynamics during the recovery, this chapter includes a focus on the relationship between wage growth and broader measures of labour market slack.

The remainder of the chapter is organised as follows. Section 1.2 describes the recent labour market developments in the EU and the main industrialised countries, section 1.3 analyses the trends in employment, activity rates and hours worked, and section 1.4 reviews the latest trends in wages and labour costs. Section 1.5 focuses on aggregate movements in and out of unemployment ("labour market flows"), as well as long-term unemployment and job matching. Section 1.6 concludes.

1.2. SETTING THE SCENE: THE EU LABOUR MARKET IN AN INTERNATIONAL PERSPECTIVE

1.2.1. Recent EU-level developments

The economic recovery further consolidated and the job market continued to improve in 2016 and the first half of 2017. Economic growth was driven by domestic demand, in particular by robust consumption growth. Unemployment in the EU fell by more than 2 million people in the year to the second quarter of 2017, while employment increased by 3.2 million. Since the start of the recovery in the first quarter of 2013, there are about 7.5 million fewer people in unemployment (seasonally adjusted data). Overall unemployment fell below 20 million for the first time since 2009. In the same period, EU employment increased by

Table I.1.1: **Unemployment, compensation per employee and GDP growth in the euro area and EU**

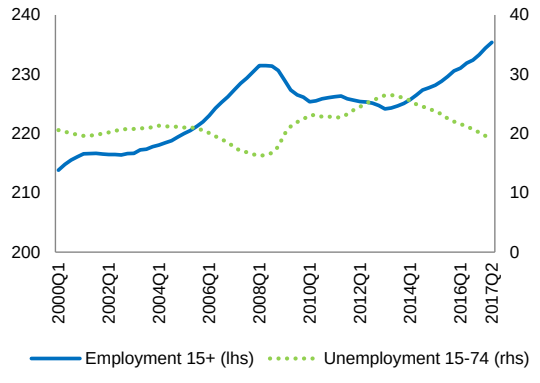
					Quarter over same quarter of previous year, % (1)						Quarter over previous quarter, % (1)					
		2014	2015	2016	2016Q1	2016Q2	2016Q3	2016Q4	2017Q1	2017Q2	2016Q1	2016Q2	2016Q3	2016Q4	2017Q1	2017Q2
Unemployment rate	EA	11.6	10.9	10.0	-0.9	-0.8	-0.8	-0.8	-0.8	-1.0	-0.2	-0.1	-0.3	-0.2	-0.2	-0.3
	EU28	10.2	9.4	8.5	-0.9	-0.9	-0.8	-0.8	-0.8	-1.0	-0.2	-0.1	-0.2	-0.3	-0.2	-0.3
Unemployment growth	EA	-3.1	-6.4	-7.0	-7.5	-7.1	-6.4	-6.8	-7.5	-9.5	-1.7	-1.0	-2.4	-2.0	-2.4	-3.1
	EU28	-5.7	-7.8	-8.6	-8.8	-8.9	-8.1	-8.4	-9.1	-10.6	-2.0	-1.7	-2.5	-2.4	-2.8	-3.2
Growth of nominal compensation per employee	EA	1.3	1.1	1.3	1.2	1.0	1.2	1.4	1.4	1.6	0.3	0.2	0.4	0.5	0.3	0.3
	EU28	1.8	3.0	-0.5	0.7	-0.3	-1.4	-1.5	0.0	0.2	-0.8	0.1	-0.8	0.0	0.7	0.3
GDP growth	EA	1.3	2.0	1.8	1.7	1.7	1.7	1.9	1.9	2.2	0.5	0.3	0.4	0.6	0.5	0.6
	EU28	1.7	2.2	1.9	1.8	1.8	1.8	2.0	2.1	2.3	0.4	0.4	0.4	0.7	0.5	0.6
Employment growth	EA	0.7	1.0	1.4	1.4	1.4	1.4	1.4	1.6	1.6	0.3	0.4	0.3	0.4	0.5	0.4
	EU28	1.1	1.1	1.3	1.3	1.3	1.2	1.2	1.5	1.5	0.2	0.4	0.2	0.4	0.5	0.4

(1) Seasonally adjusted data.
(2) In the case of the unemployment rate, the table presents changes in percentage points, rather than percent.
Source: Eurostat.

10 million people to reach 235 million, surpassing its pre-crisis peak in 2016 (Graph I.1.1).

As a consequence, the unemployment rate declined to an average of 8.5% in the EU and 10.0% in the euro area in 2016 (Table I.1.1), and further to 7.6% in the EU and 9.1% in the euro area by August 2017. The latest figures represent an improvement of about 3 percentage points compared to the highest levels reached in 2013, but they are still above the pre-crisis lows (about 7% for the EU and 7½ % for the euro area), and much above the levels that could be considered as full employment.

Graph I.1.1: **Employment and unemployment in the EU, million persons, 2001-2017, quarterly data**



(1) Employment is from National Accounts, domestic concept, ages 15 and over, seasonally adjusted.
(2) Unemployment is from the Labour Force Survey, ages 15-74, seasonally adjusted.
Source: Eurostat.

The rate of improvement in employment and unemployment slightly increased in 2015 and 2016 and has remained steady since then. Annual employment growth in the euro area accelerated from 0.7% in 2014 to 1.4% in 2016 and has hovered between 1.4% and 1.6% in the latest available quarters (Table I.1.1). For the EU aggregate, the acceleration is milder (from 1.1% in 2014 to 1.3% in 2016) but is still perceptible.

Activity rates in the EU have been trending upwards and were resilient to the 2008 and 2011 crises. In 2016, the increase in labour market participation (by 0.4 percentage point both for the EU and the euro area) tempered the impact of employment growth on the fall of unemployment.

It has been observed that the fall in unemployment since 2013 has been faster than expected based on the pace of economic growth. ([1]) While the recovery has been comparatively job-rich, labour reserves are larger than suggested by headline unemployment figures. The magnitude of unused labour resources (or labour market slack) is understated by the headline unemployment rate. In 2016, part-time workers wanting and ready to work more amounted to 3.9% of the active population in the EU (4.3% in the euro area). Almost as many people were available to work but not seeking a job (3.6% in the EU and 4.1% in the euro area), while a smaller group of people was seeking work but not immediately available (0.9% and 1%, respectively). ([2]) While the proportion of these groups, with varying degrees of attachment to the labour market, has slightly decreased since 2013, it is still well above pre-crisis levels.

([1]) See, e.g., European Commission (2016a). For an updated country-by-country analysis, see pp. 23-35 below.
([2]) All figures refer to the age group between 15 and 74 years.

Box I.1.1: Measuring labour market slack

The unemployment rate is the most common measure of "labour market slack", defined as the underutilisation of labour resources in the formal sector. The ILO definition of unemployment (which is the one adopted by Eurostat) covers people who are out of work, have actively sought work in the previous four weeks and are available to start work within two weeks; and those who are out of work, but have already accepted a job that they are to start within the next two weeks. While this definition has many advantages, it makes a rigid distinction between employment and unemployment. For example, it does not account for temporal features of the working activity (the duration of the contract and the actual working time) and for the fact that job search might be influenced by economic circumstances. Considering the multiple grey areas connecting different work statuses may complement our knowledge of the underutilisation of labour.

In the US, the Bureau of Labour Statistics publishes, on a monthly basis, a set of measures of underutilisation of labour. Starting from the official unemployment rate (the U-3 indicator), broader indicators are obtained by extending the concept of unemployment to incorporate selected inactive groups. The U-4 unemployment rate adds discouraged workers, i.e. persons available to work but not seeking because they felt that no suitable job was available; the U-5 unemployment rate, adding to U-4 all other persons "marginally attached" to the labour force; ([1]) and the U-6 unemployment rate, which also includes those who are working part time for economic reasons. ([2]) Since 2011, Eurostat publishes information on the "potential additional labour force", including *underemployed part-time workers* (who would like to work additional hours and are available to do so), as well as *persons available to work but not seeking* (a broader group than the US definition of "discouraged workers"), and *persons seeking work but not immediately available* (De la Fuente, 2011).

In 2016, there were 8.8 million persons in the EU available to work but not seeking a job (6.7 million in the euro area), and 2.3 million persons (1.6 million in the euro area) looking for a job but not immediately available. Underemployed part-time workers accounted for an additional 9.5 more million persons (7.0 million in the euro area). This implies that a broad measure (LS4) of the level of labour slack in the EU (euro area) would amount to 41.6 million persons (31.5) in 2016, well above 2008 levels of 34.4 (24.5), and accounting for 16.3% (18.5%) of an extended definition of the labour force. This is equivalent to almost twice the unemployment rate (8.5% in the EU and 10% in the euro area).

The left panel of Graph 1 shows that, while broader indicators of labour market slack cover much more people than just the unemployed, various measures of labour market slack are almost perfectly correlated. The graph shows the developments of four indicators in the EU and the euro area over the period 2008-2016. The lowest lines represent the narrowest indicator of labour slack (LS1), corresponding to a modified unemployment rate. ([3]) The second narrowest indicator (LS2) adds to the unemployed those available to work but not seeking (which included discouraged workers); LS3 further adds those seeking work but not immediately available; the top lines represent the broadest indicator of labour market slack (LS4), including all previous groups and underemployed part-timers. All rates are relative to an extended definition of labour force that includes those seeking but not available and *vice versa*.

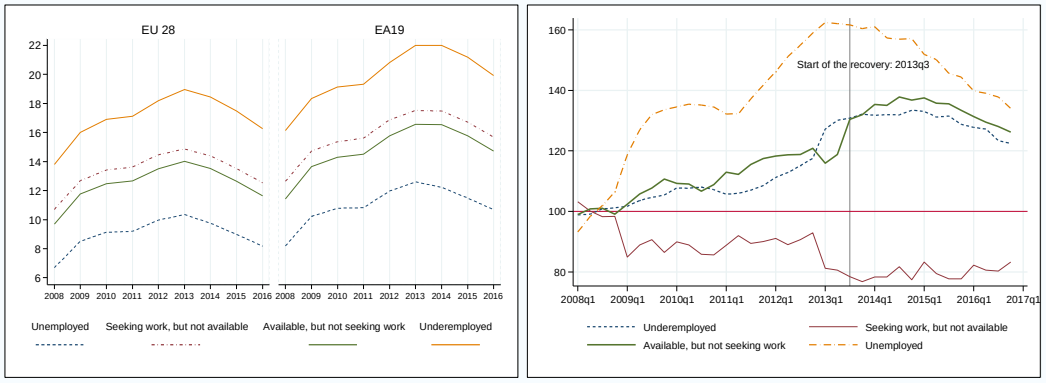
The right panel of Graph 1 shows that the unemployment rate reacts more quickly to the evolution of the business cycle and is less persistent than other components of labour market slack. In particular, the graph shows developments in the number of persons belonging to each of the four labour market groups separately in the euro area (expressed as index numbers, where the level in 2008 is set as 100). The number of workers available but not looking for a job continued to increase for more than a year after the start of the recovery in 2013. This suggests that jobseekers' expectations about labour market conditions took time to adjust to the improved employment outlook. A similar dynamics is observed for the underemployed part-time workers.

([1]) This is defined as those "who currently are neither working nor looking for work but indicate that they want and are available for a job and have looked for work sometime in the past 12 months".
([2]) Hornstein, Kudlyak and Lange (2014) developed a non-employment index (NEI) for the US which takes into account all of these groups weighted by their different degrees of labour-market attachment. This indicator is computed for selected European countries in Box I.2.1 of chapter 2.
([3]) It is expressed as a share of the *extended* labour force, including those seeking but not available and *vice versa*.

(Continued on the next page)

Box (continued)

Graph 1: Labour slack indexes and unemployment, potentially attached labour forces, underemployment for the euro area, 2008q1-2016q4



Notes: All components are expressed as percentage of the extended labour force. The right hand chart shows the quarterly values of the index (average 2008 =100) computed on seasonally adjusted levels.

Source: European Commission.

Graph 2 displays information of the degree of dispersion in labour market conditions in the euro area according to two different measures of labour underutilisation, namely the modified unemployment rate (LS1) and the broadest measure of labour market slack (LS4). The boxes represent the "middle half" of the countries according to the slack measures; the horizontal mark inside the box represents the median (i.e. the country in the middle). The dots represent outliers. ([4]) A few conclusions can be drawn. First, cross-country divergences in labour utilisation are larger for the broader measure of labour underutilisation, which suggests that discouraged workers and involuntary part timers are a significant part of the population in some countries, which may have structural reasons. Secondly, the drop in unemployment at the start of the recovery in the second half of 2013 was broad-based, resulting in an immediate fall in the dispersion in the unemployment rate, and labour market slack, across the euro area. During the crisis, this dispersion had reached historically high levels. The process of falling dispersion in unemployment and labour market slack has gradually continued in the euro area since 2014.

Graph 2: Distribution of unemployment and labour slack indexes for euro area Member States, 2008-2016

***Source*:** European Commission based on Eurostat, Labour Force Survey.

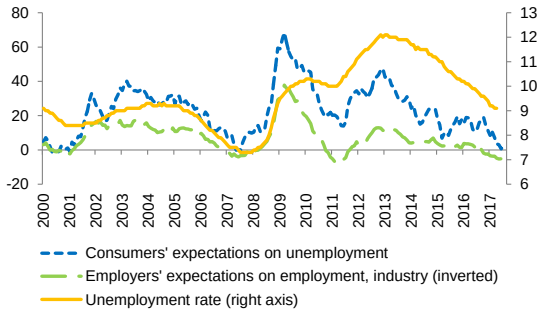
([4]) Outliers are those countries that fall further from the box than 1.5 times the interquartile range (the range between the 1st and 3rd quartile). The upper and lower whiskers around the boxes show the highest and lowest values falling within this range.

Box I.1.1 presents indicators of labour market slack that take these groups into account. Over the crisis and recovery, the dynamics of these broader indicators is very similar to that of the unemployment rate. At the same time, broader indicators magnify differences across countries, suggesting that discouraged workers (i.e., those who stopped looking for a job because of the weak economic environment) and underemployed part-timers are a significant part of the population in some countries.

Wage growth remained subdued despite continued improvements in the labour market. In the low-inflation environment of 2015 and 2016, nominal wages grew in the euro area by slightly more than 1%, while real wages (i.e., nominal wages adjusted for consumer prices) inched up by slightly less than 1% in both years. The modest wage dynamics can be explained by weak productivity developments, low inflation expectations and the remaining slack in the labour market.

Household and business sentiment about labour market prospects continued to improve (Graph I.1.2), possibly on account of consumption growth and favourable household income developments supported by persistently low oil prices.

Graph I.1.2: **Unemployment expectations for the coming 12 months, 2000-2017**

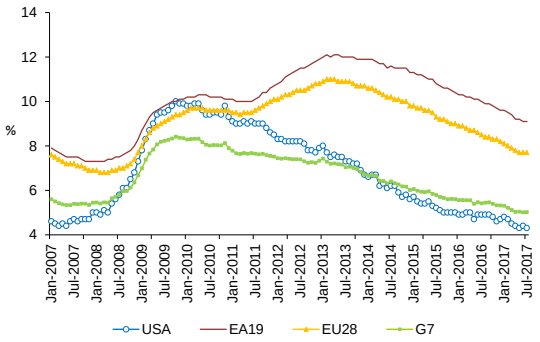


Source: European Commission, Business and Consumer Surveys; Eurostat.

1.2.2. Recent labour market developments in major world regions

Similarly to the EU, unemployment continued to decline in the other main industrialised countries in 2016 despite moderate economic growth and weak demand stemming from the US (Graph I.1.3 and Table I.1.2). In contrast to the EU, the unemployment rate in the US and other advanced countries is approaching historically low levels, even though other measures of the labour market (e.g., low activity rate in the US, moderate wage growth across the board) suggest that the recovery is still incomplete.

Graph I.1.3: **Unemployment rates in the EU the US and the 'Group of seven' advanced economies, 2000-2017, monthly data**



Source: OECD.

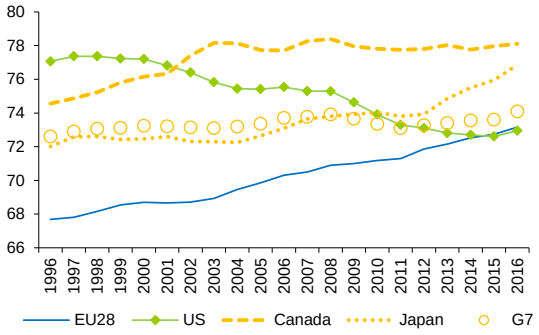
Labour market conditions continued to improve in the US. Over the year to August 2017, employment expanded by 1.7 million (increase of 1.1%, a lower rate than one year earlier) to 153.4 million people. The unemployment rate declined to 4.4%, down from 4.9% a year earlier. The average duration of unemployment continued to fall below 25 weeks, after peaking at nearly 41 weeks in July 2011. The employment rate (employment-to-population ratio) has been edging up to 59.7% in 2016 and 60% in the first half of 2017. While this represents a recovery from the low point in 2011 (58.4%), it is still well below the 63% peak reached in 2007. ([3]) Meanwhile the activity rate, on a negative trend since 2000 (from 67.1% that year), has stabilized around 2014 (62.8% in 2016). Given demographic developments and the fact that the declining trend predated the crisis, the reversal of this trend is not likely in the near future. ([4]) Furthermore, this trend in the US is in contrast to the one of increasing activity rates in the EU, resulting in a convergence between both regions (Graph I.1.4). The decline in the US activity rate also suggests that the fall in unemployment might

([3]) This headline US indicator refers to age group 16 and above.

([4]) Part of the decline in participation is due to aging but declines were also recorded for those aged 25-54 and linked to longer time spent in education (Frazis, 2017).

be overstating the health of the US labour market. At the same time, similarly to the official unemployment rate, all other complementary measures of labour underutilisation continued to decline over the year, contributing to closing the gap with their pre-recession values.

Graph I.1.4: **The activity rate in the EU and selected advanced economies, 1996-2016**



(1) The activity rate is the ratio of active to total population. Active population includes those employed and unemployed, but excludes those inactive (e.g. not seeking work).
(2) Age group: 15-64.
Source: OECD.

Canada is experiencing robust private consumption growth, also backed by the positive expectations related to the implementation of a family package adopted in July 2016. ([5]) The stronger US economy and the concurrent US dollar appreciation are also factors contributing to the accelerating rate of activity. Given a moderate expansionary policy, prompted by a short-term stimulus in infrastructure and social housing and favourable monetary conditions, the growth in exports and in the now almost over-heating housing market (with the highest house price-to-rent ratio within OECD countries) have been fostering the expansion of employment, now having reached 18 million. On average, the unemployment rate remained nearly unchanged at 7% in 2016.

([5]) The family package includes contribution to costs for registered care such as long, family or occasional day care, outside school hour care, vacation care, pre-school and kindergarten. A new Child Care Subsidy (supporting families using approved child care and participating in work, study, training) and the Child Care Safety Net (providing targeted support to vulnerable families through specific measures that facilitate access to quality early learning for children who need it most), will take effect from July 2018.

In Japan, an accelerating output growth (at an average of 1.2% in the last four years), projected to continue also for 2017, is making increasing labour shortages more evident (OECD, 2017). The unemployment rate fell to 2.8% in July 2017, the lowest level since June 1994. Expansionary monetary and fiscal policies since 2013 seem to have succeeded in breaking the long-standing deflationary cycle, but productivity growth remains weak and labour market challenges considerable. Non-regular workers in 2016 topped 20 million (37.5% of the total). They are a heterogeneous group including part-time (17%), temporary workers (7%), contract employees (5%) and dispatched workers (2%).

Large emerging economies are increasingly important determinants of global economic demand. The Indian economy grew at a rate of 7.5% in both 2015 and 2016, with the unemployment rate at 8.4% and 9.5% in 2015 and 2016, respectively (Table I.1.2). China, in the midst of a structural rebalancing process, grew at a rate just below 7% in both 2015 and 2016, a fast pace compared to advanced countries but significantly slower than in the pre-crisis period. Meanwhile, the unemployment rate in China remained stable at 4.1%. Recovering commodity prices should benefit the economies of Russia, where growth turned positive in the fourth quarter of 2016, and Brazil, which is slowly recovering from a recession, but where the unemployment rate further increased to above 11% in 2016.

Table I.1.2: **GDP growth and unemployment in selected economies**

	GDP growth %			Unemployment rate %		
	2000-2007	2015	2016	2000-2007	2015	2016
EA	2.2	2.0	1.8	8.6	10.9	10.0
EU	2.5	2.2	1.9	8.7	9.4	8.6
CAN	2.8	0.9	1.4	7.0	6.9	7.0
JPN	1.5	1.1	1.0	4.7	3.4	3.1
USA	2.7	2.6	1.6	5.0	5.3	4.9
OECD	2.5	2.3	1.7	6.5	6.8	6.3
BRIC:	8.1	4.2	5.1	:	:	:
BRA	*3.6*	*-3.8*	*-3.6*	*11.1*	*8.3*	*11.3*
RUS	*7.2*	*-2.8*	*-0.2*	*8.1*	*5.6*	*5.5*
IND	*7.2*	*7.5*	*7.5*	*:*	*8.4*	*9.5*
CHN	*10.6*	*6.9*	*6.7*	*3.9*	*4.1*	*4.1*

Source: Eurostat and OECD.

In 2016, moderate growth of real wages prevailed in several advanced economies, with the highest growth being observed in the US (about 1%, see

Graph I.1.5). ([6]) While in Canada real wages appear to follow productivity growth with a lag of one year, real wage gains in the US were accompanied by a deceleration of productivity.

Graph I.1.5: **Real wages and productivity growth in the euro area and selected advanced economies, 2015-2016**

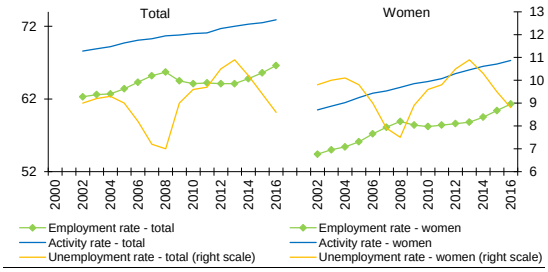
Note: Real wages in this graph are wages adjusted for the change of prices in economic output (the GDP deflator). This indicator is also referred to as the annual growth of "real product wages".
Source: DG ECFIN AMECO database.

The evolution of US nominal wages has been moderate in recent years. Between 2011 and 2014, average hourly wages grew at an annual rate slightly below 2%. Wage growth accelerated in 2014 and 2015 and has been around 2.5% since the beginning of 2016. With subdued wage growth and still sizeable labour market slack, the US labour market recovery remains incomplete. ([7])

1.3. EMPLOYMENT, ACTIVITY RATES, HOURS WORKED

Similarly to the level of employment, the EU employment rate has also surpassed its pre-crisis peak, increasing by a full percentage point to 66.6% for the age group 15-64 in 2016 (Graph I.1.6). In the euro area, the employment rate (65.6% in 2016) had yet to reach its 2008 level. Meanwhile, the activity rate reached historic highs near 73% both in the EU and the euro area after an increase of 0.4 percentage point in both regions. Recent increases in the activity rate have been almost entirely driven by women, whose activity rate increased by 2½ percentage points since 2011 and 4½ percentage points since 2006 (Graph I.1.6).

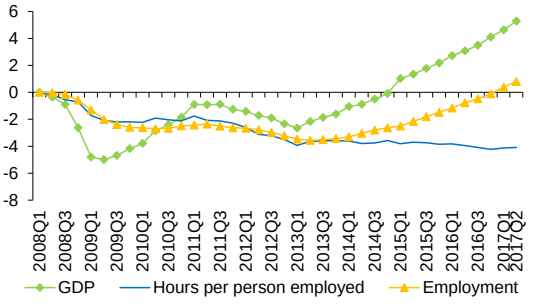
Graph I.1.6: **Employment, unemployment and activity rates, EU28, 2000-2016**



(1) Age group: 15-64 years old
Source: Eurostat, Labour Force Survey.

Although employment in the EU has returned to its pre-crisis level (and nearly so in the euro area), total hours worked remain below the level reached before the crisis. Since the start of the recovery, the pick-up in total hours worked has been reflecting an increase in employment while hours worked per person employed remained about 3% below the pre-crisis level in the EU and about 4% in the euro area (Graph I.1.7 shows the cumulative changes for the euro area).

Graph I.1.7: **Cumulative change in GDP, employment and average hours worked per person, euro area, 2008-2017, quarterly data**



Source: Eurostat, National Accounts.

Increases in part-time work and, to a smaller extent, reductions in the hours of full-time workers

([6]) Real wages are wages adjusted for inflation. These calculations adjust wage growth by the change in the price of economic output, rather than consumption. This concept, also called "real product wages" is the one more relevant for determining the labour demand by firms.

([7]) Other factors explaining subdued wage growth recently include the delayed reduction of the long-term unemployed, which slows down the drop of structural unemployment and the increase of wage inflation (Gordon, 2013, Krueger et al 2014 and Watson, 2014); changes in the composition of the workforce, in favour of new hires and the low-skilled workers, both groups being hired at lower entry wages (Daly and Hobijn, 2016).

have contributed to lower the average number of usual weekly hours of employees. Since 2008, the share of part-time workers (age group 15-64) has increased by almost 3 percentage points to 21.6% in the euro area. It increased by 2 percentage points to 19.5% in the EU. ([8]) Meanwhile, average usual working hours of full-time workers decreased by 0.3 percentage point in the EU and 0.4 in the euro area. This suggests more than three-quarters of the decrease in average usual working hours since 2008 can be traced to a shift in the composition of employment towards part-time work. ([9])

The trend of both falling average hours and increasing part-time employment has halted in 2016. Actual hours reported by employees have, for the first time since 2010, inched up by 0.1 hour to 36 hours, driven by increases reported by part-time workers.

Box I.1.2 provides a deeper analysis of the falling trend in hours worked in the euro area and its macroeconomic effects. The analysis suggests that after 2008 employers were able to adjust working hours more flexibly as a response to economic shocks than in the previous decade, allowing employment to fluctuate less. This is at least in part due to reforms enacted after the crisis, introducing or facilitating the use of short-time work schemes. However, the downward trend in average hours worked which predates the crisis reflects structural changes – such as the rise of services and the diffusion of flexible working arrangements, so that a reversal of this trend seems unlikely ([10]).

([8]) During the same period the share of those reporting that the main reason for working part-time is the lack of a full-time job increased from about 25.5% (for both the EU and the euro area) to almost 28% in the EU and 30.4% for the euro area.

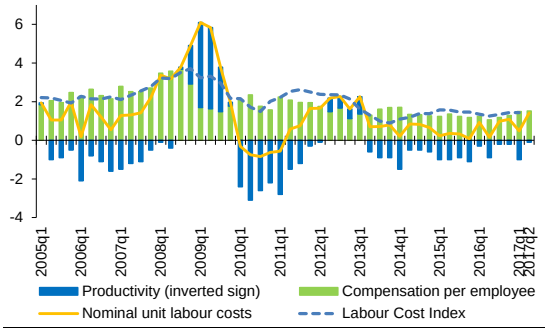
([9]) Note that the decrease in average usual working hours of employees (based on the Labour Force Survey) is smaller than the decrease of average hours worked per persons employed (National Accounts), as discussed above and shown in the previous graph.

([10]) For more analysis on flexible working arrangements, see Chapter II.1 below.

1.4. WAGES AND LABOUR COSTS

The response of wages to the labour market recovery has been moderate. In 2016, nominal wage growth in the euro area remained modest, hovering between 1% and 1.5% (both compensation per employee and hourly wages). Modest wage growth, coupled with a slight slowdown in productivity growth, translated into a moderate pick-up in the dynamics of unit labour costs at euro-area level, with an annual growth rate of slightly below 1% in 2016 (Graph I.1.8).

Graph I.1.8: **Compensation per employee and unit labour costs in the euro area, annualised growth rates, 2006-2017**



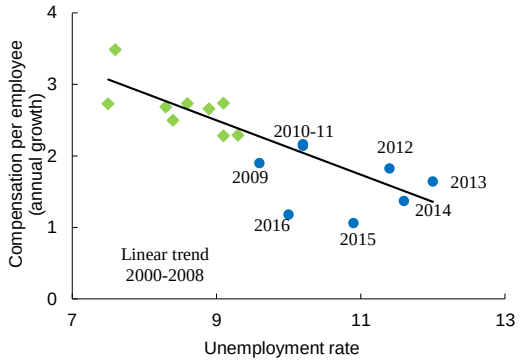
Source: Commission Services.

Negotiated wages confirm that wage pressures have not materialised in the euro area: the yearly percentage change in the first quarter of 2017 was 1.5%, down about half a percentage point from its pace at the early stage of the recovery.

In 2015 and 2016, wage growth remained well below the rate expected on the basis of the pre-crisis relationship between wages and unemployment. Graph I.1.9 depicts the euro-area Phillips curve, the usually negative relationship between wage growth and unemployment. The fact that the observations for 2015 and 2016 are well below the fitted line means that wage growth in these years was about 1 percentage point lower than expected based on the pre-crisis relationship between wage growth and unemployment. ([11])

([11]) For a country-by-country analysis of the relationship between wages and unemployment, see Chapter I.2 below.

Graph I.1.9: **Phillips curve for the euro area: growth rate of compensation per employee, 2000-2016**



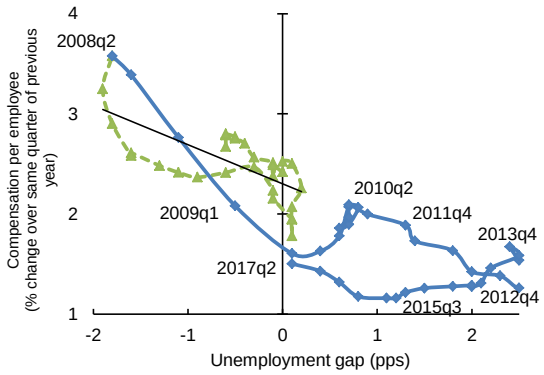
Source: DG ECFIN AMECO database and Eurostat, LFS

Since the start of the crisis, the Phillips curve has also become flatter than previously, implying a lower than usual reaction of wages to changes in unemployment. This is suggested by Graph I.1.10, which depicts a version of the euro-area Phillips curve based on higher-frequency data, plotting wage growth against the so-called unemployment gap, the difference between the actual unemployment rate and its trend. ([12]) A similar pattern is observed for the negotiated wages.

One explanation for the persistent low wage growth since the current recovery is that the current unemployment rate may not adequately capture the effective state of resource utilisation in the labour market. In addition to those effectively looking for a job (i.e. the unemployed), discouraged workers and underemployed part-time workers may exert additional downward pressures on wages (for more details on various indicators of labour market slack, see Box I.1.1). In addition, the decline in inflation expectations and the productivity slowdown may also affect wage negotiations, keeping wage growth down.

The relationship between labour market slack and wage growth can be analysed with a Phillips curve controlling for past and expected consumer prices inflation (Galí, 2011). The relevance of different measures of labour market slack is assessed by extending the conventional unemployment rate to include other groups that are marginally attached to the labour market. To account for shifts in the wage growth-unemployment link due to changes in trend productivity growth, the conventional Phillips curve is augmented with a measure of trend productivity growth (the growth of total factor productivity or TFP). ([13])

Graph I.1.10: **Phillips curve for the euro area: growth rate of nominal compensation per employee, 2000-2016, quarterly data**



(1) The unemployment gap is defined as the difference between the actual unemployment rate and the NAWRU, as estimated by the European Commission.
(2) The regression line is fitted to pre-crisis data. For compensation per employee moving average.
Source: DG ECFIN AMECO database and Eurostat, LFS.

Results for a panel of euro area countries are shown in Table I.1.3. An additional Table in Annex looks at the difference between the period of recession (2008-2012) and the subsequent recovery (2013-2016). Four main conclusions can be drawn.

First, the analysis confirms that wages react less to changes in unemployment in the post-crisis period, even after controlling for a number of additional factors. In the period 2000-2007, a one-percentage point drop in unemployment leads, with unchanged structural unemployment, to an increase in wage growth by about 0.7%; in the post-crisis period, the same change in unemployment leads to a smaller change of wages (0.5%). Yet, since the start of the recovery in 2013, wages are slightly more reactive to unemployment. ([14]) The protracted labour market

([12]) The trend of unemployment is defined as the NAWRU, the non-accelerating wage rate of unemployment, as estimated by the European Commission.

([13]) This model is consistent with the assumption that wage setters have a target for real wage growth that depends on unemployment and the trend of labour productivity growth.

([14]) See the Table in Annex, comparing columns (1) and (2). Similar results are found by Ciccarelli and Osbat (2017) but with sizeable cross-countries heterogeneity. Bulligan and Viviano (2016) find a steepening of the Phillips curve

Table I.1.3: **Wage Phillips curve: wage growth and unemployment across euro area countries over different time periods**

	(1)	(2)	(3)	(4)	(5)
Dependent variable: wage growth	2000-2007	2008-2016	2008-2016	2009-2016	2009-2016
Lagged wage growth	0.18*	0.08	0.05	0.07	0.1
	(0.11)	(0.18)	(0.20)	(0.20)	(0.18)
Inflation expectations	0.50***	0.77***	0.73***	0.74***	0.78***
	(0.13)	(0.14)	(0.13)	(0.13)	(0.14)
Unemployment gap	-0.71***	-0.57**			
	(0.11)	(0.25)			
Unemployment gap including *discouraged workers*			-0.53***		
			(0.22)		
Unemployment gap including *persons seeking work but not immediately available*				-0.50**	
				(0.22)	
Unemployment gap including *involuntary part-time workers*					-0.34***
					(0.17)
Trend productivity growth (*TFP)*	-0.19	0.27***	0.29***	0.29***	0.29***
	(0.24)	(0.11)	(0.11)	(0.11)	-0.11
Constant	1.5	0.22	2	2.3	0.14
	(0.68)	(0.64)	(1.33)	(1.51)	(1.2)
Observations	124	162.00	162	162	162
R-squared adjusted	0.73	0.62	0.64	0.64	0.62
Number of countries	18	19.00	19	19	19

(1) Panel estimation with country fixed effects. Equations are estimated imposing the restriction that the effects of past and future inflation sum up to one. The dependent variable is real wage growth. An increase of the effect of expected inflation implies a decline of the effect of past inflation.
(2) Robust standard errors in parentheses. Statistically significant estimated coefficients are marked with asterisks (*** p<0.01, ** p<0.05, * p<0.1).
(3) Wages are measured by nominal compensation per employee. Inflation expectations are households' consumer price expectations for the next 12 months; unemployment gap: gap between actual and structural unemployment rate (NAWRU).
Source: European Commission calculations based on data from DG ECFIN AMECO database, EU Survey, and Eurostat.

slack, in combination with the usual lags characterising the response of wages to unemployment, and the materialisation of the effects of the collective bargaining reforms enacted during the recession years, may have influenced the stronger response of wages in the more recent period.

Second, the influence of inflation expectations on wage growth is higher after the 2008 crisis than before, while the influence of past inflation is lower. ([15]) However, for the period 2013-2016 the effect of inflation expectations becomes weaker while that of past inflation becomes stronger (see Table in Annex). This suggests that there is a risk of destabilising inflation expectations in the current low inflation environment. The risk of validating low inflation expectations has led the ECB (2017) to warn against backward-looking negotiations of nominal wages.

Third, productivity growth has an impact on wage growth after 2008 but not before. An increase in productivity growth by 1 percentage point is accompanied by an increase of wages by 0.3% in the post-crisis period. Moreover, wages are less reactive to productivity growth when the economy is in recession than when it is in an expansion (see Table in Annex).

Finally, wage growth is held back by the high share of groups that are marginally attached to the labour market, although the effect of these groups on wages seems smaller than that of the unemployed. This can be seen by comparing the last three columns in Table I.1.3 with column (2). When discouraged workers (in column 3) and, separately, persons seeking work but not immediately available (in column 4), are added to the unemployed, the effect of labour market slack on wages is hardly reduced. ([16]) On the contrary,

after 2008 in Italy, France and Spain but not Germany. There is evidence that countries experiences sizeable reforms of collective bargaining underwent significant downward adjustment of wages (see also the 2015 edition of this report, European Commission, 2015a).

([15]) This is consistent with previous findings by the IMF (2013) and Blanchard et al. (2015).

([16]) The negative coefficients reduce from -0.57, to – 0.53 and -0.50 respectively. However, a formal statistical test (Wald

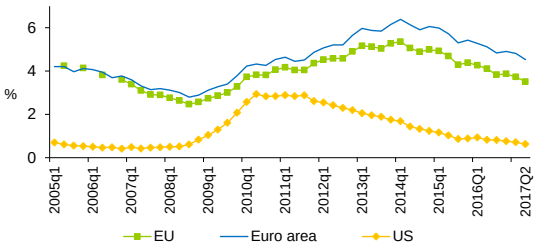
the inclusion of underemployed part-time workers somewhat reduces the effect of labour market slack on wage growth (column 5). ([17])

The finding that underemployed part-time workers exert a smaller pressure on wages than other groups may be explained by a number of factors. First, by reallocating part of the workforce from full-time to part-time positions, involuntary part-time allows firms to achieve labour costs savings without undertaking costly wage negotiations. Second, wages may be less sensitive to involuntary part-time workers since the latter are often former full-time workers within the same firm and wages of incumbent workers are less reactive to the cycle than wages of new hires. ([18]) Third, the increase in involuntary part-time reflects a change in the structure of employment towards sectors and occupations where the incidence of involuntary part-time is higher. ([19]) The expansion of part-time work in general is also a factor in the downward trend in the hours worked discussed above. Finally, if involuntary part-time workers are employed in low productivity occupations their wages might be low and bounded by the minimum wage; this creates a downward rigidity of wages.

1.5. LONG-TERM UNEMPLOYMENT AND LABOUR MARKET MATCHING

The number of long-term unemployed (jobseekers out of work for more than 12 months) in the EU decreased substantially by 1.3 million in 2016, falling below 10 million for the first time since 2012. With this fall, the long-term unemployment rate in the EU declined to 4% over 2016 (5% in the euro area), a percentage point below the highest levels reached in 2013-2014 but 1.5 to 2 percentage points above the pre-crisis lows. This contrasts with the US where the long-term unemployment rate has broadly returned to pre-crisis levels (Graph I.1.11).

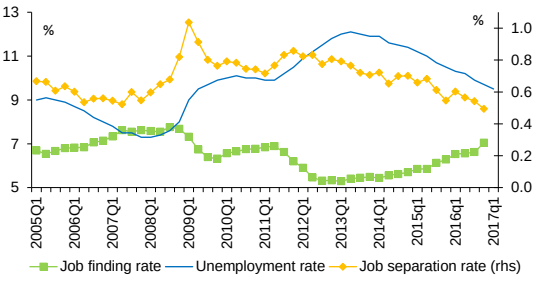
Graph I.1.11: **Long-term unemployed (for 1 year or more) in the EU, the euro area and the US (% of total labour force), 2005-2017, quarterly data**



Source: Eurostat and U.S. Bureau of Labor Statistics.

Changes in the structure of unemployment duration reflect different dynamics in the job-finding and separation rates (Graph I.1.12). After the initial surge at the onset of the 2008 and 2011 recessions, separation rates declined steadily to reach pre-crisis levels during 2016.

Graph I.1.12: **Job-finding and separation rates in the euro area, 2005-2017, quarterly data**



Source: Commission Services based on Eurostat data.

The improvements in the job-finding rates have been observed across all groups of unemployed, including the long-term unemployed. Graph I.1.13 shows the job-finding rates for various groups of the unemployed, as distinguished by the duration of their unemployment spell. While at the onset of the recovery only the short-term unemployed benefited from improved job-finding chances, these improvements started to accelerate in 2015 and 2016 also for longer durations.

Test) suggests that the last two coefficients are not statistically different from each other at 1% of significance.

([17]) Results are robust to alternative specifications and the use of hourly wages rather than compensation per employee. Moreover, the response of wages to labour market slack using broad measures of labour underutilisation does not seem to be statistically different in the periods of recession and recovery.

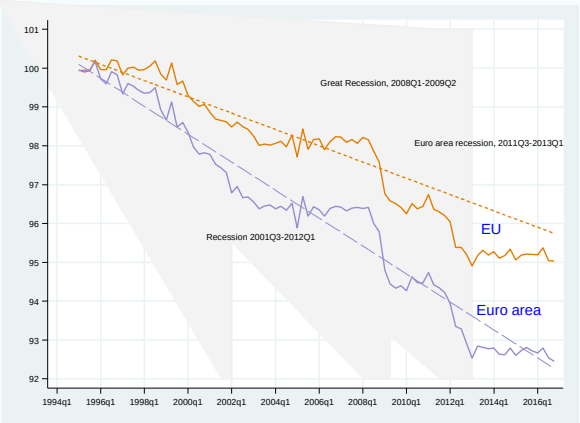
([18]) For the US, full-time employment is the most common origin and destination of involuntary part-time flows; and the reallocation from full-time to part-time a within-firm phenomenon (Lariau, 2016).

([19]) For the US, the ratio between involuntary part-time work to the unemployment rate, a measure of the likelihood of being in an involuntary job relative to being unemployed, increased from 0.6 of 1990s to 0.75 of 2015 (Valletta and der List, 2015). For the EU, it rose from 0.5 of 2006 to 0.63 of 2016.

Box I.1.2: Developments in working hours in the euro area

In both EU and the euro area hours worked have been falling well before the 2008 crisis, at a rate of about -0.4 percentage point per year. In the euro area, average weekly hours (based on National Accounts data) have fallen by about three hours since 1995 and more than one hour since 2008. It is now recognized that the main driver of this declining trend in hours worked is the increase in part-time employment which, in turn, is strongly associated with the growth of services and an increased part-time labour supply (ECB 2016). As suggested by Graph 1, during recessions, particularly the 2008 recession (2008Q1-2009Q2) and the euro area sovereign debt crisis (2011Q3-2013Q1), hours fell considerably. Moreover, while for the euro area, current developments seem to continue along the pre-crisis trend, this is not the case for the EU, suggesting the presence of a structural break.

Graph 1. Average hours worked, quarterly data and trend, EU and euro area, 1995Q1=100



***Notes*:** National accounts data, working-day and seasonally adjusted. The trend is based on the period 1995Q1-2007Q4.
***Source*:** European Commission based on Eurostat data.

During the crisis, the reduction of hours worked proved to be a key adjustment mechanism in the EU, unlike in the US. By reducing working hours, firms managed to cut labour costs while avoiding excessive layoffs. This was made possible by existing labour market institutions and arrangements, but also by reforms encouraging short-time work schemes. ([1]) This box analyses whether the sensitivity of average hours worked to economic shocks has increased in the euro area after the wave of reforms around the 2008 crisis. Following Bishop and Plumb (2016), a vector auto-correlation (VAR) model is estimated for the euro area, to gauge the dynamic interrelationships between GDP, average hours worked, and headcount employment. ([2]) The sample covers the period 1995Q1-2016Q4. The statistical model relies on some assumptions about the structure of the economy. It is assumed that shocks to economic activity (GDP) affect hours and employment instantaneously, but it takes time for these to affect GDP. Moreover, it is assumed that hours worked affect employment instantaneously, but it takes time for employment to affect hours. ([3])

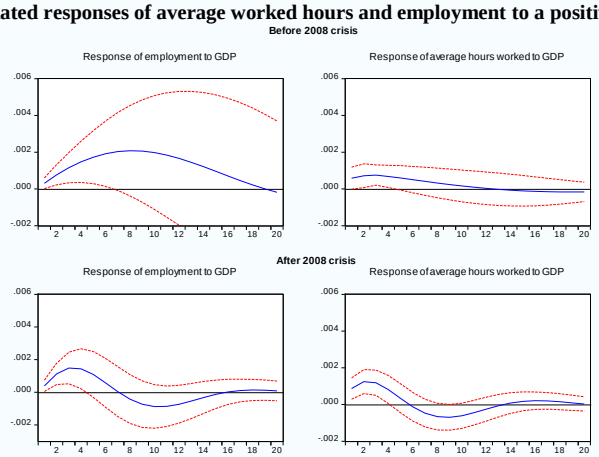
In order to check whether the relationship between GDP, employment and hours worked have changed over time in the euro area, Graph 2 depicts how these variables react to economic "shocks", estimated separately for two periods: before 2008 (1995Q1-2007Q4) and after (2008Q1-2016Q4). Before the crisis (upper panels), the response of employment to a positive surprise to GDP growth was positive but feeble, while the response of average hours worked was almost nil. After the crisis, average hours worked became more sensitive to economic shocks with an estimated peak response of 0.2% after one year.

([1]) "In many countries these schemes were rather insignificant in 2007, while they had climbed to relatively high levels by 2009. In addition to Germany, Japan and Italy, also Belgium and Finland enrolled in these schemes more than 1 per cent of the labour force and up to 2 per cent of the total hours worked under normal business conditions." (Boeri and Bruecker, 2011). See also Arpaia et al. (2010).
([2]) All variables are de-trended using a Hodrick-Prescott filter.
([3]) Technically, structural shocks are identified by a so-called Cholesky-decomposition with the following ordering of variables: GDP, hours worked, employment.

(Continued on the next page)

Box (continued)

Graph 2. Estimated responses of average worked hours and employment to a positive GDP shock, euro area



Notes: The horizontal axis depicts quarters following the shock. Variables are presented as percentage deviations from their steady state levels. Charts show the response of each variable to a 1 standard-deviation shock in GDP.
***Source*:** European Commission calculations based on Eurostat data.

How much of the fluctuations in hours worked and employment can be explained by shocks to each of the three variables? Table 1 provides an estimate for the euro area. Before the crisis, shocks to GDP explained a small percentage of variations in average hours worked (7% immediately and 26% after a year), while after the crisis, this jumped to 22% on impact and 44% after a year. The contribution of GDP shocks to employment fluctuations increased, after the crisis, on short time horizons (up to a year) but fell at longer horizons. Overall this evidence suggests that, indeed, the role of working hours has increased in the euro area as a means of adjustment to economic shocks.

Table 1: Forecast error decomposition of hours worked and employment

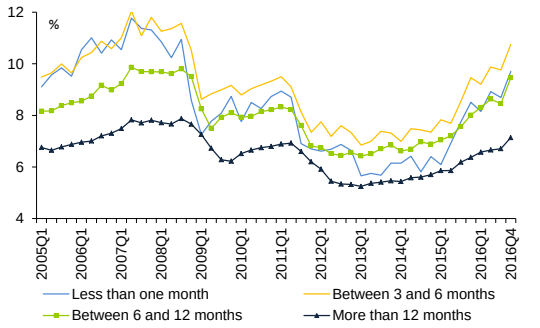
	Forecast error variance decomposition of *average hours worked*					
	GDP		Average hours worked		Employment	
	Before 08	After 08	Before 08	After 08	Before 08	After 08
1 quarter	7	22	93	78	0	0
2 quarters	16	42	82	49	2	9
4 quarters	26	44	70	27	4	29
8 quarters	33	37	63	23	4	40
10 quarters	33	40	62	23	4	37

	Forecast error variance decomposition of *employment*					
	GDP		Average hours worked		Employment	
	Before 08	After 08	Before 08	After 08	Before 08	After 08
1 quarter	9	14	0	0	91	86
2 quarters	17	30	1	1	82	69
4 quarters	26	30	7	1	67	69
8 quarters	34	17	16	2	50	81
10 quarters	37	18	18	4	45	78

Notes: The table reports the contribution of different shocks to fluctuations in the average hours worked and employment at different time horizons following a GDP shock.
Source: DG EMPL based on Eurostat data.

The EU job-finding rate was sluggish at the start of the recovery, then it has accelerated since 2015. By 2017 it has come close to the levels observed in the pre-crisis period. Rising job-finding rates have led to the shortening of unemployment spells. The expected duration of unemployment spells reached a peak of almost 19 months at the end of 2012, almost twice as long as prior to the crisis. In 2016, the expected duration of unemployment spells had inched down to 15 months. ([20])

Graph I.1.13: **Job-finding rate by duration of unemployment, euro area, 2005-2016, quarterly data**

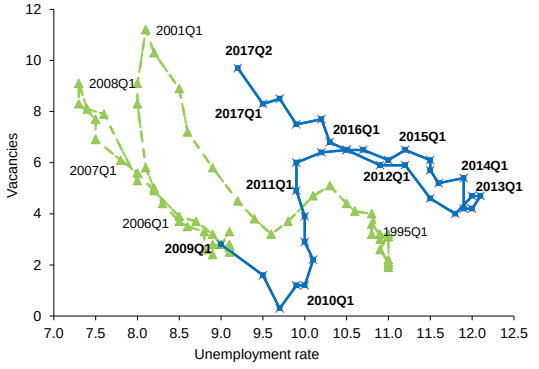


Source: Commission Services based on Eurostat data.

The evolution of job-finding rates is behind the movements of the Beveridge curve, the usually negative relationship between unemployment and job vacancies (Graph I.1.14). The outward shift of the EU Beveridge curve since 2008 has been linked to weak labour demand and worsened labour market matching, although there are significant differences across countries – e.g., improved labour market matching in Germany and Poland (see, e.g., European Commission, 2013, and Chapter 2 in this report). Since 2013, vacancies have been growing in line with the reduction in unemployment, a pattern typical of a mature recovery.

In the first half of 2017, vacancies increased more than unemployment declined, hinting to the possibility that the jobless rate may be approaching its structural rate, i.e. the rate that could not be further reduced by economic growth. However, this does not imply that further declines in unemployment are impossible as witnessed by early figures for 2017, when both vacancies and unemployment declined. As shown in Chapter 2, the efficiency of the process matching job seekers to available jobs has been increasing in many countries, responding, *inter alia*, to changes in the recruitment intensity – similarly to what has been observed in the US (Diamond, 2013).

Graph I.1.14: **Beveridge curve for the euro area, 1995-2017, quarterly data**



Note: Job vacancies are approximated with a survey based indicator of labour shortages in industry (factors limiting production: labour).
Source: European Commission, based on data from the Labour Force Survey and the Business and Consumer Survey.

1.6. CONCLUSIONS

Supported by a strengthening recovery, EU employment surpassed pre-crisis levels in 2016 (and almost reached it in the euro area), but the unemployment rate has yet to return to levels seen before 2008. In July 2017, the unemployment rate dropped to 7.7% in the EU and 9.1% in the euro area.

Wage growth has remained modest even as the recovery gained strength. Factors explaining subdued wage growth include the presence of substantial spare capacity and low inflationary pressures after a deep and prolonged recession, including their effects on inflation expectations. Modest productivity trends will likely continue to hamper further wage gains. Although inflation is likely to pick up as the recovery gains strength, there is a risk that backward-looking wage indexation practices, together with a sizeable labour market slack, could result in a vicious circle of self-fulfilling low inflation expectations. With

([20]) The expected duration of unemployment equals the reciprocal of the job-finding rate.

low wage growth, a slowdown in inflation makes the absorption of the unemployed more difficult.

In 2016, the job-finding rates have finally improved for all unemployment durations, pointing to a broadening of the employment recovery, including for those most severely hit by the 2008 crisis.

Looking forward, while the labour market has improved considerably, the labour market outlook is linked to medium-term growth prospects, which remain conditioned by the legacy of the economic and financial crisis and the underlying long-term economic trends.

Risks to growth include a softening of consumption growth that might derive from moderate wage developments and a pick-up in inflation, as well as developments in macroeconomic policies. Downside risks related to the external environment include US trade policy, growth prospects in commodity exporting countries, as well as the rebalancing of the Chinese economy. Looking forward, further progress on the front of EU employment will crucially depend on the strengthening of growth potential and on the support to investment.

APPENDIX 1
Phillips curve by sub-periods

Table I.1.A1.1:**Phillips curve by sub-periods**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable: wage growth	2008-2012	2013-2016	2008-2012	2013-2016	2008-2012	2013-2016	2008-2012	2013-2016
Lagged wage growth	0.11	-0.45**	0.05	-0.40**	0.07	-0.40**	0.07	-0.39*
	(0.43)	(0.21)	(0.26)	(0.21)	(0.26)	(0.20)	(0.26)	(0.22)
Inflation expectations	0.74***	0.31*	0.68***	0.36***	0.69***	0.39***	0.72***	0.51***
	(0.13)	(0.18)	(0.10)	(0.16)	(0.11)	(0.14)	(0.11)	(0.15)
Unemployment gap	-0.76**	-1.1***						
	(0.39)	(0.22)						
Unemployment gap *incl Discuraged workers*			-0.79**	-0.83***				
			(0.37)	(0.16)				
Unemployment gap incl *Persons seeking work but not immediately available*					-0.76**	-0.80***		
					(0.37)	(0.14)		
Unemployment gap incl *Involuntary part-time*							-0.62**	-0.58***
							(0.30)	(0.08)
Trend productivity growth (*TFP)*	0.35**	0.11***	0.36**	0.11**	0.36***	0.11***	0.33**	0.11*
	(0.16)	(0.06)	(0.15)	(0.06)	(0.16)	(0.05)	(0.17)	(0.06)
Constant	-0.15	2.2***	2.42	4.8***	2.9	5.4***	4	6.33***
	(0.78)	(0.42)	(1.87)	(0.88)	(1.33)	(0.89)	(2.68)	(0.86)
Observations	89	73	89	73	89	73	89	73
R-squared adjusted	0.66	0.50	0.69	0.74	0.69	0.73	0.68	0.69
Number of countries	19	19	19	19	19	19	19	19

(1) Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The sample includes euro-area countries. Wage growth is measure by the rate of change of nominal compensation per employee.
Source: DG ECFIN AMECO database and Eurostat LFS.

2. LABOUR MARKET DEVELOPMENTS IN MEMBER STATES

In 2016 and early 2017, improvements in the labour market continued across the EU. Unemployment and employment rates continued to improve and surpassed pre-crisis levels in a majority of countries. Falls in unemployment continued to be more rapid than could be expected based on the pace of economic growth. In a number of countries the strongest growth in employment over the past years was observed in services, reflecting the strong recovery of domestic demand.

Nominal wage growth turned positive in virtually all EU Member States in 2016. Wages grew faster in Member States with lower wage levels, and in those countries that are not members of the euro area. Driven by wage growth and modest productivity gains, unit labour costs picked up. The increase in nominal unit labour costs was the highest in Hungary, the Baltic countries, Romania and the Czech Republic.

Most countries have gained cost competitiveness over the past three years. Greece, Ireland, Cyprus, Poland and Sweden were the EU countries that experienced the strongest gains, while cost competitiveness deteriorated in the Baltic Member States and, to a lesser extent, in the Czech Republic and Hungary. The economic rebalancing of countries previously characterised by current account deficits had entailed a shift from non-tradable sectors towards tradable ones. This rebalancing slowed down in 2015 and 2016.

2.1. INTRODUCTION

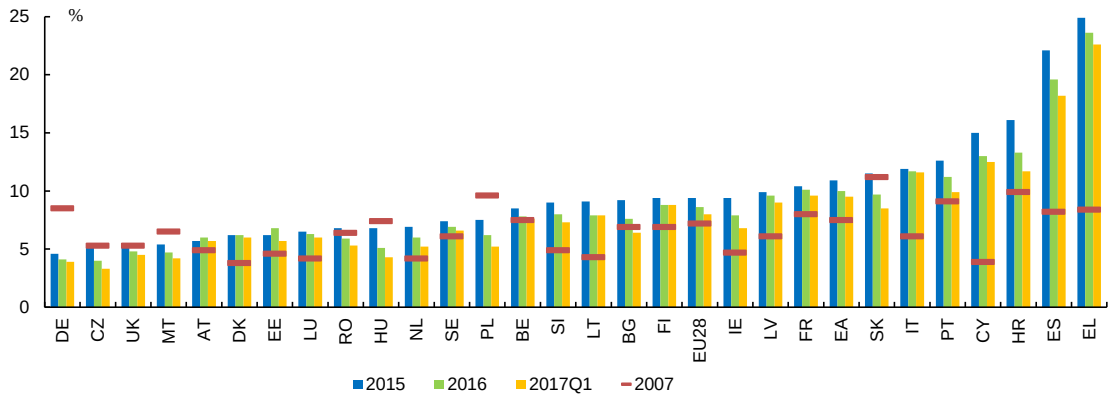
This chapter takes a closer look at labour market and wage developments in individual EU Member States. It does so in an integrated way by assessing employment, unemployment and wage developments. It also looks at developments of labour market matching across the EU.

The chapter starts out describing recent developments in unemployment rates in Section 2.2. Section 2.3 looks at employment and activity rates, and analyses which sectors are driving recent job creation. Fluctuations in job creation and job destruction affecting unemployment developments are reviewed in Section 2.4. Section 2.5 describes recent wage and productivity developments as well as changes in wages at the sectoral level. Section 2.6 analyses the evolution of unit labour costs and their main components. Section 2.7 focuses on external competitiveness and how labour market outcomes relate to external balances and adjustment needs. Section 2.8 concludes.

2.2. UNEMPLOYMENT RATES

Supported by the continuing economic recovery, unemployment rates continued to fall in almost all Member States in 2016 and the first quarter of 2017 (Graph I.2.1). The unemployment rate is still above pre-crisis levels in a majority of countries. However, by the first quarter of 2017 it had fallen below the 2007 level in the Czech Republic,

Graph I.2.1: **Unemployment rate, 2014-2016 and the first quarter of 2017, %**

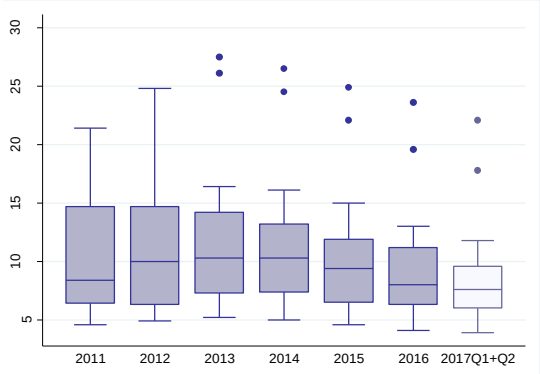


(1) Seasonally-adjusted data for 2017 Q1.
(2) Countries are ranked by ascending order of unemployment rate in 2015.
Source: Eurostat, Labour Force Survey.

Germany, Hungary, Malta, Poland, Romania, Slovakia, and the United Kingdom. The excess of the unemployment rate in 2016 relative to 2007 is the largest in Greece, Spain and Cyprus.

Larger falls in the unemployment rate in 2016 and the first quarter of 2017 continued to be observed in countries that had most severely been hit by the crisis. In this period, the unemployment rate fell the most in Croatia and Spain (by 2.8 and 2.5 percentage points in 2016 and by 1.6 and 1.4 percentage points in the first quarter of 2017, respectively), followed by Bulgaria, Cyprus, Greece, Hungary, Ireland, Poland, Portugal and Slovakia where the decline in the unemployment rates in 2016 was 1.3 percentage points or higher. In the Czech Republic, Lithuania, the Netherlands, Romania and Slovenia, the fall in the unemployment rate was still above the EU average (0.8 percentage point in 2016), while in the rest of the countries the unemployment rates fell by 0.7 percentage point or less.

Graph I.2.2: **Distribution of unemployment rates for euro area Member States, 2011-2016 and the first quarter of 2017**



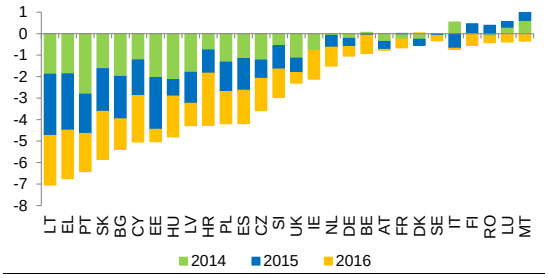
(1) The boxes represent the "middle half" of the distribution of unemployment rates across euro area Member States (i.e., the second and third quartile); the horizontal mark inside the box represents the median. The two whiskers show the upper and lower extreme values of the observed unemployment rates that fall within a range of 1.5 of the interquartile range (the height of the box) away from the top or the bottom of the box, respectively; the dots represent countries with unemployment rates that fall outside this range.
Source: European Commission based on Eurostat, Labour Force Survey.

Exceptions to the trend of declining unemployment were observed in Austria, Denmark and Estonia. In Denmark the unemployment rate in 2016 and the beginning of 2017 remained at the 2015 level, while in Austria and Estonia the unemployment rate increased by 0.3 and 0.6 percentage point, respectively, in 2016. In the first quarter of 2017, the unemployment rates further decreased in virtually all Member States. The only exceptions were Finland and Lithuania, where the unemployment rates in the first quarter of 2017 remained at the 2016 level.

The dispersion of unemployment rates continued to decline in 2016 and early 2017 (Graph I.2.2). The most important contributors to this trend were improvements in countries with high unemployment rates. The relative stability in countries with low unemployment rates, however, also contributed to the fall in dispersion.

The recovery starting in 2013 has been 'job-rich' in most countries in the sense that unemployment fell (and employment increased) faster than could be expected based on the pace of economic growth. The unexpectedly rapid decline of unemployment continued in 2016, as illustrated by Graph I.2.3.

Graph I.2.3: **Changes in the unemployment rate unexplained by GDP growth, 2014-2016, percentage points**



(1) The graph shows the gap between the actual change in the unemployment rate and the change predicted on the basis of GDP growth. A negative value means that the unemployment rate declined faster (or increased by less) than could be expected based on GDP growth.
(2) The graph is based on an estimated statistical relationship for EU Member States for the pre-crisis period of 1995-2007; an additional 1 percentage point of GDP growth reduces the unemployment rate by 0.27 percentage points. The expected change in unemployment at zero GDP growth is estimated by country-specific constant terms.
Source: European Commission based on Eurostat data.

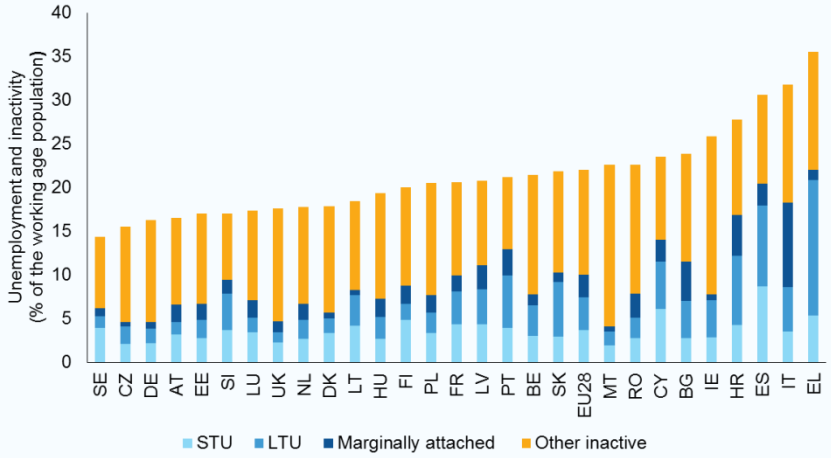
The Graph shows changes in the unemployment rate in the last three years that are not explained by the pre-crisis relationship between GDP growth and unemployment.

Box I.2.1: The non-employment index in the EU

In recent years, it has been widely acknowledged that the evolution of the unemployment rate only provides a partial picture of the utilisation of labour resources; while in practice transitions from inactivity to employment occur, these transitions differ significantly across individuals. In order to deal with these, Hornstein, Kudlyak and Lange (2014) developed a non-employment index (NEI), which accounts for differences in labour market attachment among non-employed individuals by weighting them with transition rates to employment. This box presents non-employment index for the EU Member States for the first time.

The share of all non-employed individuals in the working age population across the EU ranges from less than 15% in Sweden to more than 35% in Greece in 2015 (Graph 1). *Non-employed* individuals are either unemployed (actively looking for work in the four weeks prior to the survey) or inactive. On average, about one out of three non-employed individuals in the EU is unemployed. Unemployed individuals are 'short-term unemployed' if they have been unemployed for less than one year, or 'long-term unemployed' if their unemployment spell is longer than one year. Among inactive individuals, a distinction is made between those 'marginally attached to the labour market' (who are available, but not actively looking for a job) and 'other inactive' individuals. In most countries, those marginally attached represent only a relatively small share of the working age population. Exceptions are Bulgaria, Croatia and particularly Italy, where marginally attached workers represent almost 10% of the working-age population.

Graph 1: Share of the non-employed in the working age population (25-64) in 2015, by category



Source: Eurostat.

The NEI is constructed as the weighted average of the shares of the various subgroups among the non-employed. The weight for each subgroup is given by the transition rate to employment relative to the group-wise highest transition rate. The index is thus an indicator of the effectively available labour resources expressed in terms of units of the group with the strongest labour market attachment.

Transition probabilities of non-employment to employment are calculated using the panel data from Eurostat's Labour Force Survey. Overall, there is substantial heterogeneity in transition rates to employment among the non-employed, reflecting, *inter alia*, the labour market attachment of different groups: transition rates of short-term unemployed are the highest, while they are the lowest for the 'other inactive' group. There is also substantial variation across countries, consistent with the differences in their labour market situation. For example, transition rates of long-term unemployed are the lowest in the countries with the highest level of long-term unemployment (Bulgaria, Croatia, Cyprus, and Slovakia).

Overall, there are substantial differences in NEI across countries (Graph 2). In most countries the NEI index exceeds the unemployment rate, but in some countries also the reverse holds. In particular, in Croatia, Cyprus, Slovakia, and Spain, the NEI is substantially lower than the unemployment rate, which can be

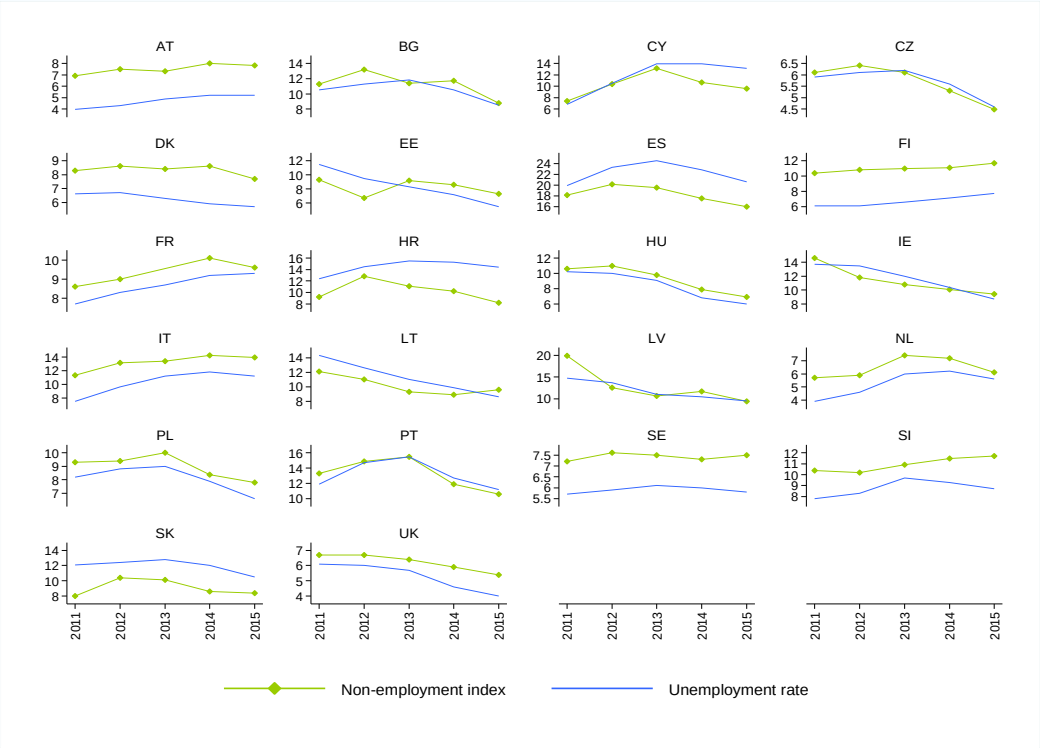
(Continued on the next page)

Box (continued)

explained by the large share of long-term unemployed with low transition rates to employment (and hence a low weight in the NEI).

In addition to differences in levels, one can also distinguish different developments of the NEI and the unemployment rate. First, there is a large group of countries where the NEI moves almost in parallel with the unemployment rate (Austria, Bulgaria, Croatia, Denmark, Finland, France, Hungary, Lithuania, Italy, the Netherlands, Poland, Portugal, Spain, and Sweden). This indicates that the transition rates for the different groups of non-employed remained constant or evolved proportionally. Second, there is a group of countries where the unemployment rate decreased faster than the NEI (Estonia, Ireland, Lithuania, Slovakia, Slovenia, and United Kingdom). This indicates that in these countries the transition probabilities of the unemployed improved, while the transition probabilities of the inactive lagged behind. The opposite is observed in a few countries (Cyprus, the Netherlands).

Graph 2: Comparison of the non-employment index and the unemployment rate



Source: European Commission based on Eurostat data.

The estimated statistical relationship (also called 'Okun's law') suggests that in the period 1995-2007, the unemployment rate usually fell by about 0.3 percentage point for each additional percentage point of GDP growth in the average EU Member State. Graph I.2.3 shows that, in most countries, the unemployment rate has fallen much faster since 2014 than could be expected based on this historical relationship. The Graph also shows that this trend did not slow down in 2016: the average 'surprise component' even increased slightly in absolute value (from -1 percentage point in 2014 and 2015 to -1.2 percentage point in 2016; EU28 unweighted averages). The fall in unemployment unexplained by economic growth was most significant in countries that had been severely hit by the crisis.

Cumulative fall between 2014 and 2016 reached 5 percentage points in absolute terms or more in Bulgaria, Cyprus, Estonia, Greece, Lithuania, Portugal, and Slovakia. In contrast, in Luxembourg and Malta, the change in the unemployment rate not explained by economic growth was positive over three years, and it was zero in Romania. These countries are characterised by comparatively

Table I.2.1: **Employment and activity rates and shares of marginally attached and discouraged workers, 2014-2016, %**

	Employment rate			Activity rate			Share of marginally attached workers			Share of discouraged workers		
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
SE	74.9	75.5	76.2	81.5	81.7	82.1	9.3	8.4	7.7	2.8	2.4	2.0
DK	72.8	73.5	74.9	78.1	78.5	80.0	13.5	11.8	20.7	0.5	0.4	0.8
NL	73.1	74.1	74.8	79.0	79.6	79.7	15.1	14.7	13.7	5.9	5.4	5.1
DE	73.8	74.0	74.7	77.7	77.6	77.9	8.2	8.5	9.2	1.6	1.6	1.6
UK	71.9	72.7	73.5	76.7	76.9	77.3	13.9	13.9	13.1	0.5	0.4	0.3
EE	69.6	71.9	72.1	75.2	76.7	77.5	15.5	15.2	19.3	3.6	3.7	3.8
CZ	69.0	70.2	72.0	73.5	74.0	75.0	4.5	4.6	4.6	0.8	0.8	0.8
AT	71.1	71.1	71.5	75.4	75.5	76.2	20.3	21.1	21.1	0.8	0.6	0.6
LT	65.7	67.2	69.4	73.7	74.1	75.5	3.7	4.6	5.0	2.3	2.3	2.2
FI	68.7	68.5	69.1	75.4	75.8	75.9	12.7	13.3	14.3	6.8	6.3	5.8
LV	66.3	68.1	68.7	74.6	75.7	76.3	17.2	17.6	17.1	7.9	6.8	6.3
EU28	64.8	65.6	66.6	72.3	72.5	72.9	12.2	11.9	11.8	5.7	5.1	4.9
HU	61.8	63.9	66.5	67.0	68.6	70.1	10.4	10.0	9.6	5.3	4.2	3.9
SI	63.9	65.2	65.8	70.9	71.8	71.6	14.5	10.3	8.7	5.2	3.8	2.8
MT	62.4	63.9	65.7	66.3	67.6	69.0	13.3	14.2	13.7	0.8	0.5	:
LU	66.6	66.1	65.6	70.8	70.9	70.0	16.8	21.6	17.8	1.2	1.5	1.0
EA19	63.8	64.5	65.4	72.3	72.4	72.8	12.1	12.1	11.9	6.3	6.0	5.6
PT	62.6	63.9	65.2	73.2	73.4	73.7	14.7	13.9	13.1	12.1	11.3	10.6
SK	61.0	62.7	64.9	70.3	70.9	71.9	5.9	6.3	5.5	1.4	2.0	1.6
IE	61.7	63.3	64.8	69.8	70.0	70.5	9.3	7.9	6.6	3.4	2.5	2.3
PL	61.7	62.9	64.5	67.9	68.1	68.8	14.9	13.6	13.5	6.3	6.0	5.0
FR	63.8	63.8	64.2	71.1	71.3	71.4	6.7	6.9	6.9	2.9	3.3	2.6
BG	61.0	62.9	63.4	69.0	69.3	68.7	11.3	10.4	9.7	13.5	12.2	12.5
CY	62.1	62.7	63.7	74.3	73.9	73.4	13.6	13.1	10.9	7.5	7.6	5.0
BE	61.9	61.8	62.3	67.7	67.6	67.6	7.0	6.4	5.8	4.4	4.2	4.0
RO	61.0	61.4	61.6	65.7	66.1	65.6	11.2	7.3	9.4	8.6	3.5	6.8
ES	56.0	57.8	59.5	74.2	74.3	74.2	12.7	11.5	11.1	7.1	5.5	5.4
IT	55.7	56.3	57.2	63.9	64.0	64.9	21.0	21.6	20.7	13.9	13.7	12.9
HR	54.6	56.0	56.9	66.1	66.9	65.6	12.1	12.1	13.5	5.3	5.4	4.8
EL	49.4	50.8	52.0	67.4	67.8	68.2	4.5	4.9	5.3	1.6	1.4	1.7

(1) Marginally attached workers are defined as inactive persons (aged 15-74) who are available to work but are not actively searching for a job, expressed as a share of the total inactive population. Discouraged workers are defined as marginally attached workers who are not seeking employment because they think no work is available (based on questionnaires about the reasons for not looking for work), expressed as a share of the total inactive population. Employment is based on the resident concept. Employment and activity rates refer to age group 15-64.
(2) Countries are ranked by descending order of the employment rate in 2016.
Source: Eurostat, Labour Force Survey.

rapid economic growth and stable, or moderately decreasing, unemployment. In a few other countries (Finland, Italy, and Sweden) the cumulative change in unemployment was very close to what could be expected based on economic growth.

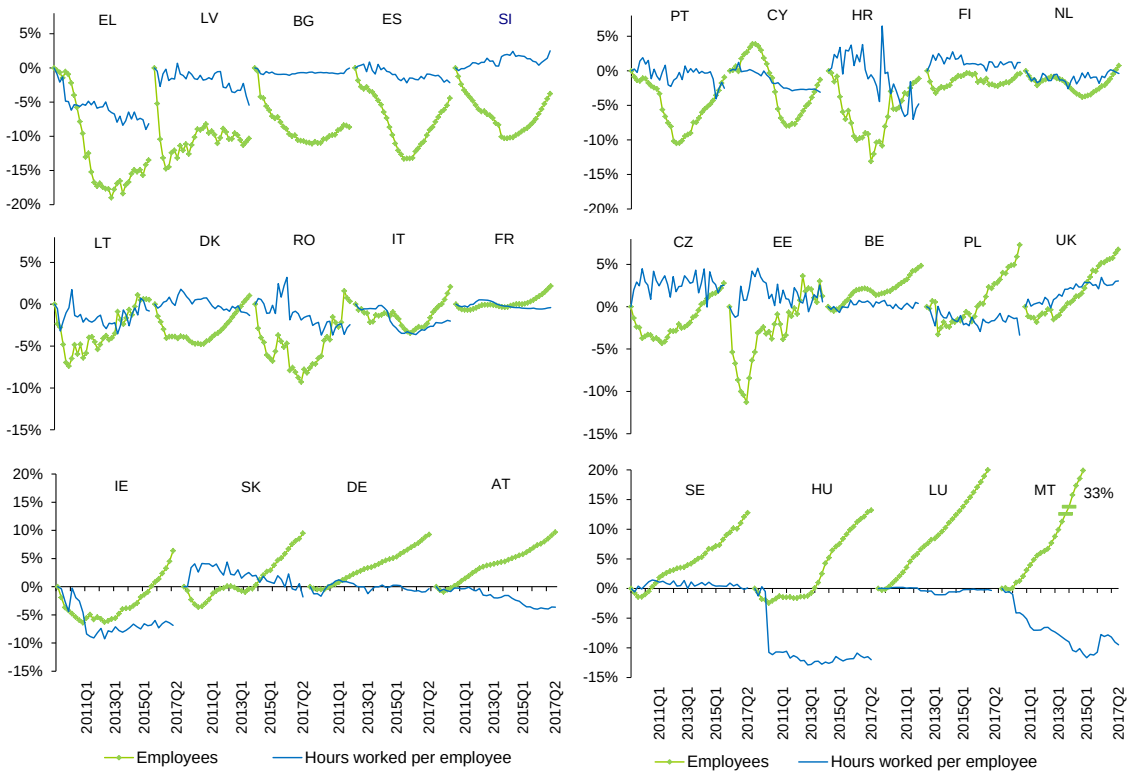
2.3. EMPLOYMENT AND ACTIVITY RATES AND HOURS WORKED

2.3.1. Employment and activity rates

Employment and activity rates have also continued to improve in most countries (Table I.2.1). The gains were greater in 2016 than in the previous year. By 2016, employment and activity rates surpassed pre-crisis levels in a majority of countries. The employment rate exceeded its 2007 level in 17 Member States, while the activity rate did so in 25 countries.

In 2016, the employment rate increased by more than 1 percentage point in almost half of the countries, namely in the Czech Republic, Denmark, Greece, Ireland, Spain, Malta, Poland, and Portugal, while in three countries (Lithuania, Hungary, and Slovakia) gains surpassed 2 percentage points. In turn, the increase in activity rates was on average about half of that in employment rates. Activity rates increased by 1 percentage point or more in six countries, namely in the Czech Republic, Denmark, Lithuania, Hungary, Malta, and Slovakia.

Graph I.2.4: **Change in number of employees and of total hours worked, cumulative % change since the first quarter of 2009**



(1) Countries are ranked by ascending order of % change in the number of employees between 2009q1 and 2017q2. Values for number of employees for Malta are out of scale (+33%).
Source: Eurostat, National Accounts.

While in 2016 the employment rate decreased only in Luxembourg (after having decreased in 2015 in Belgium, Finland, and Luxembourg), the activity rate declined in a number of countries, namely Bulgaria, Croatia, Cyprus, Luxembourg, Romania, Slovenia, and Spain (in 2015, it decreased in Belgium, Germany, and Cyprus). The slower increase in activity rates relative to employment rates is consistent with a continuing decline in unemployment rates.

Both the share of marginally attached workers (i.e. the proportion of the inactive who are available to work but not actively searching for a job) and the share of discouraged workers (i.e. those marginally attached workers that do not search for a job because they believe that no jobs are available) decreased or stagnated in most countries.

The most significant declines in the share of marginally attached workers were observed in Cyprus, Ireland, Luxembourg, and Slovenia while the greatest decline in the share of discouraged workers were recorded in Cyprus, Poland, and Slovenia.

In most of the other countries both shares stagnated or increased marginally. Notable exceptions were Denmark and Estonia where the share of marginally attached workers increased by almost 9 and 4 percentage points, respectively, and in Romania where the share of discouraged workers increased by 3 percentage points. In these countries, individuals' decisions to search for jobs are significantly affected by factors other than those determining cyclical developments, such as the low labour market transitions of specific groups. Both shares were still higher in 2016 relative to the pre-crisis levels in most of the Member States. The share of marginally attached workers remained higher in 20 Member States,

while the share of discouraged workers remained higher than in 2007 in 17 countries.

2.3.2. The adjustment of hours worked

In almost all Member States, recent improvements in employment were accompanied by a continued weakness, or even decrease, in hours worked per employee (Graph I.2.4). The Graph shows cumulative changes in employment and hours worked per employee since the first quarter of 2009. It confirms that, by the last quarter of 2016, employment had surpassed its pre-crisis level in the majority of countries, with improvements becoming more dynamic in a number of countries in 2016.

In contrast, developments in hours worked per employee continued to be negative in the majority of countries also in 2016. Increases larger than 1 percentage point in hours worked per employee were recorded in Lithuania, the Netherlands, and Slovenia only. Smaller increases were observed in Belgium, Cyprus, Hungary, Ireland, Italy, Latvia, and Poland.

Moreover, hours worked per employee remain below pre-crisis levels in most countries. This reflects a continuing slack in the labour market in a number of countries, but also a general long-run trend predating the crisis. This long-term trend is related to the increasing prevalence of part-time work, but also, as noted in Chapter 1 and the previous edition of this report (European Commission, 2016a), to structural shifts in employment towards service sector activities.

2.3.3. Employment developments at sectoral level

In most countries the strongest growth in employment over the past years was observed in services, reflecting the strong recovery of domestic demand (Table I.2.2). The strongest growth of employment in market services comprising accommodation, food service activities and information and communication sectors was recorded in Bulgaria, Croatia, Estonia, Luxembourg, Malta, Portugal, Romania, and Spain.

Table I.2.2: **Employment growth in different sectors, cumulative % change over the years 2013-2016**

	Industry	Construction	Market services	Public admin, health, education
MT	-5.3	4.8	11.7	11.6
HU	5.3	2.9	6.9	11.7
LU	2.5	6.1	7.6	8.4
IE	7.1	28.3	5.1	3.8
SK	7.4	1.2	4.5	5.2
UK	0.7	9.7	5.2	2.0
LT	3.5	4.4	4.3	7.7
SE	-1.9	8.8	3.0	7.4
PT	7.2	0.7	9.6	1.4
HR	1.2	3.8	7.7	9.6
DK	4.0	10.4	4.9	0.7
EE	1.9	-3.4	11.4	0.8
PL	7.8	1.8	5.9	1.2
SI	3.8	-1.6	3.7	3.3
ES	2.3	4.1	7.4	4.5
EU28	1.8	0.8	4.1	3.2
CZ	6.3	-5.4	2.3	3.5
DE	1.1	0.9	1.8	6.2
EA19	0.5	-1.6	3.3	3.1
AT	2.3	1.6	3.2	3.5
CY	-0.2	-6.8	5.2	1.9
BE	-3.7	-1.6	0.5	3.5
IT	-1.6	-8.5	3.0	2.5
NL	-0.2	-3.8	2.8	-2.6
EL	3.8	-9.5	4.9	1.2
FR	-2.4	-4.9	1.5	1.8
BG	3.0	-2.3	4.9	-0.6
FI	-5.4	5.3	-0.9	-0.7
LV	-7.1	6.8	0.5	-5.1
RO	2.5	3.6	11.8	6.8

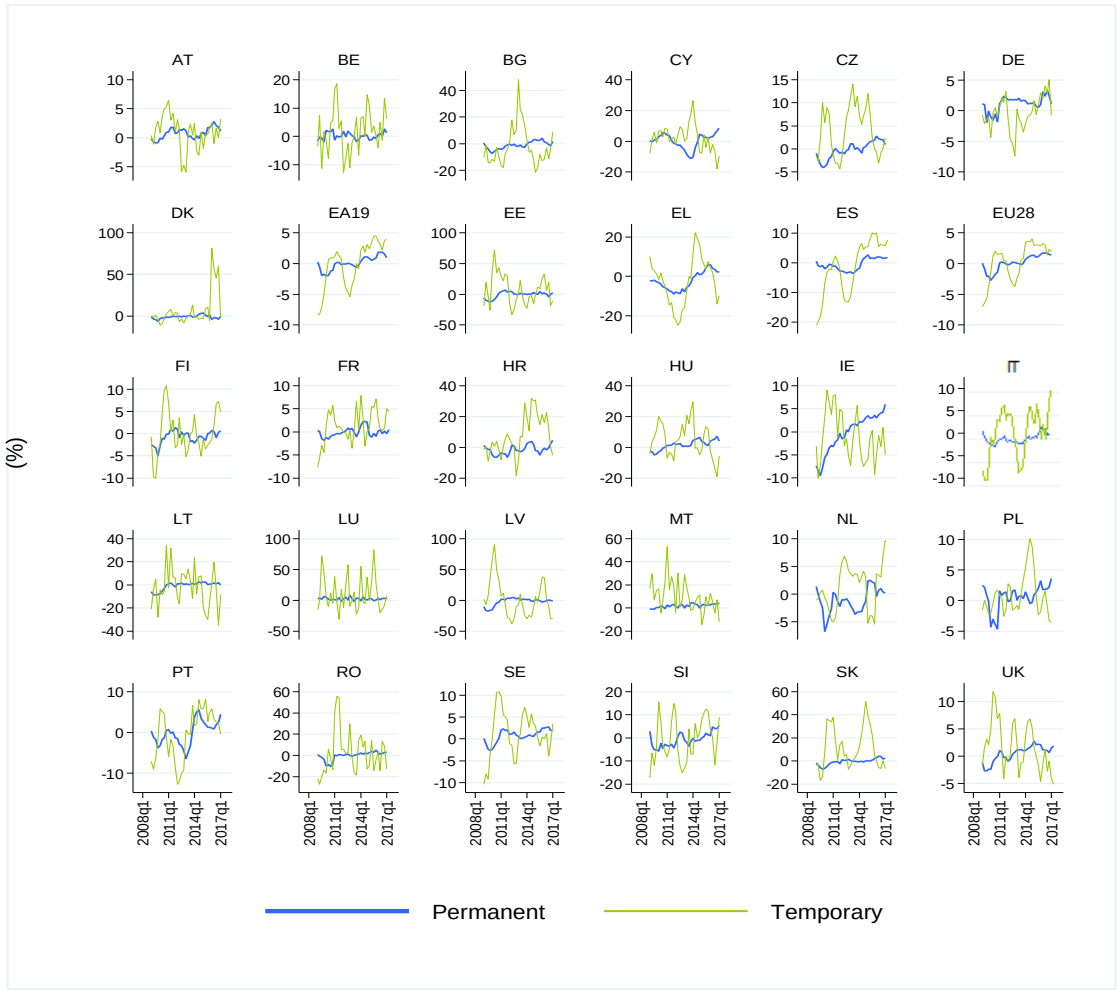
(1) Countries are ranked by descending order of cumulative employment growth over the years 2013-2016.
Source: Eurostat, National Accounts.

The strongest growth of employment in public administration, health and education sectors was observed in Croatia, Hungary, Lithuania, Luxembourg, Malta, and Sweden. Employment in construction grew most in Denmark, Ireland, Latvia, Sweden, and United Kingdom while employment in industry grew most in the Czech Republic, Poland, Portugal, Slovakia, and Ireland.

2.3.4. Employment developments by contract type

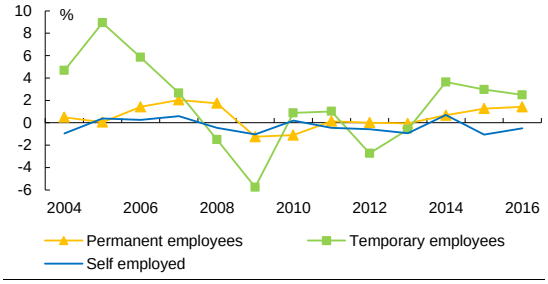
Permanent hiring strengthened in 2015 and 2016 (with growth rates of 1.3% and 1.4%, respectively, after 0.7% in 2014), while the growth of temporary contracts weakened to 2.5% in 2016 from above 3% in the previous two years (Graphs I.2.6 and Graph I.2.5). In contrast, the number of self-employed decreased by 1.1% and 0.5% in 2015 and 2016, respectively).

Graph I.2.5: **Employment growth by contract type, 2009-2016, quarterly data, year-on-year % change**



(1) Age group: 15-64.
Source: European Commission based on Eurostat data, Labour Force Survey.

Graph I.2.6: **Employment growth by contract type, EU 28, 2004-2016, %**



(1) Age group: 15-64.
Source: Eurostat, Labour Force Survey.

Open-ended contracts are still the predominant type of contracts in Member States (Table I.2.3), with a share in total employment of about 73% on average. This share varies significantly across countries, ranging from 57.6% in Poland to 89.0% in Luxembourg. Open-ended contracts as a share of total employment increased in the majority of countries in 2016 while the share of temporary contracts increased in about half of the countries and the share of self-employed decreased in almost all. This shift to permanent contracts is consistent with a recovery that is gaining strength, which reduces uncertainties for firms and allows them to hire on a more permanent basis.

Table I.2.3: **Distribution of contract types among the employed, 2016, % and percentage points**

	Open-ended contracts		Temporary contracts		Self employed	
	2016	Change	2016	Change	2016	Change
LU	89.0	*0.9*	4.9	*-0.8*	6.1	*-0.1*
EE	87.2	*-0.4*	3.3	*0.2*	9.5	*0.2*
LT	86.0	*0.1*	1.7	*-0.1*	12.3	*0.1*
LV	83.8	*-0.4*	3.1	*-0.1*	13.1	*0.5*
HU	82.4	*1.4*	8.5	*-1.3*	9.1	*-0.1*
MT	82.2	*0.0*	6.0	*0.0*	11.8	*0.0*
DK	81.9	*-4.3*	11.9	*4.3*	6.2	*-0.1*
SE	81.5	*0.8*	14.2	*-0.4*	4.3	*-0.4*
UK	79.7	*-0.3*	4.9	*-0.1*	15.4	*0.5*
AT	79.7	*0.2*	7.6	*0.0*	12.8	*-0.2*
DE	79.1	*0.0*	11.0	*0.2*	9.9	*-0.2*
CZ	77.5	*0.2*	7.7	*-0.2*	14.8	*0.0*
SK	77.1	*0.9*	9.0	*-0.5*	13.9	*-0.4*
IE	76.8	*0.7*	6.6	*-0.3*	16.6	*-0.4*
FR	76.2	*0.0*	13.6	*0.1*	10.2	*-0.1*
BE	75.6	*-0.2*	7.6	*0.1*	16.8	*0.1*
FI	75.0	*-0.3*	12.8	*0.4*	12.1	*-0.1*
CY	74.5	*1.7*	13.4	*-1.6*	12.1	*0.0*
RO	73.7	*2.2*	1.0	*0.0*	25.3	*-2.3*
EU28	73.4	*0.1*	11.4	*0.1*	15.2	*-0.3*
EA19	73.0	*0.0*	12.4	*0.2*	14.5	*-0.2*
BG	71.3	*1.2*	3.1	*-0.3*	25.6	*-0.9*
NL	67.5	*-0.2*	15.9	*0.5*	16.7	*-0.2*
PT	67.4	*0.1*	17.9	*0.3*	14.6	*-0.4*
SI	66.8	*1.0*	13.8	*-0.7*	19.4	*-0.4*
HR	66.7	*-0.2*	18.9	*2.0*	14.5	*-1.8*
ES	65.8	*-0.6*	20.9	*0.8*	13.4	*-0.2*
IT	65.4	*0.4*	9.7	*0.0*	24.9	*-0.5*
EL	60.3	*0.8*	6.6	*-0.3*	33.1	*-0.5*
PL	57.6	*0.8*	21.7	*-0.3*	20.7	*-0.6*

(1) Countries are ranked by descending share of open-ended contracts in 2016.
(2) "Change" refers to the change in the share compared with the previous year (in percentage points).
Source: European Commission based on Eurostat Labour Force Survey data.

2.4. JOB MARKET FLOWS

2.4.1. Job finding and separation rates

Changes in unemployment are a result of labour market flows: transitions of individuals from unemployment to employment (job findings) and transitions in the opposite direction (job separations). Thus, transition rates of individuals, and the related development of job vacancies, are useful indicators of the processes underlying unemployment developments.

In most countries, a trend of increasing job finding rates and falling job separation rates continued in 2016 (Graphs I.2.7 and I.2.8). In a number of countries, the job finding rate was above or near pre-crisis levels (including Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Lithuania, Slovenia, Slovakia, and the United Kingdom). In Greece, Portugal, and Spain, improvements in the job finding rates followed the implementation of reforms of the employment protection legislation (see Box I.2.2 for a more detailed discussion). In contrast, the job finding rate fell in Austria and Luxembourg, while it stagnated in Finland and France. Separation rates are somewhat more volatile than finding rates, but are in most cases returning to their pre-crisis heights. In 2016, they increased in Cyprus, Denmark, Estonia, and Italy.

2.4.2. The Beveridge curve and matching efficiency

The Beveridge curve, that is the negative relation between unemployment and job vacancies, is the standard tool to assess whether the mismatch between labour demand and labour supply reflects cyclical changes or structural shifts in the process matching vacant posts with unemployed people.

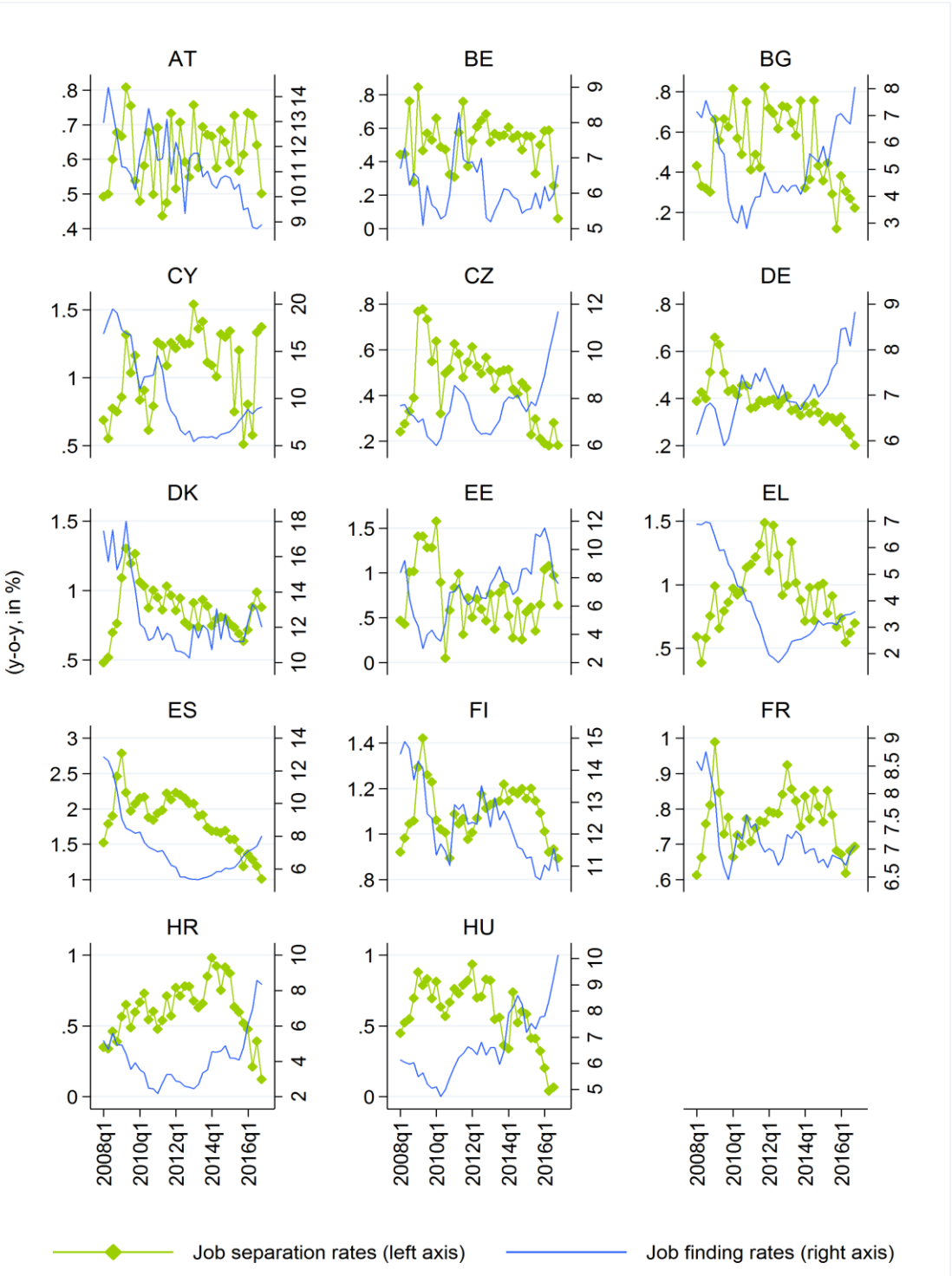
This relationship is usually negative: in good times firms post many vacancies, while unemployment is low, and *vice versa* in bad times. Sometimes, 'shifts' in the Beveridge curve are observed, when the negative relationship moves 'inwards' (toward the origin) or 'outwards' (away from the origin). An outward shift in the Beveridge curve may be a signal of deteriorating labour market matching between firms and job-seekers, as it means that more vacancies are posted, than before, at the same unemployment rate. Similarly, an inward shift may signal an improvement in labour market matching. ([21]) Graphs I.2.9 show the Beveridge curves for two periods: 2000Q1-2007Q4 and 2008Q1-2016Q4. A number of different patterns can be highlighted.

First, large outward shifts of the Beveridge curve are observed, especially after 2010, both in countries severely hit by the crisis (Croatia, Cyprus, Greece) and in countries with a relatively low or intermediate unemployment rates (Austria, Denmark, France, Italy, the Netherlands, and Slovenia).

Second, in Portugal, Spain, and Slovenia, rapid outward shifts were followed by rapid movements in the opposite direction, which reveals the importance of cyclical developments.

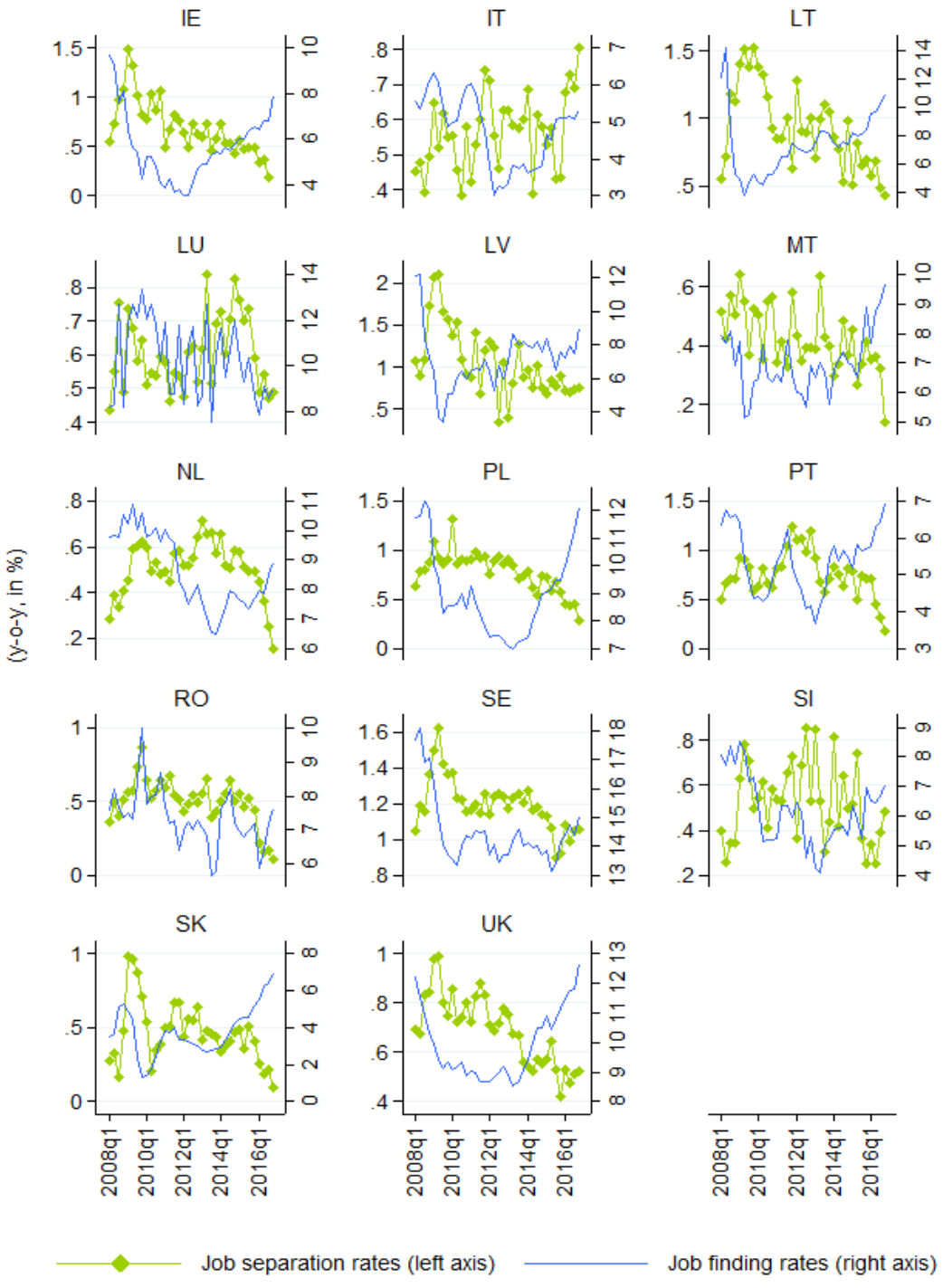
([21]) Yet, it is hard to judge shifts in the Beveridge curve in real time, because it often exhibits counter-clockwise circles during the economic cycle as vacancies tend to recover before unemployment starts to fall.

Graph I.2.7: **Job finding and job separation rates, 2008-2016, quarterly data**



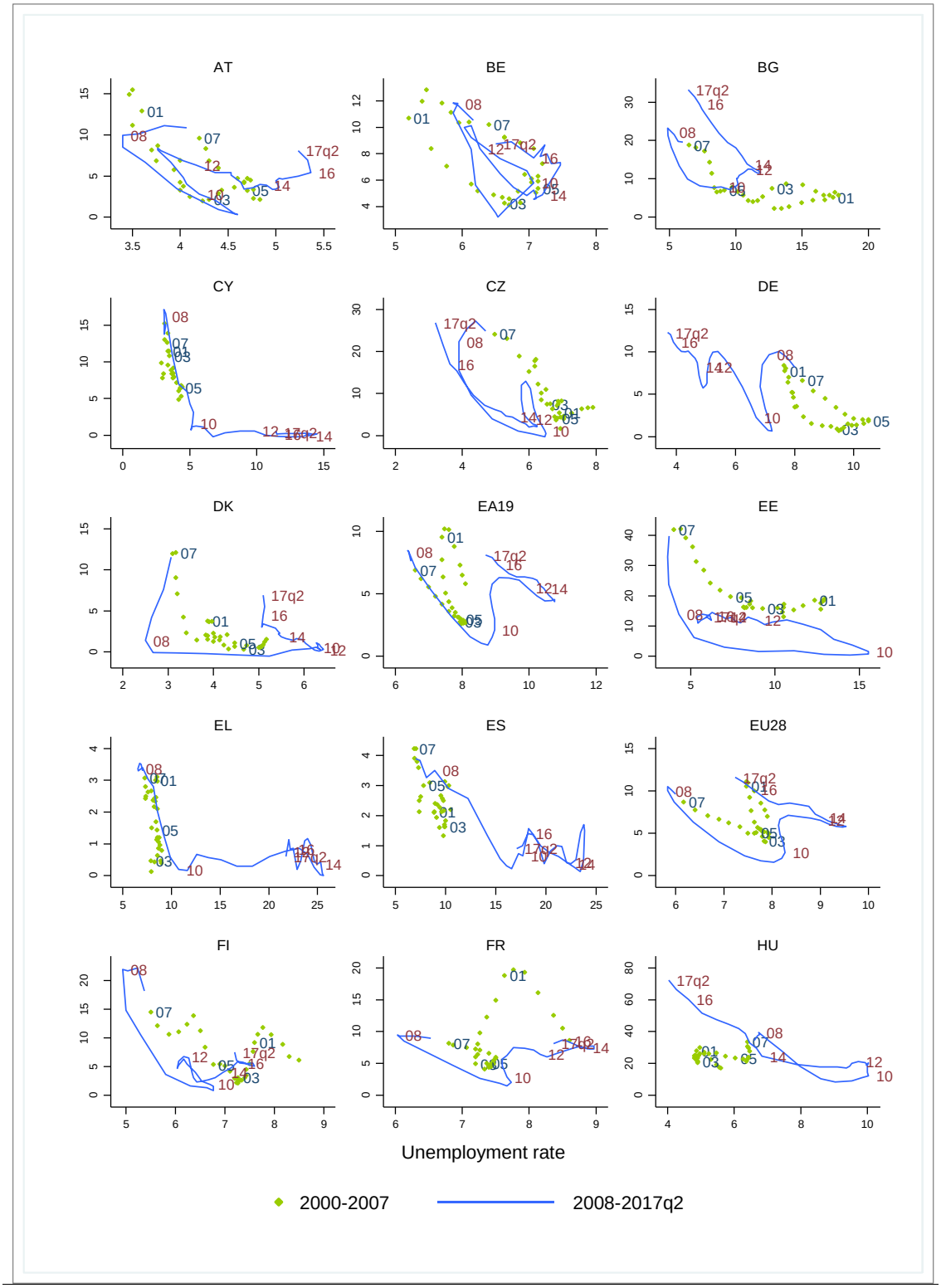
Source: European Commission based on Eurostat data.

Graph I.2.8: **Job finding and job separation rates, 2008-2016, quarterly data, cont.**



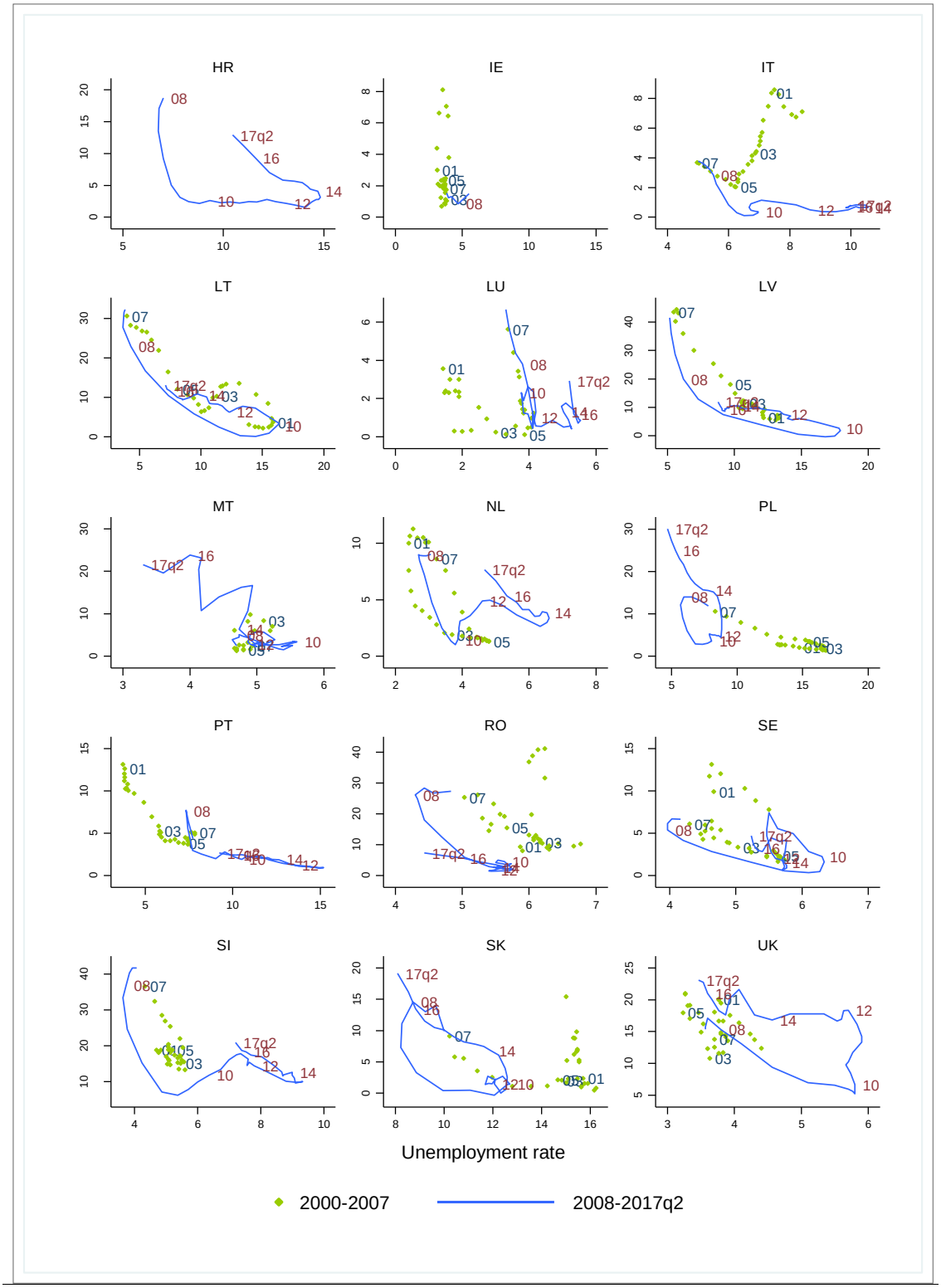
Source: European Commission based on Eurostat data.

Graph I.2.9: **The Beveridge curve in EU Member States, 2000-2016, quarterly data**



Source: European Commission based on Eurostat data.

Graph I.2.10: **The Beveridge curve in EU Member States, 2000-2016, quarterly data, cont.**



Source: European Commission based on Eurostat data.

Box I.2.2: **Recent developments in matching efficiency in the EU and the euro area**

Matching efficiency measures how efficient the process of matching job-seekers with available jobs is. ([1]) If unemployment falls while the number of vacancies is unchanged, the Beveridge curve shifts 'inwards', and matching efficiency is said to improve (and *vice versa*). ([2])

This box updates estimates of the matching efficiency produced for Member States in the 2013 edition of this Report (European Commission, 2013). Following Barlevy (2011), the so-called matching function is assumed to take a Cobb-Douglas form. Using the Beveridge curve, which equalises flows into and out of unemployment, allows for the computation of the matching efficiency for given values of the separation rate, the unemployment rate and the vacancy-unemployment ratio (labour market tightness). (For more details, see European Commission 2013; and Arpaia, Kiss and Turrini, 2014).

Following the methodology of Shimer (2005) and the ensuing literature, the baseline measure of matching efficiency is constructed keeping job separation rates constant, set at their pre-crisis averages. ([3]) In order to control for the potential effect of the economic crisis on separation rates, an alternative measure of the matching efficiency is constructed using the separation rates that are allowed to vary over the cycle: in particular, fitted values are used from a regression linking the separation rate to the labour market tightness. Furthermore, this measure of matching efficiency controls for the effects of the reform of employment protection legislation (EPL) implemented in countries most severely hit by the 2008 crisis.

Greece, Portugal and Spain implemented comprehensive EPL reforms. How EPL reforms affect matching efficiency is not clearly established in the literature. Less stringent EPL may induce faster reallocation and improve the efficiency of the matching process. However, if reallocation comes with skill mismatches, unemployment can become persistent and matching efficiency may deteriorate. Thus, cost effective active labour market policies that accompany workers in the transitions between different jobs increase the responsiveness of unemployment to vacancies and lead to an improvement of the matching efficiency. Moreover, more fluid labour market improves hiring and makes employers more willing to open and fill vacancies.

Data used in the analysis are quarterly Eurostat and OECD data for unemployment, vacancies, and occupied posts for the private sector. European Commission Business survey data (in particular, the share of respondents who report that labour is a 'factor limiting production') is used as a proxy of labour market tightness for countries and periods where data on vacancies is not available. ([4])

Graph 1 shows the evolution of matching efficiency in 24 Member States (blue lines). For Greece, Portugal and Spain an alternative measure of matching efficiency is also presented, which allows for time-varying separation rates and takes EPL reforms into account (green lines). Data are normalised to 2008 so that changes are comparable across countries.

([1]) It is a concept based on the theory of job-search and matching (Mortensen and Pissarides, 1994), which provides insights into the dynamics of hiring, and in fact describes the productivity of the matching function.

([2]) Although changes in the measured matching efficiency are usually considered to reflect changes in structural unemployment, caution is due. For example, shifts in the composition of labour demand from high to low labour turnover industries (i.e. from construction to engineering) or reduced recruitment intensity may lead to a decline in the measured matching efficiency, but not in the actual efficiency of matching.

([3]) This is a shortcoming of standard approach, since the severe economic turmoil could have had significant impact for the matching efficiency: the probability of losing a job can suddenly increase in response to large economic shocks. This was widely witnessed during the financial crisis for both the US and several European countries.

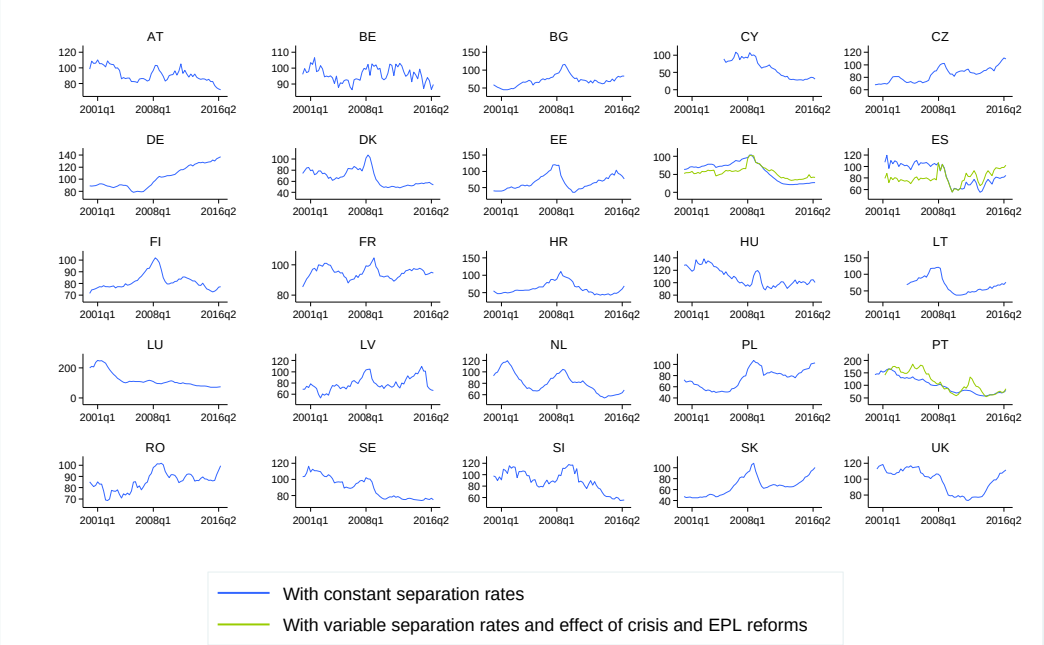
([4]) The vacancy rates series were constructed as follows: Whenever possible, OECD data are used first, due to the longest time-span consistently gathered for a large set of countries, namely Austria, Czech Republic, Germany, France, Luxembourg, Poland, Portugal, Sweden, and United Kingdom. For the remaining countries, Eurostat data (NACE2 combined with NACE1 classification of economic activities) are used. For the beginning of the sample period, the original OECD or Eurostat series are extrapolated using the EC Business survey data. The constructed data series are available upon request.

(Continued on the next page)

Box (continued)

The standard matching efficiency measure follows closely the evolution of the job finding rates, which are highly cyclical; yet, visual inspection of the series reveals notable diversity across countries. ([5]) See section 2.4.2 for further discussion of matching efficiency constructed using the constant separation rates.

Graph 1: Matching efficiency in selected Member States, 2000-2016, quarterly data

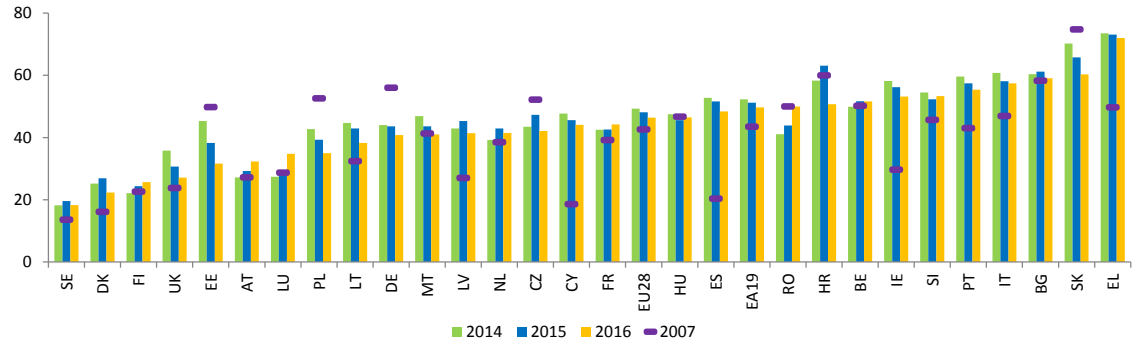


The econometric analysis suggests that EPL reforms implemented in Portugal and Spain reduced the effect of the crisis on the separation rate, a fact consistent with previous findings (i.e., OECD, 2013, 2016b), while changes in the finding rates mainly mirrored weak cyclical developments. In these countries, EPL reforms were implemented when unemployment was almost at its peak and the decline in separation rates led to an improvement in the matching efficiency. The effect was, however, short-lived due to the inception of the euro debt crisis. After 2013, separation rates started to fall and job finding rates started to increase. Together with the favourable effects of unemployment dynamics, the matching efficiency in Spain and Portugal started to recover.

In contrast, changes to EPL occurred in Greece at different points in time: trial and notification periods were modified in late 2010-early 2011, while severance payments were reduced as part of the package that included measures aiming at direct labour costs reductions (i.e. labour cost gains without employment cuts) in late 2012. The results, consistent with the results in Tagkalakis (2016), show that when controlling for the timing of reforms, early EPL reforms increased labour shedding, while subsequent measures - although estimates have large standard errors - worked in the opposite direction. In contrast, there is no major difference in the effects on the job finding rate, which drops in response to the EPL reforms implemented during the crisis. This result is also consistent with the evidence cited above. As a consequence of the strong increase in separations observed during the crisis, matching efficiency deteriorated (i.e. the Beveridge curve shifted outwards). Only after 2013 did the separation rate start to decrease in Greece, followed by gradual increases in the job finding rate. Together with the positive effect of unemployment dynamics, the matching efficiency started to recover.

([5]) Comparison of the two measures reveals that the one derived assuming constant separation rates usually moves in line with the measure derived from separation rates that vary over the cycle. This suggests that most of the variation in the matching efficiency is cyclical. A significant difference between the two measures is detected only for countries where the labour market has undergone important structural improvements, as revealed by the decline in estimates of the structural unemployment rate (the so-called non-accelerating wage rate of unemployment, NAWRU) notably for the Czech Republic, Germany, Slovakia and Poland.

Graph I.2.11: **The long-term unemployment ratio in 2007 and 2014-2016, %**



(1) Long-term unemployment ratio represents long-term unemployment as a proportion of total unemployment.
(2) Long-term unemployment is defined as unemployment lasting at least 12 months.
(3) Countries are ranked by ascending order of long-term unemployment in 2016.
Source: Eurostat.

In the Czech Republic and Germany, the Beveridge curve shifted inwards as compared to the pre-crisis period. Some countries (Latvia, Lithuania) appear to remain on the same Beveridge curve throughout the whole period, while in others the curve exhibits clockwise cyclical movements (Belgium, Poland, and the United Kingdom).

Further, in several countries (Cyprus, Estonia, Italy, Latvia, Portugal) the Beveridge curve has recently "flattened": movements in unemployment are not accompanied (or preceded) by large movements in vacancies. This phenomenon, related to the stronger than expected unemployment decline, suggests that further but less strong declines might be possible. In contrast, only few countries show recently a steepening of the curve (e.g. Poland, Bulgaria, Hungary and Malta), which may signal that unemployment is approaching its structural level.

Estimated shifts in the Beveridge curve can be traced back to changes in the efficiency of labour market matching (see Box I.2.2). For many countries, estimated matching efficiency follows the evolution of job finding rates, which are highly cyclical (Graph 1 in Box I.2.2). However, there are notable differences across countries.

At the onset of the financial crisis, the matching process deteriorated in many countries, including Cyprus, Greece, Croatia, the Netherlands, and Slovenia. In contrast, it improved in the Czech Republic, Germany, and Poland. Since the start of the recovery, improvements are being seen across the board, with the matching efficiency close to its pre-crisis levels in Estonia, Finland, France, Hungary, Romania, and the United Kingdom. Yet, in Austria and Belgium, matching efficiency has considerably dropped recently. ([22])

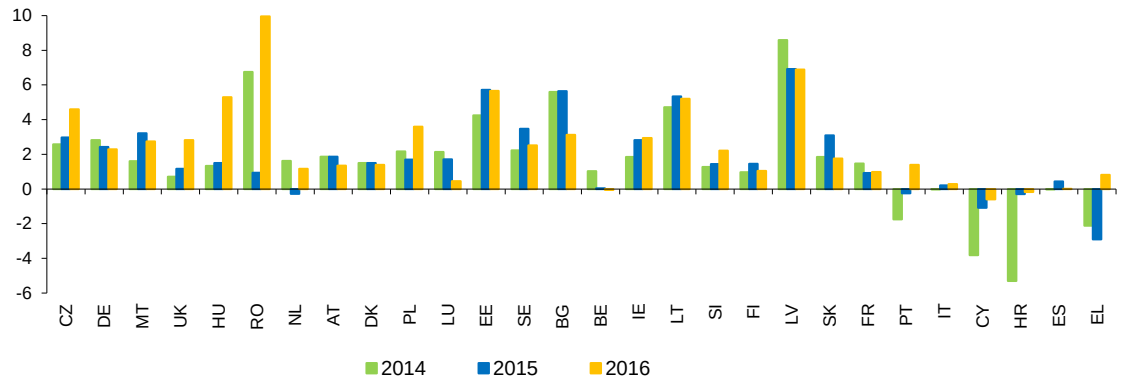
2.4.3. Length of unemployment spells and long-term unemployment

The long-term unemployment ratio (the share of those looking for a job for more than a year among all unemployed) has continued to fall in 2016 but remained, in most cases, above pre-crisis levels (Graph I.2.11). It fell below the 2007 levels in Central and Eastern European Countries (Croatia, the Czech Republic, Estonia, Hungary, Poland, Romania, and Slovakia) as well as in Germany and Malta. Increases in the long-term unemployment ratio were recently observed in Austria, Finland, France, Hungary, Luxembourg, Romania and Slovenia.

The length of unemployment spells is inversely related to job finding rates. In most EU countries, the average duration of unemployment in late 2016 was still significantly higher relative to the pre-crisis period (Graph I.2.13). In a few countries, namely Croatia, Czech Republic, Germany, Ireland, Latvia, Lithuania, the Netherlands, Poland, Portugal, and Slovakia, the unemployment duration fell (by relatively small margins) and is now lower than in the past ten years. The shortest

([22]) For Latvia, the drop at the end of 2015 is related to improvements in the collection of job vacancy data.

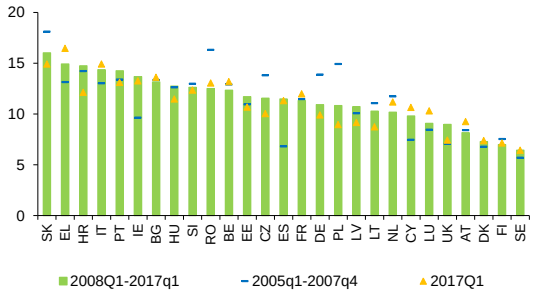
Graph I.2.12: **Nominal compensation per employee, 2014-2016, annual % change**



(1) Wages are measured by the indicator "Nominal compensation per employee", which is calculated as a total compensation of employees divided by total number of employees. The total compensation is defined as the total remuneration, in cash or in kind, payable by an employer to an employee in return for work done by the latter during the accounting period and it has two components: i) Wages and salaries payable in cash or in kind; and ii) Social contributions payable by employers.
(2) All the data used are national accounts data. The indicators are based on national currency values. Aggregates are weighted averages.
(3) Countries are ranked in ascending order of the unemployment rate in 2016.
Source: European Commission, AMECO database.

unemployment spells are observed in Northern countries.

Graph I.2.13: **Length of unemployment spells, 2005-2017, quarterly data, months**



(1) Data for Malta are not available.
Source: European Commission based on Eurostat data.

2.5. TRENDS IN WAGES AND LABOUR COSTS

2.5.1. Nominal wage developments

Nominal wage growth turned positive in virtually all Member States in 2016 (Graph I.2.12). ([23]) Wage developments in Greece and Portugal turned positive in 2016 after years of downward adjustment. Wages grew faster in Member States with lower wage levels, and in those countries that are not members of the euro area. The notable exceptions to these trends were Croatia and Cyprus, where wage developments remained negative also in 2016.

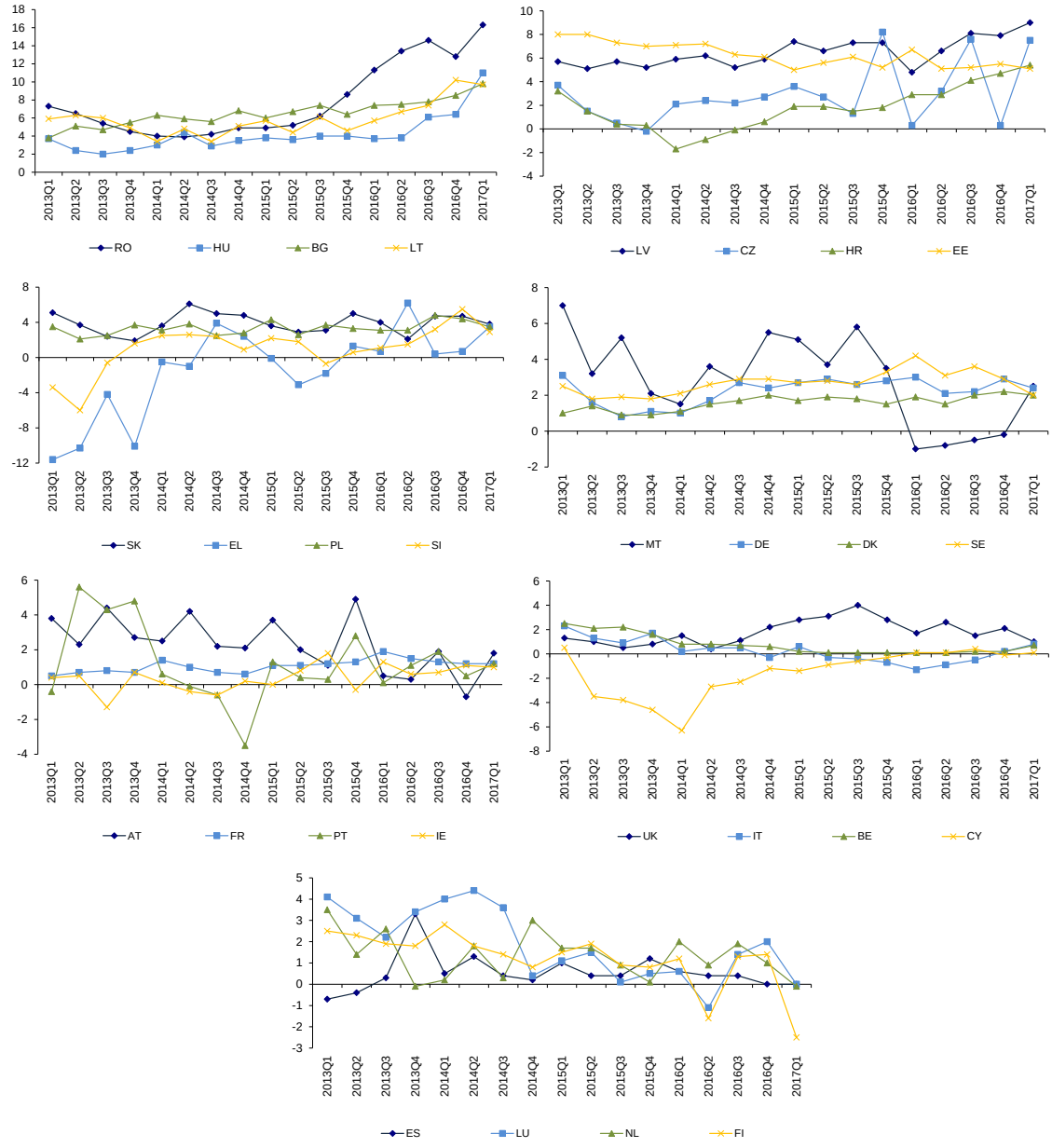
Wage growth was the highest (above 5%) in the Baltics, Hungary, and Romania, reflecting both rapid catching-up of GDP per capita to the EU average and, especially for the Baltics, the recovery of domestic demand after the contraction that had followed the 2008 crisis. In turn, wage growth below 1% prevailed in several countries, both those with past current account deficits and pervasive adjustment needs (Spain) and those with a current account surplus but which have been experiencing a deterioration of their external position and a loss of cost competitiveness after the crisis (Belgium, Finland, Italy, and Luxembourg).

The largest euro area countries exhibited comparatively low wage growth: compensation per employee grew by 2.3% in Germany, 1.0% in France, and by 0.3% and 0.0% in Italy and Spain, respectively. In all of these countries, wage growth has remained very stable in recent years.

Hourly labour costs continued to increase moderately in most countries in 2016 (Graph

([23]) In this section the terms compensation per employee and wages are used inter-changeably.

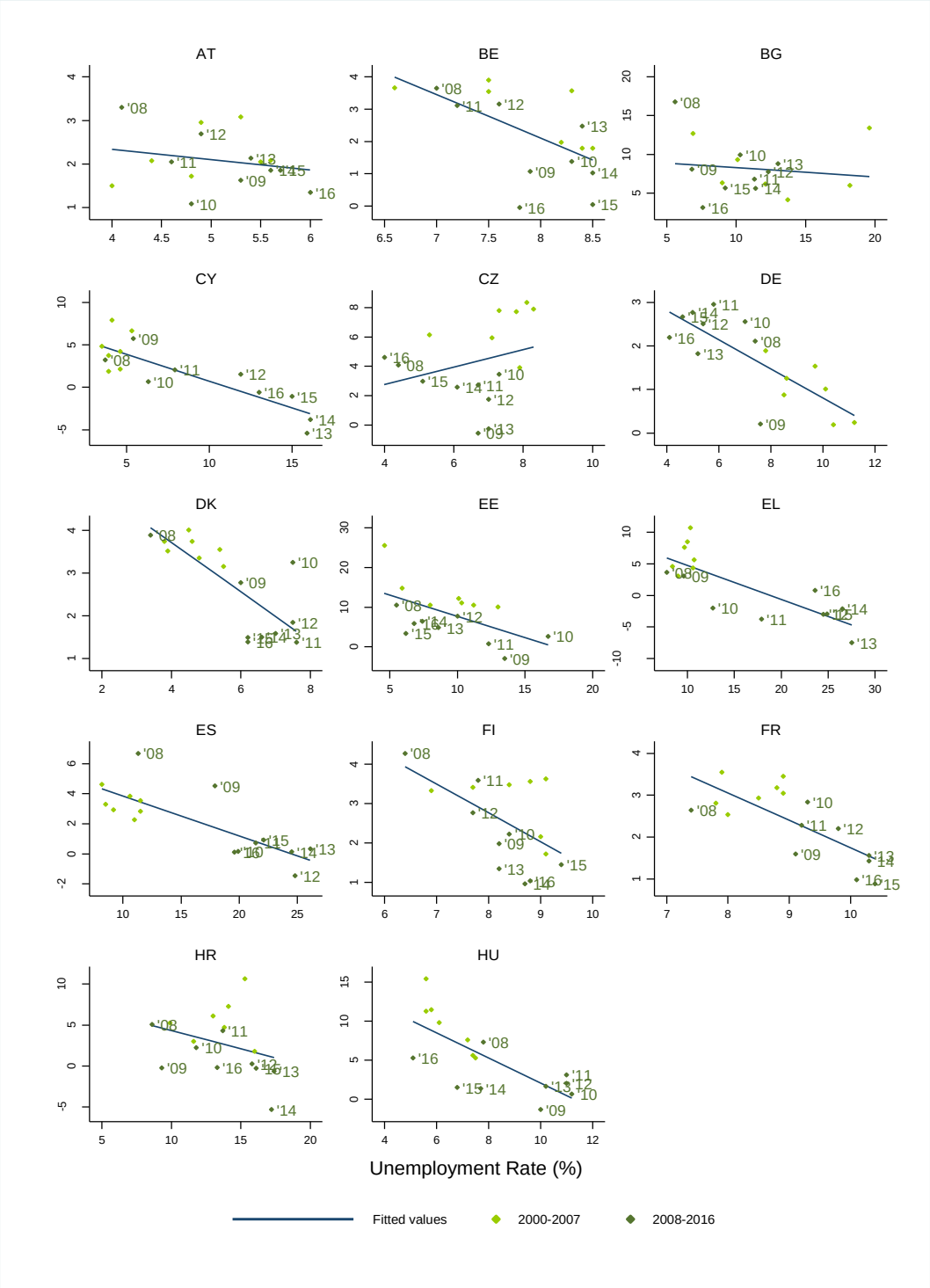
Graph I.2.14: **Hourly labour cost index, 2013-2017, quarterly data, year-on-year % change**



(1) Countries are grouped according to the magnitude of variations in HLCI.
Source: Eurostat.

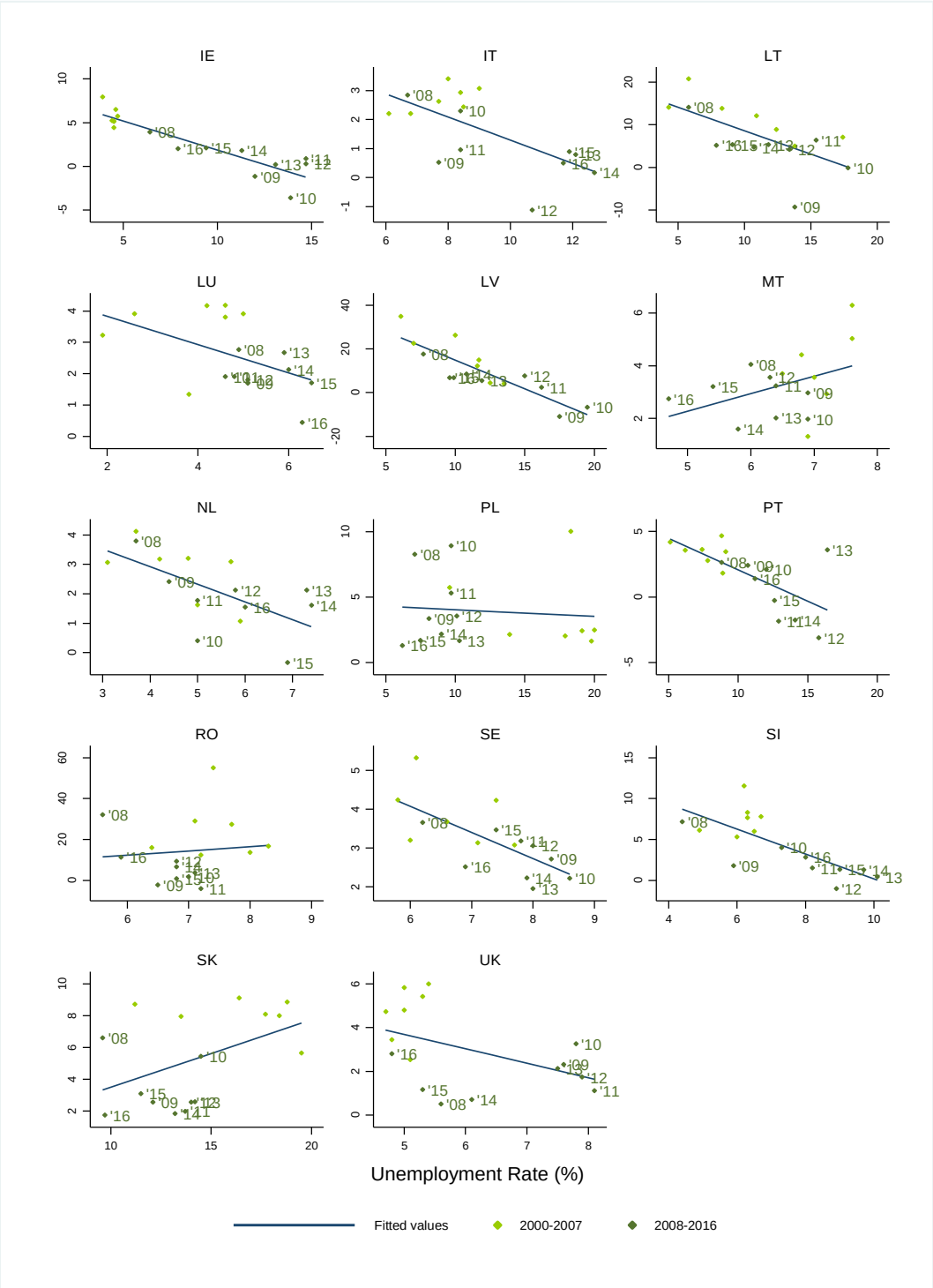
I.2.14). Increases by 5% or more were recorded in Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, and Lithuania. The only two countries where the hourly labour cost decreased were Italy and Malta. In Italy, hourly labour cost decreased by 0.6% in 2016, following a 0.2% decrease in 2015.

Graph I.2.15: **Phillips curve for EU countries: compensation per employee growth and unemployment rate, 2000-2007 and 2008-2016**



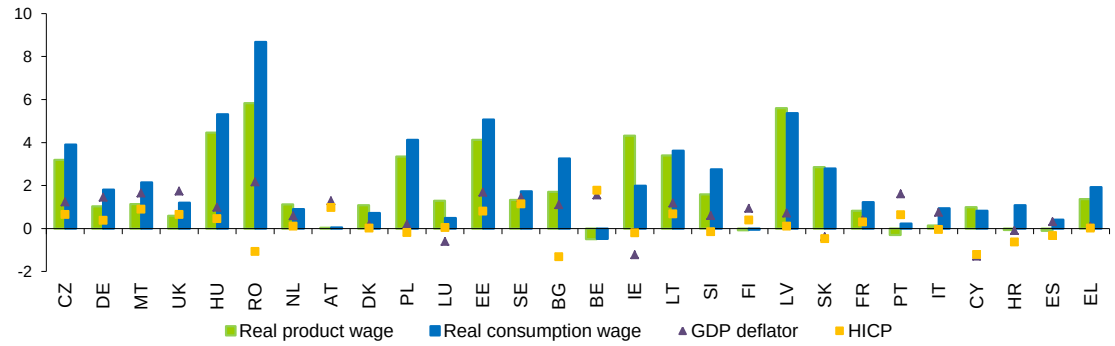
Fitted values over the whole sample period.
Source: European Commission based on Eurostat data.

Graph I.2.16: **Phillips curve for EU countries: compensation per employee growth and unemployment rate, 2000-2007 and 2008-2016, cont.**



Fitted values for the whole sample period.
Source: European Commission based on Eurostat data.

Graph I.2.17: **Real product and consumption wages, HICP and GDP deflator, 2016, annual % change**



(1) Countries are ranked by ascending order of the unemployment rate in 2016.
Source: European Commission, AMECO database.

The Phillips curve, the negative relationship between wage growth and unemployment, is the standard tool to assess how wages respond to unemployment. The slope of the Phillips curve reflects the strength of this relationship: a steeper Phillips curve means that wage growth reacts more to changes in unemployment.

In most countries, rapid increases and decreases in unemployment were accompanied by muted wage pressures (Graphs I.2.15 and I.2.15). This wage moderation during the recovery may be due to a number of factors, including the overall magnitude of the labour market slack, weak productivity developments, entrenched low wage inflation expectations and, especially in countries where labour resources remain largely underutilised, the effect of *pent-up* wage deflation ([24]). In contrast, in countries that underwent significant wage cuts (e.g. Greece), the return to wage growth was rapid if judged on the basis of the Phillips curve for the pre-crisis sample period. Finally, in Cyprus, Ireland, Italy, Latvia, Portugal, wages moved along a broadly stable relationship with unemployment.

In most Member States, wage growth in 2016 was slower than or equal to what would be expected on the basis of the historical relationship with unemployment. Countries in which wage growth remained furthest below the historical relationship include Belgium, Bulgaria, Finland, Slovakia, and Sweden.

([24]) During the crisis, downward nominal wage rigidities kept real wages above the value consistent with stable unemployment. As labour demand rises, there is no increase in the wage of workers that avoided a wage cut during the recession (Yellen, 2014).

Alternative Phillips curves constructed by replacing the unemployment rate by different measures of labour market slack are presented in the Appendix to this Chapter (For their construction, see Box I.1.1.). For most of the euro area countries, the response of wages to the other measures of slack in the labour market is similar to the response of wages to the unemployment rate. Only in some cases (Belgium, Cyprus, Finland, Latvia, Luxembourg, the Netherlands, and Slovakia) is the response of wages to the broadest measure of labour market slack (which includes the unemployed, discouraged workers, those seeking but not immediately available to work, and involuntary part-time workers) slightly lower.

2.5.2. Real wage developments

In 2016, real wages increased in almost all Member States (Graph I.2.17). The increase in real consumption wages (i.e. wages adjusted for the change in consumer prices) helped sustain aggregate demand. At the same time, due to an overall increase in consumer prices, real wage growth in 2016 remained below that in 2015 in most of the Member States. Real consumption wages fell only in Belgium and Finland as a result of stagnant nominal wages and low but positive inflation.

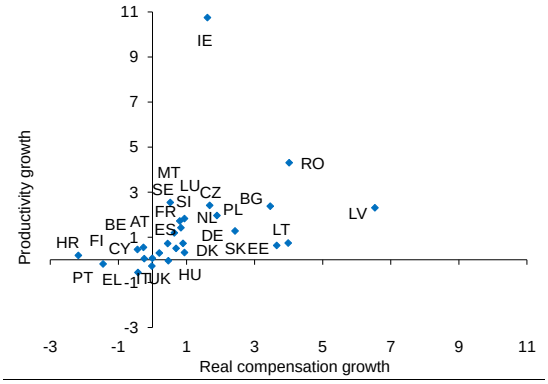
Real production wages (i.e. wages adjusted for the GDP deflator, or producer prices) are the relevant labour cost indicator for firms. Like in 2015, also in 2016 producer prices increased more than consumer prices, resulting in real production wages increasing less than real consumption wages, leaving more room for firms to remain

profitable while increasing wages. The largest differences between real consumption and product wages were recorded in Bulgaria and Romania on the one hand (where producer prices increased while consumer prices fell), and Ireland and Luxembourg on the other (where producer prices fell while consumer prices stagnated). In other countries, both indicators exhibited similar dynamics.

2.5.3. Real compensation per employee, productivity and unemployment

In the period 2014 to 2016, real wage growth lagged behind average productivity growth in a large number of EU countries - 17 countries (Graph I.2.18). Besides Ireland, where productivity increased due to a revision in GDP statistics, the largest gaps between productivity and real wage growth could be observed in Croatia, Malta and Portugal (larger than 1 percentage point *per annum*), followed by Belgium, Finland, Luxembourg, and Sweden.

Graph I.2.18: **Real compensation per employee and productivity, average growth rates 2014-2016**

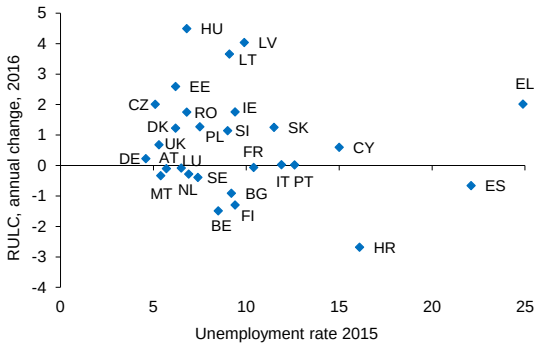


(1) Real compensation growth is calculated as the growth of nominal compensation per employee deflated with the GDP deflator.
Source: European Commission based on Eurostat data.

In contrast, real wage growth exceeded productivity growth in the Baltic States (by more than 3 percentage points *per annum*), Slovakia and Bulgaria (by more than 1 percentage point *per annum*). In six countries, real wage growth was negative over the period 2014-2016 accompanying weak (Belgium, Croatia, Cyprus, Finland) or negative (Greece, Portugal) productivity growth. In 2016, the dynamics reversed in most of the countries as wage growth exceeded productivity growth in 11 countries. The countries where wage growth lagged furthest behind productivity growth were Bulgaria, Malta, and Portugal (by more than 1 percentage point).

Real unit labour costs (ULC), a measure that mimics the labour share, compares real wages to productivity; it is the relevant metric to assess whether real wages are consistent with the absorption of unemployment in *excess* of its structural level. Like in the previous year, the correlation between the unemployment rate in 2015 and the change of the real unit labour costs in 2016 remained weak (Graph I.2.19).

Graph I.2.19: **Unemployment rate (2015) and change in real unit labour costs (RULC, 2016)**



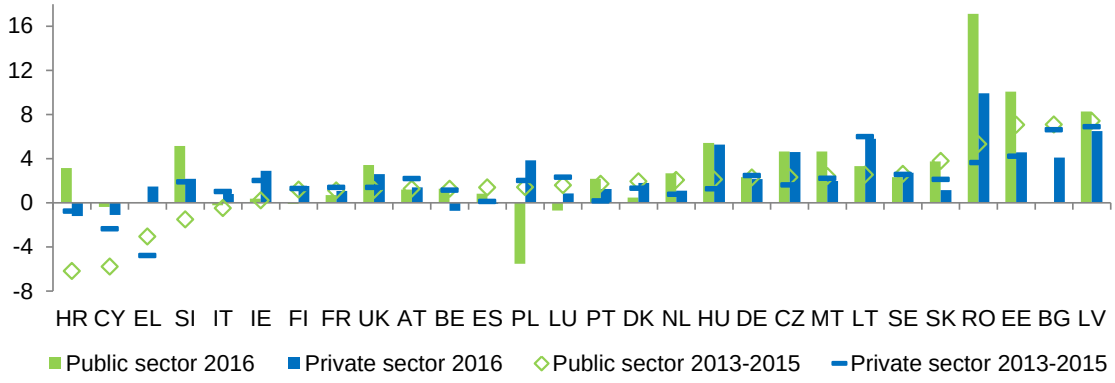
Source: European Commission based on Eurostat data.

While real unit labour costs in some high-unemployment countries continued to decline (Croatia and Spain), they started to moderately increase in Cyprus and Greece. On the other end of the spectrum, while most of the countries with fast labour cost growth have comparatively low unemployment rates (the Czech Republic, Denmark, Estonia, Hungary, and to a lesser extent Latvia, and Lithuania), other countries with the lowest unemployment rates recorded very weak labour cost growth (Germany, United Kingdom) or negative labour cost growth (Austria, Luxembourg, Malta, and the Netherlands).

2.5.4. Wage developments by sector

Wage growth in the public and private sectors was similar in most countries in 2016 (Graph I.2.20). In 2016, wages in the public sector grew faster than in the private sector in a number of countries. This is partly due to recent increases of public wages

Graph I.2.20: **Compensation per employee in public and private sectors, 2013-2016, % change**



(1) The public sector is defined as public administration and defence, education, health and social work, personal service activities.
(2) Countries are ranked by ascending order of growth of compensation per employee in the public sector in the period 2013-2015.
Source: Eurostat.

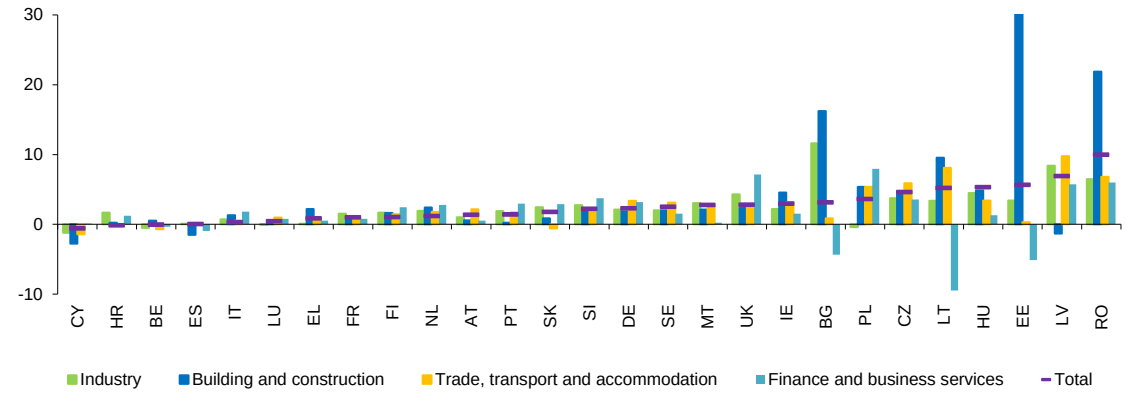
after being frozen or severely cut, in many countries amidst fiscal adjustment programmes (Croatia, Greece, Portugal, Slovenia, and United Kingdom). The largest increase was observed in some countries where public wages had shown rapid and volatile increases in the past (Estonia, Latvia, and Romania), partly reflecting a catching-up process from originally low levels.

In 2016, public wages decreased significantly in Poland, while stagnated in Cyprus, Finland, Italy, and Luxembourg. Between 2013 and 2015, cuts in public wages were significant in Croatia, Cyprus, Greece, and more modest in Italy and Slovenia.

In the private sector, wage developments were strongest in the *Building and Construction* sector, in most of the Member States (Graph I.2.21). For Member States with the strongest aggregate wage growth, wages in the *Building and Construction* sector grew the fastest (except in Latvia). Wage growth in *Trade, Transport and Accommodation* and *Industry* was consistent with growth of overall wages.

In most of the countries, wages in *Finance and Business Services* evolved in line with, and sometimes even faster than in the other sectors; conversely, they dropped in Bulgaria, Croatia, Czech Republic, Lithuania, and Poland. Prices, unit labour costs and the tax wedge

Graph I.2.21: **Compensation per employee by sector, 2016, annual % change**



(1) Countries are ranked by ascending order of changes in average compensation per employee (total economy) in 2016.
Source: Eurostat.

2.5.5. Nominal Unit labour costs

The nominal unit labour costs (NULC) compare nominal wages with labour productivity, providing information on cost competitiveness developments. In 2016, NULC picked up in the EU, driven by wage growth and modest productivity gains (Table I.2.4). The increase was the highest in the Baltic countries, the Czech Republic, Hungary, and Romania. Most of these countries faced relatively rapid wage growth due to tightening labour markets, coupled with modest productivity growth. An exception is Romania where wage growth kept pace with rapidly expanding productivity.

Table I.2.4: **Decomposition of nominal unit labour costs (NULC), annual % change, 2016**

	NULC	Compensation per employee	Labour productivity	GDP deflator	RULC
HU	5.5	5.3	-0.2	1.0	4.5
LT	4.9	5.2	0.3	1.2	3.7
LV	4.8	6.9	2.0	0.7	4.0
EE	4.3	5.7	1.3	1.7	2.6
RO	4.0	10.0	5.8	2.2	1.8
CZ	3.3	4.6	1.3	1.2	2.0
UK	2.4	2.8	0.4	1.7	0.7
EL	2.1	0.8	-1.3	0.1	2.0
SI	1.7	2.2	0.5	0.6	1.1
DE	1.7	2.3	0.6	1.4	0.2
PT	1.6	1.4	-0.2	1.6	0.0
PL	1.5	3.6	2.1	0.2	1.3
DK	1.4	1.4	0.0	0.2	1.2
MT	1.3	2.7	1.4	1.6	-0.3
AT	1.2	1.3	0.2	1.3	-0.1
SE	1.0	2.5	1.5	1.4	-0.4
SK	0.9	1.8	0.9	-0.4	1.3
IT	0.8	0.3	-0.5	0.8	0.0
IE	0.5	2.9	2.4	-1.2	1.8
FR	0.3	1.0	0.7	0.4	-0.1
NL	0.3	1.2	0.9	0.6	-0.3
BG	0.2	3.1	2.9	1.1	-0.9
BE	0.0	0.0	-0.1	1.6	-1.5
ES	-0.4	0.0	0.4	0.3	-0.7
FI	-0.4	1.0	1.4	0.9	-1.3
LU	-0.7	0.4	1.1	-0.6	-0.1
CY	-0.7	-0.6	0.1	-1.3	0.6
HR	-2.8	-0.2	2.7	-0.1	-2.7

(1) Countries are ranked by descending order of change in nominal ULC in 2016.
(2) The annual change in nominal ULC (NULC) is calculated as the difference between the change in compensation per employee and the change in (real) labour productivity. The annual change in real unit labour costs (RULC) is calculated as the difference between the change in NULC and the GDP deflator.
Source: European Commission, AMECO database.

In contrast, NULC declined in Croatia, Cyprus, Finland, Luxembourg and Spain, and stagnated in Belgium, Bulgaria, France, and the Netherlands, supporting cost-competitiveness gains.

In most countries, these gains derived mainly from moderate wage developments, while in few (Bulgaria, Croatia, and Ireland) productivity growth more than offset the increase in labour costs. Among the largest countries, NULC expanded at a faster rate in Germany (1.7%), while they grew at 0.8% and 0.3% in Italy and France, respectively, and fell in Spain.

2.5.6. Contribution to the final demand deflator

Despite modest increases in labour cost dynamics, wages did not create inflationary pressures in 2016 (Table I.2.5). In five countries, NULC developments had a negative contribution to the domestic demand deflator, while their contribution remained below 0.5% in another 10 countries.

Table I.2.5: **Contributions to the final demand deflator, 2016, annual % change**

	Import prices	NULC	Indirect taxes	Gross oper. surplus	Final demand deflator
CZ	-1.5	0.9	0.1	-0.3	-2.4
LV	-2.3	1.5	0.0	-1.0	-1.9
LT	-1.9	1.3	0.1	-0.8	-1.2
DK	-1.3	0.5	0.2	-0.6	-1.2
IE	-0.6	0.1	0.1	-0.8	-1.2
NL	-1.3	0.1	0.3	-0.1	-1.0
CY	-0.4	-0.2	0.1	-0.7	-1.0
LU	-0.6	-0.1	-0.1	0.0	-0.8
BG	-1.5	0.1	0.6	0.0	-0.8
HR	-0.7	-1.1	0.3	0.7	-0.8
SK	-0.5	0.2	0.0	-0.4	-0.7
EL	-0.6	0.8	0.7	-1.4	-0.5
SI	-0.8	0.6	0.0	-0.3	-0.5
HU	-1.0	1.4	-0.2	-0.6	-0.5
PL	-0.5	0.5	0.4	-0.7	-0.4
FR	-0.6	0.1	0.1	0.0	-0.3
BE	-1.0	0.0	0.3	0.5	-0.1
ES	-0.4	-0.2	-0.1	0.5	-0.1
IT	-0.7	0.3	-0.6	0.8	-0.1
FI	-0.8	-0.2	0.4	0.5	0.1
PT	-0.9	0.6	0.1	0.4	0.2
DE	-0.7	0.7	0.1	0.3	0.3
SE	-0.5	0.4	0.7	0.0	0.5
EE	-0.4	1.3	0.5	-0.8	0.6
AT	-0.4	0.4	0.1	0.3	0.6
MT	0.2	0.3	0.1	0.3	0.9
RO	-0.3	1.2	-1.0	1.3	1.2
UK	0.9	1.1	0.2	0.0	2.2

(1) Countries are ranked by ascending order the final demand deflator.
Source: European Commission.

The contribution of NULC to the demand deflator was above 1% in the Baltics as well as in a few countries outside the euro area (Hungary, Romania, and the United Kingdom). But even in countries where wages did exert some push on inflation, this was counterbalanced by a fall in the

Table I.2.6: **Decomposition of tax wedge**

	Total Tax Wedge 2016	Of which			Difference 2015 - 2016				Difference 2008 - 2016			
		Personal Income Tax	Social Contributions Employee	Social Contribution Employer	Total Tax Wedge	Personal Income Tax	Social Contribution Employee	Social Contribution Employer	Total Tax Wedge	Personal Income Tax	Social Contribution Employee	Social Contribution Employer
MT	25.1	11.7	6.7	6.7	0.5	0.5	0.0	0.0	2.4	3.0	-0.3	-0.3
IE	27.1	13.8	3.6	9.7	-0.2	-0.2	0.0	0.0	4.8	4.1	0.7	0.0
UK	30.8	12.6	8.4	9.7	0.0	-0.1	0.0	0.0	-2.0	-2.2	0.1	0.0
BG	33.6	7.4	10.9	15.3	0.0	0.0	0.0	0.0	-1.5	0.2	0.1	-1.8
PL	35.8	6.1	15.3	14.4	0.1	0.1	0.0	0.0	1.1	-0.1	-0.3	1.5
DK	36.5	35.9	0.0	0.5	0.0	0.1	0.0	-0.1	-2.5	-2.4	0.0	0.0
NL	37.5	15.2	12.2	10.1	0.4	-0.4	0.4	0.5	-1.7	1.2	-3.6	0.6
LU	38.4	16.2	11.4	10.8	0.0	0.1	0.0	-0.1	3.8	2.4	0.6	0.8
HR	38.8	7.0	17.1	14.7	0.3	0.3	0.0	0.0	:	:	:	:
EE	38.9	12.5	1.2	25.3	-0.1	-0.1	0.0	0.0	0.5	-0.5	0.7	0.3
RO	39.4	11.4	9.3	18.7	0.1	0.2	-0.1	0.0	-3.0	1.9	-3.0	-1.9
ES	39.5	11.6	4.9	23.0	0.1	0.1	0.0	0.0	1.5	1.6	0.0	-0.1
EL	40.2	7.7	12.6	19.9	1.1	0.7	0.2	0.2	-1.3	0.6	0.2	-2.0
LT	41.2	10.7	6.9	23.7	0.1	0.1	0.0	0.0	-0.4	-4.9	4.6	-0.1
PT	41.5	13.4	8.9	19.2	-0.6	-0.6	0.0	0.0	4.5	4.5	0.0	0.0
SK	41.5	7.5	10.2	23.8	0.1	0.1	0.0	0.0	2.7	0.0	-0.4	3.0
LV	42.6	15.0	8.5	19.1	0.1	0.1	0.0	0.0	1.3	0.4	1.2	-0.3
SI	42.7	9.8	19.0	13.9	0.1	0.1	0.0	0.0	-0.2	0.4	0.2	-0.8
SE	42.8	13.6	5.3	23.9	0.2	0.2	0.0	0.0	-2.0	-1.5	0.0	-0.6
CZ	43.0	9.4	8.2	25.4	0.2	0.2	0.0	0.0	-0.5	1.1	-1.1	-0.6
FI	43.8	17.9	7.1	18.7	0.2	-0.6	0.4	0.4	-0.1	-1.6	2.2	-0.6
AT	47.1	10.8	13.9	22.4	-2.5	-2.4	-0.1	0.0	-1.9	-1.8	-0.1	0.0
IT	47.8	16.4	7.2	24.2	-0.1	0.0	0.0	-0.1	1.1	1.2	0.0	-0.1
FR	48.1	10.8	10.5	26.8	-0.3	0.2	0.2	-0.7	-1.7	1.0	1.0	-3.7
HU	48.2	11.7	14.4	22.2	-0.8	-0.8	0.0	0.0	-5.8	-4.1	1.8	-3.5
DE	49.4	15.9	17.3	16.2	0.1	-0.1	0.2	0.0	-1.9	-1.8	0.0	-0.1
BE	54.0	20.8	10.9	22.3	-1.3	-0.8	0.1	-0.6	-1.9	-1.1	0.1	-1.0

(1) The tax wedge data refer to a single person, without children, earning the average wage.
(2) Countries are ranked by ascending order of the tax wedge in 2016.
(3) Data for Cyprus not available; data for Croatia not available before 2013.
(4) For some countries, the latest information is from 2015; For these countries, differences are calculated for 2014-2015 and 2008-2015, respectively.
Source: European Commission based on OECD tax-benefit models.

price of imported goods and, in some cases, by lower profitability (gross operating surplus).

2.5.7. The tax wedge

In 2016, only a few Member States reduced labour costs by cutting the tax wedge (Table I.2.6). Tax cuts were most significant in Austria (2.5 percentage points), Belgium (1.3 percentage points), and Hungary (0.8 percentage points). In Austria the tax cuts concerned income taxes and employees' social contributions, in Belgium they concerned income taxes and employers' social contributions, while in Hungary the tax cuts were attributed only to income taxes. In France, employer contributions were cut, but partially counterbalanced by increases on the employees' side. This tax shift might improve cost competitiveness in the short term if wage increases do not offset immediately these changes. ([25])

([25]) For a discussion of labour tax reforms adopted in 2016, see Chapter 3.

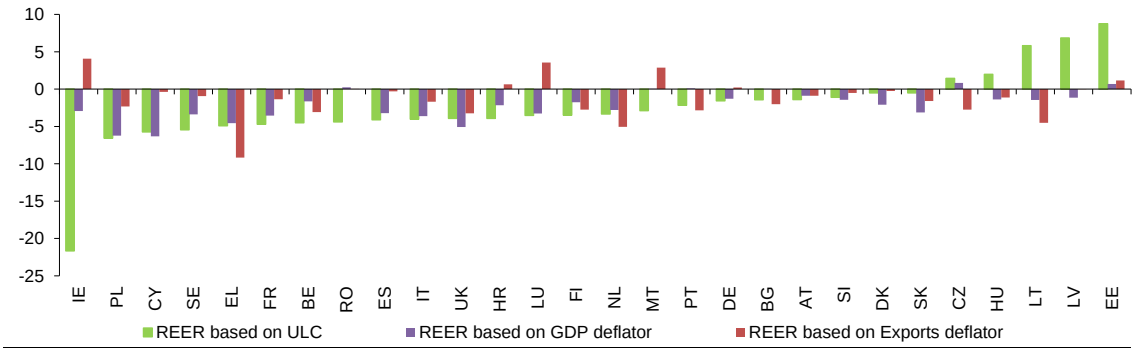
2.6. COST COMPETITIVENESS AND EXTERNAL ADJUSTMENT DEVELOPMENTS

2.6.1. Real effective exchange rate developments

Over the past three years most countries have gained cost competitiveness (Graph I.2.22). Cyprus, Greece, Ireland, Poland, and Sweden were the EU countries that experienced the strongest gains in cost competitiveness as measured by the fall (depreciation) in their real effective exchange rates (REER) based on ULC between 2014 and 2016. ([26]) In the case of Ireland, the gain in REER is augmented by a revision of its GDP level in 2015. In contrast, cost competitiveness deteriorated in the Baltic Member States and, to a

([26]) The REER measures cost competitiveness of a country relative to its main trading partners. It is computed as the value of its currency relative to the currencies of trading partners, adjusted for the effect of differential changes price or labour-cost inflation.

Graph I.2.22: **REERs based on ULC deflator, cumulative % change over the period 2014-2016**



(1) Countries are ranked by ascending order of the variation in the ULC-based REER in 2014-2016.
Source: European Commission based on Eurostat data.

lesser extent, in the Czech Republic and Hungary over the same period.

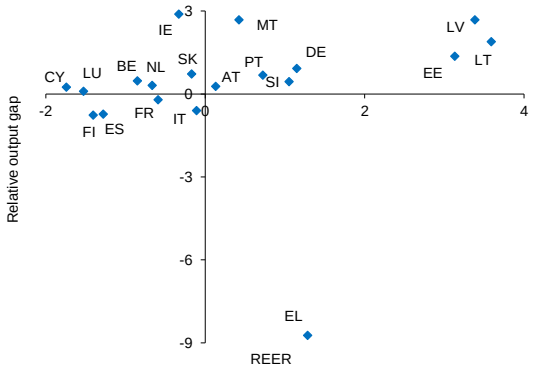
Graph I.2.22 compares three different REER indicators. In the case of the Baltic States, alternative measures of the REER based on the GDP and exports deflators do not indicate an appreciation of the REER. Thus, a comparatively rapid growth in ULC was not accompanied by a rapid increase in overall or export prices in these countries. This implies that price mark-ups and profit margins have been compressed as firms were not able to pass wage increases to consumers and trading partners in the form of higher prices.

For members of the euro area, gains in cost competitiveness were supported by a weakening euro in 2015, followed by stability in 2016. Outside the euro area, the United Kingdom, and to a lesser extent Poland, registered gains in cost competitiveness in 2016, due to movements in the exchange rates.

2.6.2. Competitiveness and adjustment in the euro area

In 2016, cost competitiveness developments responded to both domestic economic developments and external adjustment needs across the euro area members. Almost all countries in which the cyclical position of the economy was below the euro-area average in 2015 registered a depreciation of their REER, i.e., they gained competitiveness (bottom-left quadrant in Graph I.2.23). An exception is Greece, which, however, did register wide gains in cost competitiveness in previous years. In contrast, many of the economies in a comparatively strong cyclical position (e.g. the Baltic States and Germany) registered an appreciation of their REER.

Graph I.2.23: **ULC-based REER (2016, % change) and relative output gap (2015, % of GDP), euro area**

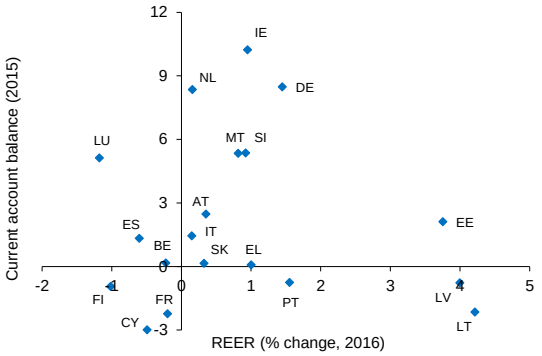


(1) REER relative to the rest of the euro area. Relative output gap is the difference between the output gap of the country and the one of the euro area.
(2) Data for Bulgaria, Czech Republic, Denmark, Croatia, Hungary, Poland, Romania, Sweden, and United Kingdom are not available.
Source: European Commission based on Eurostat data.

Cost competitiveness also reacted to the external position of countries. Countries with the highest current account surpluses (Germany, Ireland, the Netherlands, and to a lesser extent, Malta and Slovenia) registered an appreciation, even if modest, in their REER (Graph I.2.24). At the same time, countries with current account deficits (Cyprus, Finland, France) registered REER depreciations, an exception being Lithuania. By 2015, many countries had adjusted past current

account deficits and were close to balance or had surpluses.

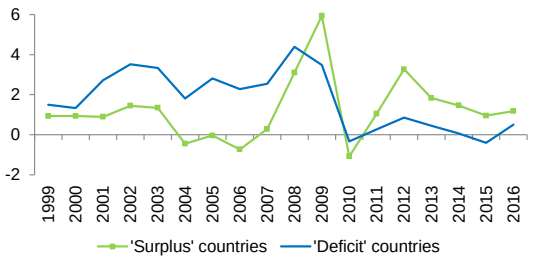
Graph I.2.24: **Current account balance (2015,% of GDP) and ULC-based REER (2016,% change), euro area**



(1) Real effective exchange rate (REER) is calculated relative to the main trading partners (37 industrial countries).
(2) Data for Bulgaria, Czech Republic, Denmark, Croatia, Hungary, Poland, Romania, Sweden, and United Kingdom are not available.
Source: European Commission, AMECO database.

Thus, developments in 2016 were overall consistent with the external rebalancing needs of euro area countries. In particular, nominal ULC have continued to grow faster in countries characterised by a current account surplus before the crisis ('surplus countries') than in countries with previous current account deficits ('deficit countries'), even if at a slowing pace (Graph I.2.25).

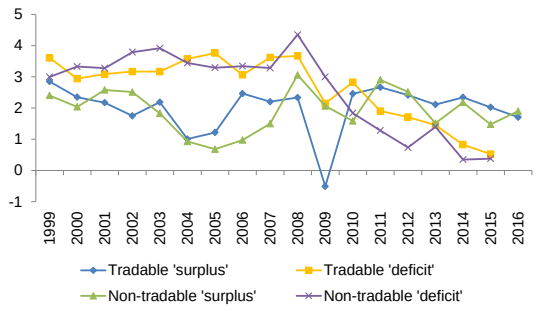
Graph I.2.25: **ULC in deficit and surplus countries within the euro area, weighted average, 1999-2016, annual % change**



(1) Surplus countries are Belgium, Germany, Luxembourg, the Netherlands, Austria and Finland. 'Deficit' countries are all other euro area Member States. This classification is based on the current account situation around 2008.
Source: European Commission based on Eurostat data.

In 2016, nominal ULC growth remained stable (slightly increasing to 1.2%) in 'surplus countries' and turned positive (to 0.5%) in 'deficit countries'. The reduced differential means that the pace of rebalancing slowed down somewhat. On the side of 'surplus countries', this modest increase reflects both moderate labour cost increases in countries with a strong cyclical position (e.g. Austria, Germany, the Netherlands), and the fact that competitiveness concerns kept wage growth low in other 'surplus countries' (Belgium, Finland, Luxembourg).

Graph I.2.26: **Compensation per employee, tradable and non-tradable sectors, in 'deficit' and 'surplus' countries within the euro area, 1999-2016, annual % change**



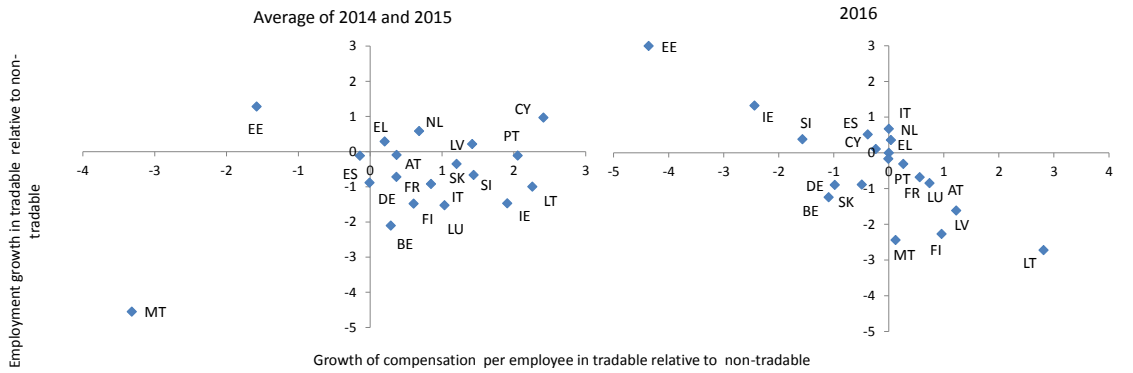
(1) Surplus countries are Belgium, Germany, Luxembourg, the Netherlands, Austria and Finland. Deficit countries are all other euro area Member States. This classification is based on the current account situation around 2008.
(2) Data for some deficit countries (Greece, Italy) for 2016 are not available.
Source: European Commission based on Eurostat data.

The economic rebalancing of 'deficit countries' after the crisis had entailed a shift from non-tradable sectors towards tradable ones. ([27]) Wage restraint was more pronounced in the non-tradable sectors of 'deficit countries', supporting a reallocation of labour into tradable sectors (Graph I.2.26). This process slowed down recently, as the recovery that started in 2013 was driven by domestic demand.

In 2016, tradable and non-tradable sectors developed similarly in most countries, while in a

([27]) Tradable sectors include: Agriculture, forestry and fishing; Industry (except construction); Wholesale and retail trade, transport, accommodation and food service activities. Non-tradable sectors include: Construction; Information and communication; Financial and insurance activities; Real estate activities; Professional, scientific and technical activities; Administrative and support service activities; Public administration, defence, education, human health and social work activities; Arts, entertainment and recreation; Other service activities; Activities of household and extra-territorial organizations and bodies.

Graph I.2.27: **Compensation per employee and employment growth differential between tradable and non-tradable, 2014-2015, average annual % change, and 2016, annual % change**



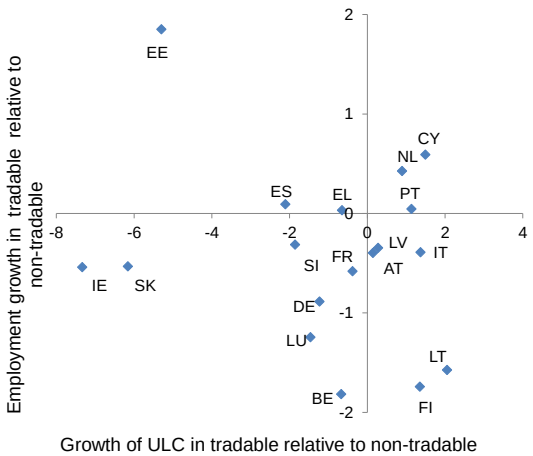
Source: European Commission based on Eurostat data.

small number of them (Belgium, Germany, Slovakia), both wages and employment grew comparatively fast in the non-tradable sectors (Graph I.2.27, right panel).

However, 2016 also saw the emergence of a new pattern, as relative employment in the tradable sectors expanded most in countries in which relative wage developments in the same sectors were comparatively modest, and *vice versa* (Graph I.2.27, right panel). For instance, while wages grew both in tradable and non-tradable sectors in all three Baltic states, the employment dynamics of tradable *versus* non-tradable sectors showed marked differences. In Lithuania, relative wage growth in the tradable sectors was fast, while employment growth was much more dynamic in the non-tradable sectors. The opposite was the case in Estonia. Finally, relative employment growth was subdued in Latvia, the country with the fastest wage growth in both sectors.

Over the last three years, employment reallocation towards the tradable sectors was most pronounced in Estonia, Cyprus, and the Netherlands (Graph I.2.28). After significant relative reallocations in previous years, employment growth was neutral between tradables and non-tradables in Greece, Portugal and Spain. Employment in non-tradables grew faster in the rest of the euro area. Graph I.2.28 plots relative employment growth in tradable sectors against relative ULC growth in the same sectors across the euro area in the last three years. For a number of countries, relative unit labour costs in tradable sectors and relative employment in the same sectors moved in the same direction.

Graph I.2.28: **Developments in nominal ULC and employment growth differential between tradable and non-tradable sectors, 2014-2016, average annual % change**



Source: European Commission based on Eurostat data.

In a few countries including Belgium, Germany, Luxembourg as well as Slovakia, both employment and ULC growth was faster in the non-tradable sectors, reflecting a combination of a recovery driven by domestic demand (tilted towards non-tradable goods and services) and wage restraint in the tradable sectors. In Cyprus, weak domestic demand in the wake of the economic adjustment meant that the non-tradable sector registered both deeper reductions in unit

labour costs and more modest employment growth than the tradable sectors. Notable exceptions from this pattern are Finland, Italy, and Lithuania where unit labour costs increased more in tradable than in non-tradable sectors despite a fall in employment in the tradable relative to non-tradable sectors, and Estonia with the opposite pattern.

2.7. CONCLUSIONS

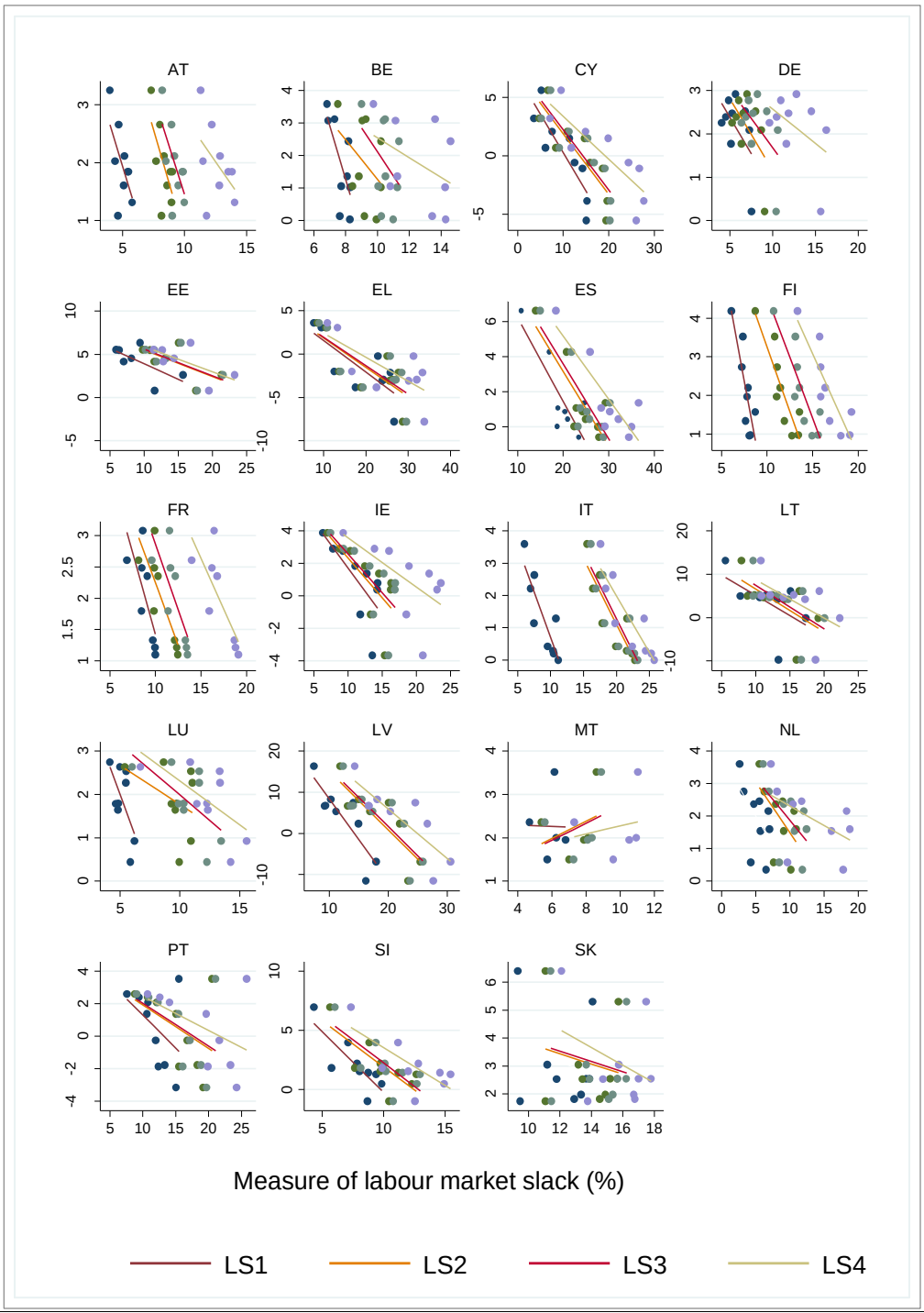
The labour market recovery that started in 2013 continued in most EU countries in 2016 and the beginning of 2017. Benefitting from economic growth, unemployment rates fell further and employment and activity rates increased. The fall in unemployment continued to be faster in most countries than could be expected based on the pre-crisis relationship between changes in unemployment and economic growth. In 2016, largest falls in the unemployment rate continued to be observed in countries that had been severely hit by the crisis (including Croatia, Cyprus, Greece, Ireland, Portugal, and Spain) but also in Bulgaria, Hungary, Poland, and Slovakia.

While employment has surpassed pre-crisis peaks in the majority of countries, average hours worked per employee continued to follow a negative trend, due to an expansion of service sectors and part-time work. Job creation has been positive both in permanent and temporary contracts since the start of the recovery. In the last two years, the growth in permanent contracts increased and the growth in temporary contracts slowed, consistent with increasing confidence in the recovery.

Nominal wage growth turned positive in virtually all EU Member States but it remained low in most countries despite falling unemployment. Wage growth was fastest in Central and Eastern European countries characterised by comparatively high economic growth, while it was lowest in countries with high unemployment or external adjustment needs. Wage growth continued to be moderate in euro area countries with low unemployment.

APPENDIX 1
Philips curve for EU countries

Graph I.2.A1.1: **Philips curve for EU countries: compensation per employee growth and measures of labour market slack, years 2008-2016**



(1) Measures of labour market slack are the following: LS1 stands for unemployment rate, LS2 adds to the unemployed those available to work but not seeking, LS3 further adds those seeking work but not immediately available, and LS4 includes all previous groups and underemployed part-timers. All rates are relative to an extended definition of labour force that includes those seeking but not available and vice versa.
Source: European Commission based on Eurostat data.

3. POLICY DEVELOPMENTS

Following significant efforts to adjust budgets and reduce labour market rigidities, especially in the countries most affected by the financial crisis, attention has shifted, during the recovery that started in 2013, towards strengthening the social safety net and reducing the tax burden on labour. This is visible both in the reform activity witnessed in the Member States, and in the recent EU initiatives and policy recommendations issued in the framework of the European Semester, the annual cycle of economic policy coordination of the EU.

Reforms observed in the Member States since 2016 fit in this trend, with an increase in reform activity aimed at reinforcing the welfare systems, including their efficiency, strengthening wage setting frameworks, increasing the margins for adjustment in work organisation for both employers and employees, and enhancing the labour market integration of immigrant and mobile workers. Reform intensity also shifted across countries during the post-crisis period. Between 2013 and 2016, reform activity was most intensive in countries such as Belgium, France, Lithuania and Latvia. Meanwhile, the overall number of reforms carried out in the countries most affected by the sovereign debt crisis (including Greece, Italy, Spain and Portugal) somewhat decreased in those same years but remained above the EU average.

Income inequality has increased in slightly more than half of the Member States since 2008. This trend appears to be largely market driven. Analysis shows that policy changes occurring during this period have contributed to reducing inequality in most countries, including those most affected by the financial crisis.

3.1. INTRODUCTION

This chapter provides an overview of reform trends and priorities in the field of employment and social policies. Section 2 analyses reform activity across the EU with a medium-term perspective. It makes use of the LABREF database, an inventory of labour market reform measures adopted in the Member States since 2000. ([28]) The section also discusses recent developments in the capacity of national welfare systems to reduce inequality, and the effects of labour market and social policy reforms on inequality since 2008. Findings from recent micro-simulation exercises show that policy changes since 2008 contributed to reducing inequality in most European countries, including those that were the most affected by the financial crisis.

Section 3 reviews reform activity in 2016 and the first half of 2017. During this period, reform intensity decreased in domains such as unemployment benefits and employment protection legislation, where action had been particularly important in the aftermath of the crisis. At the same time, policy makers sought to increase the generosity of other welfare benefits, modernise working time regulation and provide clear frameworks for wage setting.

Section 4 sketches reform needs looking forward, with a focus on the priorities emerging in the framework of the European Semester, the EU annual cycle of economic policy coordination. Section 5 concludes.

3.2. POLICY TRENDS

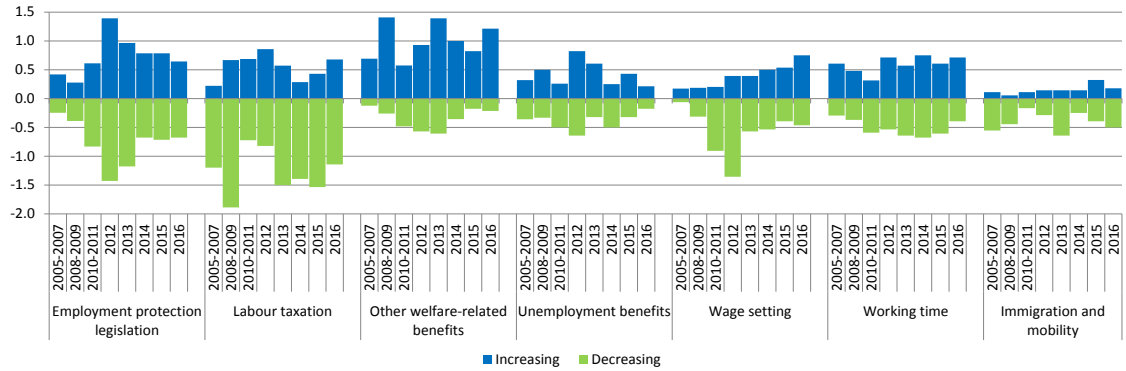
Long-term trends in reform activity

After having been largely driven by the need to respond to the challenges posed or amplified by the crisis, reform activity increasingly turned to responding to longer-term structural challenges: the emergence of new forms of work, the need to ensure an effective social protection coverage for a more diverse workforce and society, and to adapt labour market and social policy settings so as to be able to smoothly respond to change and build a sound basis for economic and social resilience.

Previous editions of this Report (European Commission, 2015a and 2016a) have identified three phases in the policy response to the crisis: a first phase with a focus on stimulus measures (2008-2009); a second phase with a focus on fiscal

([28]) The LABREF database is maintained by the European Commission and is available online under the link: http://ec.europa.eu/social/main.jsp?catId=1143&intPageId=3193&. See Turrini et al. (2015).

Graph I.3.1: **Average number of labour market reform measures per country per year by direction of reform measures, selected policy domains, EU28**



(1) Information for Croatia starts in 2012. Reform measures are classified as "increasing" ("decreasing") if they lead to an increase (decrease) in the underlying policy settings. The graph excludes LABREF policy domains ALMP and Early withdrawal.
Source: European Commission, LABREF database.

sustainability and significant reforms to improve the adjustment capacity of labour markets, especially in vulnerable countries (2010-2012); and a third phase (since 2013) in which the focus has turned to enhancing social safety nets, cutting the tax wedge on labour and improving the effectiveness of active labour market policies (ALMPs). Reform efforts since 2016 appear to be in line with this trend (Graph I.3.1).

Based on the LABREF database, the graph shows the average number of reform measures implemented over time across the EU in selected policy domains. Reforms are classified according to a simple criterion: they can go in the direction of either increasing or decreasing the generosity or stringency of the underlying policy settings in a given policy area. ([29]) Focusing on the sheer volume of labour market reforms across the EU provides a useful, even though somewhat limited, picture of the evolution of reform activity in the main labour market and social policy fields. This is described more in detail in the following paragraphs, through a qualitative analysis of recent reform activity by policy domain.

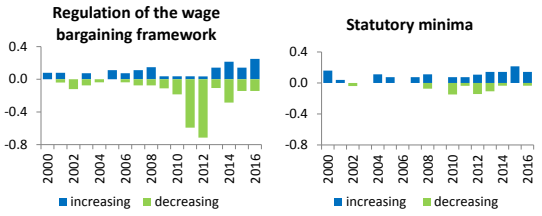
As shown in the graph, reform activity in the field of *employment protection legislation* (EPL), broadly covering hiring and firing rules, was very intensive in 2012 and 2013. Despite the overall reduction in the number of reforms passed since 2014, reform activity in this field has remained elevated as compared to the pre-crisis period. Meanwhile, the balance of measures has slightly tilted towards increasing overall EPL stringency (for both open-ended and temporary work contracts).

In the domain of *wage setting*, after the peak recorded in 2012, which had been largely driven by reforms in the direction of higher flexibility especially in countries under Economic Adjustment Programmes, reform activity continued to be elevated in more recent years. Graph I.3.2 shows a breakdown of these measures by selected policy fields. The left panel of the graph shows that many reforms in 2011-2012 affected the regulation of the wage bargaining framework in the direction of increasing their flexibility. This trend has been reversed to some extent in subsequent years. Also, on top of

([29]) This simple criterion needs to be interpreted separately in the different policy areas. For example, an "increasing" direction is intended as *increasing* the stringency of regulation in domains such as employment protection legislation, working time and immigration, but also as *increasing* the generosity of domains such as unemployment and other benefit schemes, as *increasing* the tax burden on labour, and as *increasing* the availability of active labour market policies (ALMPs). The reverse applies for the "decreasing" direction. See European Commission (2015a) and Turrini et al. (2015). This classification does not imply any sort of judgement about the possible effects of reform measures on labour market functioning or social implications. A similar classification is employed in the Social Reforms Database developed by the Rodolfo De Benedetti Foundation and IZA: See: http://www.frdb.org/page/data/categoria/international-data/scheda/frdb-iza-social-reforms-database/doc_pk/9027.

expiring temporary minimum wage freezes that had been introduced during the crisis, measures taken from 2013 onwards have gone mainly in the direction of strengthening the regulation of minimum wages (right panel). Box I.3.1 presents a case study of minimum wage setting in Portugal and Spain, and tracks recent developments in wages and the minimum wage against their estimated long-term equilibrium.

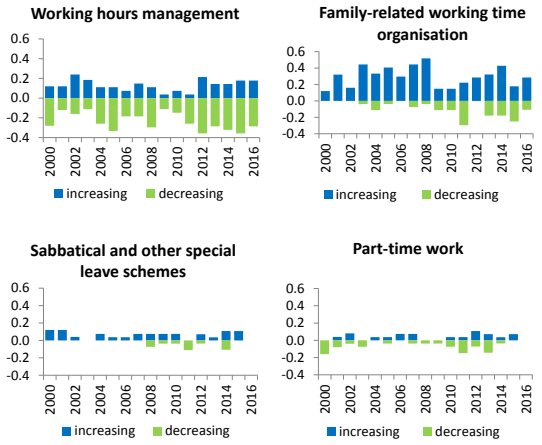
Graph I.3.2: **Average number of reform measures adopted in selected fields of the Wage setting domain, by year and direction, EU28**



(1) Measures have an "increasing" direction if they increase the stringency of regulation or the rights of workers.
Source: European Commission, LABREF database.

Similarly, in the domain of *working time regulation* reform activity in the third post-crisis phase continued to be more intensive than in the pre-crisis period, with a renewed focus on supporting work-life balance and promoting a flexible working time organisation (Graph I.3.3).

Graph I.3.3: **Average number of reform measures adopted in the Working time domain by policy field, year and direction, EU28**



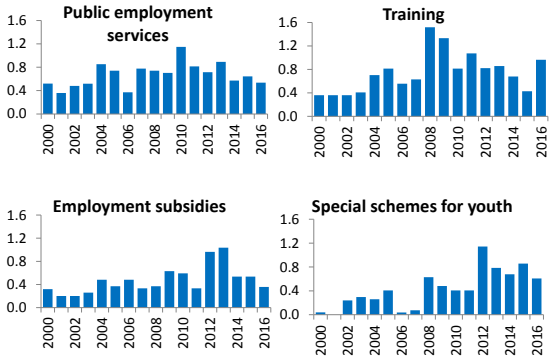
(1) Measures have an "increasing" direction if they increase the stringency of regulation or the rights of workers.
Source: European Commission, LABREF database.

Reform activity in the field of *unemployment benefits* was most intense in 2012, and has been steadily declining since then, in parallel with the fall in unemployment. After two years of slightly diminishing reform activity, the number of reforms related to *other welfare benefits* (mainly including the categories of social assistance, family benefits, in-work benefits and short-time work schemes) increased again in 2016, largely in the direction of higher benefit generosity.

In the *labour taxation* domain, after a marked preponderance of measures intended to reduce the tax burden on labour between 2013 and 2015, a slight shift towards increasing labour taxation can be observed in 2016, amid continued reform efforts towards reducing the tax pressure on labour in the majority of countries, in line with the longer-term trends observed since 2013. ([30])

Finally, *developing skills and supporting labour market matching* and the integration especially of the *youth* continued to be a key priority for policy making over the whole period since the start of the crisis (Graph I.3.4).

Graph I.3.4: **Average number of reform measures adopted in the Active labour market policies domain by year and direction, EU28**



(1) Fields "Direct job creation schemes", "Special schemes for the disabled", and "ALMPs – Other" are not shown.
(2) Measures are not differentiated by direction as almost all recorded measures increase the availability of ALMPs.
Source: European Commission, LABREF database.

([30]) For a more detailed analysis of this domain, see, Perez et al. (2016).

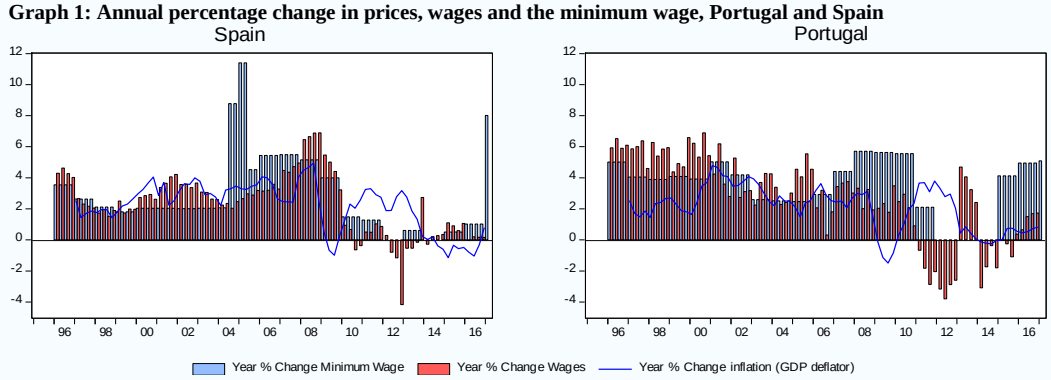
Box I.3.1: Drivers of minimum wage changes in Portugal and Spain

Statutory minimum wages are introduced to enhance equity and establish a balance in the bargaining position between employers and workers. If the bargaining power of workers is weak, employers may set wages below the productivity of the additional hired worker (the so-called *marginal productivity* of labour). In this case, a mandatory minimum wage that closes the gap between actual wages and productivity does not hurt necessarily employment but may attract individuals that would otherwise remain inactive. Yet, if the minimum wage is too high, the positive effects on labour demand of higher labour incomes are offset by the negative effects on the employment of those with productivity below the minimum wage.

In order to foster wage adjustment and preserve jobs, minimum wages were frozen during the crisis in Portugal and Spain, and they were only recently increased again, but there are substantial differences in the speed and extent of the revisions between both countries. The Portuguese minimum wage was kept at its 2011 level of EUR 485 per month (paid 14 times a year) until the end of 2014 and was subsequently increased in 2015 and 2016 by 4.1% and almost 5%, respectively. In 2017, it was further increased by 5.1% to EUR 557. The cumulative increase since 2011 is thus close to 15%. Between 2011 and 2014, the Spanish minimum wage increased only by 0.6% in nominal terms. After modest increases in 2015 and 2016 (of about 0.5% and 1% respectively), an 8% increase from EUR 655.2 to 707.6 per month (paid 14 times a year) was adopted for 2017. Recent increases, especially in Portugal, have more than offset the previous erosion of the minimum wage in real terms.

In both countries, minimum wage revisions are framed in line with a well-established institutionalised process (European Commission, 2016a, Chapter II.1). The Portuguese minimum wage is updated annually by the government after consultation with social partners and with regard to past inflation, productivity developments and the broad price and income policy context. In Spain, legislation refers to the wage share and general economic conditions in addition to average productivity and consumer price developments, as factors to take into account in the uprating of the minimum wage. The weight of these different factors is not established by legislation, and the responsiveness of minimum wage has to be inferred from past minimum wage changes.

Graph 1: Annual percentage change in prices, wages and the minimum wage, Portugal and Spain



In order to identify the determinants of minimum wage policy, the minimum wage is introduced in a standard model of price and wage dynamics, with imperfectly competitive labour and product markets (Marques, 2008; Duarte and Marques, 2009). In this model it can be shown that wages are determined on the basis of consumer prices, productivity, and unemployment; increases in consumer prices are a weighted average of unit labour costs (i.e. productivity-adjusted wages) and import prices. The minimum wage is assumed to be set on the basis of prices, productivity and the unemployment rate. These relationships represent long-run equilibrium levels (so-called *cointegration* relationships). Deviations from the long-term equilibrium trigger an adjustment process that closes the gap between the actual and the equilibrium value. Estimation of the model delivers the weight of each variable in minimum wage adjustments.

A vector auto-regressive (VAR) model with 4 lags is estimated over the period 1999Q3-2016Q4 for the following variables: wages (*w*, compensation per employee), productivity (*prod*, GDP per person

(Continued on the next page)

Box (continued)

employed), consumer prices (p), price of imports (z, deflator of imports), and the unemployment rate (u). All variables but the unemployment rate are from National Accounts, Eurostat; the unemployment rate is from the Labour Force Survey, Eurostat. The analysis confirms that the three equilibrium relationships predicted by the theoretical model are consistent with the historical data (i.e. there are three cointegration relationships). The table below reports the estimated long-run equations.

Table 1: Estimated long-term relationships for wages, prices and minimum wages

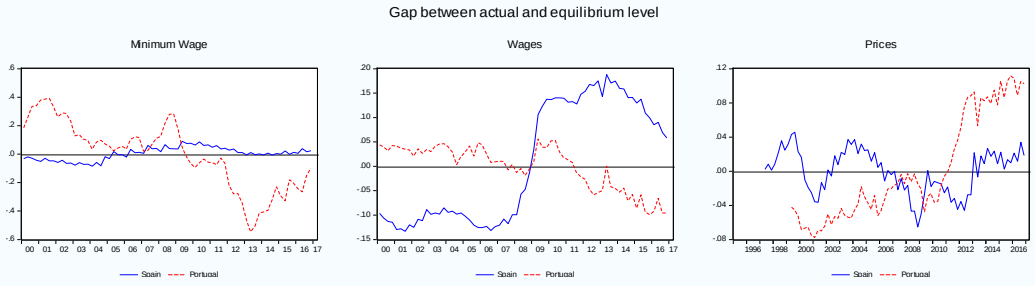
	Spain	Portugal
Wages	$w = 0.69\,p - 0.02\,u + 0.68\,prod$	$w = 1.1\,p - 0.01\,u + 1.1\,prod$
Prices	$p = 0.75(w - prod) + 0.68\,z$	$p = 0.9(w - prod) + 0.1\,z$
Minimum wages	$MW = p - 0.02\,u + 0.36\,prod$	$MW = p - 0.01\,u + prod - 1.9\,z$
LR-test for over-identifying restrictions	Chi-square = 9.2 p-value= 5.5	Chi-square = 8.6 p-value= 7.1

In Portugal, productivity gains are fully reflected in wages and in the minimum wage in the long term. In contrast, productivity gains in Spain are only partially transferred into higher wages, while the effect on the minimum wage is even smaller – about half of the effect on the wages. Prices are more reactive to both unit labour costs and import prices in Spain, while in Portugal they respond mainly to unit labour costs. In Spain, the real minimum wage is a policy target set as a function of labour market and productivity developments, but, contrary to Portugal, not the price of imports. In Portugal, prices and productivity changes are fully transferred into higher minimum wage, implying a target for the wage share of minimum wage workers. In both countries, the minimum wage is negatively affected by unemployment in the long run.

Graph 2 shows the gap between current and equilibrium levels of all three variables in both countries. These suggest the following conclusions. With the outburst of the financial crisis, Spanish wages were above their long-term equilibrium level as predicted by economic fundamentals, but this gap has been closing since 2012. In contrast, in Portugal wage adjustment occurred at a faster pace than in Spain and wages fell below long-term equilibrium.

After a temporary and moderate deviation of the Spanish minimum wage above its equilibrium level at the onset of the crisis, the gap was gradually absorbed by 2016. In contrast, the Portuguese minimum wage was above its equilibrium before 2008 and below thereafter, partly caused by low import prices. Recent increases in the minimum wage do not appear to have put a pressure on aggregate wage growth but, as the wage distribution is more compressed than in Spain, this also means that the share of workers covered by the Portuguese minimum wage is increasing rapidly (reaching 25% of full-time employees in 2016).

Graph 2: Gap between actual and long-run equilibrium level: minimum wage, wages and prices



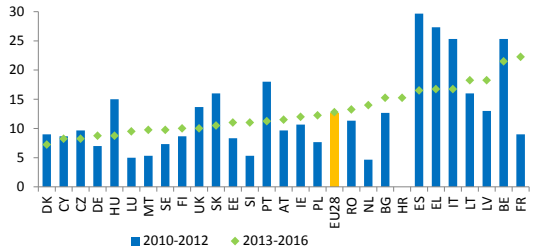
Patterns in reform activity across the EU have been shifting not only in terms of policy domains and direction of reforms, but also with respect to their distribution across countries. Graph I.3.5 shows the average annual number of reform measures adopted by the EU Member States over two periods: 2010-2012 and 2013-2016.

Between 2010 and 2012, the most intense reform activity in terms of number of measures took place in the countries most affected by the sovereign debt crisis (including Greece, Italy, Spain and Portugal). ([31]) Reform activity diminished in these

([31]) A comparison between countries based on the number of reform measures is a partial and imperfect measure of labour market reforms, and should not be interpreted as implying a judgment on the importance, value and quality

countries in the period 2013-2016, but they still remain among the EU Member States with above-average reform intensity (except for Portugal, which is close to but below the EU average). In the period 2013-2016, the highest reform activity can be observed in countries, such as France, that had not been heavily hit by the crisis in the short term and therefore took more time to engage in the needed reforms, as well as Belgium, the latter having already engaged in intense reform activity in the preceding period. In the second period, high reform intensity can be observed also in Lithuania and Latvia (Graph I.3.5).

Graph I.3.5: **The number of labour market reform measures, annual averages by countries, 2010-2012 and 2013-2016**



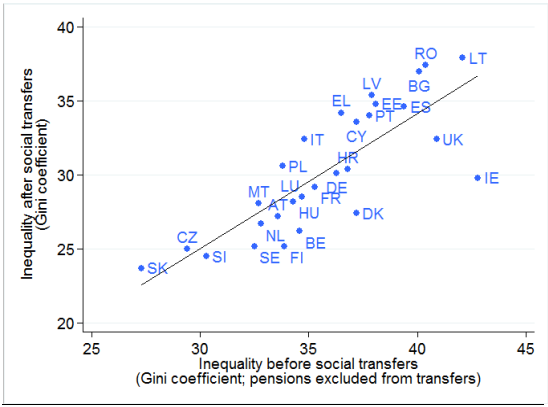
(1) Data for Croatia is missing for the period 2010-2012.
Source: European Commission, LABREF database.

Recent trends in inequality and the role of tax and benefit reforms

Income and wealth inequality came to the forefront of public debates in the aftermath of the crisis. The reasons for this include the important labour income losses suffered during the crisis, the uncertainty surrounding the redistributive effects of the measures adopted to address the crisis, as well as research documenting a trend of rising inequality experienced by advanced economies in the decades after the 1980s (see e.g. Atkinson, 2008). This subsection reviews a number of linkages existing between income inequality and policies in the domain of social benefits and labour taxation. It does so in three steps: first it presents stylised facts on EU inequality and the role of social transfers in reducing it. Second, it links changes in the inequality-reducing effect of social transfers to reform activism. And finally, it reviews recent research on the effect of tax and benefit reforms since 2008 on inequality in Member States.

of reforms. It is used here as a rough approximation of the volume of labour market reform activism.

Graph I.3.6: **Inequality before and after social transfers, 2015**



(1) The graph plots the Gini coefficient of disposable household income (vertical axis) against the Gini coefficient of household income before social transfers. Pensions are excluded from social transfers. Both indicators are corrected for household composition.
(2) The graph is based on EU-SILC data from 2015. These data reflect incomes earned in 2014 for most countries.
(3) The diagonal line represents a linear fit.
Source: Eurostat, EU-SILC data [ilc_di12, ilc_di12c].

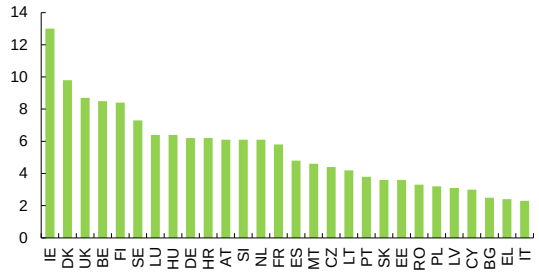
Graph I.3.6 provides a first overview of income inequality in the EU Member States and its relation with social transfers (broadly corresponding to the policy areas of unemployment benefits and other welfare benefits discussed above). The graph plots the Gini coefficient ([32]) of disposable household income (on the vertical axis) against the same measure of inequality before social transfers (on the horizontal axis). Countries with low income inequality after social transfers are at the bottom of the Graph while those with high inequality are at the top. Similarly, countries with low income inequality before social transfers are in the left part of the Graph and *vice versa*. ([33]) Countries with the highest inequality include South-Eastern (Bulgaria, Romania) and Baltic Member States (Estonia, Latvia, Lithuania), followed by Southern ones (Cyprus, Greece, Portugal, Spain). Countries with the lowest inequality include Central-Eastern

([32]) The Gini coefficient is a summary statistic of (income) inequality. If there is no inequality in a society, the indicator is equal to 0. If all national income is earned by one person alone, the Gini coefficient is equal to 100.
([33]) Government pensions are excluded from social transfers because including them would introduce a misleading gap between countries with significant private pensions from those without.

European Member States (the Czech Republic, Slovakia, Slovenia) as well as the Nordic (Finland, Sweden) and Western ones (Belgium, the Netherlands).

It can be deduced from the graph that a significant part of the differences in income inequality between countries is due to inequality before social transfers (where social transfers exclude public pensions), rather than to the effect of these benefits themselves. Countries with the highest (and lowest) income inequality are largely also those with the highest (and lowest) inequality before social transfers. There are exceptions: Ireland and the United Kingdom count among the countries with the highest income inequality before social transfers, but they are close to the EU average after social transfers, suggesting that the social benefit systems of these countries have a high capacity to reduce income inequality. Similarly, the social benefit systems of Belgium, Denmark and Finland appear to be able to reduce income inequality by more than those of other EU Member States. These countries are far below the diagonal line in Graph I.3.6 which means that their inequality after social benefits is below what could be expected based on the inequality before social transfers.

Graph I.3.7: **The inequality-reducing capacity of social transfers, 2015**

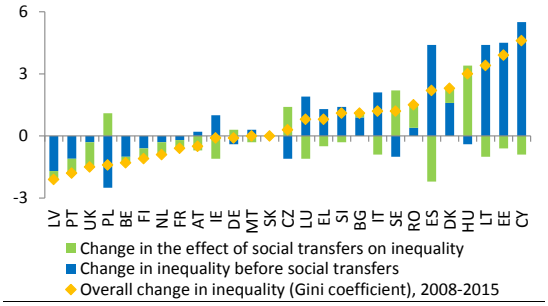


(1) The inequality-reducing capacity of social transfers is calculated as the difference between the Gini coefficient of equivalised disposable income before social transfers (where pensions are excluded from social transfers) and the Gini coefficient of equivalised disposable income after all transfers. High values mean a high capacity to reduce inequality.
(2) The graph uses information from the 2015 wave of EU-SILC, referring to incomes earned in 2014.
Source: European Commission based on Eurostat EU-SILC data [ilc_di12, ilc_di12c].

Graph I.3.7 ranks EU Member States by the capacity of their social benefit systems to reduce inequality, calculated as the difference between the Gini coefficients of household income before and after social transfers. The social benefit system with the highest capacity to reduce income inequality is Ireland's, followed by Denmark, the UK, Belgium, Finland and Sweden. In contrast, the social benefit systems with the lowest capacity to reduce income inequality include those of Bulgaria, Estonia, Greece, Italy, Latvia, Poland and Romania. ([34])

Between 2008 and 2015, income inequality increased in slightly more than half of the Member States (Graph I.3.8). Measured by the Gini coefficient of household disposable income, it increased most in countries including Cyprus, Denmark, Estonia, Hungary, Lithuania and Spain. It decreased most in countries including Belgium, Finland, Latvia, Poland, Portugal and the United Kingdom.

Graph I.3.8: **The change in the Gini coefficient of income inequality and its components, 2008-2015**



(1) Countries are ranked by increasing order of the change in overall income inequality between 2008 and 2015, as measured by the Gini coefficient of household disposable income, corrected for household composition.
(2) The graph uses information from the 2008 and 2015 waves of EU-SILC, referring to incomes earned in 2007 and 2014, respectively.
Source: European Commission based on Eurostat EU-SILC data [ilc_di12, ilc_di12c].

The effect of social transfers on inequality is an important contributor to observed changes of inequality, but it is not the only one. Other important factors include market forces but also other policy areas such as pensions and taxation. Graph I.3.8 breaks down changes in overall income inequality into two parts: changes in inequality before social transfers, and changes in the effect of social transfers on inequality. Social transfer systems became more effective in reducing inequality in most Member States

([34]) On the developments of this indicator between 2006 and 2013, see European Commission (2016c, p. 70).

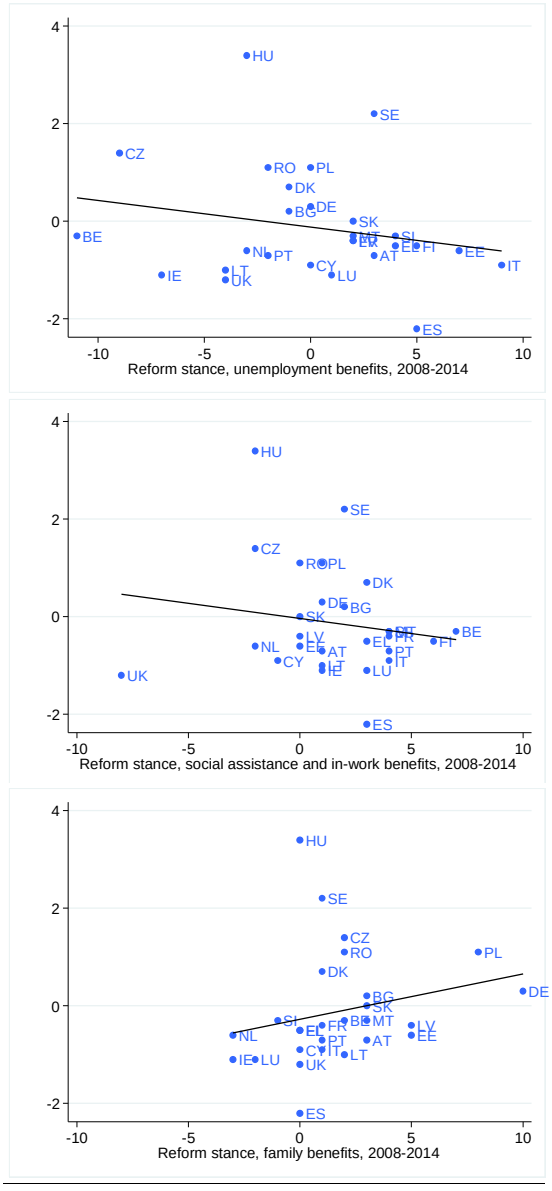
between 2008 and 2015. They dampened the rise in inequality most notably in Spain, but also in countries such as Cyprus, Estonia, Ireland, Italy, Lithuania and Luxembourg. Countries in which social transfers became less effective in reducing inequality include the Czech Republic, Denmark, Hungary, Poland, Romania and Sweden.

The capacity of social transfers to reduce inequality tended to improve in countries in which reform activity focused on strengthening unemployment benefits as well as social assistance and in-work benefits, but not in those countries where reform activity focused on strengthening family benefits. This is suggested by the correlations presented in Graph I.3.9, which plots the change in the effect of transfers on inequality (2008-2015) against the "reform stance" of Member States in the area of various benefits: unemployment benefits in the first panel of the graph, in-work and social assistance benefits in the second panel and family benefits in the third panel. The reform stance is defined as the number of reform measures increasing benefit generosity, net of the number of reforms reducing benefit generosity. The reform stance is a crude indicator: it does not differentiate between reform measures of higher and lower importance. Yet, it is a useful summary indicator of the direction of the majority of adopted reform measures.

Graph I.3.9 suggests that changes in the capacity of social transfer systems can be related to the heterogeneity of reform approaches. Since 2008, countries such as Italy and Spain put more emphasis on strengthening unemployment benefits (and to a lesser extent also to social assistance and in-work benefits) than family benefits, and the capacity of their social transfer systems to reduce inequality improved.

At the same time, countries such as Germany and Poland put more emphasis on strengthening family benefits, while the inequality-reducing capacity of their social transfer systems did not improve. A number of factors may help explaining this pattern. First, family benefits may be more heterogeneous in their effects on inequality across countries than unemployment benefits, largely depending on their design characteristics. Second, reform strategies focused on increasing the generosity and coverage of unemployment benefits have an important income stabilisation function and therefore a direct effect on sheltering people from the poverty risks that result from the loss in labour income associated with unemployment (see, e.g., Duiella and Turrini, 2014).

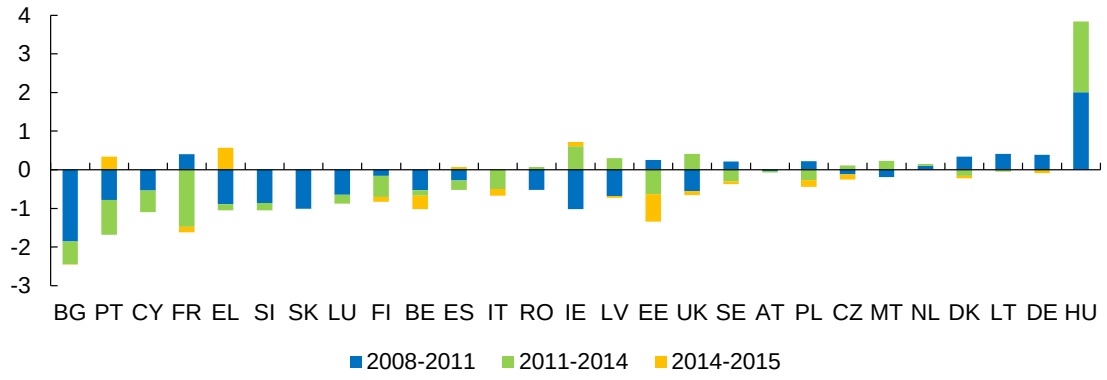
Graph I.3.9: **Change in the effect of social transfers on inequality and reform stance in selected policy areas in LABREF**



(1) The reform stance in LABREF is defined as the number of measures increasing the generosity of benefits, net of the number of reforms decreasing benefit generosity.
Source: European Commission based on Eurostat EU-SILC and LABREF database.

Finally, these reform strategies are not random: countries with bigger unemployment challenges, or

Graph I.3.10: **The effect of changes in tax and benefit policies on inequality (as measured by the Gini-coefficient of disposable household income) in the periods 2008-2011, 2011-2014, and 2014-2015**



(1) No data are available for Hungary, Lithuania, Luxembourg, Malta, Romania and Slovenia for the period 2014-2015.
(2) Countries are sorted by the sum of effects of the periods 2008-2011 and 2011-2014.
(3) Tax and benefit changes analysed by the authors include changes in pension policies.
Source: European Commission based on De Agostini et al. (2016, Tables 5 and 8) who use the Euromod model to simulate the effects of policy changes on household income, poverty and inequality. The graph shows simulation results in which the parameters of the tax and benefit systems are indexed to consumer prices under a no-policy-change scenario.

more room for improvement in their unemployment benefit systems, had more incentive to strengthen them.

The change in the capacity of social transfers to reduce inequality is a useful indicator of the effects of policy changes but, like every indicator, presents a number of weaknesses. In particular, the effects of social transfers on inequality may change without any policy change, for instance if there is an increase in the number of unemployed people, or low-income families with children, or retired individuals. Indicators cleansed from these effects can be calculated with the help of micro-simulation models, which simulate the effects of policy changes on a given population. A clear advantage of such micro-simulations is that they assess a specific list of policy changes, rather than measuring the total effect of the policy stance without correlation with specific policy measures (at the same time, there may be reforms that they are unable to assess).

Graph I.3.10 shows micro-simulation results, as reported by De Agostini et al. (2016), on the effect of tax and benefit changes on inequality for three periods (2008-2011, 2011-2014, 2014-2015), using the Euromod micro-simulation model. ([35]) The reforms assessed include, besides those affecting unemployment and other benefits, also labour taxation and public pensions (an area outside the focus of this report and of the LABREF database).

De Agostini et al. (2016) show that, overall, the reforms implemented from 2008 to 2011 increased mean household incomes and reduced poverty, while the opposite holds for reforms undertaken between 2011 and 2014. This finding is consistent with the overall pattern that, in response to the crisis, a first phase of stimulus was followed by a second phase focusing on fiscal adjustment measures (as well as on addressing the adjustment capacity of labour markets in countries that were most affected by the crisis).

On the effect of reforms on inequality, De Agostini et al. (2016) find that policy changes had overall an inequality-reducing effect at the EU level in both sub-periods. Graph I.3.10 reveals that there are considerable differences across countries in terms of the effects on inequality of the reforms adopted. There are seven countries in which policy changes are estimated to have reduced inequality (as measured by the Gini coefficient of disposable household income, corrected for household composition) by at least 1 Gini point between 2008

([35]) EUROMOD is a tax-benefit microsimulation model for the European Union that allows to calculate, in a comparable manner, the effects of taxes and benefits on household incomes and work incentives for each Member State. The tax changes analysed in this study include only direct taxes.

and 2014. These countries are Bulgaria, Cyprus, France, Greece, Portugal, Slovakia and Slovenia.

In half of the Member States, policy changes introduced between 2008 and 2014 have had a small effect (less than 0.5 Gini point in absolute value) on inequality. At the same time, the policy changes introduced in Hungary have had the effect of increasing income inequality by nearly 4 Gini points, in nearly equal measure before and after 2011. A number of important measures were passed in this period, including the introduction of the flat tax and cuts to unemployment and other benefits. ([36]) Box I.3.2 presents some characteristics of flat tax systems in the EU.

The simulation results presented in Graph I.3.10 take into account a broader set of reforms than the simple statistical indicator shown in Graph I.3.8. The simulations include the effect of changes in labour taxation and public pensions, while the statistical indicator shown above does not. ([37])

Despite these differences, most findings are consistent across the two methods. Most importantly, both methods show that policy changes were successful in reducing inequality in most EU Member States between 2008 and 2015, including the countries most affected by the financial crisis (e.g., Cyprus, Greece, Portugal, Spain). This suggests that, in many cases, fiscal consolidation measures were designed in such a way to take into account inequality concerns. ([38])

Finally, for some countries, differences in results can be explained by methodological differences. For instance, simulations by De Agostini et al. (2016) suggest that Bulgaria and Slovakia are among the countries where policy changes contributed the most to reducing inequality between 2008 and 2014. In contrast, Graph I.3.8 suggests that the inequality-reducing capacity of social transfers remained largely unchanged in these countries over the same period. This discrepancy can be attributed to the fact that the effect in these simulations comes, to a significant degree, from pension-related reforms, which are not included in the indicator shown in Graph I.3.8.

([36]) This finding is consistent with previous country-specific studies, e.g., Benczúr et al. 2011; 2012; Toth G. and Virovacz, 2013.

([37]) Results based on both methods are also subject to uncertainty from a number of sources: sampling error of underlying surveys, sensitivity to assumptions regarding the no-policy-change scenario in simulations, second-round effects of reforms, etc.

([38]) This finding is consistent with findings in studies by Avram et al. (2013) and Matsaganis and Leventi (2014).

3.3. POLICY ACTION SINCE 2016

2016 and the first half of 2017 saw an increase in reform activity towards extending welfare benefits, both in terms of generosity and coverage, and further increasing their efficiency and effectiveness. Measures aimed at strengthening wage setting frameworks and modernising job protection and working time legislation were adopted in several countries. Active labour market policies continued to be at the forefront of policy making, with particular attention to developing the skills of a more adaptable and mobile workforce. Facilitating the labour market integration of immigrant workers also gained in importance.

Supporting labour market participation

The trend towards reinforcing *in-work benefits* to enhance the incentives to work for those on benefits continued in 2016. In Lithuania, the right to in-work benefits was extended to those with an unemployment spell between 6 and 12 months (from previously only the long-term unemployed). In the United Kingdom, the rate at which the Universal Credit is tapered was reduced from 65% to 63%. A tax-free job premium amounting to 10% of the earned income was introduced in Denmark for the long-term unemployed, while in Estonia those reintegrating the labour market will continue to receive social assistance benefits during the first two months and 50% of the benefits in the following four months. A gradual tapering of benefits was also decided in Latvia and the extension of in-work benefits in Malta. In-work benefits were introduced specifically for people with disabilities in Portugal.

Several Member States introduced specific ALMPs to improve the activation of the *disabled*, (e.g. Belgium, Cyprus, the Netherlands, and Sweden). In the Netherlands, the Participation Act foresees that municipalities must provide sheltered work to people who cannot perform a regular job due to a medical or social disability.

Box I.3.2: Some characteristics of flat personal income tax (PIT) systems in the EU

Flat tax proposals came into the focus of policy debates in the 1980s spurred, among other things, by Hall and Rabushka (1985). Flat tax reforms adopted since the 1990s followed a narrower concept: simplifying the PIT to a single tax rate, while eliminating most of tax credits and allowances (OECD, 2006). Among the advantages of the flat tax, simplification (to administer and comply) and improved incentives (to work as well as to invest) are often mentioned. Among the disadvantages it is often mentioned that flat tax reforms reduce redistribution, which may negatively affect vulnerable groups (Peichl, 2014).

In 2017, there are seven EU Member States with a flat income tax: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania and Romania. Of these, Latvia has adopted a reform in 2017 to introduce three tax brackets from 2018. Previously, Slovakia abandoned a flat income tax in 2013 after having introduced it nine years earlier. Table 1 compares the seven Member States with a flat income tax in 2017 to those without. The table suggests a number of insights. First, Member States with a flat tax collect less tax revenue as a share of GDP (by 6 percentage points), mostly because they collect less revenue from the PIT (by 4.6 percentage points) than other countries.

Measured by the tax wedge, ([1]) flat-tax countries on average provide better incentives for high earners, but weaker incentives for the employment of low-income earners. This might have negative consequences for the employment of low earners whose labour market participation is more sensitive to incentives than that of high earners (Meghir and Phillips, 2010). In particular, single earners earning 167% of the average wage face a lower tax wedge in flat-tax countries than in others (by 3.7 percentage points on average). In contrast, the tax wedge of single workers at 50% and 67% of the average wage is higher in flat tax countries than in others (by 7.6 and 4 percentage points, respectively). Even at the average wage, the tax wedge is slightly higher in flat tax countries than in others. There is little difference between flat and non-flat tax countries in terms of incentives for two-earner couples with two children (where both parents earn the average wage), while the tax wedge for a single worker (earning the average wage) with 2 children is slightly lower in flat tax countries (by 2.5 percentage points).

Table 1: Indicators of the tax system in the EU, countries with and without flat income tax

	EU (simple average)	Flat tax (7 Member States)	Non-flat tax countries
Total taxes (including social contributions) as % of GDP	36.3	31.8	37.8
Revenues from personal income tax as % of GDP	7.8	4.4	9.0
Tax wedge, single worker earning 50% of average wage (AW)	32.5	38.1	30.5
Tax wedge, single worker earning 67% of AW	36.8	39.8	35.8
Tax wedge, single worker earning 100% of AW	40.6	41.0	40.4
Tax wedge, single worker earning 167% of AW	44.4	41.7	45.4
Tax wedge, 2 earner couple with 2 children, both parents at 100% of AW	37.1	37.2	37.0
Tax wedge, single worker with 2 children, earning 100% of AW	30.2	28.3	30.8

Notes: Data refer to 2015, except the tax wedge data which refer to 2016. Averages are simple (unweighted) country averages. Tax wedge calculations exclude Cyprus because data are unavailable.

Sources: Calculations based on tables from "Taxation trends in the European Union" (2017 edition; European Commission (2017b), DG TAXUD), except for tax wedge data which are taken from the European Commission's Tax and Benefits database (based on OECD tax-benefit model).

There are policy levers in a flat tax system to improve incentives for the employment of workers with a low earning capacity. The defining characteristic of a flat tax system is the single income tax rate, but this does not exclude the possibility of a basic allowance or an earned income tax credit. Of the flat tax systems in the EU, only Bulgaria's and Hungary's includes neither. In addition, rebates from social security contributions may be granted for low-income earners (like in France) or for specific groups (e.g., the long-term unemployed; a system of such schemes is in place in Hungary).

([1]) The tax wedge is the total labour tax burden (including all labour taxes and social contributions) as a share of total labour cost. It thus measures the "wedge" between the cost of labour to the firm and the net wage the worker receives. The tax wedge varies by earnings levels, family size and other personal circumstances.

In Austria, the whole area of early intervention and rehabilitation (including training and guidance) was reformed to increase its effectiveness.

Facilitating the *conciliation between work and family life* was also high on the agenda of several countries. The affordability of *childcare* was enhanced, among others, in Italy, with the introduction of a child-care benefit, and in the United-Kingdom, with the extension of the entitlement to free child-care (up to 30 hours per week for 38 weeks) to three- and four-year-olds in families with both working parents. In Ireland, a single, national scheme of financial support to cover parents' childcare cost (the Affordable Childcare Scheme) replaced existing targeted childcare subsidisation schemes. In Bulgaria, it was decided to grant 50% of the child-care benefit to mothers with children under one year of age who return to employment. Measures to enhance the availability and affordability of childcare services were also decided in Slovakia. In the Czech Republic, the government gradually implemented the right to a place in a kindergarten for children aged between two and four and introduced a compulsory year of preschool education. In Hungary, providing day care for children under the age of 3 became mandatory for municipalities. More flexible *leave arrangements for parents*, including through provisions intended to reduce gender inequalities, were introduced in Austria, the Czech Republic, Denmark (for self-employed), Germany, Italy, Luxembourg, Spain and Sweden. Through changes in the paternity leave (and related financial incentives), fathers were stimulated to take-up care responsibilities in Austria, Cyprus and Italy.

Reform activity related to *early retirement schemes* slowed down as compared to previous years. In Portugal, the temporary rules on early retirement set during the Economic Assistance Programme were extended until a full revision of the early retirement regime will take place.

Active labour market policies

With the economy getting on a firm path to recovery from the crisis, governments continued to invest in *training and skills development* as a key tool to fight unemployment and improve labour market matching. The most common types of training-related measures included back-to-education allowances (e.g. in Bulgaria, Estonia, Ireland, Portugal, Sweden), upskilling measures for the NEET, the long-term unemployed and the elderly (e.g. Bulgaria, Cyprus, France, Germany, Lithuania, Slovenia). Malta expanded the offer of training for both adults in employment and early school leavers in order to address skills shortages and strengthen the link between education and employment.

The provision of individualised *job-search support and training* accelerated in 2016, together with further moves towards their digitalization through the creation of online personal work activity accounts, virtual job-seeking tools and distance vocational learning, aimed to make job search more flexible and facilitate the validation of both formal and informal work experience (e.g. France, Hungary, Malta, Spain).

Individual rights to training and training passports were introduced in a number of countries. The reform of adult learning programmes adopted in Spain in 2017 foresees the introduction of training vouchers for jobseekers, and training accounts to document past trainings and guide future training offers. Also Portugal revamped its system of adult learning in the framework of the "Qualifica Programme", coordinating and expanding a network of adult learning centres. Participants obtain a “Qualifica Passport”, which allows them to have an online overview of all trainings and qualifications obtained in the past. Additional rights to vocational training were granted to low-skilled people in France, based on the personal training account (CPF) introduced in 2015.

The reorganisation of the *public employment services* continued in the direction of strengthening their collaboration with social service providers (e.g. Slovenia, Spain) and improving the quality and scope of their activities, sometimes as part of wider local government reforms (e.g. Belgium, Bulgaria, Estonia, Lithuania). Individualized support plans for social assistance recipients were newly introduced or reinforced, including through an integrated assessment of their needs, information provision, search assistance and continued monitoring and guidance by the public employment services (e.g. Belgium, Bulgaria, Finland, Portugal, Slovakia).

Employment subsidies remained an important instrument to support employment, although to a lesser extent than in previous years. Measures in this field were mainly targeted at groups such as the long-term unemployed (e.g. Belgium), older workers (e.g. Cyprus), social benefit recipients (e.g. Cyprus), NEETs (e.g. Romania), single parents (e.g. Romania) and those who lost a job in the public sector (e.g. Hungary). A few schemes were introduced to incentivize SMEs to hire new staff (e.g. Belgium, France) and in some cases employers were asked to conclude an open-ended contract to qualify for the subsidy (e.g. France, Italy, Portugal).

The pace of implementing *policies targeted to young jobseekers* slowed down, with most of the Youth Guarantee measures launched in previous years still ongoing. In 2016, Belgium, Estonia and Greece implemented more comprehensive programmes, aimed at offering young graduates a first contact with the labour market and activating the NEETs. A few other countries introduced financial incentives for the hiring of young jobseekers (e.g. Cyprus) and subsidies to promote their self-employment (e.g. Greece, Spain). Spain extended the Youth Guarantee to cover all the young aged between 25 and 30 until the rate of unemployment of this group falls below 20%. In France, the "Garantie jeunes", previously limited in number, was transformed into a right for any young NEET fulfilling the access criteria.

The United Kingdom continued to strengthen *apprenticeships* with changes in funding and the creation of a new Institute for Apprenticeships charged with driving quality improvements. A legal framework re-introducing an apprenticeship system was passed in Slovenia. The maximum age to access apprenticeship schemes was raised from 25 to 30 in France.

Direct job creation programmes lost ground in most Member States and reform activity in this area slowed down substantially.

Unemployment benefits and other welfare schemes

In the domain of unemployment and other welfare-related benefits, the two broad reform trends which had emerged in previous years continued in 2016, with measures aimed, on the one hand, to improve the incentives to work and rationalise the design of welfare benefits and, on the other, to extend their coverage and adequacy.

A major reform of the *unemployment benefit scheme* was passed in Finland in 2016. The aim of the reform was to help shorten unemployment spells, lower overall unemployment levels and limit associated costs. The reform includes a reduction in the maximum benefit duration, more stringent eligibility conditions and a progressive decrease in the net replacement rate, except for older long-term unemployed people.

In 2017, Lithuania adopted a reform of the unemployment benefit system with a view to increasing its coverage and adequacy. The reform provides for longer benefit duration (from 6 to 9 months irrespective of tenure), a shorter required contribution period and a closer link between the benefit and previous wages. Other reforms included the extension of unemployment assistance to participants in vocational training (Germany), and the introduction of stricter availability to work conditions for unemployment benefits (Latvia). Changes in the required contributory period were also decided in Latvia.

Major reforms of *welfare benefits* were adopted in Greece, Italy and Romania, with a view to expand and simplify previously limited poverty relief instruments. In Greece, a Guaranteed Minimum Income Scheme was introduced, consisting of three pillars: poverty alleviation (means-tested income support), social inclusion (provision of social services) and labour market reintegration (provision of personalised active labour market services). In Italy, the enabling law of March 2017 introduces for the first time a structural income support measure with stable funding addressed to households below the absolute poverty line. The measure replaces the pre-existing means-tested benefit SIA (support for active inclusion) and combines income support with activation measures and with a reinforcement of services. Likewise, Romania introduced a minimum inclusion income, which is intended to become the main poverty-tackling measure as of 2018, consolidating three pre-existing social assistance benefits.

Several other Member States broadened the coverage and increased the level of a number of welfare-related benefits, in particular for families.

Family and child benefits were increased in Bulgaria, the Czech Republic, Estonia, Ireland, Latvia, Lithuania, Hungary, the Netherlands, Poland, Portugal and the United Kingdom. The generosity and scope of maternity and parental leave allowances were increased in Bulgaria, Estonia, Croatia, Slovakia and the United Kingdom. Slovenia revised the eligibility conditions for *social assistance* benefits, allowing more individuals to benefit from financial support. Lithuania eased eligibility conditions for social assistance recipients. Bulgaria increased the heating subsidy for pensioners.

Measures to improve the situation of the *self-employed and of atypical workers* under new forms of employment were taken in a number of countries. Spain introduced measures aimed at the self-employed, by reducing their social security contributions, making pension payments compatible with developing a freelance work and promoting access to training opportunities. In May 2017 Italy extended to non–entrepreneurial self-employed the protection in case of maternity leave, parental leave, illness, unemployment benefit, as well as the possibility to deduce the expenditure linked to vocational training from taxable labour income. In Ireland, the Invalidity Pension was extended to the self-employed.

France introduced the principle of social liability of digital platforms towards independent workers using them as intermediary, notably as concerns the participation of the platforms to work accidents' insurance coverage, the financing by the platforms of compulsory contributions to vocational training, the guarantee of workers' rights to contest and demonstrate and the right to set up or participate in trade-unions. Decrees published in May 2017 specify as of which amount of turnover (13% of the social security expenditure ceiling) an independent is considered related to the platform, implying the responsibility of the latter.

Measures aimed at *stimulating the labour market integration of social assistance recipients* were notably introduced in Belgium, the Czech Republic and Denmark. According to new legislation, in Belgium the beneficiaries of social insertion income have to agree on compulsory personalised social integration projects defining their rights and obligation vis-à-vis the social welfare centres. The Czech Republic and Denmark introduced the obligation for beneficiaries of social assistance to work a number of hours per month or per year (in public or volunteer works in the Czech Republic) in order to be eligible for the full amount of benefits. Denmark and Germany also tightened residence requirements for social assistance while Sweden abolished the Local Authority Child Benefit.

Labour taxation

A number of Member States continued in their efforts to reduce labour taxation. At the same time, in response to an increase in non-standard types of work, several countries introduced or increased social security contributions for the self-employed or for those employed under atypical work arrangements.

Reductions in *personal income taxes*, notably through an increase of the income threshold or an extension of tax credits for low-wage workers were introduced in Croatia, the Czech Republic, Estonia, France, Ireland, Italy, Latvia, Lithuania, Poland, Portugal and Slovenia. The broad tax reform package decided in Latvia in July 2017 provides for the introduction of a progressive personal income taxation system (away from the pre-existent flat 23% PIT rate), covering also the self-employed and including a non-taxable allowance with progressive differentiation by income level. Croatia reduced the number of tax brackets from three to two, while Slovenia increased them from four to five. For an analysis of some characteristics of flat-tax systems in the EU, see Box I.3.2.

Significant reductions in employers' *social security contributions* were adopted in Hungary, mainly aimed at reducing the tax wedge on low-wage earners. In other countries these reductions were aimed at supporting the employment of specific target groups, such as the young and older workers (Belgium and Italy), the disabled (Malta), new hires on permanent contracts (Italy) or new hires by the self-employed (Sweden).

From its side, Greece decided a general increase of social security contributions. The main element of the reform is the introduction of a uniform contribution rate across different types of workers. The reform foresees an increase in social security contributions paid by the self-employed. Social

security contributions also increased for self-employed (Lithuania), and taxi-drivers, start-up employees and employees of micro-enterprises (Latvia).

Working time

Several Member States took measures to modernise their working time legislation, with a view to introducing more flexibility for both employers and employees and improving work-life balance. *New flexible work arrangements* were notably put in place in Belgium, France, Lithuania and Luxemburg.

In France, the changes to the Labour Code stemming from the 'El Khomri' Law introduced the possibility to derogate from the legal provisions on working time by company agreement. Also, the possibility was introduced to seal majority agreements at company level with the aim to preserve and develop employment, which may result in a reorganisation and reduction of working time for the company. In Belgium, following the Law on *workable and flexible work* of March 2017, working patterns can now be set on an annual basis, the use of overtime has been relaxed, the formalities for part-time work have been simplified and a legal framework for occasional telework has been created. In Italy, the Jobs Act on non-entrepreneurial self-employment and smart working (*Lavoro agile*) of May 2017 provides for the possibility to work outside the firms' premises and use IT tools, and enjoy the right to the same pay, safety and health regulations, etc. as the employees working within the firms' premises and doing the same job. Finally, the Czech Republic introduced more flexibility in the scheduling of, and entitlements to, working hours and leaves, changed 'teleworking'-related provisions and strengthened reconciliation tools such as 'homeworking'.

Other Member States, including Bulgaria, Portugal and Romania, (re)introduced a number of official holidays. In Spain, the Regions were offered the possibility to establish an additional (unpaid) public holiday for 2017. In Portugal, the government reinstated the 35 hour work week in the public sector, which had been increased to 40 hours under the Economic Adjustment Programme.

Employment protection legislation

A number of countries introduced changes to the regulation of *individual and collective dismissals*, largely aimed at making labour market regulations more flexible and responsive to emerging needs, and at providing a framework to protect those employed under new forms of work. In Lithuania, the revision of the Labour Code passed in 2016 reduced the cost of individual dismissals by shortening the notice period and reducing severance pay; it also loosened the restrictions on the use of fixed-term contacts and introduced a number of new contract types, such as apprenticeship contracts, project-based work contracts (where individuals agree to perform a certain assignment according to their own time schedule and outside the workplace), job sharing contracts and multiple-employer contracts. Reforms in other Member States included extending the trial period (Finland), reducing the scope for reinstatement (Italy, Finland), better specifying the circumstances that can justify an individual dismissal for economic reasons (France) and introducing the obligation for certain employers to prepare a social plan in case of collective redundancy (the Czech Republic). In some Member States, such Austria and the Czech Republic, the conditions under which young workers (under 18 years) can end their employment relationship have been eased, so as to make it easier for them to return to education. The role of the individual Labour Disputes Commissions was strengthened and procedures made more flexible in Estonia.

With regard to the *regulation of temporary work contracts*, most reforms were aimed at limiting their abuse. The maximum duration of temporary contracts was reduced in Cyprus (in the public sector) and Sweden. Stricter regulation of temporary agency work, including as concerns the principle of equal pay, was adopted in the Czech Republic and Germany, and the protections of temporary agency workers enhanced in countries such as Belgium and Poland. In contrast, the restrictions to the use of fixed-term contracts were loosened in Lithuania and Finland. In Portugal, the procedure for recognising the existence of *bogus self-employed* was extended to bogus traineeships, volunteer work and other undeclared work.

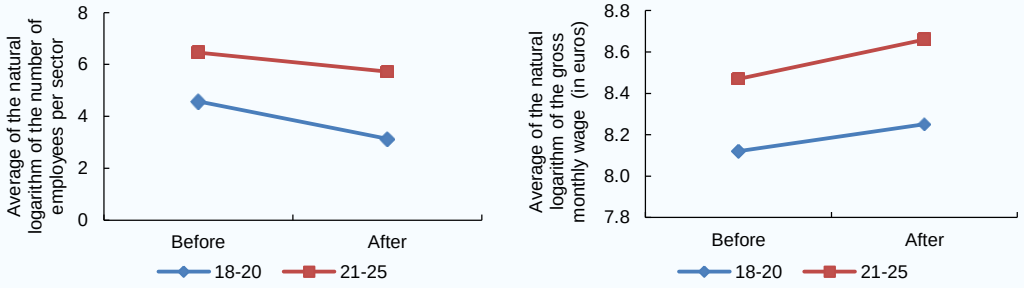
Box I.3.3: The effects of repealing the youth minimum wage in Belgium

The national statutory minimum wage in Belgium is determined by social partners in the National Labour Council (*Conseil National du Travail*). Any agreement reached by the National Labour Council is legally extended to all workers and employers. Social partners can negotiate sectoral minimum wages exceeding the national minimum wage in Joint Committees (*Commissions Paritaires*). Until 2015, legislation allowed for a youth minimum wage for those between 16 and 20 years of age, set at 6% below the statutory minimum wage. However, the age differentation was gradually removed for workers between 18 and 20 years in collective agreements by the Joint Committees, before being formally abolished in 2015. This box examines the impact of removing the youth minimum wage by sectoral agreements in the period 2008-2016 by using a methodology based on the so-called difference-in-difference estimation technique.

A difference-in-difference is based on the comparison of two groups, one of which is affected by a policy change over the course of the study's period. In this case, the age group between 18 and 20 years of age (the "treatment group") is compared to those between 21 and 25 (the "control group"). The older age group is expected to have a higher employment rate and higher wages than the younger group both before and after the policy change. But it is reasonable to expect that employment and wages move in similar ways for both groups between the first to the second period, responding to general economic developments. If the outcomes of both groups are moving very differently between periods, this could be caused by the abolishment of the youth minimum wage.

To provide a first insight into the results, Graph 1 shows the evolution of the sectoral average of employment levels and wages (both expressed in logarithm) of workers belonging to age groups 18-20 and 21-25 before and after the removal of the youth minimum wage. Note that the timing of the removal differs across sectors. The first panel shows that the removal of the youth minimum wage coincided with a decline in the average employment for both age groups. However, the average decline is 76% for the younger group (18-20 years), while it is only 52% for the older one (21-25 years). This seems to suggest a possible negative effect of the abolishment of the youth minimum wage on employment of the age group that it applied to. Yet, this outcome may also reflect an age-specific time trend, with employment of the youngest falling more because of the increase in their participation in tertiary education. The fact that wage increases were very similar for both groups suggests that the abolishment of the youth minimum wage did not have a significant effect on wages. This casts doubt on the notion that the youth minimum wage may have had significant employment effects.

Graph 1: Average employment and monthly gross wages by age group before and after the abolishment of the youth minimum wage



Source: European Commission, based on Belgian social security data.

To formalise and deepen the visual inspection of the effects of the youth minimum wage's abolishment on employment and wages of young workers, the following regressions were estimated:

$$Y_{ijt} = \alpha_0 + \alpha_1 Age_j + \alpha_2 Repeal_{it} + \alpha_3 (Age_j * Repeal_{it}) + \varepsilon_{ijt}$$

Where Y_{ijt} is the outcome of interest (the logarithm of employment and wages, respectively) for sector i in age group j and period t. Age_j is a dummy variable that takes a value of one in case the age group is 18 to 20 years old and a value of zero in case the age group is 21 to 25 years old. $Repeal_{it}$ is a dummy variable that

(Continued on the next page)

Box (continued)

takes a value of zero in all periods prior to the removal of the youth minimum wage in a sector, and a value of one for all periods following the abolishment of the sectoral youth minimum wage. $Age_j * Removal_{it}$ is the difference-in-difference term aiming to capture the average treatment effect. It takes a value of one in the case of the treated group in the second period and zero otherwise. The robustness of the results is tested by estimating extended models, including, respectively: age group-sector fixed effects (Model B), year fixed effects (Model C) and age-specific time trends (Model D), as compared to the baseline Model A. Data on employment and wages by sector and age group are obtained from the National Social Security Office.

Table 1 presents the results. The estimates in Models A to C suggest that the removal of the minimum wage has had a statistically significant negative impact on employment of young individuals (18-20 years old). However, when including controls for age-specific time trends in employment, this effect disappears, suggesting that the two age groups were already showing different evolutions over time with regard ro employment, independent of the legislative change. With respect to wages, the estimates confirm the visual evidence that there has been no significant impact of the removal of the youth minimum wage on the average wage of young individuals. Again, this result suggests that the youth minimum wage was non-binding before its abolishment and that its removal likely did not have a negative impact on job creation for the youth.

Table 1: Regression results on the impact of the abolishment of the youth minimum wage on employment and monthly gross wages

Outcome	Natural logarithm of employment				Natural logarithm of monthly gross w age			
	Model A	Model B	Model C	Model D	Model A	Model B	Model C	Model D
Age*Abolishment	-0.689**	-0.267***	-0.272**	0.151	-0.0663	0.00442	0.00627	-0.0223
	(0.28)	(0.099)	(0.11)	(0.12)	(0.060)	(0.027)	(0.027)	(0.037)
Age	-1.891***	-	-	-	-0.343***	-	-	-
	(0.22)	-	-	-	(0.045)	-	-	-
Abolishment	-0.740***	-0.118*	0.131	-0.0340	0.191***	0.0989	-0.00606	0.00281
	(0.19)	(0.060)	(0.089)	(0.12)	(0.032)	(0.013)	(0.020)	(0.015)
Age group-sector fixed-effects	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Time fixed effects	No	No	Yes	No	No	No	Yes	No
Age specific time trend	No	No	No	Yes	No	No	No	Yes
Constant	6.459***	5.049***	5.060***	5.201***	8.465***	8.333***	8.320***	8.276***
	(0.15)	(0.029)	(0.099)	(0.062)	(0.025)	(0.0079)	(0.015)	(0.014)
No. of observations	578	578	578	578	578	578	578	578

Source: European Commission calculations based on Belgian social security data.

Wage setting and collective bargaining

In a number of countries, the organisation of *collective bargaining* was revised in the direction of wider margins of autonomy at firm-level (e.g. Finland, France and Romania). In France, the El Khomri law stipulates that company-level agreements get priority over sectoral agreements on matters such as working time, paid holidays and bonuses. Also in Finland, the possibilities for local-level bargaining were extended by the Competitiveness Pact.

As a result of intense negotiations with the social partners, in 2017, Belgium revised its 1996 Competitiveness Law. The objective of the reform is to prevent possible competitiveness losses due to excessive labour cost increases as compared to Belgium's main trading partners. The revised law establishes an automatic correction mechanism, introduces a safety margin and strengthens the legal basis of the 'wage norm', which is agreed every two years by the inter-sectoral social partners as a upper threshold for wage setting at sector level.

Policy action on *statutory minimum wages* included the introduction of a higher statutory minimum wage for workers aged 25 and above in the United Kingdom (the so-called 'National Living Wage'). The measure was complemented by higher penalties for non-compliance. In Poland, minimum hourly remuneration was increased and extended to those who carry out work on the basis of a civil law contract or as self-employed. Finally, Latvia adjusted its minimum wage setting framework by introducing the obligation to take into account the economic and social situation and the impact of the minimum wage on low-skilled workers. Presenting a case study on a sub-minimum wage targeting a specific group, Box I.3.3 analyses the effects of the recent phasing out of a youth minimum wage in Belgium.

Reform measures in the field of *public wages* continued to be largely determined by the general economic and fiscal outlook. In Cyprus, several measures were taken to contain the public wage bill. A recent law provides for the possibility to remunerate employees hired on a temporary contract at a lower scale than the one that was agreed in their contract during the first 24 months; the social partners also agreed on a wage freeze in the public sector for 2016-2017. In Finland, the Competitiveness Pact concluded between social partners in 2017 included a reduction of the public employees' annual holiday bonus. In other Member States, wages in the public sector were substantially increased (e.g. the Czech Republic, Romania).

Integration of immigrants and internal mobility

Several Member States have increased the incentives for *internal labour mobility* by providing financial support to available unemployed and contributing to cover the costs related to travelling to their new job (e.g. Bulgaria, the Czech Republic, Hungary, Lithuania, Romania, Slovakia).

Measures to facilitate the integration of immigrants continued to be adopted in several Member States, including individual guidance for labour market integration and additional investment in language classes and education (e.g. Belgium, Denmark, Finland, Germany, Austria and Sweden). In Germany, the Integration Act of May 2016 provides a legal basis for the German integration policy with respect to migrants and refugees with clear prospects of staying in Germany, through the introduction of a clear set of rights and obligations for migrants. Similar measures were implemented in Austria, with the introduction of an obligatory labour market integration year managed by the PES. Finally, countries such as Lithuania and the United Kingdom increased their efforts to fight illegal employment of immigrants. Box I.3.4 surveys recent measures to promote labour mobility in the EU.

3.4. POLICY PRIORITIES AND PLANS LOOKING FORWARD

While labour market conditions and challenges continue to differ across countries, the recovery has allowed Member States to move forward on long-term priorities, with an increased attention being paid to improving the resilience of the European economies and of societies at large. ([39]) At the same time, addressing the challenges related to emerging long-term trends in the world of work and society is gaining momentum in both national and European reform agendas, in view of the need to adapt existing regulatory and spending policies to these new realities.

The experience of the crisis, which temporarily halted the previous trend of socio-economic convergence in the EU, also highlighted the need for improved policy coordination in the economic and social spheres, with a view to ensuring comparable levels of efficiency and effectiveness in national policy settings across Europe. This showed to be particularly relevant for the euro area.

([39]) Resilience can be intended as 'the ability of a system/society' to deliver current societal wellbeing, without compromising that of future generations, by reacting to shocks and persistent structural changes. Resilience implies absorptive capacity (to resist shocks), adaptive capacity (to be flexible and adapt to minor changes), and transformative capacity (to react to big changes), with the idea to use the shock as opportunity to bunch forward (European Commission, 2017c).

Box I.3.4: Measures to promote labour mobility in the EU

The ability to work in other EU countries is not only a fundamental right of EU citizens, it also has a crucial economic importance. Labour mobility enables a better allocation of productive resources, where workers move when their value added is higher. Their employment rate usually exceeds that of nationals' and they have considerably higher employment rates than immigrants from outside the EU. As a result, EU mobile citizens tend to provide a significant fiscal contribution in their recipient countries (see, e.g., Dustmann and Frattini, 2014). Labour mobility also constitutes an effective way to deal with labour market disequilibria. This adjustment mechanism is even more important in a monetary union (see, e.g., European Commission, 2015a). Not all mobility is permanent: in 2014 return mobility amounted to about 60% of outward mobility. ([1]) However, permanent outflows can have drawbacks. Significant outflows of labour reduce the size of the labour force and may affect productivity, depending on the skill composition of migrants. It may also adversely affect growth in sending countries and slow per capita income convergence (see, e.g., Atoyan et al., 2016).

Labour mobility in the EU remains relatively low, even if it has increased since the 2004 enlargement. In 2014, 0.5% of the working age population moved to another EU Member State, while mobility among the 50 US states amounted to 2.3% of their population (OECD, 2016a). A number of barriers contribute to this comparatively low level of mobility, including language differences. Some of these barriers, such as lack of labour market information, remaining administrative barriers, or deficient transport infrastructure, are possible to tackle by policy.

Various ongoing EU initiatives contribute to better mobility. Following the adoption of its new regulation in 2016, EURES, the European network of employment services is now extending its portfolio to include private employment services. In August 2017, it offered access to 4.7 million vacancies across Europe. ([2]) The Electronic Exchange of Social Security Information (EESSI) system is being set up. EESSI is a new IT platform that will connect electronically around 15.000 social security institutions of EU Member States plus Iceland, Liechtenstein, Norway and Switzerland. Member States will have to connect their national systems to the central IT platform by mid-2019. EESSI will replace the current paper-based exchanges between social security institutions, and allow for a quicker, easier and secure exchange of social security information throughout the EU and beyond. ([3]) In December 2016 the Commission proposed to modernise EU rules on social security coordination, so that jobseekers may take their unemployment benefits with them to another Member State for at least 6 months, instead of the current 3 months. This would give them a better chance to find work, and help tackle EU-wide unemployment, labour shortages and skill mismatches. This new rule would be combined with a reinforced cooperation mechanism to support jobseekers, thus increasing the likelihood of their reintegration into the labour market. The proposal also aims to facilitate fair mobility by improving the rules on coordination of long-term care benefits, the social security of posted workers, and family benefits.

Labour mobility does not always result in efficient matches between employees and employers. Indeed, while 22% of nationals are overqualified for their jobs, 34% citizens from other EU countries are in this situation. ([4]) EU cohesion policy that aims to reduce regional disparities offers a remedy by reducing push factors of mobility, while efforts to improve the recognition of foreign qualifications reduce employers' uncertainty about mobile workers' skills and qualifications. In 2016, Austria has amended its legislation to provide an assessment and advisory portal for skills as well as a country-wide counselling service – the primary aim of which was to benefit refugees, but it also improves the situation of EU mobile workers. ([5])

([1]) Here, the number of EU-28 nationals immigrating to their country of citizenship (returnees) is compared to the number of EU-28 nationals leaving their country of citizenship (outflows), age group 20-64, excluding EL, CY, FR, PT and SK as countries of citizenship due to lack of data.
([2]) See the EURES website under this link: https://ec.europa.eu/eures/. See also Regulation (EU) 2016/589.
([3]) See the EESSI website under this link: http://ec.europa.eu/social/main.jsp?catId=869.
([4]) In this context, overqualification is when an individual with a completed tertiary education (ISCED category 5 or 6) work in low or medium skilled jobs (ISCO occupation levels 4 to 9).
([5]) Act on the Recognition and Evaluation of Qualifications Earned Abroad (Anerkennungs- und Bewertungsgesetz – AuBG; Federal Law Gazette I No. 55/2016).

(Continued on the next page)

Box (continued)

The benefits of the current level of mobility are debated in a number of countries. Concerns include the impact on local communities, on wages, on housing, on public services, and on sustainability of public finances, both in some destination and origin countries. Some national measures actually aim to keep mobility limited, both in some sending and receiving countries.

Undoubtedly a key challenge is to strengthen policies that reduce the tensions between the positive effects of deeper economic integration, of which labour mobility is a key element, and the pressures on national welfare policies stemming from labour mobility and persistent differences in the level of income – the so-called Social Trilemma (Sapir, 2015). Ensuring that mobility is fair can alleviate this trilemma – for this, mobility needs to be based on clear, fair and enforceable rules that take into account that it is overall creating benefits, while also ensure that the ensuing benefits are shared, and the costs are also covered jointly.

The proposal for a *European Pillar of Social Rights*, adopted by the Commission in April 2017, provides a first articulated response to these different questions (European Commission, 2017a). The Pillar sets out 20 key principles as a milestone to progress towards future-proof, fair and well-functioning labour markets and welfare systems. The 20 principles fall into 3 broad chapters: (1) equal opportunities and access to the labour market; (2) fair working conditions; and (3) social protection and inclusion.

The aim of the initiative is to serve as a compass for a renewed process of convergence towards better working and living conditions, and thus to support national reform efforts in this respect. Since the Social Pillar does not change anything related to EU competences, the centre of gravity of social and employment policies remains with national and local authorities, and the social partners. In particular, as its principles will serve as a reference framework for the conduct of employment and social policy at national level, the Social Pillar is intended to be in large part implemented through the European Semester.

The 2017 round of the European Semester, the annual cycle of economic policy coordination in the EU, already took up several of the Social Pillar priorities, with a focus on income inequalities and equality of opportunities, and on the need to ensure that the benefits of globalisation and of technological and demographic change are distributed fairly across the society, through human capital investment and social infrastructure.

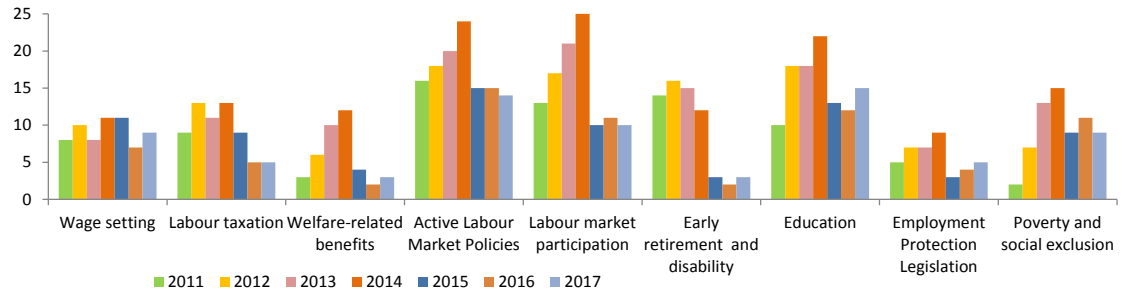
In the employment and social field, special attention was paid to pursuing structural reforms that support: the development of well-functioning and flexible labour markets, including through enhanced skills and income support during work transitions and welfare systems firmly anchored in social standards; the provision of quality services such as childcare, housing, healthcare and long-term care; modern education and training systems equipping people with the skills they need in a fast-changing global economy; tax and benefit systems underpinning adequate social support and work incentives; effective social dialogue and collective bargaining mechanisms; adequate structures to deal with migrants and refugees beyond the short-term.

These priorities were largely reflected in the *Country-Specific Recommendations* (CSRs) addressed to the Member States in June 2017.

After the streamlining of the European Semester operated in 2015, and the visible reduction in the number of CSRs that year, the number and broad focus of recommendations related to employment and social issues remained broadly stable in 2016 and 2017 (Graph I.3.11). ([40]) A clear differentiation by country also continued. Three Member States with relatively well-functioning labour markets (Denmark, Malta and Sweden) received no CSRs related to employment and social policies in 2017, while countries with significant employment and social challenges (e.g. Bulgaria, France, Latvia, Lithuania, Hungary, Romania and Slovakia), received a broad range of CSRs in this field.

([40]) The classification of CSRs is done in this exercise by policy instrument (e.g. active labour market policies), rather than by expected outcomes (e.g. increasing employability). This is not always an easy task, as CSRs can concern both objectives/ expected outcomes and required policy actions.

Graph I.3.11: **Number of country-specific recommendations (CSRs) related to employment and social issues, by area**



Source: Council Recommendations 2011-2017. Programme countries are excluded from the European Semester, and thus do not receive CSRs, for the duration of the programme.

Looking at the evolution in the distribution of recommendations by policy area over the whole period 2011 to 2017 allows for a better tracing of long-term trends in reform priorities at both the EU and national level (Graph I.3.12). The weight of policy areas most closely linked to fiscal policies (labour taxation and, in particular, early retirement and disability) has visibly diminished since the inception of the European Semester in 2011. In contrast, the weight of CSRs related to poverty reduction and education has overall increased.

A closer look at labour market and social policy-related CSRs in 2017 also gives a good overview of national policy priorities from an EU perspective.

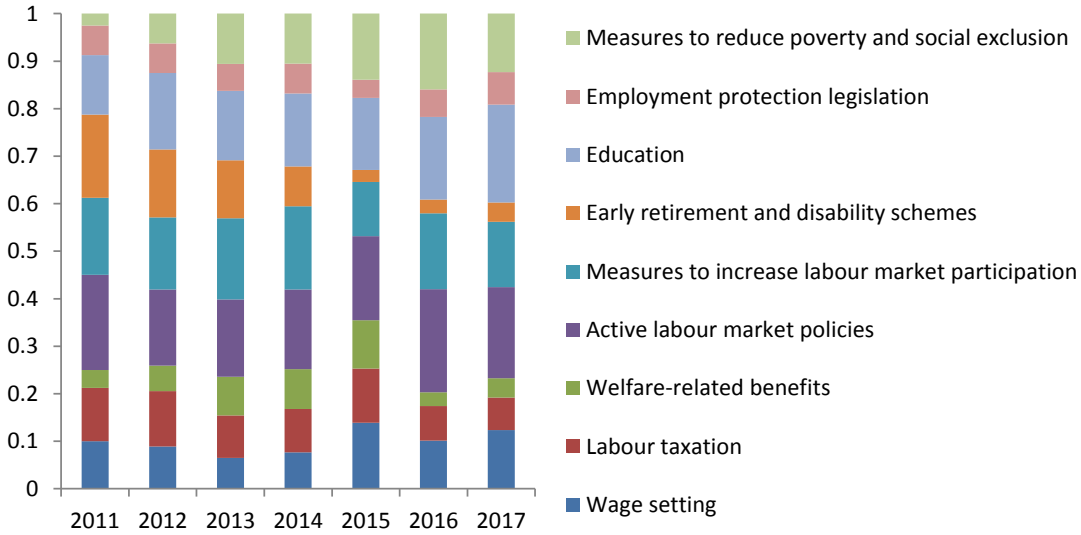
Recommendations to *support labour market participation* of under-represented groups were addressed to 10 Member States and were in most cases intended to increase female activity rates, with a focus on increasing the offer of quality childcare (Austria, Ireland, Spain, and Slovakia), parental leave reforms (Estonia), the gender pay gap (Estonia) and financial disincentives to work for second earners (Germany, Italy). Romania was recommended to adopt legislation to equalise the pension age for men and women.

As concerns *early retirement*, CSRs were addressed to 3 Member States. For Luxembourg and Croatia, they focused specifically on early retirement schemes, while Poland was recommended to reform the preferential pension arrangements for specific categories of workers.

Most of the 14 CSRs issued in 2017 in the area of *active labour market policies* focused on enhancing the effectiveness of public employment services and ALMPs more in general, and on providing targeted and integrated support, with a view to addressing employment and social challenges in a comprehensive way (Belgium, Bulgaria, Cyprus, Finland, Hungary, Ireland, Italy, Portugal, Romania, Slovakia and Spain). In addition, also in line with the launch of the Skills Agenda in 2016, equipping people with the right skills came to the forefront for several countries, with CSRs focused on improving the matching of skills with labour market needs, including by enhancing the quality of *education, vocational training and adult learning* (Belgium, Lithuania, Slovenia, Spain and the United Kingdom).

There was also an increased focus on addressing *social challenges*, in particular in Member States with weaker social protection systems and high inequalities. Nine countries received a CSR in this area in 2017. Addressing shortcomings in the coverage and adequacy of minimum income schemes remained high on the policy agenda of Bulgaria, Estonia, Hungary, Latvia, Lithuania and Spain. In Ireland, the focus of the recommendation was on enhancing social infrastructure. Italy received a recommendation on reviewing and rationalising social spending so as to increase the effectiveness of its social protection system. Fighting poverty and social exclusion of specific groups through better access to mainstream education, childcare and labour market policies was referred to in the CSRs addressed to Bulgaria, Hungary, Romania, Slovakia (with a focus on Roma children) and to Austria, Belgium, and France (with a focus on people with a migrant background).

Graph I.3.12: **Country-specific recommendations, distribution of CSRs by policy area**



Source: Council Recommendations 2011-2017.

Reducing the high *tax wedge on labour* to improve competitiveness and labour market participation remained a priority for five Member States. Related CSRs concern the high level of labour taxation in France and Italy and the tax burden on low-wage earners in Germany and Hungary. The recommendation addressed to the Netherlands focused on tax distortions favouring the self-employment.

After the far-reaching reforms passed in previous years in the area of *employment protection legislation* (e.g. in Greece, Italy, Portugal and Spain), five countries were addressed recommendations in 2017. The specific challenges tackled in the 2017 CSRs are heterogeneous, but all serve the common objective of addressing labour market segmentation. They include: removing obstacles to hiring on open-ended contracts in the Netherlands, Portugal and Spain; addressing the growth in non-standard employment, including mini-jobs, in Germany; limiting the increase in the number of self-employed without employees in the Netherlands and the abuse of civil law contracts in Poland.

As concerns *wage and minimum wage developments*, 4 out of the 9 CSRs decided in 2017 focused on challenges related to external competitiveness (for Finland and Italy), and to modest real wage developments and current account surpluses (in Germany and the Netherlands). In the case of Italy, the focus was on the ability of the collective bargaining framework to take into account local conditions. Croatia was asked to start harmonising wage-setting frameworks across the public administration and public services. Four recommendations concerned minimum wage settings. As concerns Bulgaria and Romania, the focus was on overcoming the absence of established guidelines for updating the minimum wage, insofar as this can adversely affect the predictability of minimum-wage developments. The CSRs addressed to France and Portugal concerned the high level and coverage of minimum wages in these two countries, given their potentially negative implications in terms of employment, in particular for low-skilled workers.

3.5. CONCLUSIONS

Member States have shown a consistent policy response since the start of the crisis. The first two phases – characterised first by fiscal stimulus measures and then by fiscal stabilisation and structural reforms to support economic adjustment – have been followed, in a third period since growth resumed in 2013, by policy action to reinforce the national welfare state and its redistributive capacity, and to adapt the regulatory

framework to tackle structural challenges in a more balanced way.

This trend has continued in 2016 and in the first half of 2017, and is being largely reflected in recent EU initiatives and in the country-specific recommendations issued in the framework of the European Semester. Social and political sustainability considerations have shown to be important assets and, more decisively, to represent a constitutive element of a credible economic reform agenda, and this has been taken forward by Member States and the EU alike.

As most recent reform trends and EU initiatives show, common challenges beyond borders, such as those deriving from the emergence of new forms of work in a globalised economy and the profound transformations occurring in demographic structures, are starting to shape national and European reform agendas, with the focus of policy priorities being increasingly put on facilitating investment in social infrastructure, education and human capital. The impact of these trends on growth prospects and well-being, and on social security financing and sustainability, will have to be taken on board.

The unprecedented economic and social divergences that have characterised the post-crisis period, and their foreseeable negative effects for the performance of a highly integrated economic area such as the European Union – and all the more the euro area – have also shown the need for a clear framework setting the path for reforms priorities looking forward.

It has in fact emerged from experience that the economic and social divergences accumulated over the last decade reflected not only different deleveraging needs and constraints for the financial sector and fiscal policy, but also cross-country differences in the institutional settings, including employment and social policies. During the crisis, well-functioning labour markets and efficiently-designed welfare systems have proved to contribute not only to a smooth adjustment to economic shocks in the short term, but also to more resilient social structures in those countries were they were in place.

With its encompassing principles intended to serve as a reference framework for the conduct of employment and social policy at national level, the European Pillar of Social Right will become a guiding tool for reforms priorities looking forward. To support this process, the Commission has decided to use the European Semester as main vehicle for its implementation. In this context, it has engaged in the development of benchmarks and plans to monitor progress on the ground through the setting up of a new social scoreboard.

Part II

The structural and institutional determinants of labour market segmentation

1. THE STRUCTURAL AND INSTITUTIONAL DETERMINANTS OF LABOUR MARKET SEGMENTATION

This chapter assesses the structural and institutional determinants of labour market segmentation, i.e. the existence of a persistent divide between workers holding different types of contracts. Although open-ended contracts are the most prevalent form of employment, temporary and own-account self-employment represent almost one quarter of total employment.

On this basis the chapter looks at how individual, job and sector-specific characteristics influence the likelihood of being a temporary employee or a self-employed without employees. There are similarities between temporary employees and solo self-employment; both are more likely to have a low level of education, part-time work and employment in agriculture, construction or services. However, there are also substantial differences; temporary employees are usually younger, while the probability of being a solo self-employed increases with age.

The chapter explores whether institutional variables have a differential effect on specific groups of the population. Stringent employment protection legislation leads to a higher share of temporary contracts, in particular for the young, the high-skilled and those employed in services. In addition, the likelihood of temporary employment drops when social partners implement inclusive social dialogue (i.e. taking into account the interest of the most precarious workers).

A key question is whether workers in non-regular contracts are compensated for the higher risk of losing a job relative to comparable permanent workers. On the contrary, the analysis finds evidence of a 13% wage "penalty" for a worker in a temporary contract on average. The penalty varies across countries and increases with the level of education. In most countries it decreases slightly over the wage distribution, controlling for individual and job characteristics. This supports the hypothesis that temporary contracts are a barrier to wage progression for low wage earners.

1.1. INTRODUCTION AND MOTIVATION

The EU has entered its fifth year of economic recovery, growth has gained strength and unemployment continues to fall, in some countries from very high levels. Nonetheless, some vulnerabilities remain, as witnessed by the high, although falling, dispersion in unemployment rates and incomes between countries and between different categories of workers.

A well-functioning labour market is necessary for a sustainable integration of vulnerable groups in employment. It is also essential to achieve a resilient social market economy, including through a better and smoother distribution of macro-economic shocks between different groups of the population.

Tackling labour market segmentation – i.e. the persistent divide in job security and working conditions between workers with similar characteristics but holding different types of contracts – is one of the priorities of the EU reform agenda. Equal opportunities and secure and adaptable employment are two principles set out by the *European Pillar of Social Rights* to support a fair and well-functioning labour market. The 2016 Annual Growth Survey underlined the importance of tackling labour market segmentation to reduce its potential negative impact on domestic demand and productivity growth.

A segmented labour market is characterised by the existence of distinct sub-markets with different contract duration, different wage mechanisms and limited mobility between them. There is a dichotomy between workers in more protected, better quality, high-wage jobs, usually with open-ended contracts ([41]), and workers in less protected, lower quality, low-wage jobs (Piore, 1973).

In the last decades, labour markets have been characterised by an increase in *non-standard* labour relationships, both in *traditional* forms of employment, such as temporary or part-time employment – and, especially, in new working arrangements, such as agency workers,

([41]) Henceforth, permanent, open-ended and regular contracts are used interchangeably.

freelancers, *casual work* (e.g. *zero-hour* and *on call* work) and *voucher-based* work. A common feature of these forms of employment is the growing distance of firms from long-term commitments to workers (Standing, 1999).

Socio-economic transformations, such as the transition towards a service economy, technological developments and pressures from cost saving strategies spurred by firms' internationalisation are among the key factors that contributed to weakening firms' long-commitment to workers. There has been a fragmentation of contractual arrangements, also spurred by changes in the national labour legislation, allowing for increased flexibility in the organisation of production motivated not only by changes in the production structure but also by the search for competitiveness gains.

More flexible working arrangements have responded to firms' needs to adjust their workforce in response to changes in economic conditions. For many individuals, most notably the young and the high-skilled, new forms of employment, such as own-account self-employment represent an opportunity to expand choices and find a better work-life balance. At the early stage of the 2013 recovery when economic uncertainty was still elevated temporary employment contributed to positive employment growth. Yet, the proliferation of non-standard forms of employment may have an impact on equity and economic efficiency when it leads to socially sub-optimal outcomes and misallocation of labour resources.

The reasons for labour market segmentation are complex. In general, there are barriers which prevent some workers in secondary jobs from obtaining better primary jobs and having their human capital rewarded. These barriers may derive from differences in human capital and sectoral specialisation and differences in specific features of the regulation. In the first case, policies improving human capital and offsetting the under-provision of training in secondary jobs are helpful to tackle the social and economic implications of segmented labour markets. In the second case, closing the regulatory gap between different forms of work may be the most appropriate policy response.

Regulatory gaps that keep workers away from primary jobs may derive from a variety of sources: gaps in social security contributions between different contract types; length of labour dispute settlements and other factors that may engender uncertainty about termination of long-tenured-relationships and its respective costs and weak enforcement of labour legislation. Moreover, temporary hiring and outsourcing of certain functions formerly performed within the firms may reflect rigidities to adjust labour costs within firms.

This chapter focuses on the institutional and structural determinants of labour market segmentation. It provides an overview of the main *non-standard* forms of employment identifiable with the *Labour Force Survey* data. Then, it looks at the determinants of temporary employment and of solo self-employment, distinguishing between individual and job characteristics as well as institutional determinants. Furthermore, it analyses changes in the job tenure for permanent and temporary employees. The subsequent section provides an estimate of the wage gap between permanent and temporary employees. The last section concludes.

1.2. SETTING THE SCENE

Following the definitions by ILO (2016) of non-standard employment, this section focuses on temporary, part-time, and *solo self-employment* (i.e. *self-employment without employees*). General developments in the EU can be outlined as follows (Table II.1.1). ([42])

Table II.1.1: **Non-standard forms of employment in the EU, millions, selected years**

	2005	2008	2013	2016
Self-employment	30.1	32.9	32.3	32.7
Self-employed persons with employees	9.6	10.0	9.2	9.2
Self-employed persons without employees	22.5	22.8	23.1	23.5
Part-time	37.1	40.1	43.6	45.3
Temporary employment	24.5	26.3	24.5	26.8
Temporary employment with duration of less than 12 months	13.3	14.0	13.3	14.9

(1) 15-74 years.
Source: Eurostat, Labour Force Survey.

([42]) The analysis is based on LFS microdata; the dataset includes 2006-2015 data for all Member States. *Marginal part-time* refers to a number of hours usually worked below 15 hours per week. To highlight long-term trends, Eurostat aggregate data over the period 2002-2016 are used.

The number of employees with a *temporary contract* in the EU rose from about 24.5 million in 2005 to 26.8 million in 2016 (Table II.1.2). This corresponds to a modest increase of one percentage point in their share in total employment (from 11% to 12%). While the crisis did not substantially affect the share of temporary employment in the EU, it affected the average duration of temporary contracts. There was a strong increase in the share of temporary contracts with a short duration (lasting at most 12 months). Since 2009, their share in total temporary employment increased by about three percentage points to reach 56% in 2016. As regards *part-time*, the trend is clearly upwards and the share in total employment gradually increased from 17.7% in 2005 to 20.3% in 2016. Finally, *self-employment* was around 30 million in 2005 and reached almost 33 million in 2016. Since the peak of 15.2% reached in 2010, its share has dropped to 14.6% in 2016. This decline reflects a fall in the number of *self-employed with employees*, which was partly offset by the increase in the number of *solo self-employed*.

Table II.1.2: **Non-standard form of employment, shares,, 2015**

	Distribution of Temporary contracts by duration in months			Temporary (shares on total employment)	Part-time (shares on total employment)		Self-employment (shares on total employment)	
Country	less than 3	4 to 12	more than 12		Marginal	Substantial	With employees	Solo
AT	11.4	37.8	50.8	7.8	5.5	19.7	5.2	7.0
BE	38.3	45.3	16.4	7.8	3.0	20.4	4.5	10.5
BG	20.4	79.6	0.0	4.0	0.2	1.6	3.9	8.9
CY	3.7	68.7	27.6	15.1	1.5	6.5	2.5	12.1
CZ	4.2	55.2	40.7	8.6	0.9	4.4	3.3	13.4
DE	3.7	41.9	54.4	11.4	8.2	17.6	4.7	5.8
DK	13.9	34.9	51.2	8.7	14.4	13.9	4.1	4.2
EE	35.0	48.7	16.2	2.9	1.6	7.0	3.9	5.7
EL	13.8	63.1	23.1	8.0	0.8	5.8	7.5	29.2
ES	33.2	55.0	11.8	20.5	3.8	10.4	5.9	12.4
FI	29.2	51.3	19.6	12.5	2.9	8.3	4.9	9.5
FR	33.1	39.8	27.1	14.3	2.7	15.1	4.5	7.2
HR	38.2	42.2	19.5	17.1	0.6	2.4	5.2	10.6
HU	22.6	69.3	8.1	13.1	0.4	5.1	4.6	5.3
IE	17.4	40.5	42.1	7.3	5.5	14.4	4.9	12.3
IT	24.5	58.7	16.8	10.7	2.1	13.3	7.1	17.0
LT	57.9	42.1	0.0	1.8	1.5	4.7	2.3	10.0
LU	17.2	42.6	40.2	8.5	1.9	15.6	4.1	5.6
LV	40.9	45.7	13.4	3.0	0.9	5.0	4.1	8.1
MT	14.6	62.6	22.8	6.4	2.1	11.7	4.6	9.7
NL	11.7	75.0	13.4	17.0	14.4	32.5	3.3	10.7
PL	16.6	41.4	41.9	21.9	0.7	4.4	4.0	16.5
PT	16.9	72.3	10.8	17.1	1.8	4.8	5.0	14.7
RO	15.4	84.6	0.0	1.1	0.2	0.4	1.2	22.0
SE	30.1	36.2	33.7	14.9	4.0	20.3	3.3	6.0
SI	26.8	51.8	21.5	15.3	1.3	6.3	3.8	9.1
SK	23.1	65.5	11.5	8.9	1.0	4.8	3.3	12.0
UK	14.4	38.6	46.9	4.6	5.2	17.4	2.6	13.0
EU28	19.6	47.8	32.6	11.7	3.8	12.4	4.5	11.2

(1) Part-time: Marginal = Less than 15 hours per week.
Source: European Commission calculations based on Eurostat, Labour Force Survey microdata.

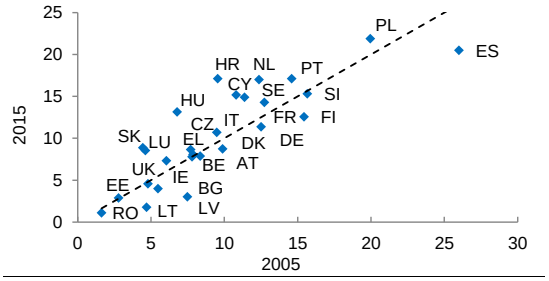
The following subsections focus in detail at the characteristics of these employment types.

1.2.1. Temporary employment

The share of *temporary* employment varies largely across countries. High shares are observed only in a small number of countries. Temporary employment accounts for more than 20% of the total number of employees in Poland, Spain, Portugal, Croatia and the Netherlands. In half of the Member States, its share is below 10%.

While for the EU the share of temporary contracts is almost unchanged at its 2005 levels, an increase of 4 percentage points or more is observed in about seven Member States (Graph II.1.1), in particular in Croatia and Hungary. While in the former, the increase is mainly in the private sector, in the latter it derives from widespread use of public works schemes. ([43])

Graph II.1.1: **Temporary contracts, shares in total employment, 2005 and 2015**

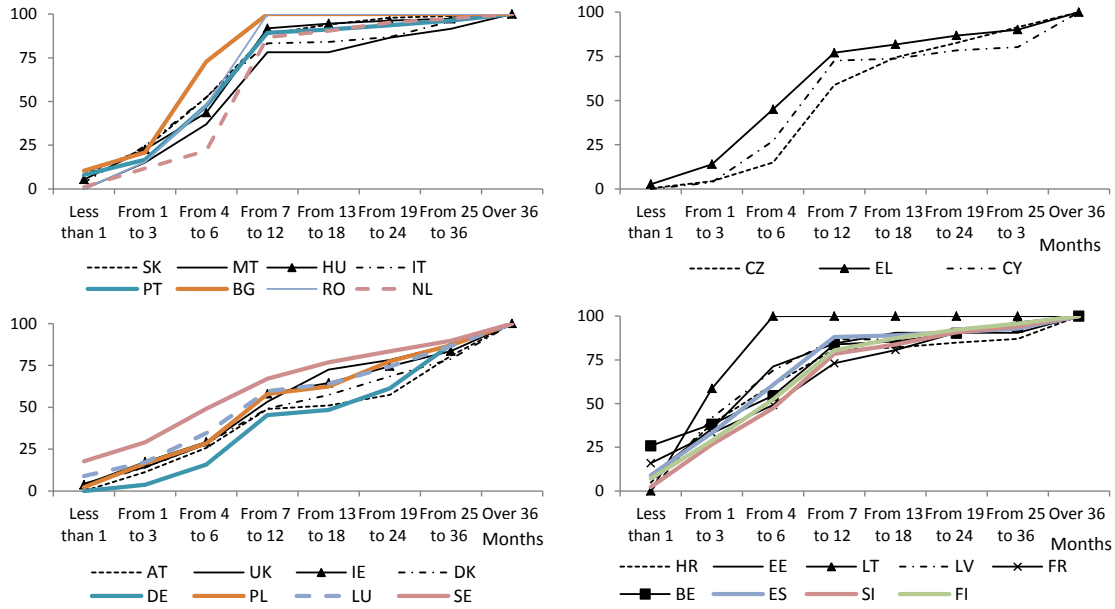


(1) Points above the 45° dashed line imply a share in 2015 higher than in 2005; for Ireland 2006.
Source: Own calculations based on Eurostat, Labour Force Survey microdata.

The most common *duration* of a temporary contract is between 4 and 12 months (Table II.1.2). In countries such as Belgium, Estonia, Latvia, Lithuania and Poland, these contracts account for more than 60% of all temporary contracts. Compared to the EU average (32.6%), the share of temporary contracts with a longer duration (over 12 months) exceeds 50% in Germany, Denmark and Austria, while it is lower than 15% in Latvia, the Netherlands, Spain, Slovakia, Portugal and Hungary. Since 2006, major decreases in the share of temporary contracts with a longer duration have been observed in Cyprus (-34.4 percentage points),

([43]) In Hungary, the number of participants in public employment programmes more than quadrupled since 2008, reaching 4.5% of all employed in 2015 (Meszmann, 2016).

Graph II.1.2: **Temporary contracts, cumulative distribution by duration, months, 2016**



(1) Percentage of temporary employment with a duration less than or equal a specific value. Countries with a similar distribution grouped in the same panel.
Source: DG EMPL calculations based on Eurostat data.

Finland (-20.1 percentage points) and Sweden (-18.6 percentage points).

Graph II.1.2 shows the distribution of temporary contracts by duration. In Ireland and Denmark, temporary employment is uniformly distributed between contracts of different duration. Contracts with duration of less than 3 months account for more than one third of all temporary contracts in Belgium France, Spain, Croatia, Estonia and Latvia; in Lithuania more than half of temporary contracts last for less than 3 months. In Germany, Austria and Poland, temporary contracts are concentrated around two main durations. The high share of contracts with a short duration (between 7 to 12 months) mainly reflects the use of temporary contracts to screen workers and extend the length of the trial period before open-ended hiring. The high share of contracts with a long duration (between 25 and 36 months) reveals the relevance of dual vocational training, alternating school and firm-based training for Austria and Germany. ([44]) In Poland, the incidence of temporary contracts of long duration, on the rise since early 2000, reflects the replacement of permanent with temporary employment encouraged by relatively loose regulations of the latter (Lewandowski et al., 2017). ([45])

Turning to the *sectoral composition*, some general considerations can be derived (Table II.1.3). First, the temporariness of employment is relatively high in *Agriculture* and *Construction*. For the EU as a whole, lower shares of temporary employment are found in *Market Services*, whereas almost one quarter of temporary workers is employed in the *Accommodation and food service activities*.

As for the non-market services, which account for a comparable share, the highest shares of temporary contracts relative to the total number of employees in each sector are in *Arts* (23.7%) and *Activities of households* (18.8%); the share in *Public administration* (11.3%) is lower than the overall average (14.2%) and relatively stable since 2008. About half of the total number of temporary workers is employed in 4 sectors (i.e. *Manufacturing*, *Wholesale*, *Health* and *Education*, Table II.1.4).

([44]) In Germany, contracts for apprentices, trainees or interns are temporary (Eurofound 2015).

([45]) In Poland, temporary contracts pay lower social security contributions. Until 2016, they were exempted from minimum wage rules and provided limited protection against dismissals (Arak *et al*, 2014).

Table II.1.3: **Temporary contracts by sectors, shares, 2016**

	Agriculture	Manufacturing	Construction	Services (a)	Non market services (b)	Total
AT	9.5	5.8	10.9	7.7	11.7	9.0
BE	18.0	6.6	6.2	9.6	9.9	9.2
BG	19.8	1.2	9.4	3.3	1.8	4.2
CY	50.8	3.4	9.3	13.2	24.8	16.5
CZ	7.5	9.8	7.3	11.2	10.2	10.2
DE	11.1	10.5	10.8	12.6	16.1	13.1
DK	18.6	7.1	14.1	11.3	17.3	13.6
EE	7.8	2.5	7.6	2.3	0.0	3.7
EL	29.0	8.1	18.8	11.6	10.3	11.2
ES	61.6	20.9	42.8	24.3	24.9	26.1
FI	16.1	8.3	10.0	12.5	22.7	15.7
FR	30.7	14.0	18.0	13.6	18.3	16.2
HR	29.2	19.1	28.1	25.2	17.7	22.2
HU	16.7	5.1	8.2	5.1	18.1	9.7
IE	11.3	5.3	10.2	8.0	8.5	8.1
IT	59.8	10.3	15.3	15.2	11.4	14.0
LT	0.0	0.0	:	:	:	1.9
LU	0.0	5.5	7.4	6.5	11.2	8.9
LV	8.2	2.0	6.0	2.8	2.1	3.7
MT	0.0	5.1	5.2	6.0	9.7	7.6
NL	27.8	16.1	16.6	24.5	14.7	20.6
PL	33.3	27.4	36.9	33.3	17.1	27.5
PT	34.6	17.1	26.0	25.1	20.4	22.3
RO	7.7	0.7	5.1	:	:	1.4
SE	17.3	8.0	8.3	17.3	19.5	16.7
SI	21.8	13.4	22.6	20.0	15.6	17.0
SK	10.4	6.7	10.9	9.5	13.3	10.1
UK	7.2	4.3	4.4	5.3	7.5	6.0
EA19	39.4	11.9	**16.7**	**15.2**	**16.4**	**15.6**
EU28	31.6	11.7	**15.7**	**13.9**	**14.6**	**14.2**

(1) ":" = Data not available; (a) NACE codes: G to N; (b) NACE codes: O to U. Shares are calculated as shares in total number of employees in the sector.
Source: Eurostat, Labour Force Survey.

The share of temporary employment in *Manufacturing* and *Construction* is high in Poland, Spain and Croatia. For *Market Services* Poland, Croatia and Portugal are at the top of the ranking. For *non-market services*, temporariness is the highest in Spain, Cyprus and Finland. For this sector, differences across countries reflect the variation in the use of fixed-term employment in the public administration, varying from less than 5% of total employees in Bulgaria, Latvia, Ireland, to more than 15% in France, Spain, Slovakia and Hungary.

During the financial crisis, temporary employment in the public sector dropped substantially in countries undergoing fiscal policy adjustments or implementing a prudent fiscal policy stance (e.g. Spain, Greece, Italy, and Bulgaria). The analysis in Box II.1.1 suggests that the dynamics of temporary contracts in the public sector respond to the state of the public budget. For countries with a tight budget constraint, temporary hiring is a way to keep personnel costs under control, especially when tenure plays a crucial role in wage progression. When public debt sustainability is at stake, wage bill freezes or cuts are achieved through the non-renewal of expired temporary contracts.

Table II.1.4: **Temporary employment by sector in the EU, shares, 2016**

Sector	Share on total EU	Min		Max		Median
C - Manufacturing	14.5	0.9	RO	29.9	PL	7.6
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	13.2	2.0	BG	35.8	PL	11.3
Q - Human health and social work activities	11.6	2.8	LV	28.9	ES	12.5
P - Education	9.5	1.9	LV	26.1	FI	16.0
I - Accommodation and food service activities	7.9	5.8	MT	50.8	PL	20.3
O - Public administration and defence; compulsory social security	6.4	2.3	BG	37.2	HU	11.4
F - Construction	6.4	4.4	UK	42.8	ES	10.5
N - Administrative and support service activities	5.6	6.1	MT	56.8	PL	14.1
H - Transportation and storage	4.5	2.9	LV	25.5	PL	9.7
M - Professional, scientific and technical activities	3.6	3.3	HU	25.9	PL	10.6
A - Agriculture, forestry and fishing	3.6	7.2	UK	61.6	ES	18.6
R - Arts, entertainment and recreation	2.6	9.0	SK	39.5	PT	23.0

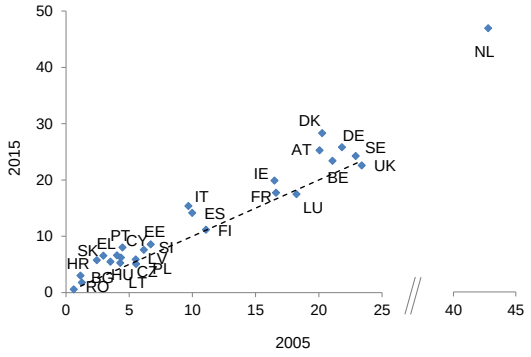
(1) Min and Max shows the share for the country (in bracket) with the lowest and the highest share of temporary contracts. Shares are calculated as shares in total number of employees in the sector.
Source: Own calculations based on Eurostat, Labour Force Survey.

1.2.2. Part-time employment

In the EU, the share of part-time employment increased from 14.8% in 2005 to 16.2% in 2015. This increase reflects both the rise of part-time in all countries and the increase of the share of employment in total EU employment of countries with a share of part-time higher than the EU average – e.g. Austria, Germany, Denmark, Sweden and Ireland (Graph II.1.3).

The share of involuntary part-time, which responds to cyclical fluctuations, varies across countries going from less than 15% in ten Member States (including Belgium, the Netherlands, Estonia, Malta, Germany and Denmark) to more than 50% in Romania, Bulgaria, Spain, Italy Cyprus and Greece. With few exceptions (i.e. Germany, Malta Estonia and Belgium), the proportion of part-timers who would like to have a full time job increased in all Member States.

Graph II.1.3: **Part-time, share in total employment**

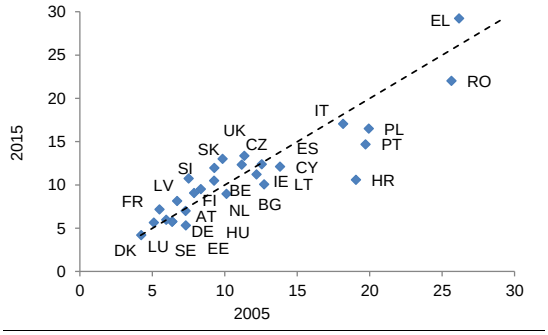


(1) Points above the 45° dashed line imply a share in 2015 higher than in 2005; for Ireland 2006.
Source: Own calculations based on Eurostat, Labour Force Survey microdata.

1.2.3. Self-employed and own-account self-employed

Self-employment represents a sizable share of total employment in Spain, Greece, Italy, Poland and Romania. In the decade 2005-2015, fifteen countries experienced declines in the share of *solo self-employment*, in particular in Croatia, Portugal and Romania this trend is mainly driven by a decline in agricultural employment. In contrast, it increases in Greece, Slovakia, the Czech Republic, and the Netherlands.

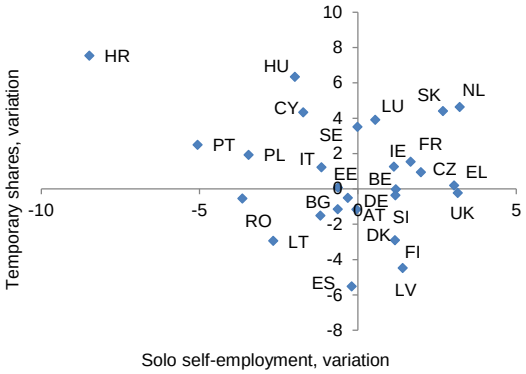
Graph II.1.4: **Self-employment without employees, share in total employment, 2005 and 2015**



(1) Points above the 45° dashed line imply a share in 2015 higher than in 2005; for Ireland 2006.
Source: Own calculations based on Eurostat, Labour Force Survey microdata.

The relationship between temporary and solo self-employment is not so clear cut (Graph II.1.5). In some countries (e.g. Croatia, Hungary, Cyprus and Portugal), the decline in the share of *solo self-employment* has been accompanied by an increase in the share of temporary contracts, pointing to a substitution between the two types. Conversely, there is a positive relation in the Netherlands, Slovakia, France, Luxembourg or Lithuania.

Graph II.1.5: **Temporary and solo self-employed, changes in the share in total employment, 2005–2015**



Source: Own calculations based on Eurostat, Labour Force Survey microdata.

1.2.4. A tentative profile

Permanent employment is the most prevalent form of employment. Yet, different contract types coexist reflecting inter alia employers' demand for flexibility and workers' preferences for specific working arrangements. Their incidence varies over the cycle, with the most flexible contracts, both in terms of intensity of work and duration of the working arrangement, prevailing during periods of weak growth - either deep recession or uncertain recoveries. ([46])

From the descriptive analysis of this section the following cross-country characterisation of non-standard forms of employment emerges.

In a group of countries which include Estonia, Latvia, Lithuania, Bulgaria and Romania, United Kingdom and Malta, a permanent contract is the dominant form of employment. In contrast to this group there are countries, such as Poland, Spain, Portugal and the Netherlands, which have a high share of temporary contracts (or self-employed).

([46]) At the early stage of the recovery marked by uncertainty concerning the strength and duration of the recovery, the creation of employment took place increasingly through the opening of temporary rather than open-ended positions.

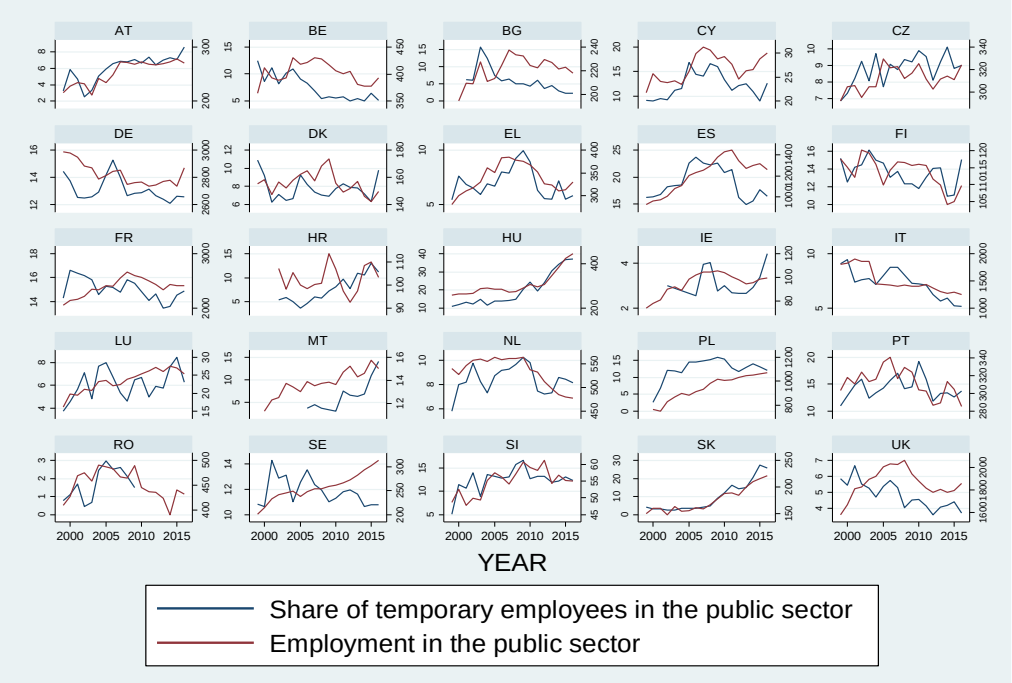
Box II.1.1: Temporary contracts in the public sector

Soon after the onset of the crisis, concerns about public debt sustainability have led many governments to initiate fiscal consolidation programmes, also as a follow up to the stimulus measures undertaken at the beginning of the crisis. In a number of countries, government wage bill cuts or freezes have played a key role in such programmes (Perez et al., 2016). The decline in the wage bill has been sizeable in programme countries or countries under fiscal stress, but it concerned also other Member States.

The adjustment of the public wage bill can be achieved through wage cuts, employment cuts and hiring freezes or through a combination of all three. Recent evidence shows that the most common government measures were wage cuts or wage freezes (Perez et al., 2016); for example, in Spain public wages were cut and frozen at several moments in time in the period 2010-2014. In light of the special status of public employees as regards job security, cuts in the stock of the employment were mainly achieved by restraining hiring and increasing the weekly number of hours worked. Similar measures were taken, among others, by Austria, Cyprus, Croatia, France, Greece, Italy and Poland.

While most studies analysed the impact of fiscal consolidation on wages and overall employment levels in the public sector (e.g. Forni and Novta, 2014), only few have analysed its impact on the structure of public employment (Perez et al., 2016; Montesinos et al., 2015). Yet, there is no analysis of the role of temporary contracts in the public sector, in particular on whether they act as a shock absorber during fiscal adjustment periods. During normal periods, hiring with a temporary rather than permanent contract can be a cost containment strategy, especially when the progression of wages in the public sector relies mainly on seniority rules. During recessions, the non-replacement of temporary workers whose contract expires, makes it possible to reduce average hourly wages of remaining permanent employees by increasing the overall hours worked (Perez et al., 2016).

Graph 1: Overall employment and share of temporary employees in the public sector (2003-2016)



Note: Share of temporary employees (15-64) in the public sector as percentage of employees (15-64) in the public sector. The public sector is defined as "Public administration and defence, compulsory social security (NACE O Rev. 2)".
Source: Commission own calculations based on EU-LFS.

(Continued on the next page)

Box (continued)

The evolution of temporary employees in the public sector over the period 2003-2016 confirms that most of the employment adjustment concerns temporary contracts (Graph 1). Before the crisis, in a large number of countries temporary employment expanded at a more rapid pace than permanent. With the outburst of the financial crisis in 2008-2009, a significant drop in the share of temporary employment was observed including in countries under financial stress (e.g. Cyprus, Greece, Portugal, Italy and Spain). In contrast, Graph 1 reveals that a very steep increase in public employment and the share of temporary contracts occurred over the last ten years in Hungary, Poland and Slovakia, reflecting, especially in the former, the widespread use of large-scale public works programmes .

To empirically analyse the impact of the budget constraints on temporary employment in the public sector, the following regression is estimated (controlling for fixed effects, i.e. accountring for country specific characteristics that do not change over time):

$$Temp_{it} = \alpha_0 + \alpha_1 Bud_{it} + \alpha_2 Bud_{it}^2 + \mu_i + \varepsilon_{ijt}$$

Where $Temp_{it}$ is the share of temporary employment in the public sector in country *i* and period *t*; Bud_{it} is a measure of the fiscal stance in country *i* and period *t.* In a baseline specification, the fiscal stance is proxied with public debt as percentage of GDP; in an alternative specification, the ratio of the interest paid to revenues is taken as a measure of the government's budget constraint. Squared terms are included to allow fo non-linear effects in the demand of temporary employment in the public sector. Further, the length of the period during which a Member State is experiencing a substantial budgetary deficit is considered as robustness check; this is a variable that takes a value of one when a Member States is experiencing a substantial budgetary deficit (higher than 3% of GDP cfr. Maastricht agreement) and zero otherwise.

Table 1: The effect of fiscal stance on the share of temporary employment in the public sector

	Share of temporary contracts				
	Model A	Model B	Model C	Model D	Model E
Fiscal consolidation - Intensity measured by public debt	0.184***	-	0.0709**	-	-
	(0.0661)	-	(0.0277)	-	-
Squared Fiscal consolidation - Intensity measured by public debt	-0.00113***	-	-0.000442***	-	-
	(0.0004)	-	(0.000157)	-	-
Fiscal consolidation - Intensity measured by interest revenue ratio	-	138.00**	-	15.307	-
	-	(63.99)	-	(34.559)	-
Squared Fiscal consolidation - Intensity measured by interest revenue ratio	-	-910.39**	-	-173.697	-
	-	(381.86)	-	(218.59)	-
Fiscal consolidation - Duration	-	-	-	-	-1.287***
	-	-	-	-	(0.413)
Country-fixed effects	No	No	Yes	Yes	Yes
Constant	4.230**	6.000***	7.881***	9.947***	10.659***
	(1.909)	(1.907)	(1.053)	(1.178)	(43.82)
Observations	345	345	345	345	345

Source: European Commission own calculations based on EU-LFS and DG ECFIN AMECO database.

The results in the table below (Model A to Model C) suggest that the thightening of budget constraints has a non-linear effect on the share of temporary employees in the public sector. When the government budget constraint starts to deteriorate the share of temporary employees increases and this effect is tempered and even reversed when the budget constraint becomes more binding. Model E confirms this finding; in periods of excessive budget imbalances (defined as periods in which the deficit is higher than 3% of GDP) the share of temporary contracts declines. These findings suggest that temporary contracts in public sector are used as a buffer to cope with tightening fiscal conditions; it may reflect the difficulty of adjusting other components of public expenditure, which has implications for sustainability of public finances.

A distinct group formed by the Nordic and Continental countries displays a balanced mix of open-ended and part-time contracts, but low levels of temporary and solo self-employment.

A high share of solo self-employment characterises Italy, Poland, Greece, Portugal and Romania. In the Netherlands there is a very high share of part-time (47%), the majority being employed on fixed-term contracts.

1.3. DETERMINANTS OF SEGMENTATION

1.3.1. Literature review

There is a large literature on the determinants of temporary work and solo self-employment. ([47])

Studies focusing on the impact of individual and job characteristics have identified the main characteristics of these forms of employment (e.g. Eurofound, 2015). Temporary employees are younger and lower-educated, while solo self-employed are more common among older age groups. Education does not constitute a discriminating factor for solo self-employment, although there is a large variation in its impact between Member States. Finally, temporary employees are more likely to be female and work with a part-time contract.

There are studies that look at the effect of structural and institutional factors on the prevalence of temporary employment and solo self-employment. Extensive research has been conducted on the role of the *employment protection legislation* (EPL). Theoretical models show that strict EPL reduces both job creation and job destruction with unclear effects on unemployment. Yet, a high degree of dismissal protection for permanent employees and a loose regulation for temporary employees are expected to be associated with a large proportion of both temporary employment and solo self-employment. By reducing turnover, tight EPL reduces firms' entry, productivity and wages.

The empirical evidence is mixed. ([48]) Most analyses found that the effects of EPL on unemployment is small (e.g. Bertola, 1990) or insignificant (Nickel et al., 2005; Bassanini and Duval, 2009), especially when controlling for the effective enforcement of the regulation (Kanbur and Ronconi, 2016). Lazear (1990) found an effect on total employment, which was, however, substantially smaller than the substitution of permanent jobs with temporary jobs. Empirical studies on partial deregulation of labour market - i.e. reforms easing access to temporary contracts without changing the firing conditions for permanent employment - have been pointing to a substitution of permanent with temporary contracts (e.g. OECD 2004; European Commission 2015b). ([49]) Boeri and Garibaldi (2007) show that the introduction of temporary contracts might lead to a transitory employment boom ("a honeymoon effect") and found such an effect for Italy. Stringent restrictions on the termination of permanent contracts lead to short duration of temporary contracts and an excessive labour turnover on production activities of short duration (Cahuc et al., 2016). Low transitions between primary and secondary jobs and a different productivity between the respective sectors prevent labour reallocation and make segmented labour market self-perpetuating, ultimately with negative implications on total factor productivity growth. At the macro level, segmented labour markets exhibit more volatile employment, in particular for the most vulnerable groups of the population, and less resilience to shocks (OECD, 2012).

Insider-outsider theory contends that the level of unionisation and *collective bargaining* affects the incentives to hire with temporary contracts or be in self-employment without employees. According to this view, segmentation partly results from union organisation strategies, which may seek to *control* the labour supply of workers with a permanent

([47]) Early theories identified the causes of segmentation in the need of vertically integrated firms to develop long-term relationship with their employees, while the secondary sector was subject to unregulated competition. Efficiency wage (Yellen, 1984), asymmetric information (Stiglitz, 1986) and arguments on *asset-specific capabilities* (Williamson et al., 1975) explained that wages in the primary sector may be set above the market-clearing level, which causes workers' displacement in a secondary sector.

([48]) The macroeconomic implications of the EPL are analysed in European Commission (2012); the role of judicial system is discussed in European Commission (2016b).

([49]) Partial deregulation of the labour market confines job creation and adjustment to *secondary segments* of the workforce (Centeno and Novo, 2012); this results in lower job quality and negative effects on productivity (Blanchard and Landier, 2002).

contract to bid up wages of workers in primary jobs or sectors and oppose comprehensive reforms of EPL in the interest of core workers' job and income security (e.g. Palier and Thelen, 2010).

Insiders would support the flexibilisation of the labour market at the margin and the consequent spread-out of non-standard forms of employment. Nonetheless, encompassing unions (i.e. unions that internalise the effect of their policy on all workers) would be against the diffusion of atypical forms of employment that would weaken their negotiating power vis-à-vis the employers (e.g. Eichhorst and Marx, 2011). Similarly, legislation promoting social dialogue and *inclusive* unions' strategies - extending, *inter alia*, representation to sectors facing obstacles to unionisation - may mitigate the effects on segmentation arising from insider-outsider dynamics (Deakin, 2013). A number of studies have found that temporary contracts are more prevalent in countries which have a higher union density or a higher collective bargaining coverage (Kahn, 2007; Baranowska and Gebel, 2010; Hevenstone, 2010). There is less compelling evidence on the effects of unionisation on solo self-employment (e.g. Hevenstone, 2010).

Differences in *labour costs* between temporary and permanent contracts may also play a role. Labour costs may affect employers' preferences for temporary contracts or the decision to be a solo self-employed. The presence of a statutory minimum wage and its level are found to be positively correlated with the share of temporary contracts, in particular when combined with loose regulation on hiring temporary workers and stringent regulation on firing permanent workers (Lee, 2013). A high tax wedge may lead to stronger incentives to be solo self-employed (Torrini, 2005).

Finally, the *business* environment may influence the choice of becoming a solo self-employed. Low costs for setting up a business, easy access to capital and transparent contract enforcement procedures are likely to *pull* individuals into self-employment (e.g. Parker, 2004; Braunerhjelm and Henrekson, 2013). Yet, in highly regulated countries, a higher level of *corruption* goes along with more entrepreneurship and a higher prevalence of self-employment without employees (e.g. Dreher and Gassebner, 2013; Torrini, 2005).

1.3.2. Plan of the analysis

The first step in the analysis consists in identifying the impact of various individual and job characteristics on the likelihood of being a temporary employee (solo self-employed) relative to a permanent employee (an employee). The analysis is based on Eurostat micro data for every two years from 2005 to 2013 obtained from the European LFS (see Annex Data source), which includes information on individual and job characteristics. ([50]) Next, the likelihood of a temporary contract (solo self-employment) is assessed controlling for the effects of the various institutional variables. The analysis includes interaction terms between the institutional variables and the individual and job characteristics which allow assessing whether the impact of the institutional variables differs depending on the characteristics of the worker and the job in which he or she is employed.

1.3.3. Data and methodology

The probability of being a temporary employee (solo self-employed) is estimated by a regression model (known as *logit*), where the dependent variable takes a value of one if a person is employed with a temporary contract (or solo self-employed) and zero if he or she is in a permanent position (or employee).

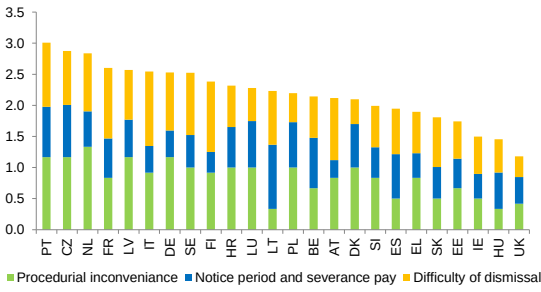
This probability is estimated controlling for individual specific characteristics (*age, gender, education*); job specific characteristics (*working part-time*; *type of occupation*, *sector of employment*); and institutional characteristics (*EPL, collective bargaining, labour costs, business environment, minimum wage as percentage of average – only for countries with statutory minimum wage*). ([51])

([50]) The focus of this chapter on solo self-employment is linked to the limited information that is available in the Labour Force Survey on the characteristics of self-employment. Based on the European working Conditions Survey, Eurofound (2017) estimates that the job quality of the solo-self-employed is very diverse, with the group of 'stable own account workers' better-off than the average self-employed.

([51]) The EPL indicator measures the strictness of the regulation *de-jure*. Collective bargaining are taken from the ICTWSS database. See Annex Data Source for a detailed description of the variables used in the analysis.

Graph II.1.6 shows the EPL indicator for permanent contracts for 2013 (last available year). The regulation is the most stringent in Portugal, Czech Republic and the Netherlands, the least in United Kingdom, Hungary and Ireland. There is a large heterogeneity across countries in the strictness of different features of dismissal protection. For example, in Austria the contribution of the *notice period* and *severance* is small, but it represents more than half of the EPL index for Lithuania. Similarly, *procedural inconvenience* and *notice periods* are loose in Denmark, while the *difficulty of dismissal* is strict in cross-country comparisons.

Graph II.1.6: **EPL for regular contracts and its subcomponents (2013)**



Source: OECD.

As shown in Box II.1.2 ("*The Characteristics of fixed term contracts in the EU*"), the national legislation differs substantially across countries in the terms and conditions for using *fixed term contracts* – within the boundaries set by the fixed-term contracts directive. ([52]) The EPL for temporary contracts is the most stringent in Luxembourg and France. It is the least stringent in Sweden, the Netherlands and United Kingdom. In most of the countries it is difficult and costly to terminate a temporary contract before its expiration date; conversely, once the contract expires, the termination is simpler than for an open-ended contract; the severance pay at the end of the contract is available only in few countries. On the contrary, self-employed have the lowest level of employment protection. Regarding the access to unemployment insurance, self-employed do not receive the same level of income protection as compared to dependent employees; while temporary workers have usually the same statutory rights, they may have difficulties in fulfilling the eligibility conditions (Spasova et al., 2017).

Table II.1.5 presents an overview of the collective bargaining variables included in the analysis. Collective bargaining is the most coordinated or centralised in Northern and Western Europe, where also coverage is found to be the highest (except Germany). In Belgium and France, wage bargaining is highly centralised and organised at the central or cross-industry level, while in the other countries bargaining occurs mostly at the sector or industry level.

Table II.1.5: **Collective bargaining variables, 2013**

	The predominant level at which wage bargaining takes place	Adjusted bargaining coverage rate
AT	1	98.0
BE	2	96.0
BG	0	29.0 *
CY	0	45.2
CZ	0	47.3
DE	1	57.6
DK	1	84.0
ES	1	77.6
EE	0	23.0 *
FI	2	93.0
FR	1	98.0 *
EL	0	42.0
HR	0	60.0 ***
HU	0	23.0
IE	0	40.5 ***
IT	1	80.0 **
LT	0	9.9 *
LU	0	59.0 *
LV	0	15.0
MT	0	62.8 *
NL	1	84.8
PL	0	14.7 *
PT	1	72.9
RO	0	35.0
SK	0	24.9
SI	1	65.0
SE	1	89.0
UK	0	29.5

(1) Data on level distinguish between three categories: the local or company level (includes "bargaining takes place alternating sector and company bargaining") (0); the sector or industry level (1) and the central or cross-industry level (includes "intermediate or alternating central and industry bargaining") (2). * 2012, ** 2010, *** 2009.
Source: Database on Institutional Characteristics of Trade Unions, 1960-2014 (ICTWSS).

([52]) A fixed-term contract is a temporary contract that defines as an employment relationship that is deemed to end at a pre-specified end date or subject to a pre-specified condition (such as the end of a project), if the contract is not renewed.

Box II.1.2: Characteristics of fixed-term contracts in the EU

Fixed-term contracts are regulated by the Fixed-term work Directive (1999/70/EC), based on a Framework Agreement between the social partners (ETUC, UNICE and CEEP). The two main aims of the Directive are to lay down the principle of equal treatment of a worker on a fixed-term contract with a comparable permanent worker, and to establish a framework to prevent abuse of successive fixed-term contracts. In order to ensure the latter, the legislation on the individual fixed-term labour contract must have one or more of the following measures according to the Directive:

- objective reasons justifying the renewal of such contracts;
- restrictions on the maximum total duration of successive fixed-term employment contracts;
- restrictions on the number of renewals.

Regarding the first measure, most countries go even further and regulate not just the renewal of a fixed-term contract, but also the conditions for the first contract, setting down a number of objective and material reasons needed to justify the use of a fixed-term contract. These most often include the replacement of a permanent employee, temporary increases in work activity, performance of a seasonal activity, and jobs that are temporary by nature. Only few Member States - among these Austria and Italy - have no restrictions for the use of the fixed-term contract. Many countries, i.e. Finland, France, Spain, Portugal, Latvia, Luxembourg and Slovenia, also allow the use of fixed-term contracts in order to promote employment, and thus have lower legal standards on their use with regards to specific vulnerable groups, such as the long-term unemployed or the youth. The countries that have no restrictions on the reasons for the use of fixed-term contracts are the Czech Republic, Italy, Malta, the Netherlands, Poland, and the United Kingdom, while Austria, Denmark, Ireland, Hungary and Slovakia have no restrictions only for the first contract, however its renewal requires an objective or material justification.

The maximum total duration of successive fixed-term contracts is the most frequently regulated aspect of this contractual relationship. There are only two countries that pose no limits to the maximum duration, Austria and Finland, however they regulate the other two dimensions relatively strictly. Other countries pose maximum durations of successive fixed-term contracts that last from 18 months in France to 10 years in Estonia, while the time limit for most countries is around 3 years (i.e. Italy, Latvia, Croatia, Greece, Romania, the Netherlands and Czech Republic). The typical penalty for the breach of this time limit in all countries but the United Kingdom is the conversion of the fixed-term contract into a contract of indefinite duration, even though the empirical evidence shows that a significant portion of workers in Member States continue working on fixed-term contracts past the specified statutory limit.

The regulation on the maximum number of renewals of fixed-term contracts varies from country to country. There are 10 countries (Cyprus, Croatia, Ireland, Latvia, Hungary, Malta, Slovenia, Spain, Sweden, United Kingdom) that set no limit on the maximum number of renewals, which can occur for a number of times within the regulated total duration of successive contracts. In Ireland, Hungary, Malta and the United Kingdom, there are no restrictions on either the maximum number of renewals or the objective grounds for the use, making the total duration the only regulated dimension (4, 5, 4 and 4 years, respectively). In some countries it is possible to keep a fixed term contract within the same firm by assigning the worker to different posts (OECD, 2014). The only other country with only one regulated dimension is Austria, which regulates solely the maximum number of renewals. Since this equals zero unless objective and material reasons justify the renewal, and these are very narrowly interpreted by the judiciary, we can conclude that the fixed-term contracts in Austria are still much more strictly regulated than in the above mentioned group of countries.

In general, countries that regulate strictly the three dimensions provide greater protection to fixed-term contracts in terms of severance pay. In some countries where the priority of the legislator is to promote permanent employment, severance pay is relatively generous or the same as permanent workers (i.e. Belgium and Slovenia). France grants the fixed-term workers an indemnity upon contract termination to compensate for the precariousness of their situation. At the other end of the spectrum, there is the United Kingdom that grants workers very low protection along all dimensions.

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Box (continued)

Table 1:
Fixed-term contract regulation in the EU

	Max. duration	Max. number of renewals	Conditions for use	Waiting period between two contracts	Extendable by collective agreement	Severance pay
AT	No limit	0, unless objective and material reasons can justify the need for renewal	No restrictions for first contract	Case-by-case assesment of continuity of working relaitonship by courts in case of complaints		Same as open-ended
BE	2 years	4 successive FTCs with a minimum duration of 3 months	Replacement of a permanent employee; temporary increase in the workload; exceptional work; recruitment of a temporary worker	Case-by-case assesment of continuity of working relaitonship by courts in case of complaints	No	In case the company ends the contract before the expiry of the fixed-term, the compensation equals the wage due for the remaining of the agreed duration of the contract (unless the compensation is more than double of what the permanent worker would receive) ; none at termination
BG	3 years		Temporary activity; replacement of a permanent employee; in case employment arises out of a competitive bid; fixed mandate; long-term secondments to fill a position in foreign representation			Compensation equal to the gross salary for the notice period in case the latter is not respected
CY	30 months	No limit	Temporary replacement of another employee; temporary nature of specific work; temporary increase in work activity; probationary period		Yes	
CZ	3 years	2	Generally permitted	Three years		Before expiration same as open-ended; at termination none
DK	2 years	2 (no legal limit, but usually only 2 successive renewals can be justified as based on objective reasons)	Allowed for specified periods of time and specific tasks; renewal has to be based on objective criteria	Case-by-case assesment of continuity of working relaitonship by courts in case of complaints		Same as open-ended; none at termination
EE	10 years	2	Has to be justified by good reasons, such as a temporary increase in work volume or seasonal work	Two months		Same as in case of dismissal for economic reason; wages for remaining ocntract must be paid; none at expiration
FI	No limit	In the case of successive contracts, justification of limitation of contract subject to court examination	Temporary replacements; traineeships; special business needs	Case-by-case assesment of continuity of working relaitonship by courts in case of complaints		Same (if termination is allowed); at the end date advance notice if contract end is not set in advance
FR	18 months (in some cases, 24 months)	2	Specific temporary tasks: to replace an employee on a leave or in case of a temporary increase in the activity, for seasonal work or state-assisted employment	1/3 of the duration of the previous contract, including its 1 or 2 renewals, if it lasted more than 14 days; 1/2 of the duration of the previous contract, including its 1 or 2 renewals, if it lasted less than 14 days	Yes - they can allow the usage of fixed-term contracts in certain sectors where it is common not to use permanent contracts due to the type of activity and the temporary nature of jobs	Before termination the same (if allowed). At termination, the amount of economic compensation is equal to 10% of the total gross remuneration during the execution of the contract; a collective bargaining agreement can limit this amount to 6%
EL	3 years; 2 years in the public sector	3	Objective and material reasons	46 days		Wages for the remaining contract period must be paid if termination is for reason other than significant; none at termination
HR	3 years	No limit	Objective reasons such as completing a specific task, an occurrence of a specific event			
IE	4 years	No limit in case of objective grounds for renewal	No restrictions for first contract; objective reasons required for renewal such as completing a specific task or the occurrence of a specific event	Case-by-case assesment of continuity of working relaitonship by courts in case of complaints		Before termination the same as open-ended contracts; the same also at termination if not explicitly excluded in contract
IT	3 years	5	No restrictions	10 days if the duration of the first contract is less than 6 months; 20 days if the duration of the first contract is longer than 6 months	Yes	Before termination same if termination is allowed ; none at termination
LV	3 years	No limit	Specified short-term work such as seasonal work; temporary nature of work; replacement of an employee; casual work; emergency work; increase in work activity; ALMP; vocational placements			
LT	5 years	0	Performance of a certain work; elected mandates		Yes	

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Box (continued)

Table (continued)

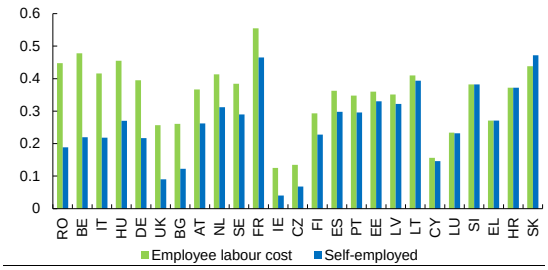
LU	2 years	2 (some categories of workers not subject to this restriction)	Replacement of a permanent employee; seasonal work; temporary, urgent, occasional work; increase in work activity; hiring of approved categories of unemployed persons, ALMP, training	One third of contract duration		Before termination same if termination is allowed ; none at termination
HU	5 years	No limit in case of objective grounds for renewal	No restrictions for first contract; objective grounds for the extension	Six months		Before termination same ; none at termination
MT	No limit	No limit	No restrictions	In case of redundancy or unjustified breach of contract by any party, a sum equal to one half of the full wages due until the expiry of the contract		
DE	2 years; no limit in case of an objective reason	3	The need of an objective reason, such as temporary increased activity, replacing a permanent employee, specific type of work, or trial period for the employee	Three years	Yes	Before termination same ; none at termination
NL	3 years	3	No restrictions	Three months	Yes	Before termination same ; none at termination
PL	33 months	2	No restrictions	One month		Two weeks notice regardless of tenure ; none at termination
PT	3 years for fixed-term employment contracts; 6 years for unfixed-term contracts	3 for fixed-term employment contracts	Existence of an objective reason; temporary needs; promotion of employment	1/3 of contract duration	Yes	Severance pay equal to 18 days of base salary plus seniority allowance for each year of seniority if the fixed-term contract expires at the initiative of the employer; salary due for the period of prior notice missing for unfixed-term contracts. At termination two weeks of notice required
RO	3 years	2	Existence of an objective and material reason; replacement of another employee; temporary increase in activity; seasonal activity; employment of certain categories of unemployed persons; elective position			
SK	2 years	2	No restrictions for first contract; objective reasons required for renewal such as maternity leave of another employee or sudden increase of work	Six months		Before termination same ; none at termination
SI	2 years	No limit	Work of limited duration; replacement of an absent employee; increased volume of work; employment of a foreigner with a fixed-term work permit; managerial staff; seasonal work; vocational training; working during a qualifying period for obtaining a certificate; public works; ALMP; project-based work; introduction of new programmes; training of workers; elected mandate	3 months	Yes	80% replacement rate of base salary for the remainder of the contract period in case the employer can't provide work due to business reasons
ES	4 years	No limit	Objective or causal reasons - specific work; accumulation of tasks; replacement; change in market conditions; training; hiring of workers with disabilities or the unemployed		Yes	Before termination same ; at termination 12 days for year of service
SE	2 years (in the period of 5 years)	No limit	Replacement of absent employees; seasonal work; personnel above 67 years of age (after pension); probationary employment contract (max. 6 months)		Yes	Before termination same as for gross miconduct. At termination one month of notice period for contracts longer thant 12 months in threee years period
UK	4 years	No limit	No limit	Case-by-case assesment of continuity of working relaitonship by courts in case of complaints	Yes	Before termination the same. After 2 years' service, employees may be entitled to statutory redundancy payments if the reason for non-renewal of the contract is redundancy

Source : OECD.

There is far less regulation in the Baltic States and most Eastern European Member States, where the coverage is also low. In these countries, wage bargaining usually takes place at the local or company level. Finally, there is also little regulation in the Anglo-Saxon countries, which have intermediate collective bargaining coverage and wage bargaining organised at the local or company level.

One variable that may influence the decision to be in solo self-employment is the gap between social security contributions charged for employees and the contributions paid by solo self-employed. Since data on contributions are not available from a single source, an original dataset has been built *ad hoc for this study* based on various sources, *inter alia*, OECD and SSA (2016). Graph II.1.7 shows that in most countries the social contribution rate paid for permanent employees is higher than the contribution paid by solo self-employed, in particularly in Romania, Belgium and Italy. In Greece, Croatia and Slovakia, the level of social contributions is almost the same. ([53])

Graph II.1.7: **Social security contributions for permanent and self-employed without employees, 2013**

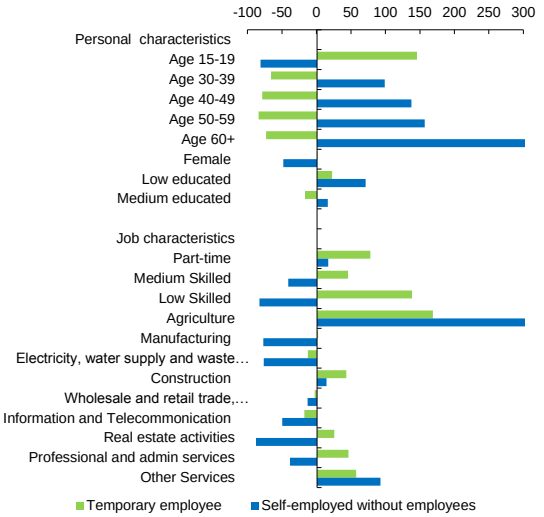


(1) Expressed as a share of the gross income. Only compulsory social contributions are included. No differences with respect to the Personal Income Tax are included.
Source: European Commission calculations based on OECD and SSA (2016).

1.3.4. Impact of individual and job characteristics

Graph II.1.8 shows the impact of individual and job characteristics on the likelihood of being a *temporary employee* or *solo self-employed*. ([54]) The results can be summarised as follows.

Graph II.1.8: **Probability of being a temporary employee or a self-employed without employees**



(1) The graph shows for various personal and job characteristics the change in the likelihood of being a temporary employee or a self-employed without employees as compared to reference category. Each bar represents by how much the probability increases for one specific individual characteristic holding the other constant: for example, being younger than 20 years increases the likelihood of being a temporary employee by 145% compared to individual aged 20 to 29 years.
Source: Own calculations based on the Eurostat, Labour Force Survey microdata.

The probability of *temporary employment* decreases with age; compared to individuals aged between 20 and 29, individuals belonging to the age class 30-39 or 50-59 are, respectively, 66% and 84% less likely to work on a temporary contract. However, at the age of 65, this probability slightly increases remaining well below that of the youngest. The low-educated or the part-time workers are more likely to be employed on a temporary contract (an increase of, respectively, 23% and 78% in the likelihood). The impact of gender is small, which is partly related to the fact that the regression controls for part-time employment and sector of employment, which are usually strongly correlated with gender. Individuals in low-skilled and medium-skilled occupations are more likely to work on a temporary contract than individuals in high-skilled

([53]) In France, Italy and Spain contributions for temporary employees are different from those paid for permanent employees. However, since the difference is small and it concerns few countries, it is not considered in the analysis.

([54]) Estimations are based on a pooled logit model including individual and job characteristics and time fixed effects as explanatory variables.

occupations (an increase of, respectively, 139% and 46% in the likelihood). The likelihood of temporary employment is high in construction (43%), professional and administrative services (46%) and other services (58%).

Contrary to what was found for temporary employment, *solo self-employment* becomes more likely with age (e.g. an individual older than 60 is five times more likely to work as a solo self-employed). Low-educated or part-time workers have higher probability to be solo self-employed (respectively, 71% and 17%). Individuals in construction and other services have a high probability of being solo self-employed. Finally, individuals in low-skilled professions are less likely to work as solo self-employed. The fact that solo self-employed are lower educated than employees but work in relatively more skilled occupations may depend on them being on average older and working in medium-skilled occupations such as craft and related trade workers.

1.3.5. Impact of institutional characteristics on the likelihood of temporary contracts

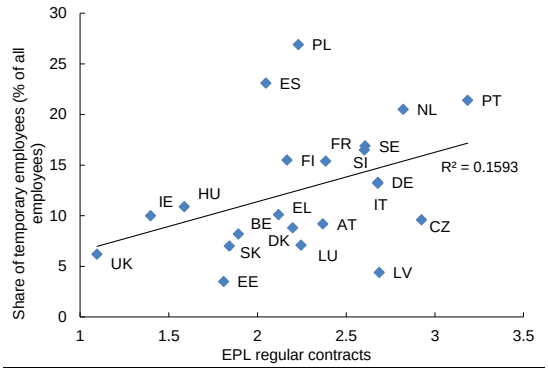
This section analyses the impact of various institutional variables on the likelihood of being a temporary employee. It looks at the direct impact of the institutional variables as well as whether their effect varies with individual and job characteristics. ([55]) The variables considered are *EPL* and *collective bargaining*.

Employment Protection Legislation

Graph II.1.9 suggests that countries with more stringent EPL for permanent employees have also higher shares of temporary employment. Yet, the correlation is relatively small (EPL explains only 16% of the cross-country difference in the share of temporary contracts). For example, in Czech Republic and Latvia, the regulation for open-ended contracts is relatively strict, but the share of temporary employment low.

([55]) For each institutional variable analysed, the estimations are based on a pooled logit model including individual and job characteristics, time fixed effects and the institutional variable and its interactions with the individual and job characteristics.

Graph II.1.9: **Correlation between the share of temporary employees and EPL for regular contracts, 2013**



Source: Commission calculations based on Eurostat, Labour Force Survey microdata and OECD.

With a view of getting a better gauge of the effect of the EPL, regression analysis permits to control for the influence of various factors and isolate the effect of the variable of interest. Regression analysis confirms the positive relation between EPL and the likelihood of temporary employment (Graph II.1.10). Results can be summarised as follows.

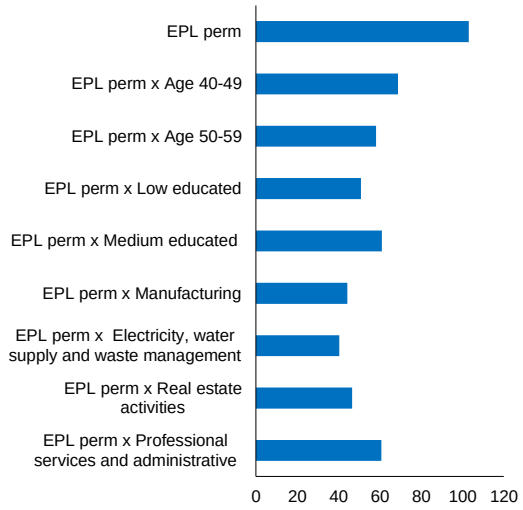
A one-unit increase in EPL doubles the odds of having a temporary contract for an individual in the reference category (male, aged 20-29, working full-time, high educated, high skilled, in finance). This means that in a country where EPL is one unit higher, the same type of individual is twice as likely to work on a temporary contract.

A detailed analysis, which breaks down EPL for permanent contracts by its subcomponents, suggests that more stringent regulation concerning notice period and severance pay and the difficulty of dismissal increases the likelihood of temporary employment. It confirms previous results in the literature, namely that firms revert to temporary hiring in the face of relatively high cost of dismissals for permanent contracts.

Consistent with early evidence, more stringent EPL mainly affects new labour market entrants and hence those at the beginning of their career (Bertola et al., 2007 and Cazes and Nesporova, 2003). Consequently, the impact of EPL is found to be smaller for older workers: for workers aged 40-49, a unit increase in EPL increases the likelihood of temporary employment only by 78%

as compared to 100% for young workers. The likelihood of temporary employment among older workers (50-59) is even smaller.

Graph II.1.10: **Impact of EPL for permanent contracts on the likelihood of being a temporary employee**



(1) The graph shows the impact on likelihood of being a temporary employee of the institutional variable and how it varies across individual and job characteristics. The first bar represents the effect of the institutional variable on the likelihood of being a temporary employee for the reference individual (male, aged 20-29, working full-time, high educated, high skilled, in finance). The interaction term represents the effect of the institutional variable for a different value of one individual or job characteristic. For example, for a reference individual a one unit increase in EPL increases the likelihood of a temporary contract by 100%, while for a similar individual aged 40 to 49 years a one unit increase in EPL increases the likelihood of a temporary contract by 78%. Only results statistically significant at 10% or less are reported. Standard errors are clustered at the country level.
Source: European Commission calculations based on Eurostat, Labour Force Survey and OECD.

EPL has also a smaller impact on the low- and medium-skilled although the effect is only significant at the 10% significance level. Overall, this implies that the effect of more stringent EPL is relatively stronger for highly educated workers. It confirms earlier findings that EPL raises job security more for low and medium-skilled than for high-skilled (Berloffa et al., 2016), but contradicts earlier results by Kahn (2007) who found that EPL raised the relative incidence of temporary contract for low-skilled based on a sample of seven OECD countries in the late 1990s.

The impact of EPL varies across sectors. It is small in the more capital intensive sectors such as manufacturing and electricity and water supply. This is consistent with findings showing that EPL is more binding in sectors which are more susceptible to demand shocks and which have a relatively high "natural" propensity to adjust their human resources through layoffs (e.g. Bassanini et al. 2009). This includes sectors such as construction or market services.

Conversely, stricter EPL for temporary contracts does not have a strong impact on the likelihood of being a temporary employee. Also the interaction terms of EPL and the individual and job characteristics are in general insignificant, meaning that the regulation for temporary contracts is not binding for specific groups of the population. However, when EPL for temporary contracts is interacted with the level of perceived corruption in the country (a proxy for the quality of the labour inspectorates and judicial system), the results indicate that poor enforcement makes EPL for temporary contracts less binding (i.e. the share of temporary employment is higher). However, while the interaction term has the expected sign, it is statistically insignificant.

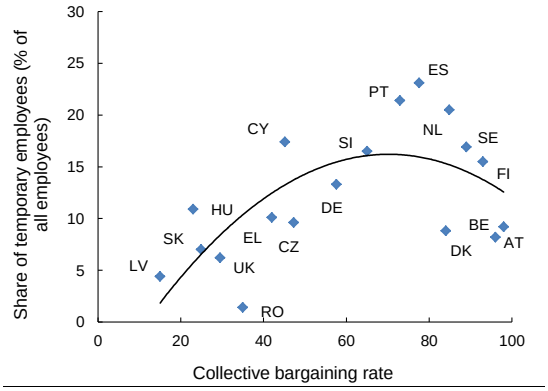
Collective bargaining

The expected effect of collective bargaining coverage is ambiguous and depends, *inter alia*, on how encompassing unions are (e.g. Deakin 2013). The traditional argument on the relationship between economic performance and the collective bargaining framework contends that wage-pressures follow a hump-shaped curve when moving from fragmented to more encompassing collective bargaining (e.g. Calmfors and Driffil, 1988). The same reasoning holds in case of labour market segmentation; general unions representing the interest of all workers would limit the use of non-standard forms of employment.

Graph II.1.11 shows evidence of this non-linear relationship based on a cross-country comparison. An increase in coverage from low levels may lead to strong protection of the insiders (permanent contracts) at the expense of the outsiders (temporary contracts). This suggests that at low levels of coverage firms have wide margins of flexibility and do not need to demand temporary contracts to make savings. At intermediate levels - i.e. when coverage is relatively higher - the interest of unionised workers, which usually hold

permanent positions, is better reflected in unions' policies than that of temporary workers. As a consequence, firms may make more use of temporary contracts as a buffer. At high levels of coverage, however, there is a negative relationship between coverage and the likelihood of being employed in a temporary contract. When coverage is high, unions internalise the effect that a high temporariness may have on their bargaining power and seem to be more concerned about job security and quality of jobs for all workers (Abraham, 1988; Golden and Appelbaum, 1992).

Graph II.1.11: **Share of temporary employees and the collective bargaining coverage, 2013**



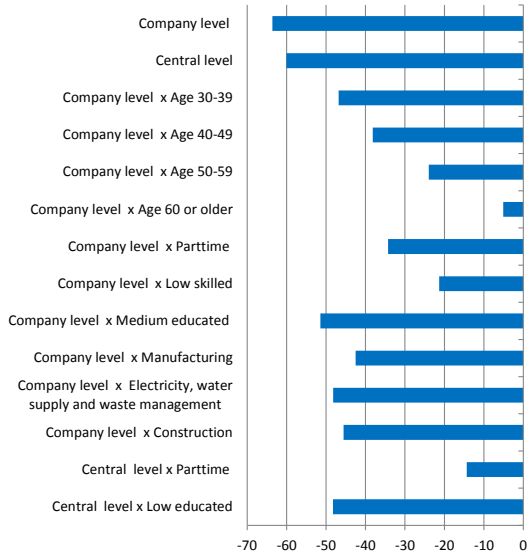
Source: European Commission calculations based on Eurostat, Labour Force Survey data and the ICTWSS database.

The role of collective bargaining is explored further in the econometric analysis. A number of facts emerge from the analysis.

An increase in the *collective bargaining coverage* raises the likelihood of temporary employment and the effect is found to be non-linear. The magnitude of the effect depends on the level of collective bargaining coverage. An increase of one percentage point in coverage when there is no coverage raises the probability of having a temporary contract by 2% for an individual in the reference category. However, the effect declines when coverage increases, and becomes insignificant when it is higher than 80%.

Graph II.1.12 reports the effect of the level at which wage bargaining takes place. When wage bargaining takes place at the company level or at the central or cross-industry level, the likelihood of being a temporary employee drops as compared to a situation where bargaining takes place at an intermediate level. This effect is less relevant for middle-aged and older workers and workers in manufacturing, electricity, water supply and waste management as well as in construction. In contrast, individual and job specific characteristics do not seem to matter when wage bargaining takes place at the central level.

Graph II.1.12: **Impact of the level at which wage bargaining takes place on the likelihood of being a temporary employee**



(1) The graph shows the impact on likelihood of being a temporary employee of the institutional variable and how it varies across individual and job characteristics. Only results statistically significant at 10% or less are reported. Standard errors are clustered at the country level.
Source: European Commission calculations based on Eurostat, Labour Force Survey data and ICTWSS.

Minimum wage regulation

The level of the statutory minimum wage does not affect significantly the likelihood of being a temporary employee. In addition, also the interaction terms with the individual and job characteristics are for most variables statistically insignificant. ([56])

1.3.6. Impact of institutional characteristics on the likelihood of being self-employed

This section analyses the role of the gap between social security contributions paid by employees

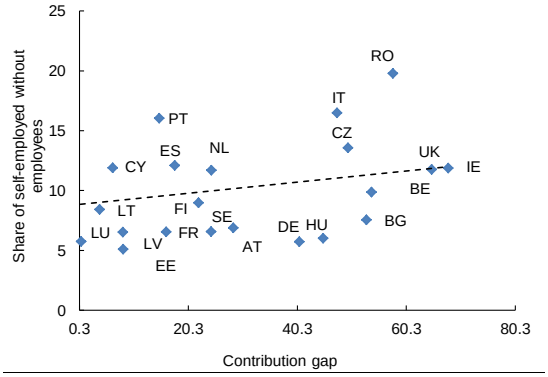
([56]) Results available upon request.

and self-employed without employees and the role of business environment indicators. ([57])

Contribution gap

Taxation may affect the likelihood of becoming a self-employed in two ways. First, a high tax wedge, in particular in combination with a high income tax, provides incentives for individuals to work as self-employed since these may have more opportunity to hide income, ([58]) especially when tax compliance is weak. Second, a gap between the level of employees and self-employed contributions gives companies the incentives to replace employees with independent contractors, possibly disguised employees to reduce the cost of labour. ([59])

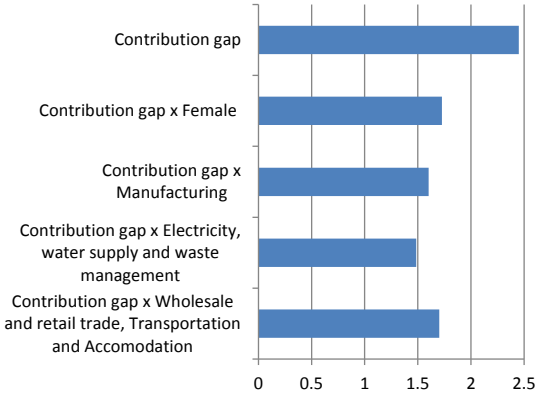
Graph II.1.13: **Share of self-employed without employees and contribution gap, 2013**



(1) Share of self-employed as a percentage of total employment. Contribution gap is the difference between social security contributions paid by permanent employees and self-employed as a percentage of contributions paid by permanent employees. Only compulsory contributions are taken into account.
Source: European Commission calculations based on the Eurostat, Labour Force Survey, OECD and SSA.

Graph II.1.13 suggests that the gap in social security contributions is positively correlated to the share of self-employment without employees. This relationship is also confirmed by the regression analysis that controls for individual and job characteristics (Graph II.1.14). According to the analysis, an increase in the gap by one percentage point increases the likelihood of being a solo self-employed by 2.4% (slightly less for women, those in manufacturing electricity and wholesale).

Graph II.1.14: **Impact of the contribution gap on the likelihood of being a self-employed without employees**



(1) The graph shows the impact on likelihood of being a solo self-employed of the institutional variable and how it varies across individual and job characteristics. Only results statistically significant at 10% or less are reported. Standard errors are clustered at the country level.
Source: European Commission calculations based on the Eurostat, Labour Force Survey, OECD and SSA.

In addition, the contribution gap is also likely to have a different impact depending on the level of legal enforcement of the rules of law in a country. In countries with a higher perceived level of corruption, tax avoidance may play a more important role as the chance to be caught by the authorities is perceived to be lower. As a result, individuals, who actually work as economically dependent workers, are more likely to claim that they are solo self-employed. This can be a voluntary choice or they may be pushed by employers for whom the employers' contributions are reduced and therefore labour costs are reduced. The likelihood of being solo self-employed increases in countries with a higher level of perceived corruption, in particularly when there are large financial gains of solo self-employment (i.e. when there is a large gap in the social contributions paid by employees and solo self-employed). (Box II.1.3).

([57]) Estimations are based on a logit model including individual and job characteristics, time fixed effects and the institutional variable and its interactions with the individual and job characteristics.
([58]) Not only illegally; for example numerous expenses such as travel-to-work costs are tax deductible for the self-employed but not for employees.
([59]) Based on the European Working Conditions Survey, Eurofound (2017) estimates that approximately 15% of all self-employed are economically dependent workers in the EU. Unfortunately, the EU-LFS microdata which are used in the analysis in this section of the chapter do not contain information on economically dependent workers.

Box II.1.3: Impact of the contribution gap in countries with high perceived corruption on the likelihood of being a self-employed without employees

In the literature on the effect of taxation on the likelihood to be a self-employed without employees, the effect of taxation is found to be dependent on the perceived level of corruption in the country. Torrini (2005) found that in countries with high levels of perceived corruption, the tax wedge is an important driver of solo self-employment. He argues that given that self-employed are more likely to be engaged in tax avoidance, one may expect a larger positive effect of taxes in countries where tax compliance for self-employed is low; in these countries, the perceived level of corruption is generally higher than the average. In addition to the level of taxation, also the difference in the contribution gap may affect the likelihood of being self-employed. In countries with a higher level of perceived corruption, the chance of being caught by the authorities is perceived to be lower and both employers and workers are more likely to engage in tax avoidance. As a result, individuals, who actually work as economically dependent workers, are more likely to claim that they are solo self-employed. This can be a voluntary choice or they may have been pushed by employers. The effect is expected to be larger when there are large financial gains of solo self-employment (i.e. when there is a large gap in the social contributions paid by employees and solo self-employed).

In order to identify how differences in the perceived level of corruption influence the impact of the contribution gap on the likelihood of being self-employed, an interaction term between the contribution gap and the perceived level of corruption (measured by the variable "no corruption") is included in the analysis. A negative sign on the interaction term indicates that a decline in perceived level of corruption (increase in the "no corruption" variable) reduces the positive impact of the contribution gap on the likelihood of being a self-employed without employees. In other words, in countries where laws are more likely to be enforced, the impact of contribution gap is smaller. In contrast, in countries where the perceived level of corruption is high, the positive impact of the contribution gap on the likelihood of being a self-employed without employees is relatively larger.

The results in Table 1 show that the contribution gap is particularly important in countries where the level of perceived corruption is higher. An increase of one unit in the "no corruption" variables is expected to reduce the positive effect of the contribution gap by 0.3 percentage points. This suggests that the largest effect of differences in social security contributions can be found in those countries with the highest level perceived corruption.

Table 1: Impact of contribution gap and its interaction with the perceived level of corruption on the likelihood of being a self-employed without employees

Contribution gap	0.0238***
	(0.00871)
Contribution gap x No corruption	-0.00277**
	(0.00107

(1) Coefficients of the logit estimation of likelihood of being a self-employed without employees, which includes as explanatory variables the contribution gap and the perceived level of corruption as institutional variables as well as the individual and job characteristics. Only relevant and significant coefficients are presented in the table. Standard errors are clustered at the country level

***Source*:** European Commission calculations based on Eurostat, Labour Force Survey microdata, OECD and SSA.

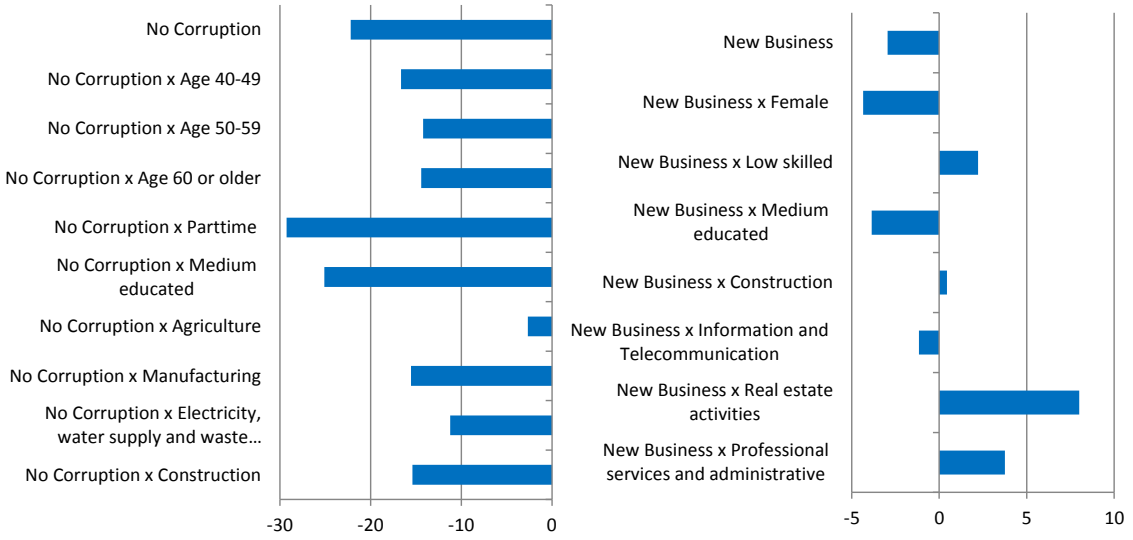
Business environment

Graph II.1.16 suggests that a low perceived level of corruption results in a low likelihood of being a solo self-employed. ([60]) This relation holds also when controlling for factors that may influence the probability of being a solo self-employed (Graph II.1.15). These finding can be explained by the *grease the wheels* hypothesis (e.g. Dreher and Gassebner, 2013). In countries with a relatively high corruption level, public officials are more responsive to pressures to issue permits and licenses without complying with standard procedures, thereby facilitating firms' entry into the market, especially when these are cumbersome. ([61])

([60]) Perceived corruption is slightly less relevant for the older workers and those employed in agriculture, manufacturing, industry and construction.

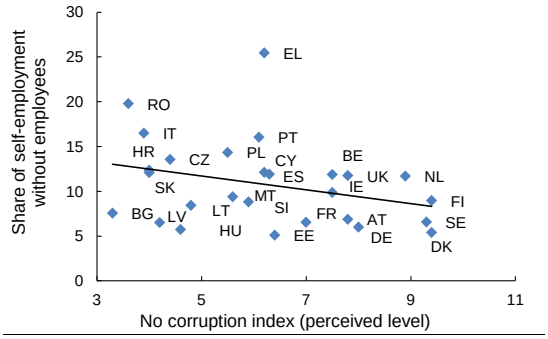
([61]) Yet, a higher level of solo self-employment does not necessary entail more entrepreneurship and growth. Self-

Graph II.1.15: **Impact of the "no corruption" variable and the ease of starting a new business on the likelihood of being a self-employed without employees**



(1) The graph shows the impact on likelihood of being a solo self-employed of the institutional variable and how it varies across individual and job characteristics. Only results statistically significant at 10% or less are reported. Standard errors are clustered at the country level.
Source: European Commission calculations based on Eurostat, Labour Force Survey microdata, Transparency International and World Bank.

Graph II.1.16: **Share of self-employed without employees and corruption index, 2011**



(1) Share of self-employed without employees as a percentage of total employment.
Source: European Commission calculations based on Eurostat, Labour Force Survey data and CPI.

Solo self-employment is less likely in Member States where it is relatively easy to start a new business (Graph II.1.15). This finding may indicate that a business environment favourable to starting a new activity promotes a rapid increase in a firm's size and therefore in the demand of dependent workers (the self-employed without employees start as employers). This effect is particularly relevant for women, medium-skilled workers and those working in rapid growing sectors such as information and telecommunication.

According to the analysis, there is no correlation between the likelihood of self-employment without employees and insolvency regulation, the ease of firing permanent employees (EPL for permanent contracts), the collective bargaining coverage and the existence of a statutory minimum wage.

1.4. IMPACT OF CONTRACT TYPE ON AVERAGE JOB TENURE

1.4.1. Literature

Strongly segmented labour markets are characterised by lower job security and stability. One indicator of job stability is the average job tenure. The level and change in average job tenure across Member States have been analysed by Auer and Cazes (2000) for the 1990s, Cazes and Tonin (2010) for the period 1996-2006 and Bachmann

employment motivated by inefficient public administration or *perceived corruption* is not a driver of innovation and sustainable growth.

and Felder (2017) for the period 2002-2012. Overall, these studies find that the average job tenure remains fairly stable over time, although there is some variation between Member States.

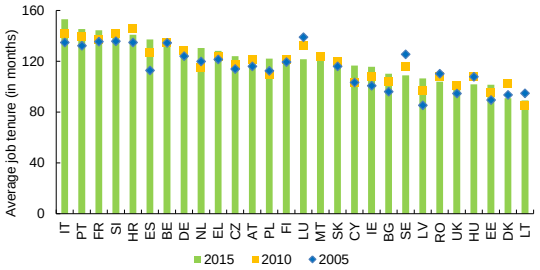
Cross-country differences can be attributed to differences in socio-demographic and job characteristics as well as labour market institutions. The variables that are of most interest in this context are age, contract type and EPL.

The analysis in this section consists of three parts. First, it presents descriptive evidence on the evolution of job tenure by contract type for the period 2005-2015 based on the *Labour Force Survey* data. Second, it analyses heterogeneity in job tenure between different socio-economic groups and contract types using a shift-share analysis to control for compositional changes over time. Finally, it looks at the impact on job tenure of institutional determinants. ([62])

1.4.2. Evolution of average job tenure

The average job tenure differs across Member States and is the longest in 2015 in Italy, Portugal, France, Slovenia and Croatia (Graph II.1.17). In contrast, average job tenure is substantially lower in Estonia, Denmark and Lithuania. In Denmark and Lithuania, average job tenure is below 100 months.

Graph II.1.17: **Average job tenure of all employees, months, 2005-2015**



Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

The job tenure has remained constant or slightly increased in most Member States in the period 2005-2015. The increase was the highest in the countries hit the most by the crisis (Spain, Latvia, Italy, Ireland, Cyprus and Portugal). This can be explained by the fact that those who have lost their jobs during the crisis were in general younger employees who have a relatively short tenure. Job tenure decreased in Denmark, Lithuania, Hungary, Romania, Sweden and Luxembourg.

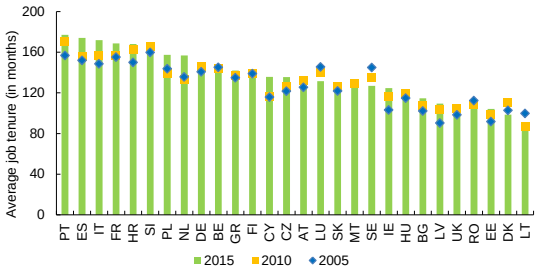
1.4.3. Impact of job and worker characteristics on the average job tenure

Differences in job and socio-demographic characteristics may be potential factors explaining the evolution of the average job tenure. This section evaluates the relevance of this effect.

1.4.3.1. Impact of contract type

In all Member States, the average job tenure of permanent employees is higher than the average job tenure of temporary employees (Graph II.1.18) and it remained quite stable over time. In 2015, it is the highest for permanent employees in Portugal and Spain and the lowest in Estonia, Denmark and Lithuania.

Graph II.1.18: **Average job tenure of permanent employees, months, 2005-2015**



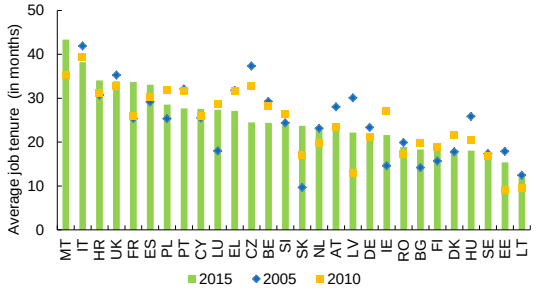
Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

There are large differences across countries in the average job tenure for temporary employees (Graph II.1.19). In 2015, temporary employees in Malta and Italy work on average more than 35 months with the same employer, while in Estonia and Lithuania the average job tenure for temporary employees is less than 15 months. ([63])

([62]) A detailed description of the estimation and the variables used in the analysis can be found in Annex Data Source.

([63]) The average job tenure for temporary employees in all Member States is found to be inflated by a small share of employees which report a very high job tenure (more than 60 months). This may reflect the actual situation, but may also be the result of misreporting. For example, when there are spells of unemployment between different temporary

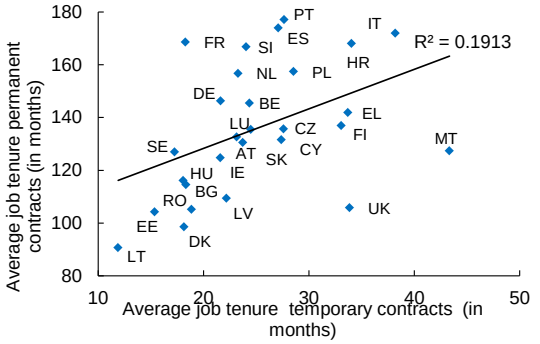
Graph II.1.19: **Average job tenure of temporary employees, months, 2005-2015**



Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

There is no clear pattern in the evolution of the average job tenure of temporary employees over time. The job tenure increased substantially in Member States where it was already high (e.g. Malta and France) or low (e.g. Latvia and Estonia). It decreased in Czech Republic, Hungary and Ireland.

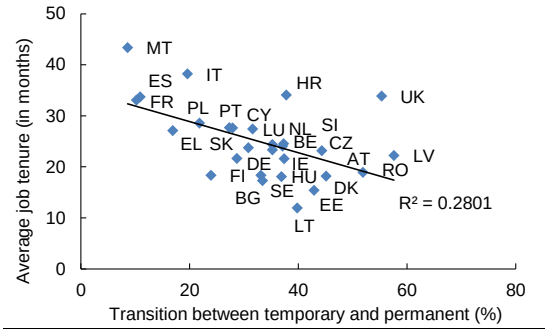
Graph II.1.20: **Correlation job tenure in permanent and temporary contracts, 2015**



Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

In a large majority of countries the average job tenure for permanent contracts is more than 5 times higher than for temporary contracts. Graph II.1.20 suggests that in Member States that have the longest average job tenure for permanent contracts job tenure for temporary contracts is also high. On the one hand, this suggests that in countries with long job tenure, the duration of temporary and permanent jobs co-exist with little transitions between them implying that the labour market is segmented and there is low job mobility. This is confirmed by Graph II.1.21 showing the relation between the average job tenure for temporary contracts and the transition rates between temporary and permanent contracts. On the other hand, the positive correlation between the job tenure of permanent and temporary contracts shows that for some of those employed in temporary contracts the employment situation is not as precarious as it is often argued since employees often manage to have long-term employment relationships with the same employer.

Graph II.1.21: **Correlation transition rates and job tenure in temporary contracts, 2015**



(1) Transition rates between temporary and permanent contracts represent the percentage of the employees who were working in year T-1 on a temporary contract and in year T on permanent contract. Data are obtained from the EU-SILC database which covers more countries than the experimental EU-LFS data.
Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

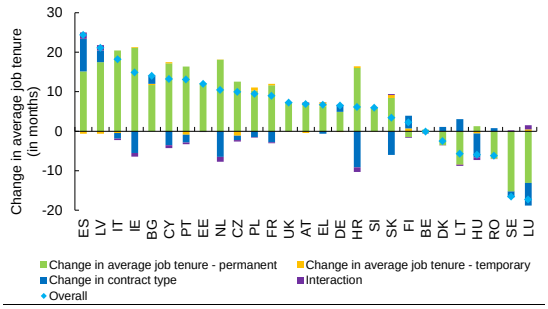
Changes in average job tenure may be driven by changes in the contract types used in the economy. In almost all Member States, the change in the average job tenure is mainly driven by a change in the duration of contracts rather than a change in the composition of contract types (from permanent to temporary and *vice-versa*) (Graph II.1.22).

In particular, the change in the average job tenure is driven by the change in the average job tenure of permanent employees and only to a marginal extent by changes in the average job tenure of temporary employees. In some Member States also changes in the composition of contract types have had a substantial impact on the average duration. For example in Spain, the decline in the share of

contracts with the same employer, the employee may report the start of the first contract without taking into account the spells. As robustness check, extreme job tenures have been excluded; this does not change significantly the ranking of the Member States.

temporary contracts increased the average job tenure. This is in contrast to Ireland, Cyprus, Netherlands, Croatia and Slovakia where an increase in prevalence of temporary contracts has negatively affected the average job duration.

Graph II.1.22: **The impact of changes in the composition of the workforce by contract type on the change in the average job tenure, 2005-2015**



(1) A shift-share analysis decomposes changes in the average job tenure into three components. The first component identifies changes for a fixed composition of contract ("change in average job tenure"). The second one measures the effect of the shift in the composition of contract, for a given average duration by contract type ("change in contract type"). Finally, the third measures the change in the average job tenure due to changes in the contract composition and changes in the average duration by contract type ("interaction").
Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

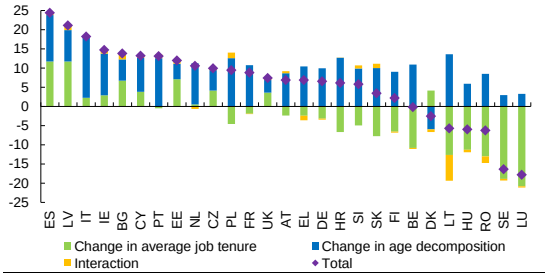
1.4.3.2. Impact of age

The average job tenure increases with age (Table II.1.6). Over the last ten years, it increased in most Member States, with significant variation across age groups. In general, job tenure decreased for young workers, while no general trend could be identified for the middle aged and older workers. This may result from different trends. On the one side the increase in the years of formal education delays the entry in the labour market, resulting in a decline in the average tenure. On the other end, reforms increasing the retirement age together with ageing of the population may lengthen the average job tenure.

A shift in the structure of the population towards older workers (ageing of the work force) has been in most Member States a major driver of the increase in the average job tenure (Graph II.1.23).

However, in some Member States also changes in the average job tenure across all age groups played a role. This holds in particularly for the Member States in which the average job tenure declined (e.g. Lithuania, Hungary, Romania, Sweden and Luxembourg).

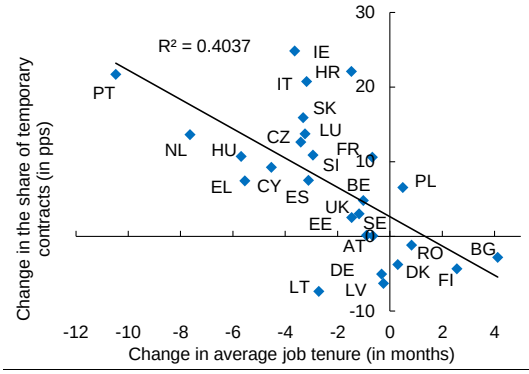
Graph II.1.23: **The impact of changes in demographic factors on the change in the average job tenure, 2005-2015**



(1) See footnote to Graph II.1.25
Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

The decrease in the average job tenure for young workers reflects both an increase in educational attainment and an increase in the share of temporary contracts. In fact, in the countries with the strongest increase in temporary contracts among young workers, the decline in the average job tenure is the highest (Graph II.1.24) ([64])

Graph II.1.24: **Correlation between the change in average job tenure and average change in the share of temporary employment for young workers, 2005-2015**



Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

This finding is also confirmed by a shift-share analysis (Graph II.1.25), which shows that changes in the composition of contract types have a

([64]) This negative relation is confirmed by a regression that controls for changes in the sector of employment and educational attainment.

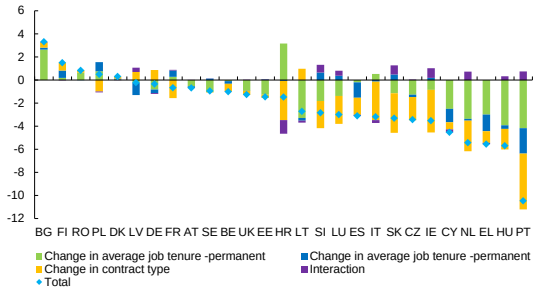
Table II.1.6: **Average job tenure and share of temporary contracts by age group, 2005 and 2015**

	Job tenure (in months)						Share of temporary contracts (% of all employees)					
	Young		Middle		Old		Young		Middle		Old	
	2005	2015	2005	2015	2005	2015	2005	2015	2005	2015	2005	2015
AT	**25.2**	**24.5**	**122.9**	**119.3**	228.9	236.0	**38.5**	**38.5**	**4.5**	**4.8**	3.5	3.3
BE	**18.8**	**17.8**	**133.1**	**121.4**	**275.9**	**263.2**	**32.8**	**37.6**	**6.9**	**7.5**	4.8	3.9
BG	19.1	23.2	91.4	98.7	139.8	159.9	14.1	11.3	5.7	4.2	8.4	4.2
CY	**19.1**	**14.5**	101.5	105.9	207.0	215.3	**19.8**	**29.0**	**14.0**	**18.6**	**5.8**	**8.3**
CZ	**22.6**	**19.1**	110.0	113.7	189.4	200.2	**18.3**	**30.9**	**6.1**	**8.3**	18.7	10.8
DE	**23.5**	**23.2**	**121.6**	**118.4**	**232.4**	**226.7**	58.8	53.7	**8.4**	**9.2**	4.7	3.9
DK	16.1	16.4	82.9	88.2	184.7	186.0	27.4	23.6	9.1	6.1	7.7	3.3
EE	**16.9**	**15.4**	84.7	89.2	147.6	169.7	**11.2**	**13.7**	**2.3**	**2.3**	**1.9**	**2.2**
EL	**25.8**	**20.2**	120.2	121.4	**246.3**	**220.5**	**25.9**	**33.3**	**10.9**	**11.8**	**9.0**	**11.0**
ES	**17.0**	**13.9**	110.0	120.7	246.0	262.5	**66.7**	**74.2**	28.6	25.0	14.5	10.5
FI	12.1	14.6	**109.9**	**102.4**	**237.4**	**229.0**	53.2	48.8	13.5	11.1	**7.0**	**8.1**
FR	**16.9**	**16.2**	**136.4**	**134.8**	**267.5**	**261.4**	**50.5**	**61.1**	**10.4**	**12.8**	**5.7**	**9.4**
HR	**20.8**	**19.3**	**134.7**	**127.2**	**269.6**	**265.5**	**38.3**	**60.4**	**10.2**	**18.8**	**3.8**	**9.8**
HU	**23.3**	**17.6**	**107.3**	**96.4**	**186.6**	**166.4**	**18.5**	**29.2**	**6.9**	**13.3**	**5.6**	**13.9**
IE	**22.3**	**18.7**	105.6	107.6	199.9	214.7	**7.3**	**32.1**	**1.4**	**6.4**	**2.5**	**5.5**
IT	**24.5**	**21.3**	132.0	134.6	255.3	258.9	**37.4**	**58.1**	**10.9**	**13.3**	7.6	6.4
LT	**17.9**	**15.2**	**91.2**	**84.5**	**181.3**	**120.3**	14.5	7.1	4.9	1.7	2.4	1.7
LU	**21.0**	**17.8**	**134.9**	**114.1**	**272.2**	**237.3**	**32.5**	**46.3**	**3.3**	**7.1**	**1.1**	**5.1**
LV	**19.2**	**18.9**	83.6	95.8	144.6	163.8	17.3	11.0	7.4	2.5	5.6	3.7
NL	**28.9**	**21.2**	120.8	123.5	**242.0**	**239.9**	**41.3**	**54.9**	**9.2**	**13.9**	**6.2**	**8.4**
PL	17.9	18.4	**117.4**	**111.1**	203.2	212.2	**66.6**	**73.1**	**21.7**	**25.3**	18.8	17.6
PT	**26.9**	**16.4**	132.7	132.9	243.3	249.4	**48.1**	**69.8**	**16.4**	**19.6**	**10.8**	**11.5**
RO	23.6	24.4	**111.1**	**98.4**	**202.4**	**168.7**	7.0	5.8	1.8	1.3	2.3	0.9
SE	**15.4**	**14.5**	**111.2**	**93.8**	**234.5**	**200.7**	**54.8**	**54.9**	**11.6**	**12.2**	**6.8**	**11.7**
SI	**19.5**	**16.6**	**142.7**	**136.3**	237.5	247.8	**64.5**	**75.3**	**12.1**	**13.7**	10.3	9.9
SK	**24.2**	**20.9**	**119.5**	**109.8**	190.0	194.5	**12.8**	**28.7**	**3.4**	**9.2**	11.3	8.8
UK	**20.8**	**19.7**	96.0	97.6	154.1	171.8	**11.5**	**14.5**	4.2	4.0	6.3	4.9

(1) Employees are divided in three age classes: young (15-24), middle-aged (25-54) and older employees (55-74).Figures in bold represent groups where the average job tenure has decreased/ share of temporary contracts increased.
Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

stronger impact on the average job tenure for young workers.

Graph II.1.25: **The impact of changes in the composition by contract type on the change in the average job tenure for young workers, 2005-2015**



Source: European Commission calculations based on the Eurostat, Labour Force Survey data.

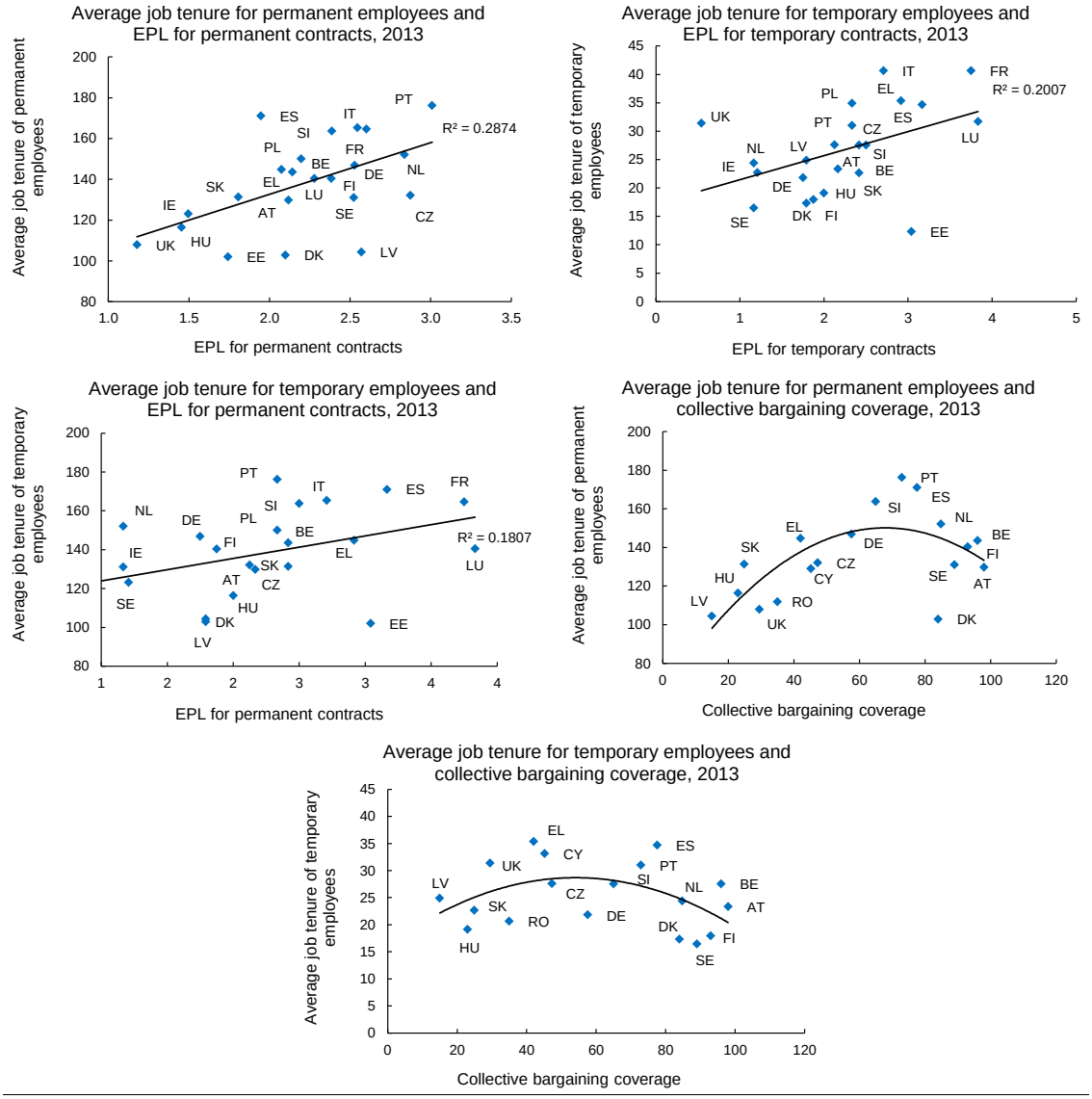
1.4.4. Impact of structural and institutional variables on the average job tenure

A glance at Graph II.1.26 suggests that the average job tenure for permanent and temporary employees is longer in countries with more stringent EPL. ([65]) This is in line with the theoretical predictions, which suggest that more stringent EPL results in lower job mobility.

Turning to collective bargaining, the relationship between coverage and job tenure is hump-shaped. For temporary workers, this non-linear effect of collective bargaining coverage on the average job tenure suggests that in decentralised systems temporary contract workers have less bargaining power to influence the duration of their contract. For permanent workers it might indicate that there is more labour mobility in decentralised systems where wages are relatively low compared to more centralised systems (Hoel, 1991). The relationship is less clear with respect to centralised bargaining, as one would expect better outcomes (i.e. longer

([65]) The correlations between tenure of temporary contracts and EPL for respectively temporary and permanent contracts are lower than between EPL for permanent contracts and tenure of permanent contracts. If Estonia is excluded, the correlation becomes higher. This is justified on the ground that, its labour market is very flexible (Eamets, 2013) in spite of several indicators (from OECD and World Bank) pointing to an overly rigid one. One reason for this is the relatively high flexibility of wages (Malk, 2014).

Graph II.1.26: **Average job tenure for permanent and temporary employees and EPL and collective bargaining coverage**



Source: European Commission calculations based on Eurostat, Labour Force Survey microdata, OECD and ICTWSS.

duration of contracts, while the duration is lower for both temporary and permanent).

With a view to obtain a better gauge of the underlying relationship between institutional variables and job tenure, econometric techniques allow to somewhat isolate factors relevant for the explanation of the job tenure. Table II.1.7 present the results of the correlation between the institutional variables and the average job tenure for permanent and temporary employees. Four institutional variables are included: EPL for regular contracts (Model 1a) and its components (Model 1b); EPL for temporary contracts and temporary agency workers (Model 2a) and its components (Model 2b); the collective bargaining coverage and its squared term (Model 3) and the level of wage bargaining (Model 4).

Two specifications are tested for each of the variables of interest. The first includes only the variables of interest (Model A); the second (Model B) looks at their impact controlling for the effects on tenure of additional control variables (i.e. age, gender, educational attainment, part-time employment and sector of employment). Countries

Table II.1.7: **Regression results of the impact of the structural and institutional variables on the average job duration of permanent and temporary employees**

	Permanent contracts		Temporary contracts	
	Model A	Model B	Model A	Model B
Includes	Variables of interest	Variables of interest, control variables and time fixed effects	Variables of interest	Variables of interest, control variables and time fixed effects
Regression 1a: EPL individual				
EPL - Individual	16.809***	15.372***	2.078	-3.689*
	(3.366)	-3,726	(2.306)	(1.836)
Regression 1b: EPL individual - Subcomponents				
EPL - procedurial inconvenience	5.115	13.05***	-0.492	0.868
	(4.320)	(2.454)	(1.926)	(1.720)
EPL - notice period and severance pay	3.453	-2.029	1.549	-1.698
	(2.808)	(2.599)	(1.514)	(1.919)
EPL - difficulty of dismissal	7.694**	8.030***	0.969	-3.138**
	(3.330)	(2.371)	(1.807)	(1.447)
Regression 2a: EPL temporary				
EPL - Temporary	11.428***	5,727	1.638	-0.816
	(2.891)	-3,549	(1.368)	(1.928)
Regression 2b: EPL temporary - Subcomponents				
EPL - fixed-term contracts	-0.205	2.332	-1.245	-1.080
	(2.999)	(2.571)	(1.378)	(1.103)
EPL Temporary work agency	11.95***	3.955**	2.995**	0.972
	(3.077)	(1.903)	(1.094)	(1.273)
Regression 3: Collective bargaining rate				
Collective bargaining rate	1.541***	0.248	0.578***	-0.227
	(0.444)	(0.710)	(0.198)	(0.176)
Collective bargaining rate squared	-0.00920**	-0.00102	-0.00479***	0.000902
	(0.00380)	(0.00505)	(0.00170)	(0.00146)
Regression 4: Level of wage bargaining				
At the company level	-25.16***	-27.863***	-1.486	4.732
	(7.590)	(6.979)	(2.917)	(2.921)
At the sector or industry level	Baseline	Baseline	Baseline	Baseline
At central or cross-industry level	-14.272	-26.864***	-2.212	0.358
	(5.585)	(9.190)	(2.108)	(2.056)

(1) The relationship between the average job tenure by contract type and the institutional variables is estimated using a pooled country-level OLS estimation for the period 2005-2015. The first specification includes only the variables of interest (Model A), then additional control variables (the composition of the population with respect to age, educational attainment, part-time, gender and sectors) and time fixed effects are added (Model B). The table only presents the regression coefficients of the variables of interest.
Source: European Commission calculations based on the Eurostat, Labour Force Survey data, OECD and ICTWSS.

may be hit by common shocks (e.g. a global recession) which affects contract duration independently of specific individual or job characteristics; adding *time fixed-effects* to the regression controls for this effect.

Results can be summarised as follows.

Stricter regulation for permanent contracts increases the duration of permanent contract but depress that of temporary contracts (Model 1a of Tables II.1.7). A one unit increase in the overall EPL index for permanent contracts increases the average job tenure of permanent contract by 15 to 17 months and reduces the duration of temporary contracts by about 3 to 3.7 months. This confirms that strict regulation for permanent contracts deepens the segmentation between permanent and temporary contracts by widening the gap between the two respective average job tenures.

More stringent, cumbersome and uncertain dismissal procedures for permanent contracts increase the average job tenure of permanent employees (Models 1b) even after controlling for individual and job characteristics and for shocks common to all countries. From the different sub-components of the aggregate EPL indicator for permanent contracts, *procedural inconvenience* and *difficulty of dismissal* are found to have the strongest impact of the average job tenure for permanent contracts. ([66])

More stringent EPL for temporary contracts and its subcomponents ([67]) are found to lead to longer

([66]) The aggregate EPL indicator for permanent contracts consists of three sub-components: procedural inconvenience, notice period and severance pay and difficulty of dismissal Graph (II.1.6).

([67]) The aggregate EPL indicator for temporary contracts consists of two sub-components: regulation for fixed-term

average job tenure of permanent employees. However, the results are less robust to changes in the model specification than the results of EPL for permanent contracts.

The non-linear effect of *collective bargaining coverage* noticed earlier is confirmed in the baseline specification (Model A, Table II.1.7) linking tenure of permanent contracts to collective bargaining. However, when the regression takes into account individual characteristics, the sector of employment as well as the effect of common shocks, the results turn statistically insignificant (Model B, Table II.1.7).

Turning to the level of wage bargaining, the estimates for permanent contracts show that the job tenure becomes shorter when wage bargaining is organised at the central level. One possible explanation of this result is that strongly centralised systems provide aggregate wage moderation but not necessarily the relative wage flexibility (at the sectoral/ regional level) which is necessary to deal with shocks that require changes in relative wages. This brings shorter tenure for permanent employees as result of higher dismissal rates (see Model 4, Table II.1.7.). An alternative explanation is that in centralised systems wage and working conditions are more similar across sectors, which may also result in higher level of job mobility. When wage bargaining is organised at the company level, job tenure is lower as employees have less bargaining power, including on the duration of their contract.

1.5. IMPACT OF CONTRACT TYPE ON WAGES

1.5.1. Literature

According to the theory of *compensating differentials* (Rosen, 1974), wage differentials should compensate for the different working conditions in which a job is performed. This theory contends that in a *perfectly* competitive labour market, undesirable, risky or unpleasant jobs should be paid higher wages. The main prediction is that temporary employees are expected to receive a higher wage than permanent, as they would ask a premium to compensate for a higher risk of losing a job. Also employers may have reasons to pay higher wages to provide incentives to take up jobs with *less desirable characteristics.*

However, empirical evidence suggests that in general wages of temporary employees are lower than wages of permanent employees, controlling for differences in observable individual and job characteristics. There can be different reasons for this. First, temporary contracts can be used to screen newly recruited workers, which usually are paid a lower wage. Second, dismissal costs increase the bargaining power of permanent workers at the cost of the temporary contract workers; for example, the insider-outsider theory notes that the insiders are given bargaining power from the high turn-over of the outsiders (e.g. Lindbeck and Snower, 2001). Third, according to the *internal labour market* (ILM) theory, some firms have developed career ladders based more on seniority than rather than qualification to encourage core workers to engage in long-term employment relationships with the firm *(*Doeringer and Piore, 1971*)*. The firm will invest in training for these workers and they will develop company-specific skills (Bidwell, 2011). This means that investment in training for the insiders aimed at enhancing their attachment to the firm entails efficiency gains.

Several studies have estimated the wage gap between permanent and temporary workers. Although the size of the wage gap differs across countries and methods used, they largely point to a sizeable wage penalty for temporary contract workers. First, there are country-specific studies - e.g. Blanchard and Landier (2002) for France, De la Rica (2004) for Spain and Hagen (2002) for Germany. In some cases, these studies also include estimations of the permanent wage premium across the wage distribution by means of a quantile regression - e.g. Bosio (2009) and Comi and Grasseni (2012) for Italy and Mertens et al. (2007) for Germany and Spain. Second, there are studies that analyse the wage gap across Member States (e.g. Stancanelli, 2002; Boeri, 2011; Comi and Grasseni, 2012; Dias da Silva and Turrini, 2015). These studies find an average wage gap between permanent and temporary workers which ranges between 13% and 21%, depending on the Member States included in the analysis, the time period and the data source.

employment and regulation for temporary work agency employment.

1.5.2. Plan of the analysis

The first step of the analysis is to compute the unadjusted wage gap between permanent and temporary contracts for 22 Member States in 2010 and 2014, based on a recent release of Eurostat *Structure of Earning Statistics*. To our knowledge, this is the first study based on these data. This analysis provides an explorative examination of the wage gap, which, however, cannot be interpreted as due to *implicit discrimination* against temporary contract workers.

The unadjusted wage gap may be partly due to low paid jobs and occupations being overrepresented among temporary contract workers. The next step is to compute the wage gap adjusted to take into account differences in individual (*age*, *gender*, *educational attainment*) and job characteristics (*working time arrangement*, *sector of employment* and *type of occupation*). ([68]) Country-specific estimates of the adjusted wage gap are calculated by using a separate regression for each country. In this way, the regression controls for a country-specific impact of the control variables on the wage gap. ([69]) After controlling for these *confounding* factors, which may potentially affect both the wage gap and the likelihood of being in temporary employment, the remaining wage gap provides an estimate of the *discrimination* against temporary contracts.

The adjusted wage gap may differ across the wage distribution. For example, those in executive positions hired with temporary contract may earn a wage which is equivalent to the salary paid to employees with comparable observable individual and job characteristics. Thus, the subsequent step is to provide estimates on how the adjusted gap varies across the wage distribution.

([68]) Age, grouped in 6 age categories, is used as proxy for job tenure as in the SES database as tenure is not available for all Member States.

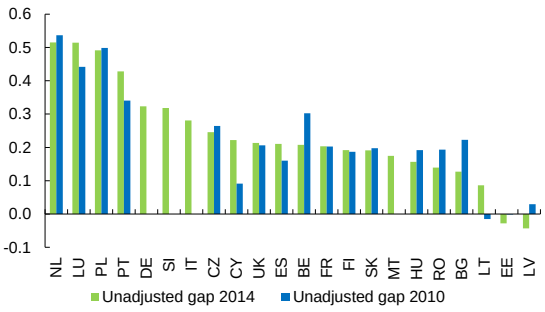
([69]) As robustness check, the country-specific effect of a permanent contract is estimated with a pooled regression, controlling for individual and job characteristics at the EU level. The variable $PERM$ is interacted with the country dummies -CD_j- to obtain the country specific permanent wage premium. The findings do not differ substantially from those presented in the main body of the text; for some countries, such as Netherlands, there are notable differences. This implies that there is an important country-specific impact of some control variables.

The final step is to look at the role of several structural and institutional determinants with the objective of analysing whether they are a source of wage discrimination.

1.5.3. Unadjusted wage gap

Graph II.1.27 presents the difference in the average hourly earnings between permanent and temporary employees in 2010 and 2014.

Graph II.1.27: **Unadjusted wage gap between permanent and temporary employees, 2010 and 2014**

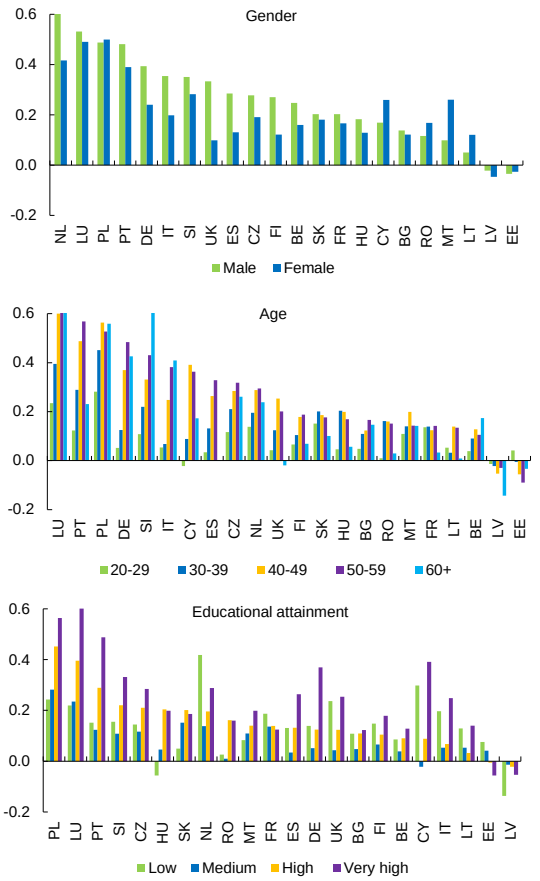


(1) The unadjusted wage gap between permanent and temporary contracts is calculated as the difference of the average hourly wage of permanent employees and temporary employees and is expressed as fraction of the average wage in temporary contracts. Data are weighted, except for Germany for which weights were missing in the microdata.
Source: European Commission calculations based on the Structural Earnings Survey microdata.

Overall, the unadjusted wage gap has remained relatively constant. In almost all Member States average hourly earnings are lower for those employed with temporary contracts, with large heterogeneity between Member States. In 2014, the largest wage gaps could be found in Netherlands, Luxembourg and Poland, where those with permanent contracts earn on average, about 50% more than those with temporary contracts. In contrast, the unadjusted wage gap is lower than 10% in Lithuania and even negative in Latvia and Estonia, where those working on a temporary contract earn slightly more than those working on a permanent contract.

The wage gap is higher for men than for women and increases with age and educational attainment (Graph II.1.28). However, there are important differences between Member States.

Graph II.1.28: **Unadjusted wage gap between permanent and temporary employees by individual characteristics, 2014**

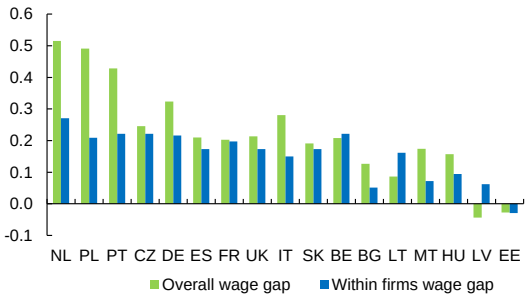


(1) For educational attainment the following classes have been considered: low (ISCED 0-2), medium (ISECD 3-4), high (ISCED 5-6) and very high (ISCED 7-8).
Source: European Commission calculations based on the 2014 Structural Earnings Survey microdata.

The wage gap for men is substantially higher than for women in the Netherlands, Spain and United Kingdom. In contrast, in Romania and Malta where women are strongly underrepresented on the labour market and the wage gap for women is found to be higher than for men. While in general the wage gap is higher for older workers (up to the age of 60 years), this effect is less pronounced in Hungary, Latvia, Slovakia and the United Kingdom.

In most Member States the wage gap is found to be increasing with educational attainment, with the largest wage gap for those with very high education (ISCED 7-8). However, in several Member States, such as Cyprus, Italy, the Netherlands and United Kingdom, also for those with low education (ISCED 0-2) permanent workers earn a much higher wage than temporary workers.

Graph II.1.29: **Unadjusted wage gap between permanent and temporary employees within firms, 2014**



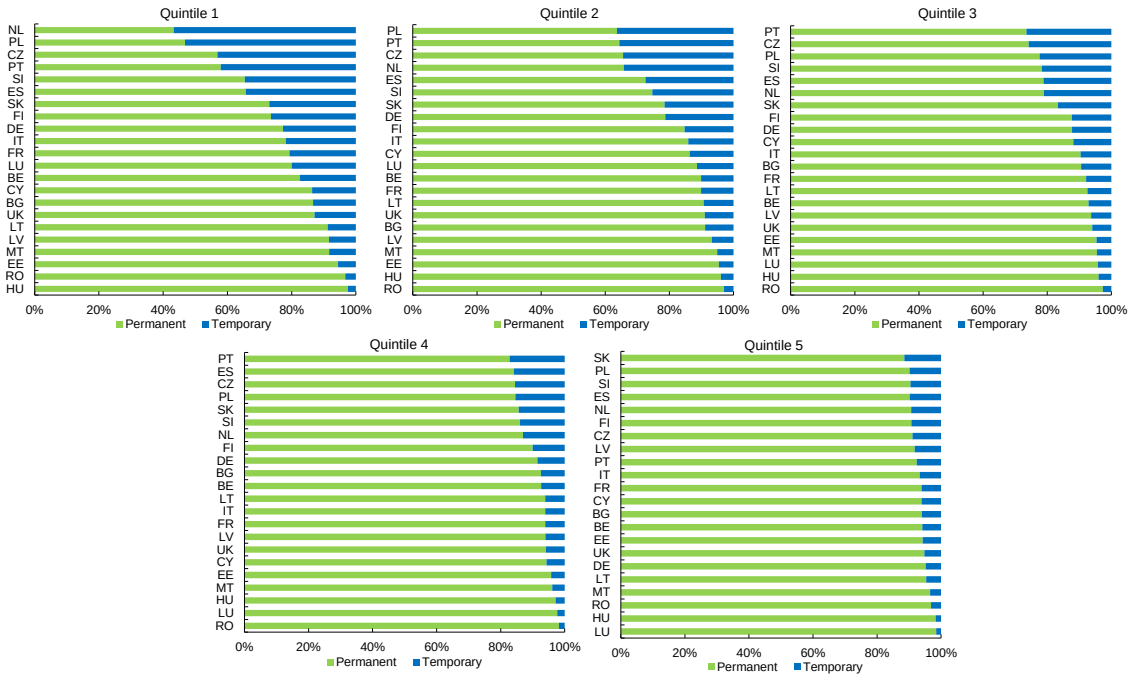
(1) The unadjusted wage gap within firms is the average difference between the average wage of permanent employees and the average wage of temporary employees within firms expressed as percentage of the average wage of temporary employees. The analysis takes into account wages of employees in firms that employ both permanent and temporary employees. Data missing for Cyprus, Finland, Luxembourg, Slovenia and Romania.
Source: Commission calculations based on 2014 Eurostat Structural Earnings Survey microdata.

The unadjusted wage gap is lower when it is calculated within firms (Graph II.1.29). This suggests that firms that hire temporary employees pay in general lower wages, including to the permanent employees. It implies that a number of both observable (e.g. sector of employment) and unobservable (e.g. companies' wage policy) firm characteristics explain a substantial part of the wage gap in certain countries. However, in most countries a significant wage differential between permanent and temporary employees continues to exist. This may reflect, among other factors, differences in the type of jobs occupied by temporary and permanent employees.

Given that in most Member States temporary employees have a lower wage than permanent employees, they occupy a different position in the overall wage distribution. Graph II.1.30 presents the proportion of temporary employees in the total number of employees by wage quintile ([70]), while Graph II.1.31 presents the distribution of,

([70]) A quintile is a statistical value of a data set that represents 20% of a given population, so the first quintile represents the 20% of the population with the lowest wage.

Graph II.1.30: **Proportion of temporary employees by wage quintile, 2014**



(1) The data should be interpreted as follows: in Netherlands 53% of all employees in the lowest wage quintile are temporary employees, while in Hungary only 3% of all employees in the lowest quintile are temporary employees.
Source: European Commission calculations based on 2014 Structural Earnings Survey microdata.

respectively, temporary and permanent employees across the wage distribution.

In the majority of the Member States, the highest share of all temporary employees can be found in the lowest wage quintile, but in general they do not represent more than half of all employees in this quintile (except in Luxembourg and the Netherlands). There is substantial heterogeneity across EU countries in the distribution of temporary employment by wage quintile (Graph II.1.31 panel a). It is also worth noticing that there is less heterogeneity across countries in the distribution of permanent employment by wage quintile.

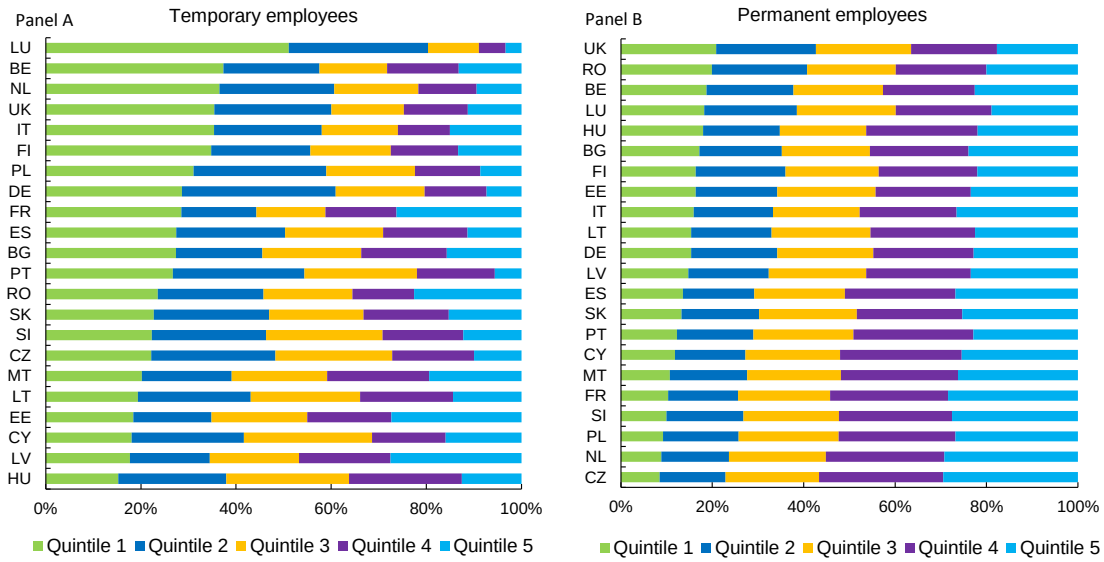
Temporary contracts are highly concentrated in the lowest quintile in Luxembourg, Belgium and the Netherlands, where more than 36% of all temporary employees earn a wage in the bottom quintile. In Hungary, Latvia, Cyprus, Estonia and Lithuania, temporary employees are more evenly spread across the wage distribution and less than 20% of all temporary employees are located in the lowest quintile. In Hungary, Cyprus and Lithuania, the proportion of temporary employees in the highest wage quintile is in fact very similar to the proportion of temporary employees in the lowest quintile. In contrast, the distribution of permanent employees is more equally distributed across countries (Graph II.1.31 panel b).

1.5.4. Adjusted wage gap

The fact that in most countries permanent employees earn more than temporary employees could be related to differences in productivity of permanent and temporary employees. Part of these differences in productivity can be explained by observable individual and job characteristics. For example, it is possible that temporary employees are more likely to be young and less educated than permanent employees, which may explain why their wages are lower. In this section, the adjusted wage gap is calculated taking into account differences in individual and job characteristics. ([71])

([71]) A detailed description of the estimation and the variables included can be found in the Annex Data Source.

Graph II.1.31: **Distribution of temporary and permanent employees by wage quintile, 2014**



Source: Commission calculations based on the 2014 Structural Earnings Survey microdata.

Table II.1.8: **Regression results: Adjusted wage gap between permanent and temporary employees, 2014**

Dependent variable:	Natural logarithm of the hourly wage
Permanent	0.127***
	(0.0156)
Age	
20-29	0.166**
	(0.0723)
30-39	0.260***
	(0.0756)
40-49	0.314***
	(0.0792)
50-59	0.322***
	(0.0836)
60+	0.318***
	(0.0835)
Male	0.145***
	(0.0162)
Part-time	-0.0246
	(0.0521)
Educational attainment	
Medium (ISCED3-4)	0.0726***
	(0.0180)
High (ISCED 5-6)	0.208***
	(0.0465)
Very high (ISCED 7-8)	0.359***
	(0.0314)
Occupation fixed effects	Yes
Sector fixed effects	Yes
Country fixed effects	Yes
Constant	2.324***
	(0.0946)
Observations	7419399
R-squared	0.958

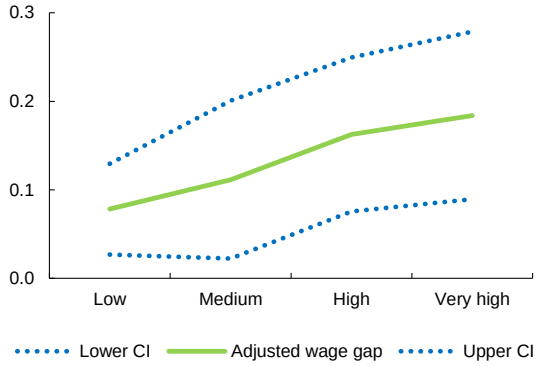
(1) Pooled OLS estimation over 22 Member States. Reported standard errors are clustered at the country-level. Significance level * 10%; ** 5% and *** 1%.
Source: Source: European Commission calculations based on the 2014 Structural Earnings Survey microdata.

Table II.1.8 presents the regression results on a pooled dataset of 22 Member States. The adjusted wage gap by contract type in the EU shows that workers on permanent contracts earn on average about 13% more than workers on temporary contracts, which is consistent with results by Stancanelli (2002), Kahn (2012) and Dias da Silva and Turrini (2015). ([72])

In order to analyse whether the adjusted wage depends on age or educational attainment, the adjusted wage gap is interacted with the age groups as well as with the educational attainment, controlling for all other individual and job characteristics. The results suggest that while the adjusted wage gap does not depend on age, it depends on the educational attainment (Graph II.1.32). The adjusted wage gap increases with the educational attainment; this implies that the wage gap between temporary and permanent workers is smaller for low educated than for high educated workers (namely 8% for the low educated against 16% or 18% for respectively the high-educated and the very high educated individuals).

([72]) The effect of the control variables are in line with expectations. The wages are increasing with age (tenure on the job) and education. Wages are higher for men. Finally, there are substantial differences in wages depending on the occupation and the sector of employment.

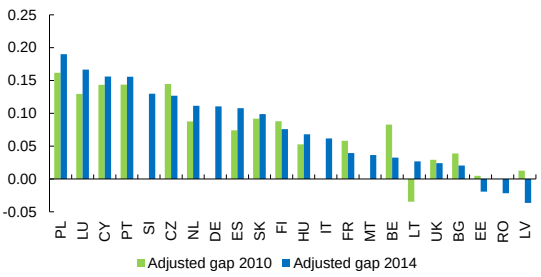
Graph II.1.32: **Adjusted wage gap between permanent and temporary employees by level of education, 2014**



(1) For educational attainment the following classes have been considered: low (ISCED 0-2), medium (ISECD 3-4), high (ISCED 5-6) and very high (ISCED 7-8). Lower CI: represents the lower boundary of the confidence interval. "Higher CI" represents the higher boundary of the confidence interval.
Source: European Commission calculations based on the 2014 Structural Earnings Survey microdata.

Graph II.1.33 shows the adjusted wage gap between the two contract types by Member State in 2010 and 2014. ([73]) In 2014, the adjusted wage gap was the highest in Poland and Luxembourg, where controlling for personal and job characteristics permanent employees earn on average respectively 19% and 17% more than temporary employees. The adjusted wage gap is small in Lithuania, United Kingdom and Bulgaria and even negative in Estonia, Romania and Latvia.

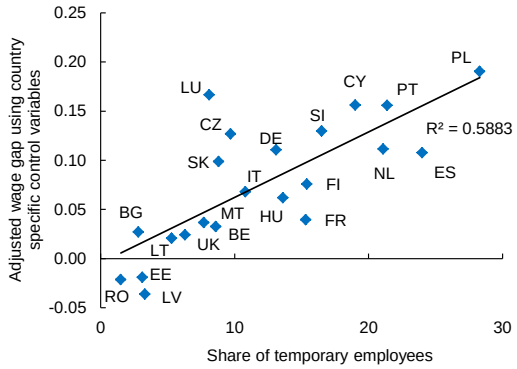
Graph II.1.33: **Adjusted wage gap between permanent and temporary employees, 2014**



Source: European Commission calculations based on the 2014 Structural Earnings Survey microdata.

The adjusted wage gap is correlated with the share of temporary employees (Graph II.1.34). In Member States with a high share of temporary employees there is also a large difference in the wage between permanent and temporary employees, controlling for individual and job characteristics.

Graph II.1.34: **Correlation between the adjusted wage gap and the share of temporary employees, 2014**



Source: European Commission calculations based on 2014 SES microdata and the Eurostat, Labour Force Survey.

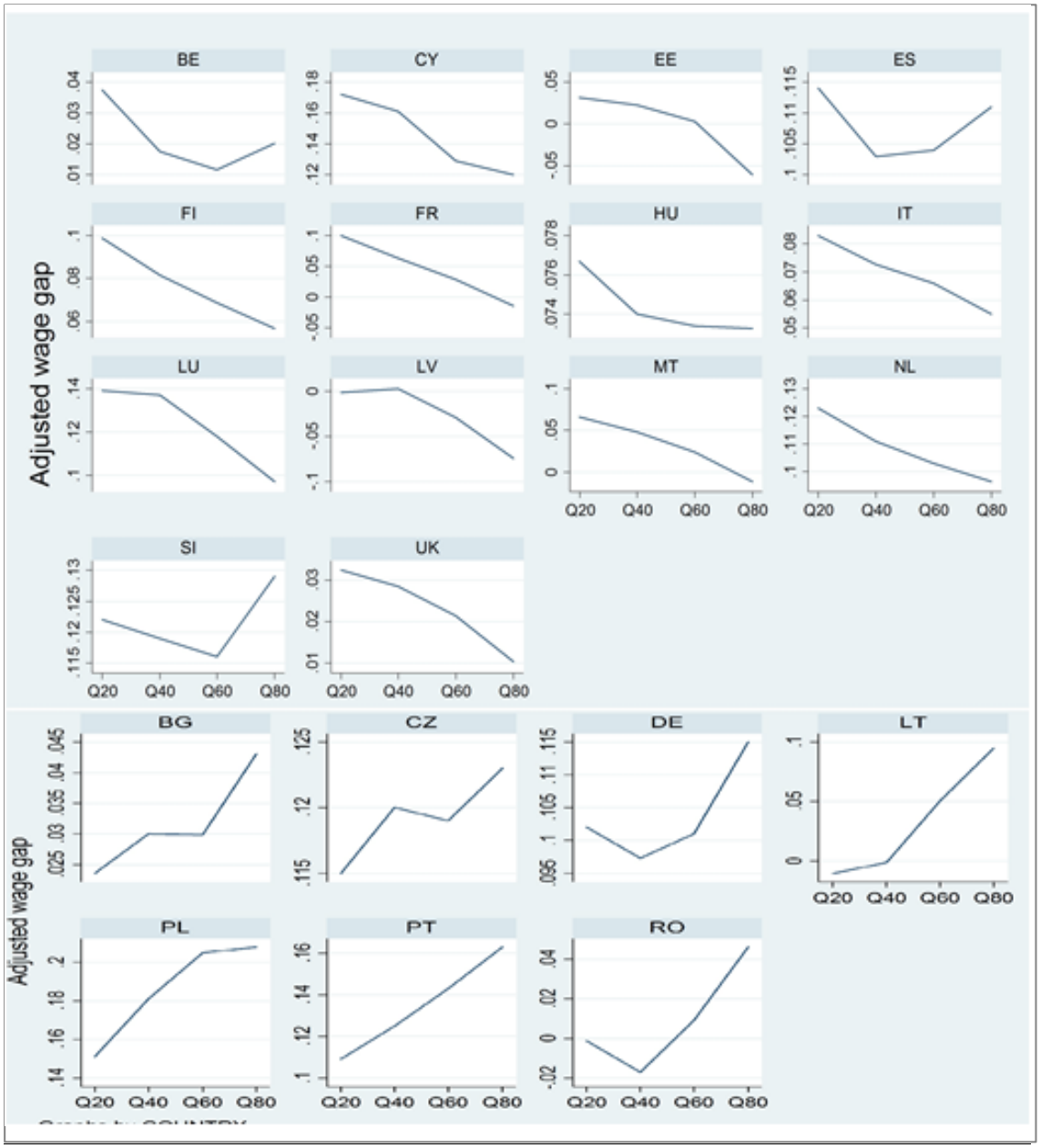
The finding that permanent workers earn a wage that is higher than that earned by temporary workers in countries where the share of temporary contracts is relatively high suggests that there is a rationing of permanent employees. In these countries, workers queue for permanent jobs but employers ration their demand on the basis of cost advantages that hiring a temporary employee would ensure (Abowd and Farber, 1982).

1.5.5. Adjusted wage gap across the wage distribution

The adjusted wage gap in the previous section reflects changes in the average wage as a function of the contract type and a number of control variables. However, the effect of the contract type on the wage may depend on the position of the individual in the wage distribution. This section analyses the wage gaps across the wage distribution to understand whether there are *glass ceilings* and *sticky floors*. The former effect refers to a wider wage gap between permanent and temporary workers at the top of distribution, suggesting that temporariness in high-income jobs is rewarded relatively less than in low-income jobs. The latter refers to the opposite situation,

([73]) A country-specific adjusted wage gap is estimated to control for country-specific effects of the control variables.

Graph II.1.35: **Adjusted wage gap between permanent and temporary employees by wage quintile, 2014**



Source: European Commission calculations based on the 2014 Structural Earnings Survey microdata.

when the gap widens at the bottom of the wage distribution. ([74])

A quantile regression is used to estimate whether the wage gap differs for the individual Member

([74]) Sticky floors are in line with the insider-outsider theory, in which collective bargaining has a stronger influence on wages at the lower end of distribution for the insider; this means that unions are willing to accept low wages for temporary workers in exchange of higher ones for permanent workers. As a result, the type of contract may exacerbate wage inequality, providing lower wage remuneration for the same job position and increasing the dualism in the labour market, especially for the low-paid workers (Bosio, 2014). This effect is weaker at high level of earnings, where individual characteristics play a more important role.

Table II.1.9: **The effect of institutional variables on the wage gap between permanent and temporary contracts**

	Model 1a	Model 1a	Model 2a	Model 2b	Model 3	Model 4
Regression 1a: EPL individual	0.0434**					
	(0.0187)					
Regression 1b: EPL individual -Subcomponents						
EPL - procedurial incovenience		0.0198				
		(0.0216)				
EPL - notice and severance pay		0.0520**				
		(0.0230)				
EPL - difficulty of dismissal		0.00632				
		(0.0173)				
Regression 2a: EPL temporary			0.00607			
			(0.0194			
Regression 2b: EPL temporary -Subcomponents						
EPL - fixed-term contracts				-0.0136		
				(0.0180)		
EPL - temporary work agency				0.0326		
				(0.0197)		
Regression 3: Collective bargaining rate						
Collective bargaining rate					0.009***	
					(0.00158)	
Collective bargaining-squared					0.0000722***	
					(0.0000133)	
Regression 4: Level of wage bargaining						
At the company level						-0.0499*
						(0.0265)
At the sector or industry level						Baseline
At the central or cross-industry level						-0.0482**
						(0.0223)
Constant	-0.0144	-0.0622	0.0735	0.01669	-0.155***	0.102***
	(0.0)	(0.0433)	(0.0378)	(0.0465)	(0.0484)	(0.0149)
Number of observations	17	17	17	17	13	21
R-squared	0.138	0.236	0.0081	0.170	0.593	0.1419

(1)) Dependent variable is the adjusted wage gap obtained from a Mincer equation that estimates the impact of various country specific individual and job characteristics, including the presence of having a permanent contract on the individual wage. Robust standard errors.
Source: European Commission calculations based on 2014 Structural Earnings Survey microdata, 2013 OECD and ICTWSS.

States across the wage distribution, controlling for individual and job characteristics. ([75])

Graph II.1.35 shows the adjusted wage gap by wage quintile. There is large cross-country heterogeneity in the measure of the adjusted wage gap by wage levels.

In the majority of the countries (except in the last quintile for Belgium, Spain and Slovenia), the wage gap decreases over the wage distribution. This implies that those with the highest wage gap are at the bottom of the wage distribution. In contrast, the wage gap is smaller for those in the highest quintiles. These findings support the hypothesis of the *sticky floor* and are consistent with early evidence (e.g. Bosio, 2009; and Santangelo, 2011). In some Member States the wage gap increases with the wage level (Bulgaria, Czech Republic, Germany, Lithuania, Poland, Portugal and Romania), indicating that particular in the highest quintile the gap is high (a *glass ceiling* for temporary employees). ([76])

1.5.6. Impact of structural and institutional variables on the adjusted wage gap

The results of the previous section show that there is a considerable share of the wage gap that cannot be explained by observable individual or job characteristics. This section analyses the extent to which institutional variables can explain this gap.

Table II.1.9 presents the results of the correlation between institutional variables and the adjusted wage gap. Institutional variables include the EPL indicator for permanent contracts (Model 1a) and its components (Model 1b); the EPL index for temporary contracts (Model 2a) and its components (Model 2b); the collective bargaining

([75]) This model studies the relation between a set of variables and specific quantiles of the response variable. More specifically, in the analysis quintiles are used.

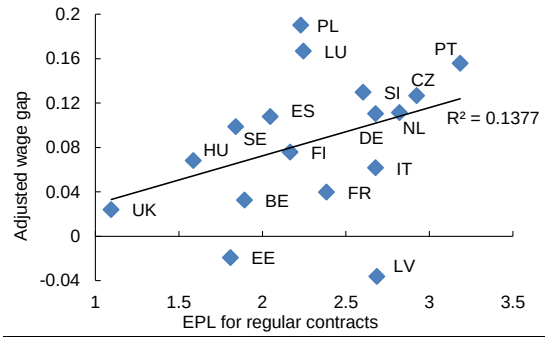
([76]) For Portugal the evidence is consistent with Santangelo (2011).

coverage (Model 3) and the level of wage bargaining (Model 4).

A number of observations are in order.

The *EPL for permanent contracts* and its subcomponents are correlated with the adjusted wage gap (Graph II.1.36). In particular, the notice period and severance payment, which determine the overall cost of dismissal, explain differences across countries in the adjusted wage gap.

Graph II.1.36: **Correlation between EPL for permanent contracts and adjusted wage gap**

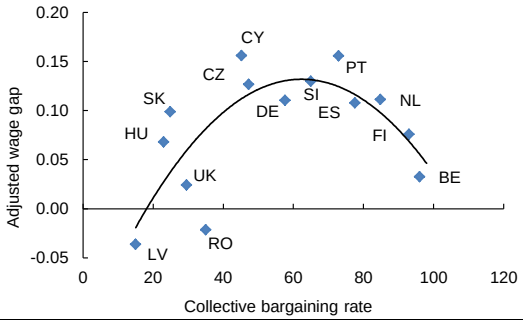


(1)Note that when LV is excluded from the sample, the correlation increases to 29%.
Source: European Commission calculations based on the 2014 Structural Earnings Survey microdata and 2013 OECD data.

This suggests that in countries where permanent workers are more protected from dismissal, they have more bargaining power to negotiate higher wages. In addition, also the average job tenure for permanent employees is longer and in combination with seniority based pay, this will result in a higher wage gap.

The relationship between the *collective bargaining coverage* and the adjusted wage gap is non- linear. At low levels of collective bargaining an increase in the collective bargaining coverage is associated to an increase in the adjusted wage gap (Graph II.1.37). This suggests that in countries with very low collective bargaining coverage a small increase in the coverage rate leads to a stronger protection of the insiders (employed in permanent contracts) at the expense of the outsiders (hired with temporary contracts). However, when the coverage rate is high, encompassing unions take into account the interest of both insiders and outsiders and the coverage rate is associated with a lower gap.

Graph II.1.37: **Adjusted wage gap and the collective bargaining rate**



Source: European Commission calculations based on 2014 Structural Earnings Survey microdata and 2013 ICTWSS data.

The effect of the *level of wage bargaining* on the adjusted wage gap is non-linear. When wage bargaining takes place at the company level or at the central or cross-industry level, the likelihood of being a temporary employee drops as compared to a situation where bargaining is organised at an intermediate level. When wage bargaining takes place at the firm level, there is little bargaining power for both temporary and permanent employees and they are not able to negotiate higher wage, in particular when EPL is low. In contrast, when wages are bargained at the central or cross-industry level, collective bargaining is for all workers (both in permanent and temporary positions) and the overall wage dispersion is low.

1.6. CONCLUSIONS

There are multiple causes of labour market segmentation. It may arise from structural characteristics related to the prevalence of sectors where the demand of non-standard forms of employment is driven by the specific conditions of production. It may stem from *pre-market* individual characteristics; for example, workers' may enter the labour market with a level of human capital that makes them more likely to be employed in occupations characterised by short-term relationships with the employer. Finally, it may arise from the design of specific labour market institutions which influence employers' decisions to hire with a specific type of contract.

The analysis of the chapter looks at the role of these factors. It conveys a number of messages that help to characterise the *risks* of being in a *precarious* job.

Temporary employees and self-employed without employees tend to be low-educated, work part-time, are employed in agriculture, construction or services. While the former are usually young, the chance of being in *solo self-employment* increases with age.

Countries with the longest average job tenure for permanent contracts have also the highest job tenure for temporary contracts. In countries with long job tenure, the durations of temporary and permanent jobs co-exist with little transitions between them, which points to a segmented labour market. Yet, it may also reveal that the employment situation of those in temporary jobs is not as precarious as it is often argued as employees often manage to have long-term relationships with the same employer and are subject to the same if not stricter protection rules against dismissals.

In most countries, the average job tenure increased in the period 2005-2015. Changes in the composition of contracts had a stronger impact on the average job tenure of young workers. In particular, in countries where there was a steep decline in job duration for young workers, this was mainly driven by an increase in the share of temporary contracts.

Wages of temporary workers are lower than wages of permanent ones, even after controlling for individual and job characteristics that account for the productivity of individual workers. The adjusted wage gap is the highest in Poland and Luxembourg, where permanent employees earn on average respectively 19% and 17% more than temporary employees.

The wage gap is high in countries where the share of temporary contracts is high, which suggests rationing of permanent work. In these countries, workers search open-ended positions but employers ration their demand on the basis of the gains that hiring a temporary employee may ensure. Moreover, the penalty rises with education which hints at the negative effects of segmentation on earnings inequality.

In the majority of the countries, the wage gap is decreasing across the wage distribution. This indicates that the temporary employees who suffer from the highest wage gap are the most vulnerable; this finding is consistent with the *sticky floor* hypothesis, i.e. temporary contracts are a barrier for wage progression for low wage earners.

Stricter EPL regulation of permanent contracts increases the likelihood of temporary contracts, the gap between the job tenure of permanent and temporary workers and their respective wages. These differences remain after controlling for individual and job specific characteristics that influence the demand of specific contract types. Stringent EPL regulation affects mainly new labour market entrants, high educated individuals or people working in market-services. Strict regulation of temporary hiring does not influence the likelihood of being in a temporary job. Yet, weak enforcement of the legal framework increases the chance of being on temporary contracts, including when regulation is strict.

The effect of collective bargaining coverage is ambiguous and depends, inter alia, on how encompassing unions are. There is evidence of a hump-shaped relation between collective bargaining coverage and level and the likelihood of temporary employment. This suggests that an increase in collective bargaining coverage from low levels may lead to stronger protection of those in open-ended employment at the expense of those in temporary employment and the likelihood of temporary employment may increase. At high levels of coverage, unions may internalise the effect that temporariness may have on their bargaining capacity and are more concerned about job security of all workers.

The wage gap is found to be relatively low when bargaining is either decentralised or centralised and higher when it is intermediate. An explanation of this finding is that there is little bargaining power for both contract types when bargaining takes place predominantly at the decentralised level, in particular with loose EPL. Conversely, with centralised bargaining, unions are concerned about the effects of a large stock of workers with lower wages on their negotiating power.

The effect of collective bargaining on the average job tenure is less evident to explain. The analysis

suggests that job tenure is shorter when wage bargaining is highly coordinated. One explanation of this result is that strongly centralised systems provide aggregate wage moderation but not necessarily the flexibility necessary to respond to shocks that require changes of relative wages. This brings higher rates of dismissal of permanent workers, which implies shorter tenure for permanent contracts. Job tenure for permanent employees is also shorter when wage bargaining is fully decentralised.

Differences in social security contributions and in the business environment have an impact on the probability of being a solo self-employed. A high gap in social contributions between permanent employees and self-employed is positively correlated with the share of *solo self-employed*, in particular when the enforcement of the rules of law is weak. This finding suggests that in particularly in economies where the level of perceived corruption is high, a high tax wedge might create incentives for individuals to work as a self-employed to engage in tax avoidance. Yet, due to data constraints, the analysis focuses only on the difference in social security contributions and does not take into account differences in personal income taxation.

The business environment also affects the likelihood of *solo self-employment*. Weak enforcement of the legislation leads to a higher likelihood of being a self-employed without employees. In contrast, *solo self-employment* is less predominant in countries where it is easy to start a new business. This indicates that a business environment favourable to start a new activity also supports a rapid growth on firm's size, i.e. the *solo self-employed* becomes an employer.

APPENDIX 2
Data sources

Determinants of segmentation

The econometric analysis of the determinants of temporary employment (or self-employment without employees) combines individual data on individual and job characteristics from the Labour Force Survey (EU-LFS) microdata with country-level data on institutional characteristics.

The individual and job characteristics include:

- Six age groups: 15-19 years, 20-29 years (chosen as reference category), 30-39 years, 40-49 years, 50-59 years and 60 years or older.
- Gender: men (chosen as reference category) and women.
- Three levels of education: low (ISCED 0-2), medium (ISCED 3-4) and high (ISCED 5-6) (chosen as reference category).
- Working hours: part-time and full-time (chosen as reference category).
- Three occupational groups: high skilled (ISCO level 1-3) (chosen as reference category), medium skilled (ISCO level 4-8) and low skilled occupations (ISCO level 9).
- Ten sectors of employment: Agriculture; Manufacturing; Electricity; Construction; Wholesale and retail trade; Transportation and storage and accommodation and food services; Information and communication; Finance and insurance (chosen as reference category); Real estate; Professional, scientific and support service activities.

The institutional characteristics include:

- OECD EPL indictor on the strictness of the regulation of permanent and temporary contracts. For permanent contracts, the index aggregates different components which represent the strictness of the dismissal procedure; notice period and severance pay; difficulty of dismissal, as determined by the circumstances in which it is possible to dismiss workers, as well as repercussions for unfair dismissal. For temporary contracts it measures how strict is the hiring regulation on fixed-term employment and temporary work agencies.
- Two variables related to collective bargaining are obtained from the ICTWSS database. First, the adjusted collective bargaining coverage defined as the share of employees covered by collective bargaining agreements as a proportion of all wage and salary earners, adjusted for the possibility that some sectors or occupations do not have right to bargaining. Second, the level of wage bargaining, which is the predominant level at which wage bargaining takes place, distinguishes between three categories: the local or company level (includes "bargaining takes place alternating sector and company bargaining"); the sector or industry level (chosen as reference category) and the central or cross-industry level (includes "intermediate or alternating central and industry bargaining").
- The analysis includes two variables related to labour costs. First, the *contribution* gap, which is the gap between the social security contributions paid for employees and those charged for self-employed without employees, is included. Information on social contributions is obtained from OECD and SSA (2016). Second, the level of *minimum wage* is included for those countries that have a statutory minimum wage in place. It is expressed as a proportion of the average wage, i.e. Kaitz ratio (Source: Eurostat).
- The analysis includes three variables that capture the impact of the *Business environment.* First, s*tarting a new business*, which is obtained from the World Bank Doing Business database, is a composite indicator that measures the paid-in minimum capital requirement, number of procedures, time and cost for a small- to medium-sized limited liability company to start up and formally operate in economy's largest business city. It is expressed as distance to the frontier, i.e. from the best performer observed on each of the indicators across all economies in the sample since 2005. An economy's distance to frontier is reflected on a scale from 0 (the lowest performance) to 100 (the frontier). Second, *Resolving Insolvency*, obtained from the World

Bank Doing Business database, measures weaknesses in existing insolvency law and the main procedural and administrative bottlenecks in the insolvency process (expressed also as distance to frontier). Finally, *No Corruption*, obtained from the Corruption Perceptions Index produced by Transparency International, measures the perception of corruption. Higher values reflect a lower level of corruption. Comparable data are only available for the period 2005-2011. Table 1 presents an overview of the variables related to the business environment.

Impact of contract type on average job tenure

The analysis of the impact of contract type on average job tenure combines individual data on average job tenure by contract type from the EU-LFS microdata with country-level data on institutional characteristics.

Information on average job tenure (in months) is derived form the variables (YSTARTWK and MSTARTWK) which contain information on the time (month and year) that a person started working for the current employer. Based on these variables information on individual specific job tenure can be calculated for all employees.

In order to estimate the impact of the institutional variables on the average job tenure by contract type, a pooled country-level OLS regression is estimated for the period 2005-2015. This regression includes the average job tenure by contract type at the country level as a dependent variable and the institutional variables as independent variables. The institutional variables are the same as those used in the analysis of the determinants of temporary employment. The impact of each institutional variable is estimated separately unless this is specified differently. The control variables are the composition of the population in terms of age, gender, education, part-time employment and sector of employment and are derived as specified in the analysis of the determinants of temporary employment.

Table 20: **Business environment indicators**

	Starting a business (DTF, 2013)	Resolving insolvency (DTF, 2013)	Corruption Perceptions Index (2011)
AT	79.9	89.7	7.8
BE	94.4	95.5	7.5
BG	86.3	34.1	3.3
CY	89.2	76.1	6.3
CZ	83.1	60.6	4.4
DE	81.7	84.4	8.0
DK	92.8	93.7	9.4
EE	91.0	41.4	6.4
EL	78.6	44.0	6.2
ES	76.4	82.4	6.2
FI	93.1	96.6	9.4
FR	92.5	51.9	7.0
HR	83.5	32.5	4.0
HU	89.3	41.7	4.6
IE	93.2	94.2	7.5
IT	86.6	68.3	3.9
LT	84.3	52.3	4.8
LU	88.6	46.8	
LV	91.5	51.5	4.2
MT			5.6
NL	89.3	96.0	8.9
PL	80.5	58.7	5.5
PT	91.1	80.3	6.1
RO	88.9	31.5	3.6
SE	92.3	80.4	9.3
SI	91.1	53.7	5.9
SK	87.8	57.7	4.0
UK	89.8	95.3	7.8

(1) The variables "Starting a business" and "Resolving insolvency" are presented as the distance to the frontier for which a value of 0 represents a low performer and a value of 100 represents the best performer. The variable" No corruption" is measured by the Corruption Perceptions Index for which high values represent countries with no or low levels of perceived corruption and low values represent countries with high levels of perceived corruption.
Source: World Bank Doing Business Indicators and Transparency International.

Impact of contract type on wages

The econometric analysis of the impact of contract type on wages combines individual data on average hourly wages by contract type from the Structure of Earning Survey (SES) microdata for 2010 and 2014 with country-level data on institutional characteristics.

The European Structure of Earnings Survey (SES) contains detailed information on wages, job and individual characteristics of employees working in firms with more than ten employees. The dataset that is been used covers in 2014 7.419.399 individuals from 22 Member States (in 2010 5.644.986 individuals from 18 Member States). The Member States included in 2014 are Belgium, Bulgaria, Czech Republic, Cyprus, Germany, Estonia, Spain, Finland, France, Hungary, Italy, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Slovakia and the United Kingdom.

In order to calculate the adjusted wage gap a Mincer equation is estimated which includes the natural logarithm of the hourly wage as a dependent variable and individual and job characteristics as independent variables. The following individual and job characteristics are included:

- Size age groups: 15-19 years (chosen as reference category), 20-29 years, 30-39 years, 40-49 years, 50-59 years and 60 years or older.
- Gender: men (chosen as reference category) and women.
- Four levels of education: low (ISCED 0-2) (chosen as a reference category), medium (ISCED 3-4) and high (ISCED 5-6) and very high (ISCED 7-8).
- Working hours: part-time and full-time (chosen as reference category).
- Nine occupational groups based on ISCO-88 classification.
- Eighteen sectors based on NACE Rev.2.

In order to estimate the impact of the institutional variables on the adjusted wage gap, a pooled country-level OLS regression is estimated for 2014. This regression includes the average adjusted wage gap at the country level as a dependent variable and the institutional variables as independent variables. The institutional variables are the same as those used in the analysis of the determinants of temporary employment. The impact of each institutional variable is estimated separately unless this is specified differently.

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Statistical annex

APPENDIX 1
Statistical Annex

Belgium	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	11054	11105	11157	11212	11271	0.5 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	7242	7257	7266	7281	7290	0.1 %
(% of total population)	65.5	65.3	65.1	64.9	64.7	-0.3 pps
3 - **Labour force** (15-64, 1000 pers.)	4847	4901	4920	4921	4929	0.2 %
Male	2637	2651	2644	2640	2649	0.3 %
Female	2210	2250	2277	2281	2281	0.0 %
4 - **Activity rate** (% of population 15-64)	66.9	67.5	67.7	67.6	67.6	0.0 pps
Young (15-24)	31.5	31.0	30.2	30.0	28.5	-1.5 pps
Prime age (25-54)	85.0	85.3	85.6	85.1	85.1	0.1 pps
Older (55-64)	41.4	44.1	45.1	46.6	48.1	1.5 pps
Nationals (15-64)	67.4	68.0	68.1	68.0	68.0	0.0 pps
Non-nationals (15-64)	63.3	63.7	65.0	64.8	65.0	0.1 pps
Male	72.5	72.7	72.4	72.2	72.3	0.2 pps
Young (15-24)	35.0	33.7	32.3	32.8	30.7	-2.1 pps
Prime age (25-54)	90.7	90.8	90.7	89.9	90.4	0.5 pps
Older (55-64)	47.9	50.5	51.3	52.2	53.6	1.4 pps
Female	61.3	62.3	63.0	63.0	62.9	-0.1 pps
Young (15-24)	27.9	28.2	28.1	27.1	26.1	-1.0 pps
Prime age (25-54)	79.1	79.7	80.6	80.2	79.8	-0.4 pps
Older (55-64)	34.9	37.8	39.0	41.2	42.8	1.6 pps
5 - **Employment rate** (% of population 15-64)	61.8	61.8	61.9	61.8	62.3	0.5 pps
Young (15-24)	25.3	23.6	23.2	23.4	22.7	-0.6 pps
Prime age (25-54)	79.3	79.0	79.1	78.5	79.1	0.5 pps
Older (55-64)	39.5	41.7	42.6	44.0	45.4	1.4 pps
Low-skilled (15-64)	38.1	37.5	37.3	36.0	36.0	0.0 pps
Medium-skilled (15-64)	65.2	65.3	63.8	64.0	64.4	0.4 pps
High-skilled (15-64)	81.7	81.0	82.0	81.8	82.2	0.3 pps
Nationals (15-64)	63.0	62.9	62.9	62.8	63.3	0.5 pps
Non-nationals (15-64)	52.4	52.5	53.7	54.6	55.1	0.5 pps
Male	66.9	66.4	65.8	65.5	66.5	0.9 pps
Young (15-24)	27.8	25.3	24.5	25.0	24.0	-1.0 pps
Prime age (25-54)	84.5	84.0	83.2	82.5	83.8	1.2 pps
Older (55-64)	46.0	47.7	48.5	48.9	50.7	1.9 pps
Female	56.8	57.2	57.9	58.0	58.1	0.1 pps
Young (15-24)	22.6	21.9	21.8	21.7	21.4	-0.3 pps
Prime age (25-54)	73.9	74.0	75.0	74.5	74.3	-0.1 pps
Older (55-64)	33.1	35.8	37.0	39.3	40.2	0.9 pps
6 - **Employed persons** (15-64, 1000 pers.)	4479.0	4484.5	4497.3	4499.3	4540.6	0.9 %
7 - **Employment growth** (%, National accounts)	0.4	-0.3	0.4	0.9	1.3	0.4 pps
Employment growth (%, 15-64, LFS)	0.2	0.1	0.3	0.0	0.9	0.9 pps
Male	0.0	-0.6	-0.7	-0.2	1.5	1.7 pps
Female	0.5	0.9	1.5	0.4	0.2	-0.1 pps
8 - **Self employed** (15-64, % of total employment)	13.0	13.7	13.2	13.8	13.5	-0.2 pps
Male	16.5	17.8	16.8	17.5	17.3	-0.2 pps
Female	8.9	9.0	9.1	9.5	9.2	-0.3 pps
9 - **Temporary employment** (15-64, % of total employment)	8.1	8.1	8.6	9.0	9.1	0.1 pps
Male	7.0	7.2	7.6	8.3	8.3	0.0 pps
Female	9.3	9.1	9.7	9.7	10.0	0.3 pps
10 - **Part-time** (15-64, % of total employment)	24.7	24.3	23.7	24.3	24.7	0.4 pps
Male	9.0	8.7	8.4	9.3	9.5	0.2 pps
Female	43.5	42.5	41.2	41.4	42.1	0.7 pps
11 - **Unemployment rate** (harmonised:15-74)	7.6	8.4	8.5	8.5	7.8	-0.7 pps
Young (15-24)	19.8	23.7	23.2	22.1	20.1	-2.0 pps
Prime age (25-49)	6.7	7.4	7.6	7.7	7.1	-0.6 pps
Older (55-64)	4.5	5.4	5.4	5.6	5.7	0.1 pps
Low-skilled (15-64)	14.2	16.0	16.4	17.0	16.1	-0.9 pps
Medium-skilled (15-64)	7.8	8.3	8.8	8.7	8.1	-0.6 pps
High-skilled (15-64)	4.0	4.9	4.7	4.6	4.2	-0.4 pps
Nationals (15-64)	6.5	7.4	7.5	7.6	7.0	-0.6 pps
Non-nationals (15-64)	17.2	17.7	17.3	15.8	15.2	-0.6 pps
Male	7.7	8.7	9.0	9.1	8.1	-1.0 pps
Female	7.4	8.2	7.9	7.8	7.6	-0.2 pps
12 - **Long-term unemployment** (% of total unemployment)	44.7	46.1	49.9	51.7	51.6	-0.1 pps
13 - **Worked hours** (full-time, average actual weekly hours)	41.1	41.3	41.1	41.3	41.3	0.0 %
Male	42.1	42.3	42.0	42.3	42.2	-0.2 %
Female	39.1	39.2	39.3	39.3	39.5	0.5 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-1.5	-1.6	-0.3	0.2	-0.7	-0.9 pps
Building and construction	0.5	-1.3	-1.5	-0.8	0.7	1.5 pps
Services	0.4	-0.2	1.0	1.6	1.7	0.1 pps
Manufacturing industry	-1.4	-2.3	-2.6	-1.5	0.0	1.5 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	3.2	2.5	1.0	0.0	0.0	-0.1 pps
Real compensation per employee based on GDP	1.1	1.3	0.4	-0.8	-1.6	-0.8 pps
Labour cost index (compens. of employees plus taxes minus subs.)	2.9	1.9	0.9	0.1	0.1	0.0 pps
Labour cost index (wages and salaries, total)	2.9	1.9	0.9	0.1	0.5	0.4 pps
Labour productivity (GDP/person employed)	-0.3	0.3	1.2	0.5	-0.1	-0.6 pps

Bulgaria	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	7306	7265	7224	7197	7155	-0.6 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	4924	4859	4796	4727	4659	-1.4 %
(% of total population)	67.4	66.9	66.4	65.7	65.1	-0.6 pps
3 - **Labour force** (15-64, 1000 pers.)	3304	3323	3309	3276	3200	-2.3 %
Male	1758	1766	1763	1744	1710	-2.0 %
Female	1546	1557	1546	1532	1490	-2.7 %
4 - **Activity rate** (% of population 15-64)	67.1	68.4	69.0	69.3	68.7	-0.6 pps
Young (15-24)	30.4	29.6	27.2	26.0	23.9	-2.1 pps
Prime age (25-54)	82.3	83.1	83.3	83.2	82.0	-1.2 pps
Older (55-64)	51.1	54.1	56.6	58.0	58.8	0.8 pps
Nationals (15-64)	67.1	68.4	69.0	69.3	68.7	-0.6 pps
Non-nationals (15-64)	72.3	60.9	54.2	48.9	58.9	10.0 pps
Male	71.0	72.2	72.9	73.2	72.7	-0.5 pps
Young (15-24)	35.3	34.3	31.5	30.5	28.0	-2.5 pps
Prime age (25-54)	84.8	85.7	86.2	86.4	85.7	-0.7 pps
Older (55-64)	57.3	59.9	62.5	62.7	63.4	0.7 pps
Female	63.2	64.5	65.0	65.4	64.6	-0.8 pps
Young (15-24)	25.3	24.7	22.6	21.2	19.6	-1.6 pps
Prime age (25-54)	79.8	80.3	80.2	79.8	78.2	-1.7 pps
Older (55-64)	45.5	49.0	51.4	53.8	54.6	0.9 pps
5 - **Employment rate** (% of population 15-64)	58.8	59.5	61.0	62.9	63.4	0.5 pps
Young (15-24)	21.9	21.2	20.7	20.3	19.8	-0.6 pps
Prime age (25-54)	73.1	73.3	74.5	76.1	76.2	0.0 pps
Older (55-64)	45.7	47.4	50.0	53.0	54.5	1.5 pps
Low-skilled (15-64)	27.4	27.8	29.7	29.6	29.6	0.0 pps
Medium-skilled (15-64)	63.4	63.6	65.2	67.2	67.8	0.6 pps
High-skilled (15-64)	81.1	80.7	81.7	84.0	84.2	0.2 pps
Nationals (15-64)	58.8	59.5	61.1	62.9	63.4	0.5 pps
Non-nationals (15-64)	60.0	51.7	52.1	45.5	53.3	7.8 pps
Male	61.3	62.1	63.9	65.9	66.7	0.8 pps
Young (15-24)	24.9	24.0	24.0	24.0	23.1	-0.9 pps
Prime age (25-54)	74.3	75.0	76.4	78.5	79.2	0.6 pps
Older (55-64)	50.8	51.9	54.5	56.8	58.3	1.5 pps
Female	56.3	56.8	58.2	59.8	60.0	0.2 pps
Young (15-24)	18.7	18.4	17.3	16.5	16.3	-0.2 pps
Prime age (25-54)	71.8	71.5	72.5	73.6	73.0	-0.6 pps
Older (55-64)	41.3	43.4	46.0	49.5	51.0	1.5 pps
6 - **Employed persons** (15-64, 1000 pers.)	2894.9	2889.4	2927.4	2973.5	2954.3	-0.6 %
7 - **Employment growth** (%, National accounts)	-2.5	-0.4	0.4	0.4	0.5	0.1 pps
Employment growth (%, 15-64, LFS)	-1.1	-0.2	1.3	1.6	-0.6	-2.2 pps
Male	-1.6	0.1	1.7	1.8	-0.2	-2.0 pps
Female	-0.6	-0.5	0.9	1.3	-1.2	-2.5 pps
8 - **Self employed** (15-64, % of total employment)	10.5	11.2	11.5	11.1	10.8	-0.3 pps
Male	13.2	14.2	14.6	14.1	13.5	-0.7 pps
Female	7.5	8.0	8.1	7.7	7.8	0.1 pps
9 - **Temporary employment** (15-64, % of total employment)	4.4	5.6	5.3	4.4	4.1	-0.3 pps
Male	4.9	6.1	5.6	4.7	4.5	-0.2 pps
Female	4.0	5.1	4.9	4.1	3.6	-0.5 pps
10 - **Part-time** (15-64, % of total employment)	2.2	2.5	2.5	2.2	2.0	-0.2 pps
Male	2.0	2.0	2.2	1.9	1.8	-0.1 pps
Female	2.5	3.0	2.8	2.5	2.2	-0.3 pps
11 - **Unemployment rate** (harmonised:15-74)	12.3	13.0	11.4	9.2	7.6	-1.6 pps
Young (15-24)	28.1	28.4	23.8	21.6	17.2	-4.4 pps
Prime age (25-49)	11.3	11.8	10.5	8.5	7.1	-1.4 pps
Older (55-64)	10.4	12.4	11.7	8.7	7.3	-1.4 pps
Low-skilled (15-64)	28.5	30.3	28.6	25.5	22.5	-3.0 pps
Medium-skilled (15-64)	11.7	12.4	10.7	8.4	6.8	-1.6 pps
High-skilled (15-64)	5.9	6.4	5.2	4.0	3.4	-0.6 pps
Nationals (15-64)	12.4	13.0	11.5	9.2	7.7	-1.5 pps
Non-nationals (15-64)	0.0	0.0	0.0	0.0	0.0	0.0 pps
Male	13.5	13.9	12.3	9.8	8.1	-1.7 pps
Female	10.8	11.8	10.4	8.4	7.0	-1.4 pps
12 - **Long-term unemployment** (% of total unemployment)	55.2	57.3	60.3	61.1	58.9	-2.2 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.5	40.4	40.5	40.5	40.6	0.2 %
Male	40.8	40.6	40.7	40.8	40.8	0.0 %
Female	40.3	40.2	40.2	40.2	40.3	0.2 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-5.9	1.2	1.6	-2.6	-3.7	-1.1 pps
Building and construction	-6.3	-3.5	-0.8	2.5	-3.9	-6.4 pps
Services	-2.3	0.1	0.0	1.0	3.0	2.1 pps
Manufacturing industry	-1.9	-3.2	0.5	2.3	1.3	-1.0 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	7.7	8.8	5.6	5.6	3.1	-2.5 pps
Real compensation per employee based on GDP	6.1	9.6	5.1	3.4	2.0	-1.4 pps
Labour cost index (compens. of employees plus taxes minus subs.)	3.6	4.3	6.3	6.9	7.9	1.0 pps
Labour cost index (wages and salaries, total)	4.0	4.4	6.0	7.2	7.9	0.7 pps
Labour productivity (GDP/person employed)	2.6	1.3	1.0	3.3	2.9	-0.4 pps

Czech Republic	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	10509	10511	10525	10543	10565	0.2 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	7229	7154	7081	7026	6968	-0.8 %
(% of total population)	68.8	68.1	67.3	66.6	66.0	-0.7 pps
3 - **Labour force** (15-64, 1000 pers.)	5175	5213	5206	5201	5226	0.5 %
Male	2909	2917	2914	2900	2906	0.2 %
Female	2266	2297	2292	2301	2321	0.8 %
4 - **Activity rate** (% of population 15-64)	71.6	72.9	73.5	74.0	75.0	1.0 pps
Young (15-24)	31.3	31.6	32.2	32.5	32.0	-0.5 pps
Prime age (25-54)	88.4	89.1	88.8	88.6	88.9	0.3 pps
Older (55-64)	52.4	54.8	56.8	58.0	60.8	2.9 pps
Nationals (15-64)	71.5	72.7	73.4	73.9	74.9	0.9 pps
Non-nationals (15-64)	77.9	81.0	78.8	78.0	82.6	4.6 pps
Male	79.5	80.5	81.2	81.4	82.2	0.8 pps
Young (15-24)	36.4	36.8	38.1	37.4	37.5	0.1 pps
Prime age (25-54)	95.5	95.8	95.6	95.4	95.4	-0.1 pps
Older (55-64)	64.0	66.1	67.9	68.3	70.9	2.7 pps
Female	63.5	65.1	65.6	66.5	67.6	1.2 pps
Young (15-24)	25.9	26.1	26.1	27.4	26.2	-1.2 pps
Prime age (25-54)	80.9	81.9	81.6	81.4	82.1	0.6 pps
Older (55-64)	41.5	44.2	46.3	48.3	51.2	3.0 pps
5 - **Employment rate** (% of population 15-64)	66.5	67.7	69.0	70.2	72.0	1.8 pps
Young (15-24)	25.2	25.6	27.1	28.4	28.6	0.2 pps
Prime age (25-54)	82.9	83.5	83.8	84.5	85.7	1.2 pps
Older (55-64)	49.3	51.6	54.0	55.5	58.5	3.1 pps
Low-skilled (15-64)	21.1	22.0	22.9	22.3	23.7	1.4 pps
Medium-skilled (15-64)	71.7	72.4	73.6	75.4	77.4	2.0 pps
High-skilled (15-64)	81.2	82.5	82.2	82.6	83.4	0.8 pps
Nationals (15-64)	66.4	67.6	68.9	70.1	71.8	1.7 pps
Non-nationals (15-64)	73.4	75.3	74.1	74.4	79.3	4.8 pps
Male	74.6	75.7	77.0	77.9	79.3	1.5 pps
Young (15-24)	29.2	29.9	32.3	33.1	33.8	0.6 pps
Prime age (25-54)	90.9	91.2	91.5	91.9	92.7	0.8 pps
Older (55-64)	60.3	62.5	64.8	65.5	68.2	2.7 pps
Female	58.2	59.6	60.7	62.4	64.4	2.1 pps
Young (15-24)	21.0	21.0	21.6	23.4	23.2	-0.2 pps
Prime age (25-54)	74.6	75.5	75.7	76.7	78.4	1.7 pps
Older (55-64)	39.0	41.4	43.8	45.9	49.3	3.3 pps
6 - **Employed persons** (15-64, 1000 pers.)	4810.3	4845.9	4883.5	4934.3	5015.9	1.7 %
7 - **Employment growth** (%, National accounts)	0.4	0.3	0.6	1.4	1.3	-0.1 pps
Employment growth (%, 15-64, LFS)	0.3	0.7	0.8	1.0	1.7	0.6 pps
Male	0.0	0.4	0.8	0.4	1.1	0.7 pps
Female	0.7	1.2	0.8	1.8	2.4	0.5 pps
8 - **Self employed** (15-64, % of total employment)	17.5	16.5	17.0	16.3	16.2	-0.2 pps
Male	21.6	20.3	21.3	20.2	19.5	-0.7 pps
Female	12.2	11.6	11.5	11.4	11.9	0.6 pps
9 - **Temporary employment** (15-64, % of total employment)	8.3	9.1	9.7	10.0	9.7	-0.3 pps
Male	6.9	7.6	8.4	8.4	8.1	-0.3 pps
Female	9.9	10.9	11.3	11.9	11.6	-0.3 pps
10 - **Part-time** (15-64, % of total employment)	5.0	5.8	5.5	5.3	5.7	0.4 pps
Male	2.2	2.5	2.5	2.2	2.3	0.1 pps
Female	8.6	10.0	9.5	9.3	10.0	0.7 pps
11 - **Unemployment rate** (harmonised:15-74)	7.0	7.0	6.1	5.1	4.0	-1.1 pps
Young (15-24)	19.5	19.0	15.9	12.6	10.5	-2.1 pps
Prime age (25-49)	6.1	6.2	5.6	4.6	3.5	-1.1 pps
Older (55-64)	5.8	5.8	4.9	4.4	3.8	-0.6 pps
Low-skilled (15-64)	28.8	26.0	22.4	23.1	20.9	-2.2 pps
Medium-skilled (15-64)	6.5	6.9	6.1	4.8	3.6	-1.2 pps
High-skilled (15-64)	2.9	2.8	2.9	2.4	1.9	-0.5 pps
Nationals (15-64)	7.1	7.0	6.2	5.1	4.0	-1.1 pps
Non-nationals (15-64)	5.7	7.2	6.1	4.5	4.1	-0.4 pps
Male	6.0	5.9	5.1	4.2	3.4	-0.8 pps
Female	8.2	8.3	7.4	6.1	4.7	-1.4 pps
12 - **Long-term unemployment** (% of total unemployment)	43.4	43.4	43.6	47.4	42.1	-5.3 pps
13 - **Worked hours** (full-time, average actual weekly hours)	41.1	40.6	40.4	40.2	40.5	0.7 %
Male	42.2	41.6	41.4	41.2	41.5	0.7 %
Female	39.4	39.1	38.9	38.7	39.2	1.3 %
14 - **Sectoral employment growth** (% change)						
Agriculture	1.6	1.0	-0.9	-1.4	-0.6	0.8 pps
Building and construction	-1.3	-2.4	-4.6	-0.5	-0.4	0.1 pps
Services	0.8	0.8	0.6	1.0	1.8	0.8 pps
Manufacturing industry	1.0	-0.2	1.3	3.5	1.8	-1.7 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	1.7	-0.3	2.6	3.0	4.6	1.6 pps
Real compensation per employee based on GDP	0.3	-1.7	0.1	1.8	3.3	1.5 pps
Labour cost index (compens. of employees plus taxes minus subs.)	2.5	1.2	2.6	4.0	2.4	-1.6 pps
Labour cost index (wages and salaries, total)	2.9	0.8	2.8	4.2	2.4	-1.8 pps
Labour productivity (GDP/person employed)	-1.2	-0.8	2.2	3.8	1.3	-2.5 pps

Denmark	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	5591	5613	5643	5682	5729	0.8 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	3611	3615	3626	3644	3669	0.7 %
(% of total population)	64.6	64.4	64.3	64.1	64.0	-0.1 pps
3 - **Labour force** (15-64, 1000 pers.)	2840	2824	2831	2859	2934	2.6 %
Male	1482	1467	1482	1500	1532	2.1 %
Female	1358	1357	1350	1359	1402	3.2 %
4 - **Activity rate** (% of population 15-64)	78.6	78.1	78.1	78.5	80.0	1.5 pps
Young (15-24)	64.1	61.7	61.5	62.1	66.2	4.0 pps
Prime age (25-54)	87.8	87.5	87.1	87.1	87.4	0.2 pps
Older (55-64)	64.4	65.0	66.4	67.6	70.6	3.0 pps
Nationals (15-64)	79.3	78.8	78.6	79.1	80.3	1.2 pps
Non-nationals (15-64)	71.5	71.7	73.2	73.0	77.2	4.1 pps
Male	81.4	80.6	81.1	81.6	82.6	1.1 pps
Young (15-24)	64.1	61.0	61.0	61.7	65.0	3.3 pps
Prime age (25-54)	90.6	90.2	90.3	90.8	90.8	0.0 pps
Older (55-64)	69.9	70.2	72.6	72.8	74.9	2.2 pps
Female	75.8	75.6	75.0	75.3	77.2	1.9 pps
Young (15-24)	64.0	62.4	62.0	62.5	67.4	4.9 pps
Prime age (25-54)	84.9	84.8	83.8	83.4	83.8	0.4 pps
Older (55-64)	58.9	59.9	60.3	62.6	66.4	3.8 pps
5 - **Employment rate** (% of population 15-64)	72.6	72.5	72.8	73.5	74.9	1.4 pps
Young (15-24)	55.0	53.7	53.7	55.4	58.2	2.8 pps
Prime age (25-54)	81.9	82.0	82.0	82.1	82.5	0.4 pps
Older (55-64)	60.8	61.7	63.2	64.7	67.8	3.1 pps
Low-skilled (15-64)	55.5	54.3	54.2	54.3	57.8	3.5 pps
Medium-skilled (15-64)	76.7	77.2	77.1	78.2	78.9	0.7 pps
High-skilled (15-64)	86.0	86.1	85.5	85.6	85.6	0.0 pps
Nationals (15-64)	73.7	73.5	73.8	74.7	75.8	1.1 pps
Non-nationals (15-64)	60.1	62.5	63.3	63.6	67.0	3.4 pps
Male	75.2	75.0	75.8	76.6	77.7	1.1 pps
Young (15-24)	54.6	52.3	52.7	54.6	56.5	2.0 pps
Prime age (25-54)	84.6	85.0	85.5	85.9	86.4	0.5 pps
Older (55-64)	65.9	66.5	68.9	69.8	72.0	2.1 pps
Female	70.0	70.0	69.8	70.4	72.0	1.6 pps
Young (15-24)	55.4	55.0	54.9	56.2	60.0	3.8 pps
Prime age (25-54)	79.1	79.0	78.4	78.3	78.5	0.2 pps
Older (55-64)	55.8	56.8	57.6	59.6	63.6	4.0 pps
6 - **Employed persons** (15-64, 1000 pers.)	2621.3	2622.1	2640.1	2678.3	2747.7	2.6 %
7 - **Employment growth** (%, National accounts)	-0.7	0.0	1.0	1.3	1.7	0.4 pps
Employment growth (%, 15-64, LFS)	-0.8	0.0	0.7	1.4	2.6	1.1 pps
Male	-1.0	-0.2	1.4	1.7	2.3	0.6 pps
Female	-0.7	0.2	-0.1	1.1	2.9	1.8 pps
8 - **Self employed** (15-64, % of total employment)	8.3	8.2	8.0	7.8	7.7	-0.2 pps
Male	11.4	11.1	10.8	10.5	10.2	-0.3 pps
Female	4.9	5.0	4.9	4.8	4.9	0.0 pps
9 - **Temporary employment** (15-64, % of total employment)	8.6	8.8	8.6	8.7	13.5	4.8 pps
Male	7.9	8.1	8.2	7.9	12.0	4.1 pps
Female	9.3	9.5	9.0	9.4	15.1	5.7 pps
10 - **Part-time** (15-64, % of total employment)	24.8	24.7	24.6	24.7	26.4	1.7 pps
Male	14.8	14.8	15.2	15.6	16.8	1.2 pps
Female	35.8	35.3	35.0	34.7	36.9	2.2 pps
11 - **Unemployment rate** (harmonised:15-74)	7.5	7.0	6.6	6.2	6.2	0.0 pps
Young (15-24)	14.1	13.1	12.6	10.8	12.0	1.2 pps
Prime age (25-49)	6.7	6.3	5.9	5.7	5.5	-0.2 pps
Older (55-64)	5.5	5.1	4.8	4.4	4.0	-0.4 pps
Low-skilled (15-64)	12.1	11.4	10.6	10.0	9.4	-0.6 pps
Medium-skilled (15-64)	6.9	6.4	6.1	5.4	5.3	-0.1 pps
High-skilled (15-64)	4.9	4.7	4.8	4.9	5.0	0.1 pps
Nationals (15-64)	7.0	6.7	6.1	5.6	5.6	0.0 pps
Non-nationals (15-64)	16.0	12.9	13.5	12.9	13.2	0.3 pps
Male	7.5	6.7	6.4	5.9	5.8	-0.1 pps
Female	7.5	7.3	6.8	6.4	6.6	0.2 pps
12 - **Long-term unemployment** (% of total unemployment)	28.0	25.5	25.2	26.9	22.3	-4.6 pps
13 - **Worked hours** (full-time, average actual weekly hours)	39.6	39.5	39.4	39.6	38.9	-1.8 %
Male	40.8	40.7	40.6	40.7	40.1	-1.5 %
Female	37.8	37.7	37.7	37.8	36.9	-2.4 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-1.4	0.0	0.0	-1.4	0.0	1.4 pps
Building and construction	-1.2	-1.2	2.5	3.6	4.0	0.4 pps
Services	-0.3	1.0	1.4	1.9	2.7	0.9 pps
Manufacturing industry	-2.1	-1.8	0.7	1.4	1.8	0.4 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	1.8	1.6	1.5	1.5	1.4	-0.1 pps
Real compensation per employee based on GDP	-0.5	0.7	0.7	0.6	1.2	0.6 pps
Labour cost index (compens. of employees plus taxes minus subs.)	1.6	1.5	1.9	1.8	1.8	0.0 pps
Labour cost index (wages and salaries, total)	1.5	1.4	1.6	1.6	1.8	0.2 pps
Labour productivity (GDP/person employed)	1.0	1.0	0.7	0.3	0.0	-0.3 pps

Germany	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	80426	80646	80983	81687	82491	1.0 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	52487	52577	52729	52964	53802	1.6 %
(% of total population)	65.3	65.2	65.1	64.8	65.2	0.4 pps
3 - **Labour force** (15-64, 1000 pers.)	40538	40814	40990	41117	41932	2.0 %
Male	21744	21811	21881	21926	22399	2.2 %
Female	18794	19003	19109	19191	19533	1.8 %
4 - **Activity rate** (% of population 15-64)	77.2	77.6	77.7	77.6	77.9	0.3 pps
Young (15-24)	50.7	50.8	49.9	48.8	49.2	0.4 pps
Prime age (25-54)	87.7	87.7	87.6	87.6	87.3	-0.2 pps
Older (55-64)	65.4	67.5	69.1	69.4	71.3	1.9 pps
Nationals (15-64)	78.1	78.6	78.8	78.7	79.4	0.7 pps
Non-nationals (15-64)	69.2	69.2	69.4	69.3	68.1	-1.2 pps
Male	82.6	82.6	82.5	82.1	82.2	0.0 pps
Young (15-24)	53.2	52.9	52.0	50.5	50.9	0.4 pps
Prime age (25-54)	93.1	92.9	92.6	92.5	91.9	-0.5 pps
Older (55-64)	73.1	74.5	75.5	75.3	76.9	1.6 pps
Female	71.9	72.6	72.9	73.1	73.6	0.5 pps
Young (15-24)	48.0	48.7	47.7	47.1	47.4	0.3 pps
Prime age (25-54)	82.3	82.4	82.5	82.5	82.6	0.1 pps
Older (55-64)	58.2	60.8	62.9	63.8	65.9	2.1 pps
5 - **Employment rate** (% of population 15-64)	73.0	73.5	73.8	74.0	74.7	0.7 pps
Young (15-24)	46.6	46.9	46.1	45.3	45.7	0.5 pps
Prime age (25-54)	83.3	83.4	83.5	83.7	83.9	0.2 pps
Older (55-64)	61.6	63.6	65.6	66.2	68.6	2.4 pps
Low-skilled (15-64)	52.7	53.3	46.0	46.1	47.0	0.9 pps
Medium-skilled (15-64)	76.5	77.0	77.7	78.0	78.9	0.9 pps
High-skilled (15-64)	87.7	87.6	87.7	87.8	87.9	0.2 pps
Nationals (15-64)	74.2	74.8	75.1	75.4	76.5	1.1 pps
Non-nationals (15-64)	62.1	62.5	62.8	62.9	62.2	-0.7 pps
Male	77.9	78.0	78.1	78.0	78.4	0.5 pps
Young (15-24)	48.6	48.4	47.7	46.5	46.9	0.4 pps
Prime age (25-54)	88.4	88.2	88.0	88.1	88.1	-0.1 pps
Older (55-64)	68.6	69.9	71.4	71.3	73.7	2.4 pps
Female	68.1	69.0	69.5	69.9	70.8	0.9 pps
Young (15-24)	44.5	45.2	44.3	44.0	44.5	0.5 pps
Prime age (25-54)	78.2	78.6	78.8	79.2	79.7	0.5 pps
Older (55-64)	54.9	57.6	60.0	61.2	63.5	2.3 pps
6 - **Employed persons** (15-64, 1000 pers.)	38320.6	38640.0	38907.7	39175.9	40165.1	2.5 %
7 - **Employment growth** (%, National accounts)	1.2	0.6	0.8	0.9	1.3	0.4 pps
Employment growth (%, 15-64, LFS)	0.7	0.8	0.7	0.7	2.5	1.8 pps
Male	0.9	0.4	0.6	0.5	2.7	2.2 pps
Female	0.6	1.4	0.9	0.9	2.3	1.4 pps
8 - **Self employed** (15-64, % of total employment)	10.4	10.1	9.8	9.6	9.3	-0.3 pps
Male	13.2	12.7	12.4	12.1	11.6	-0.6 pps
Female	7.2	7.1	6.9	6.8	6.7	-0.1 pps
9 - **Temporary employment** (15-64, % of total employment)	13.8	13.4	13.1	13.2	13.2	0.0 pps
Male	13.8	13.3	13.1	13.1	13.2	0.1 pps
Female	13.8	13.5	13.2	13.2	13.2	0.0 pps
10 - **Part-time** (15-64, % of total employment)	25.8	26.7	26.5	26.8	26.7	-0.1 pps
Male	8.9	9.1	9.2	9.3	9.4	0.1 pps
Female	45.3	46.7	46.3	46.6	46.5	-0.1 pps
11 - **Unemployment rate** (harmonised:15-74)	5.4	5.2	5.0	4.6	4.1	-0.5 pps
Young (15-24)	8.0	7.8	7.7	7.2	7.1	-0.1 pps
Prime age (25-49)	5.0	4.9	4.7	4.4	3.9	-0.5 pps
Older (55-64)	5.9	5.7	5.1	4.7	3.9	-0.8 pps
Low-skilled (15-64)	12.4	12.0	12.0	11.4	10.3	-1.1 pps
Medium-skilled (15-64)	5.3	5.2	4.7	4.3	3.8	-0.5 pps
High-skilled (15-64)	2.4	2.4	2.5	2.4	2.2	-0.2 pps
Nationals (15-64)	5.0	4.9	4.6	4.2	3.6	-0.6 pps
Non-nationals (15-64)	10.3	9.8	9.4	9.2	8.6	-0.6 pps
Male	5.6	5.5	5.3	5.0	4.5	-0.5 pps
Female	5.2	4.9	4.6	4.2	3.8	-0.4 pps
12 - **Long-term unemployment** (% of total unemployment)	45.4	44.6	44.3	44.0	41.1	-2.9 pps
13 - **Worked hours** (full-time, average actual weekly hours)	41.6	41.4	41.4	41.2	41.2	0.0 %
Male	42.5	42.2	42.1	42.0	42.0	0.0 %
Female	40.0	39.9	39.9	39.8	39.8	0.0 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-0.4	-3.9	1.2	-1.8	-2.8	-1.0 pps
Building and construction	1.5	0.6	0.4	-0.4	0.9	1.3 pps
Services	1.2	0.7	0.8	0.9	1.5	0.6 pps
Manufacturing industry	1.8	0.3	0.6	0.4	0.3	-0.1 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	2.5	1.8	2.8	2.7	2.2	-0.5 pps
Real compensation per employee based on GDP	1.0	-0.1	1.0	0.6	0.9	0.2 pps
Labour cost index (compens. of employees plus taxes minus subs.)	3.1	1.1	1.9	3.2	2.8	-0.4 pps
Labour cost index (wages and salaries, total)	3.3	1.1	1.9	3.1	2.2	-0.9 pps
Labour productivity (GDP/person employed)	-0.7	-0.1	1.1	0.8	0.6	-0.2 pps

Estonia	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	1325	1320	1316	1313	1316	0.2 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	880	871	862	853	849	-0.4 %
(% of total population)	66.4	66.0	65.5	65.0	64.5	-0.4 pps
3 - **Labour force** (15-64, 1000 pers.)	659	655	648	654	658	0.6 %
Male	337	336	336	338	343	1.5 %
Female	321	319	313	316	315	-0.4 %
4 - **Activity rate** (% of population 15-64)	74.8	75.1	75.2	76.7	77.5	0.8 pps
Young (15-24)	40.8	39.8	39.2	41.8	43.2	1.5 pps
Prime age (25-54)	87.8	87.6	87.1	87.9	87.8	-0.1 pps
Older (55-64)	65.1	66.6	67.7	68.7	71.0	2.3 pps
Nationals (15-64)	74.3	74.9	75.3	77.0	77.6	0.7 pps
Non-nationals (15-64)	77.5	76.4	74.9	75.0	76.6	1.7 pps
Male	78.4	78.6	79.3	80.4	81.9	1.4 pps
Young (15-24)	44.2	41.4	41.3	45.8	46.2	0.4 pps
Prime age (25-54)	92.1	92.3	92.2	92.6	93.7	1.0 pps
Older (55-64)	65.3	66.8	69.2	67.7	70.4	2.7 pps
Female	71.4	71.8	71.3	73.0	73.2	0.2 pps
Young (15-24)	37.3	38.1	37.0	37.8	40.4	2.6 pps
Prime age (25-54)	83.5	82.9	82.0	83.0	81.8	-1.2 pps
Older (55-64)	64.9	66.4	66.5	69.5	71.4	1.9 pps
5 - **Employment rate** (% of population 15-64)	67.1	68.5	69.6	71.9	72.1	0.2 pps
Young (15-24)	32.2	32.4	33.4	36.3	37.5	1.2 pps
Prime age (25-54)	79.5	80.4	80.9	83.0	82.6	-0.4 pps
Older (55-64)	60.5	62.6	64.0	64.5	65.2	0.7 pps
Low-skilled (15-64)	31.6	35.4	40.4	39.9	41.8	1.8 pps
Medium-skilled (15-64)	69.8	70.0	71.0	74.0	74.0	0.1 pps
High-skilled (15-64)	81.5	82.2	83.2	85.2	84.1	-1.2 pps
Nationals (15-64)	67.9	69.1	70.3	72.5	72.9	0.4 pps
Non-nationals (15-64)	63.3	65.3	65.2	68.0	67.4	-0.6 pps
Male	69.7	71.3	73.0	75.3	75.7	0.3 pps
Young (15-24)	34.2	34.1	33.4	39.4	38.8	-0.6 pps
Prime age (25-54)	83.1	84.7	85.6	87.7	87.9	0.2 pps
Older (55-64)	59.2	61.4	65.2	63.0	63.8	0.8 pps
Female	64.7	65.7	66.3	68.5	68.6	0.1 pps
Young (15-24)	30.4	30.7	33.3	33.1	36.1	3.0 pps
Prime age (25-54)	75.9	76.1	76.1	78.2	77.2	-1.0 pps
Older (55-64)	61.4	63.6	63.1	65.8	66.5	0.8 pps
6 - **Employed persons** (15-64, 1000 pers.)	591.0	596.6	599.5	613.1	612.3	-0.1 %
7 - **Employment growth** (%, National accounts)	1.6	1.2	0.8	2.9	0.3	-2.6 pps
Employment growth (%, 15-64, LFS)	1.6	0.9	0.5	2.3	-0.1	-2.4 pps
Male	1.7	1.7	1.3	2.6	0.2	-2.4 pps
Female	1.6	0.2	-0.4	1.9	-0.5	-2.4 pps
8 - **Self employed** (15-64, % of total employment)	8.5	8.8	8.8	9.3	9.5	0.2 pps
Male	12.2	12.1	12.1	11.9	12.1	0.2 pps
Female	4.7	5.4	5.4	6.4	6.7	0.2 pps
9 - **Temporary employment** (15-64, % of total employment)	3.5	3.5	3.1	3.4	3.7	0.3 pps
Male	4.7	4.1	3.3	3.9	3.9	0.0 pps
Female	2.4	2.9	3.0	3.0	3.5	0.5 pps
10 - **Part-time** (15-64, % of total employment)	9.2	8.9	8.3	9.5	9.9	0.4 pps
Male	5.1	5.5	5.7	6.0	6.8	0.8 pps
Female	13.3	12.4	11.2	13.4	13.3	-0.1 pps
11 - **Unemployment rate** (harmonised:15-74)	10.0	8.6	7.4	6.2	6.8	0.6 pps
Young (15-24)	20.9	18.7	15.0	13.1	13.4	0.3 pps
Prime age (25-49)	9.5	8.3	7.2	5.5	5.9	0.4 pps
Older (55-64)	7.2	6.0	5.4	6.0	8.1	2.1 pps
Low-skilled (15-64)	24.3	15.7	13.2	12.8	13.4	0.6 pps
Medium-skilled (15-64)	10.7	9.8	8.3	6.7	8.0	1.3 pps
High-skilled (15-64)	6.1	5.9	4.9	4.0	3.8	-0.2 pps
Nationals (15-64)	8.7	7.8	6.6	5.8	6.1	0.3 pps
Non-nationals (15-64)	18.3	14.5	12.8	9.3	12.1	2.8 pps
Male	10.9	9.1	7.9	6.2	7.4	1.2 pps
Female	9.1	8.2	6.8	6.1	6.1	0.0 pps
12 - **Long-term unemployment** (% of total unemployment)	54.7	44.5	45.2	38.8	31.6	-7.2 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.3	40.1	39.7	39.7	40.1	1.0 %
Male	40.9	40.7	40.2	40.2	40.8	1.5 %
Female	39.6	39.5	39.1	39.2	39.3	0.3 %
14 - **Sectoral employment growth** (% change)						
Agriculture	3.1	-6.0	-9.2	7.5	0.8	-6.7 pps
Building and construction	2.6	0.2	1.7	8.1	-12.1	-20.2 pps
Services	2.0	3.8	2.0	0.8	4.5	3.7 pps
Manufacturing industry	-4.1	1.2	-2.3	5.8	0.7	-5.1 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	7.8	4.8	6.5	3.3	5.9	2.6 pps
Real compensation per employee based on GDP	4.5	1.2	4.9	2.1	4.2	2.2 pps
Labour cost index (compens. of employees plus taxes minus subs.)	6.5	7.8	6.1	4.8	5.4	0.6 pps
Labour cost index (wages and salaries, total)	6.5	8.1	6.3	4.8	5.3	0.5 pps
Labour productivity (GDP/person employed)	2.6	0.7	2.1	-1.2	1.8	3.0 pps

Ireland	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	4590	4602	4615	4642	4683	0.9 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	3042	3022	3007	3002	3013	0.4 %
(% of total population)	66.3	65.7	65.2	64.7	64.3	-0.3 pps
3 - **Labour force** (15-64, 1000 pers.)	2105	2109	2098	2102	2125	1.1 %
Male	1156	1156	1149	1149	1156	0.6 %
Female	949	954	949	952	969	1.8 %
4 - **Activity rate** (% of population 15-64)	69.2	69.8	69.8	70.0	70.5	0.5 pps
Young (15-24)	40.5	39.7	37.3	36.3	38.8	2.5 pps
Prime age (25-54)	80.4	80.8	81.0	81.2	81.2	0.0 pps
Older (55-64)	55.1	57.4	58.4	60.1	61.0	0.9 pps
Nationals (15-64)	68.7	69.3	69.5	69.9	70.2	0.3 pps
Non-nationals (15-64)	72.1	72.9	71.3	70.7	72.4	1.7 pps
Male	76.5	77.0	77.1	77.4	77.5	0.1 pps
Young (15-24)	41.3	40.6	38.8	38.3	40.3	2.0 pps
Prime age (25-54)	89.3	89.2	89.6	89.6	89.3	-0.3 pps
Older (55-64)	64.6	67.9	69.0	71.5	71.1	-0.4 pps
Female	62.0	62.7	62.6	62.8	63.7	1.0 pps
Young (15-24)	39.7	38.7	35.8	34.2	37.3	3.1 pps
Prime age (25-54)	71.7	72.5	72.7	73.2	73.4	0.2 pps
Older (55-64)	45.6	47.1	48.0	49.0	51.2	2.2 pps
5 - **Employment rate** (% of population 15-64)	58.8	60.5	61.7	63.3	64.8	1.6 pps
Young (15-24)	28.2	29.0	28.4	28.7	32.1	3.4 pps
Prime age (25-54)	69.5	71.0	72.6	74.1	75.3	1.1 pps
Older (55-64)	49.3	51.3	53.0	55.6	57.2	1.7 pps
Low-skilled (15-64)	33.8	35.4	33.9	35.0	36.1	1.1 pps
Medium-skilled (15-64)	59.6	60.7	62.7	63.8	66.4	2.5 pps
High-skilled (15-64)	78.9	79.2	80.2	81.2	81.9	0.7 pps
Nationals (15-64)	58.7	60.4	61.8	63.4	64.7	1.3 pps
Non-nationals (15-64)	59.4	61.0	61.4	62.5	65.6	3.1 pps
Male	62.7	65.1	66.9	68.7	70.2	1.5 pps
Young (15-24)	26.3	28.5	28.5	29.3	32.4	3.2 pps
Prime age (25-54)	74.5	76.7	78.8	80.5	81.8	1.3 pps
Older (55-64)	55.8	59.3	61.4	64.9	65.7	0.8 pps
Female	55.1	55.9	56.7	57.9	59.5	1.6 pps
Young (15-24)	30.2	29.6	28.3	28.2	31.9	3.7 pps
Prime age (25-54)	64.6	65.6	66.6	68.1	69.0	1.0 pps
Older (55-64)	42.7	43.4	44.7	46.4	48.9	2.6 pps
6 - **Employed persons** (15-64, 1000 pers.)	1790.1	1828.0	1856.3	1899.5	1953.4	2.8 %
7 - **Employment growth** (%, National accounts)	-0.6	2.5	1.7	2.5	2.8	0.3 pps
Employment growth (%, 15-64, LFS)	-0.7	2.1	1.5	2.3	2.8	0.5 pps
Male	-1.0	3.3	2.0	2.4	2.7	0.3 pps
Female	-0.4	0.8	1.0	2.3	3.0	0.8 pps
8 - **Self employed** (15-64, % of total employment)	14.5	15.2	15.1	14.9	14.6	-0.3 pps
Male	21.7	22.4	22.3	21.8	21.2	-0.6 pps
Female	6.4	6.9	6.8	6.9	6.9	0.0 pps
9 - **Temporary employment** (15-64, % of total employment)	10.1	10.0	9.3	8.7	8.2	-0.5 pps
Male	9.9	10.1	9.2	8.7	8.0	-0.7 pps
Female	10.4	9.8	9.4	8.6	8.5	-0.1 pps
10 - **Part-time** (15-64, % of total employment)	23.5	23.5	23.0	22.2	21.9	-0.3 pps
Male	13.3	13.5	13.1	12.2	12.2	0.0 pps
Female	34.9	35.0	34.4	33.8	33.2	-0.6 pps
11 - **Unemployment rate** (harmonised:15-74)	14.7	13.1	11.3	9.4	7.9	-1.5 pps
Young (15-24)	30.4	26.8	23.9	20.9	17.2	-3.7 pps
Prime age (25-49)	13.5	12.0	10.4	8.7	7.3	-1.4 pps
Older (55-64)	10.5	10.6	9.3	7.6	6.2	-1.4 pps
Low-skilled (15-64)	25.9	22.2	20.4	17.6	15.1	-2.5 pps
Medium-skilled (15-64)	17.7	16.1	13.7	11.5	9.2	-2.3 pps
High-skilled (15-64)	7.6	7.3	6.6	5.5	4.9	-0.6 pps
Nationals (15-64)	14.5	12.8	11.1	9.3	7.9	-1.4 pps
Non-nationals (15-64)	17.6	16.3	13.8	11.5	9.3	-2.2 pps
Male	17.7	15.0	12.9	10.9	9.1	-1.8 pps
Female	11.0	10.7	9.4	7.7	6.5	-1.2 pps
12 - **Long-term unemployment** (% of total unemployment)	61.7	60.6	59.2	57.6	55.0	-2.6 pps
13 - **Worked hours** (full-time, average actual weekly hours)	39.8	40.1	40.1	39.9	40.2	0.8 %
Male	41.7	42.0	42.0	41.9	42.2	0.7 %
Female	36.6	36.9	36.9	36.6	36.9	0.8 %
14 - **Sectoral employment growth** (% change)						
Agriculture	3.3	24.5	2.1	0.9	2.7	1.8 pps
Building and construction	-4.9	0.2	6.3	12.8	7.0	-5.8 pps
Services	-0.4	2.2	2.2	1.1	2.9	1.8 pps
Manufacturing industry	-2.5	2.9	-0.1	3.6	4.4	0.8 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	0.3	0.2	1.8	2.1	2.0	-0.1 pps
Real compensation per employee based on GDP	-1.7	-0.8	2.2	-4.8	2.0	6.8 pps
Labour cost index (compens. of employees plus taxes minus subs.)	2.2	0.5	0.5	1.0	1.8	0.8 pps
Labour cost index (wages and salaries, total)	1.4	0.4	1.0	1.0	1.7	0.7 pps
Labour productivity (GDP/person employed)	0.6	-0.9	6.5	22.5	2.3	-20.2 pps

Greece	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	11045	10965	10892	10821	10784	-0.3 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	7156	7090	7040	6987	6937	-0.7 %
(% of total population)	64.8	64.7	64.6	64.6	64.3	-0.2 pps
3 - **Labour force** (15-64, 1000 pers.)	4828	4784	4747	4738	4732	-0.1 %
Male	2719	2692	2646	2621	2613	-0.3 %
Female	2109	2092	2101	2117	2119	0.1 %
4 - **Activity rate** (% of population 15-64)	67.5	67.5	67.4	67.8	68.2	0.4 pps
Young (15-24)	29.1	28.4	28.0	26.0	24.6	-1.3 pps
Prime age (25-54)	83.7	83.9	84.3	85.4	85.5	0.1 pps
Older (55-64)	42.1	42.4	41.1	41.6	44.9	3.3 pps
Nationals (15-64)	66.9	66.9	66.8	67.4	67.8	0.5 pps
Non-nationals (15-64)	73.6	74.9	75.0	73.8	73.9	0.0 pps
Male	76.9	76.9	76.0	75.9	76.2	0.3 pps
Young (15-24)	31.2	31.6	30.0	27.7	26.4	-1.2 pps
Prime age (25-54)	93.6	93.6	93.1	93.1	93.2	0.1 pps
Older (55-64)	55.2	55.0	53.4	54.9	57.3	2.4 pps
Female	58.3	58.3	59.0	59.9	60.4	0.5 pps
Young (15-24)	27.0	25.3	26.1	24.3	22.9	-1.4 pps
Prime age (25-54)	74.0	74.3	75.6	77.7	77.7	0.1 pps
Older (55-64)	30.1	31.0	29.9	29.5	33.6	4.1 pps
5 - **Employment rate** (% of population 15-64)	50.8	48.8	49.4	50.8	52.0	1.3 pps
Young (15-24)	13.0	11.8	13.3	13.0	13.0	0.0 pps
Prime age (25-54)	63.9	61.3	62.4	64.5	66.0	1.4 pps
Older (55-64)	36.5	35.6	34.0	34.3	36.3	1.9 pps
Low-skilled (15-64)	40.4	38.3	39.0	39.7	39.4	-0.3 pps
Medium-skilled (15-64)	49.1	46.3	47.0	48.8	50.1	1.4 pps
High-skilled (15-64)	70.2	68.2	67.6	67.9	69.6	1.7 pps
Nationals (15-64)	51.0	49.0	49.3	50.8	52.0	1.3 pps
Non-nationals (15-64)	49.0	46.3	50.4	51.0	52.0	1.0 pps
Male	60.1	57.9	58.0	59.3	61.0	1.7 pps
Young (15-24)	16.1	14.6	15.8	15.1	14.7	-0.4 pps
Prime age (25-54)	73.9	71.4	71.7	73.7	76.0	2.3 pps
Older (55-64)	47.7	46.0	44.0	44.9	46.2	1.3 pps
Female	41.7	39.9	41.1	42.5	43.3	0.9 pps
Young (15-24)	10.0	9.1	10.9	10.9	11.3	0.3 pps
Prime age (25-54)	53.9	51.4	53.1	55.4	55.9	0.5 pps
Older (55-64)	26.1	26.0	25.0	24.7	27.2	2.6 pps
6 - **Employed persons** (15-64, 1000 pers.)	3636.0	3459.0	3479.5	3548.0	3610.3	1.8 %
7 - **Employment growth** (%, National accounts)	-6.3	-2.6	0.0	0.5	1.3	0.8 pps
Employment growth (%, 15-64, LFS)	-8.6	-4.9	0.6	2.0	1.8	-0.2 pps
Male	-9.1	-4.6	-0.5	1.6	2.1	0.6 pps
Female	-8.0	-5.2	2.2	2.5	1.2	-1.3 pps
8 - **Self employed** (15-64, % of total employment)	31.1	31.7	30.7	29.9	29.5	-0.4 pps
Male	36.6	37.1	36.4	35.3	34.2	-1.1 pps
Female	23.3	23.9	22.9	22.5	22.9	0.4 pps
9 - **Temporary employment** (15-64, % of total employment)	10.2	10.2	11.6	11.9	11.2	-0.7 pps
Male	8.9	9.3	11.0	11.4	10.3	-1.1 pps
Female	11.8	11.3	12.4	12.6	12.3	-0.3 pps
10 - **Part-time** (15-64, % of total employment)	7.7	8.4	9.3	9.4	9.8	0.4 pps
Male	4.7	5.4	6.5	6.7	6.9	0.2 pps
Female	11.8	12.6	13.0	13.1	13.7	0.6 pps
11 - **Unemployment rate** (harmonised:15-74)	24.5	27.5	26.5	24.9	23.6	-1.3 pps
Young (15-24)	55.3	58.3	52.4	49.8	47.3	-2.5 pps
Prime age (25-49)	23.7	26.9	26.0	24.4	22.8	-1.6 pps
Older (55-64)	13.5	16.2	17.2	17.5	19.2	1.7 pps
Low-skilled (15-64)	26.5	30.2	28.7	27.2	26.9	-0.3 pps
Medium-skilled (15-64)	27.8	31.3	30.3	27.7	26.2	-1.5 pps
High-skilled (15-64)	18.5	20.5	20.1	20.0	18.1	-1.9 pps
Nationals (15-64)	23.8	26.7	26.1	24.6	23.3	-1.3 pps
Non-nationals (15-64)	33.4	38.2	32.8	30.9	29.6	-1.3 pps
Male	21.6	24.5	23.7	21.8	19.9	-1.9 pps
Female	28.2	31.4	30.2	28.9	28.1	-0.8 pps
12 - **Long-term unemployment** (% of total unemployment)	59.1	67.0	73.4	73.0	71.8	-1.2 pps
13 - **Worked hours** (full-time, average actual weekly hours)	42.6	42.8	42.8	42.8	43.1	0.7 %
Male	43.7	44.0	44.1	44.2	44.6	0.9 %
Female	40.7	40.8	40.7	40.6	40.8	0.5 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-1.7	-0.5	0.0	-3.4	-1.2	2.2 pps
Building and construction	-14.3	-1.9	-6.6	-4.3	1.2	5.5 pps
Services	-5.7	-2.8	0.9	2.0	2.4	0.4 pps
Manufacturing industry	-8.3	-6.3	0.5	0.0	3.9	3.9 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	-3.0	-7.5	-2.1	-2.9	0.8	3.7 pps
Real compensation per employee based on GDP	-2.7	-5.2	-0.3	-1.9	0.7	2.6 pps
Labour cost index (compens. of employees plus taxes minus subs.)	-5.3	-6.5	-1.0	-3.1	-1.7	1.4 pps
Labour cost index (wages and salaries, total)	-5.6	-11.6	-1.0	-2.8	-1.4	1.4 pps
Labour productivity (GDP/person employed)	-1.1	-0.6	0.3	-0.7	-1.3	-0.6 pps

Spain	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	46766	46593	46455	46407	46468	0.1 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	31348	31024	30750	30642	30536	-0.3 %
(% of total population)	67.0	66.6	66.2	66.0	65.7	-0.3 pps
3 - **Labour force** (15-64, 1000 pers.)	23281	23043	22814	22767	22657	-0.5 %
Male	12648	12437	12277	12232	12120	-0.9 %
Female	10633	10606	10537	10535	10536	0.0 %
4 - **Activity rate** (% of population 15-64)	74.3	74.3	74.2	74.3	74.2	-0.1 pps
Young (15-24)	39.0	37.8	35.7	34.7	33.0	-1.7 pps
Prime age (25-54)	86.9	87.2	87.3	87.4	87.4	0.1 pps
Older (55-64)	53.5	54.1	55.4	57.6	59.2	1.5 pps
Nationals (15-64)	73.5	73.7	73.7	73.8	73.8	0.0 pps
Non-nationals (15-64)	79.2	78.4	77.7	78.0	77.2	-0.8 pps
Male	80.1	79.8	79.5	79.5	79.2	-0.3 pps
Young (15-24)	40.3	39.6	37.3	36.2	34.7	-1.4 pps
Prime age (25-54)	92.6	92.4	92.6	92.6	92.5	-0.1 pps
Older (55-64)	63.6	63.3	64.3	66.2	67.0	0.7 pps
Female	68.4	68.7	68.8	69.0	69.2	0.1 pps
Young (15-24)	37.6	35.9	34.0	33.2	31.3	-1.9 pps
Prime age (25-54)	81.1	81.8	82.0	82.0	82.3	0.3 pps
Older (55-64)	43.9	45.2	46.9	49.4	51.7	2.3 pps
5 - **Employment rate** (% of population 15-64)	55.8	54.8	56.0	57.8	59.5	1.7 pps
Young (15-24)	18.4	16.8	16.7	17.9	18.4	0.4 pps
Prime age (25-54)	66.7	65.8	67.4	69.4	71.5	2.1 pps
Older (55-64)	43.9	43.2	44.3	46.9	49.1	2.2 pps
Low-skilled (15-64)	44.2	43.2	44.0	46.2	48.1	2.0 pps
Medium-skilled (15-64)	57.0	55.2	56.0	57.5	58.7	1.2 pps
High-skilled (15-64)	75.2	74.1	75.3	76.7	77.9	1.3 pps
Nationals (15-64)	56.5	55.6	56.6	58.3	59.9	1.6 pps
Non-nationals (15-64)	50.7	49.4	50.8	54.2	56.6	2.4 pps
Male	60.3	59.2	60.7	62.9	64.8	1.8 pps
Young (15-24)	18.5	17.3	17.4	18.6	19.4	0.9 pps
Prime age (25-54)	71.3	70.4	72.5	75.1	77.4	2.3 pps
Older (55-64)	52.1	50.5	51.2	54.0	55.7	1.7 pps
Female	51.2	50.3	51.2	52.7	54.3	1.6 pps
Young (15-24)	18.3	16.3	16.0	17.3	17.2	0.0 pps
Prime age (25-54)	62.0	61.2	62.3	63.7	65.6	1.9 pps
Older (55-64)	36.0	36.3	37.8	40.1	42.8	2.6 pps
6 - **Employed persons** (15-64, 1000 pers.)	17476.8	17001.6	17210.5	17717.5	18182.7	2.6 %
7 - **Employment growth** (%, National accounts)	-4.0	-2.6	1.0	2.7	2.5	-0.2 pps
Employment growth (%, 15-64, LFS)	-4.3	-2.7	1.2	2.9	2.6	-0.3 pps
Male	-5.4	-3.0	1.4	3.3	2.4	-0.9 pps
Female	-3.0	-2.4	1.1	2.5	2.9	0.4 pps
8 - **Self employed** (15-64, % of total employment)	16.3	16.9	16.7	16.4	16.1	-0.3 pps
Male	20.2	21.0	20.7	20.2	19.7	-0.5 pps
Female	11.6	12.0	11.9	11.8	11.9	0.0 pps
9 - **Temporary employment** (15-64, % of total employment)	23.4	23.2	24.0	25.2	26.1	0.9 pps
Male	22.1	22.2	23.6	25.1	25.8	0.7 pps
Female	25.0	24.2	24.6	25.3	26.5	1.2 pps
10 - **Part-time** (15-64, % of total employment)	14.4	15.7	15.8	15.6	15.1	-0.5 pps
Male	6.4	7.7	7.7	7.8	7.6	-0.2 pps
Female	23.9	25.2	25.5	25.1	24.1	-1.0 pps
11 - **Unemployment rate** (harmonised:15-74)	24.8	26.1	24.5	22.1	19.6	-2.5 pps
Young (15-24)	52.9	55.5	53.2	48.3	44.4	-3.9 pps
Prime age (25-49)	23.3	24.5	22.8	20.6	18.2	-2.4 pps
Older (55-64)	18.0	20.0	20.0	18.6	17.0	-1.6 pps
Low-skilled (15-64)	33.9	35.5	34.0	31.2	28.2	-3.0 pps
Medium-skilled (15-64)	24.2	25.9	24.2	21.6	19.2	-2.4 pps
High-skilled (15-64)	15.0	16.1	14.8	13.3	11.7	-1.6 pps
Nationals (15-64)	23.1	24.6	23.2	21.0	18.8	-2.2 pps
Non-nationals (15-64)	36.0	37.0	34.6	30.5	26.7	-3.8 pps
Male	24.6	25.6	23.6	20.8	18.1	-2.7 pps
Female	25.1	26.7	25.4	23.6	21.4	-2.2 pps
12 - **Long-term unemployment** (% of total unemployment)	44.3	49.7	52.8	51.6	48.3	-3.3 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.6	40.9	40.7	40.6	40.4	-0.5 %
Male	41.5	41.8	41.7	41.5	41.3	-0.5 %
Female	39.2	39.5	39.3	39.1	39.0	-0.3 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-2.9	-1.2	0.6	-0.2	4.0	4.2 pps
Building and construction	-16.9	-12.3	-3.1	6.6	1.1	-5.5 pps
Services	-3.4	-2.5	2.1	3.8	2.9	-0.9 pps
Manufacturing industry	-6.9	-4.8	-0.7	2.4	3.1	0.7 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	-1.4	0.3	0.1	2.2	0.0	-2.1 pps
Real compensation per employee based on GDP	-0.7	1.0	0.3	1.0	-0.6	-1.6 pps
Labour cost index (compens. of employees plus taxes minus subs.)	1.1	0.3	0.1	0.2	0.1	-0.1 pps
Labour cost index (wages and salaries, total)	1.2	-0.2	0.5	0.8	0.3	-0.5 pps
Labour productivity (GDP/person employed)	1.1	0.9	0.4	0.7	0.7	0.0 pps

France	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	65615	65953	66290	66590	66858	0.4 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	39939	39895	40973	40927	40890	-0.1 %
(% of total population)	60.9	60.5	61.8	61.5	61.2	-0.3 pps
3 - **Labour force** (15-64, 1000 pers.)	28242	28377	29148	29164	29207	0.1 %
Male	14776	14790	15132	15127	15129	0.0 %
Female	13467	13588	14016	14037	14078	0.3 %
4 - **Activity rate** (% of population 15-64)	70.7	71.1	71.1	71.3	71.4	0.2 pps
Young (15-24)	37.4	37.4	36.9	37.1	36.9	-0.1 pps
Prime age (25-54)	88.2	88.3	87.9	87.5	87.5	0.0 pps
Older (55-64)	47.4	49.0	50.7	52.6	53.7	1.1 pps
Nationals (15-64)	71.1	71.5	71.5	71.8	72.0	0.2 pps
Non-nationals (15-64)	64.9	65.9	65.5	64.1	64.1	-0.1 pps
Male	75.3	75.5	75.3	75.3	75.4	0.1 pps
Young (15-24)	40.8	40.8	40.3	40.2	39.8	-0.5 pps
Prime age (25-54)	93.6	93.3	92.9	92.4	92.4	0.0 pps
Older (55-64)	50.8	52.3	53.1	55.1	56.1	1.0 pps
Female	66.3	66.9	67.2	67.3	67.6	0.3 pps
Young (15-24)	34.0	33.9	33.5	33.9	34.0	0.2 pps
Prime age (25-54)	83.0	83.5	83.0	82.7	82.7	0.1 pps
Older (55-64)	44.3	46.0	48.5	50.3	51.4	1.1 pps
5 - **Employment rate** (% of population 15-64)	64.0	64.0	63.8	63.8	64.2	0.4 pps
Young (15-24)	28.6	28.4	28.0	27.9	27.8	-0.1 pps
Prime age (25-54)	80.9	80.6	79.8	79.4	79.7	0.3 pps
Older (55-64)	44.5	45.6	46.9	48.7	49.8	1.1 pps
Low-skilled (15-64)	44.7	42.9	41.2	39.7	38.8	-0.9 pps
Medium-skilled (15-64)	66.8	66.2	65.7	65.9	66.1	0.2 pps
High-skilled (15-64)	80.9	81.3	81.1	81.4	82.4	1.0 pps
Nationals (15-64)	64.8	64.8	64.6	64.8	65.2	0.4 pps
Non-nationals (15-64)	52.9	53.3	52.5	50.8	51.4	0.5 pps
Male	68.1	67.8	67.3	67.1	67.6	0.5 pps
Young (15-24)	31.0	31.1	30.2	29.9	29.8	-0.1 pps
Prime age (25-54)	86.0	85.2	84.4	83.7	84.2	0.6 pps
Older (55-64)	47.5	48.4	48.9	50.7	51.6	0.9 pps
Female	60.1	60.4	60.4	60.6	60.9	0.3 pps
Young (15-24)	26.1	25.7	25.8	26.0	25.8	-0.1 pps
Prime age (25-54)	76.0	76.2	75.4	75.2	75.3	0.1 pps
Older (55-64)	41.6	43.0	45.2	46.9	48.2	1.3 pps
6 - **Employed persons** (15-64, 1000 pers.)	25568.1	25546.4	26128.8	26118.5	26243.4	0.5 %
7 - **Employment growth** (%, National accounts)	0.3	0.2	0.4	0.2	0.6	0.4 pps
Employment growth (%, 15-64, LFS)	0.0	-0.1	2.3	0.0	0.5	0.5 pps
Male	-0.3	-0.6	1.7	-0.3	0.6	1.0 pps
Female	0.4	0.4	2.9	0.3	0.3	0.0 pps
8 - **Self employed** (15-64, % of total employment)	10.7	10.6	10.8	10.8	11.0	0.2 pps
Male	14.3	14.0	14.2	14.1	14.3	0.2 pps
Female	6.8	6.8	7.2	7.3	7.5	0.2 pps
9 - **Temporary employment** (15-64, % of total employment)	15.2	15.3	15.3	16.0	16.1	0.1 pps
Male	14.3	14.7	14.5	15.4	15.7	0.3 pps
Female	16.1	16.0	16.1	16.6	16.6	0.0 pps
10 - **Part-time** (15-64, % of total employment)	17.7	18.1	18.6	18.4	18.3	-0.1 pps
Male	6.4	6.7	7.4	7.4	7.5	0.1 pps
Female	30.0	30.4	30.6	30.1	29.8	-0.3 pps
11 - **Unemployment rate** (harmonised:15-74)	9.8	10.3	10.3	10.4	10.1	-0.3 pps
Young (15-24)	23.7	24.1	24.2	24.7	24.6	-0.1 pps
Prime age (25-49)	8.3	8.7	9.2	9.3	8.9	-0.4 pps
Older (55-64)	6.2	7.0	7.4	7.4	7.2	-0.2 pps
Low-skilled (15-64)	15.4	16.4	17.3	17.8	18.3	0.5 pps
Medium-skilled (15-64)	9.5	10.2	10.7	10.9	10.7	-0.2 pps
High-skilled (15-64)	5.5	6.0	6.4	6.4	5.7	-0.7 pps
Nationals (15-64)	8.9	9.4	9.7	9.8	9.5	-0.3 pps
Non-nationals (15-64)	18.4	19.1	19.9	20.7	19.8	-0.9 pps
Male	9.8	10.4	10.6	10.8	10.3	-0.5 pps
Female	9.8	10.2	10.0	9.9	9.9	0.0 pps
12 - **Long-term unemployment** (% of total unemployment)	39.9	40.4	44.2	44.2	45.8	1.6 pps
13 - **Worked hours** (full-time, average actual weekly hours)	39.6	38.9	38.8	38.8	39.1	0.8 %
Male	40.7	40.0	39.8	39.9	40.2	0.8 %
Female	37.9	37.2	37.2	37.3	37.5	0.5 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-0.3	-0.3	-0.3	-0.5	-0.4	0.1 pps
Building and construction	-0.4	-0.1	-0.8	-2.8	-1.4	1.4 pps
Services	0.7	-0.1	0.4	0.8	1.7	0.9 pps
Manufacturing industry	-0.7	-0.9	-0.5	-1.1	-1.0	0.1 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	2.2	1.6	1.4	0.9	1.0	0.1 pps
Real compensation per employee based on GDP	1.2	0.8	0.9	-0.2	0.6	0.8 pps
Labour cost index (compens. of employees plus taxes minus subs.)	2.2	0.6	1.0	1.1	1.5	0.4 pps
Labour cost index (wages and salaries, total)	2.1	2.2	1.6	1.5	1.5	0.0 pps
Labour productivity (GDP/person employed)	-0.1	0.3	0.5	0.8	0.5	-0.3 pps

Croatia	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	4268	4257	4240	4201	4171	-0.7 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	2857	2844	2826	2786	2753	-1.2 %
(% of total population)	66.9	66.8	66.7	66.3	66.0	-0.3 pps
3 - **Labour force** (15-64, 1000 pers.)	1825	1811	1868	1865	1806	-3.1 %
Male	997	979	1003	998	968	-2.9 %
Female	828	832	865	867	838	-3.4 %
4 - **Activity rate** (% of population 15-64)	63.9	63.7	66.1	66.9	65.6	-1.3 pps
Young (15-24)	30.1	29.9	33.6	33.2	37.2	4.1 pps
Prime age (25-54)	80.9	80.8	84.1	84.5	82.0	-2.5 pps
Older (55-64)	41.8	41.9	41.0	44.3	42.2	-2.2 pps
Nationals (15-64)	63.9	63.7	66.1	67.0	65.7	-1.3 pps
Non-nationals (15-64)	53.6	55.2	53.8	44.4	37.8	-6.6 pps
Male	69.8	68.9	70.9	71.6	70.3	-1.3 pps
Young (15-24)	34.6	34.7	38.5	38.2	41.9	3.7 pps
Prime age (25-54)	85.2	84.7	86.6	86.9	85.2	-1.7 pps
Older (55-64)	53.9	51.0	52.1	54.9	50.7	-4.2 pps
Female	58.0	58.5	61.3	62.3	60.9	-1.4 pps
Young (15-24)	25.3	24.8	28.5	28.0	32.3	4.4 pps
Prime age (25-54)	76.6	76.8	81.5	82.1	78.8	-3.3 pps
Older (55-64)	30.6	33.4	30.6	34.4	34.2	-0.2 pps
5 - **Employment rate** (% of population 15-64)	53.5	52.5	54.6	56.0	56.9	0.9 pps
Young (15-24)	17.4	14.9	18.3	19.1	25.6	6.4 pps
Prime age (25-54)	69.2	68.3	71.2	72.3	72.4	0.1 pps
Older (55-64)	37.5	37.8	36.2	39.2	38.1	-1.0 pps
Low-skilled (15-64)	29.5	27.5	26.7	28.0	27.4	-0.7 pps
Medium-skilled (15-64)	56.7	55.5	57.0	58.0	59.5	1.5 pps
High-skilled (15-64)	76.5	75.7	78.4	78.7	79.7	1.0 pps
Nationals (15-64)	53.5	52.5	54.6	56.0	57.0	1.0 pps
Non-nationals (15-64)	42.0	44.8	40.0	38.9	34.1	-4.7 pps
Male	58.5	56.5	59.1	60.3	61.4	1.1 pps
Young (15-24)	20.0	17.4	21.2	22.4	28.9	6.5 pps
Prime age (25-54)	73.0	71.6	74.5	75.4	76.3	0.9 pps
Older (55-64)	48.0	45.0	45.8	48.2	45.1	-3.1 pps
Female	48.5	48.5	50.0	51.6	52.4	0.8 pps
Young (15-24)	14.7	12.4	15.3	15.7	22.2	6.5 pps
Prime age (25-54)	65.2	64.9	67.9	69.3	68.5	-0.7 pps
Older (55-64)	27.7	31.0	27.3	30.7	31.6	0.9 pps
6 - **Employed persons** (15-64, 1000 pers.)	1528.1	1493.6	1541.8	1559.1	1566.6	0.5 %
7 - **Employment growth** (%, National accounts)	-3.6	-2.6	2.7	1.2	0.3	-0.9 pps
Employment growth (%, 15-64, LFS)	-3.5	-2.3	3.2	1.1	0.5	-0.6 pps
Male	-4.3	-3.8	4.0	0.6	0.6	0.0 pps
Female	-2.6	-0.4	2.3	1.8	0.4	-1.4 pps
8 - **Self employed** (15-64, % of total employment)	16.0	15.4	13.4	12.9	11.8	-1.1 pps
Male	18.5	18.2	16.7	16.4	14.9	-1.4 pps
Female	13.1	12.1	9.6	8.9	8.1	-0.8 pps
9 - **Temporary employment** (15-64, % of total employment)	13.3	14.5	16.9	20.2	22.2	2.0 pps
Male	13.3	14.8	16.6	20.4	21.9	1.5 pps
Female	13.4	14.1	17.1	19.9	22.4	2.5 pps
10 - **Part-time** (15-64, % of total employment)	5.6	5.4	5.3	6.0	5.6	-0.4 pps
Male	4.6	4.6	4.2	4.8	4.4	-0.4 pps
Female	6.9	6.4	6.7	7.3	7.1	-0.2 pps
11 - **Unemployment rate** (harmonised:15-74)	15.8	17.4	17.2	16.1	13.3	-2.8 pps
Young (15-24)	42.1	50.0	45.5	42.3	31.3	-11.0 pps
Prime age (25-49)	14.5	15.5	15.3	14.4	11.6	-2.8 pps
Older (55-64)	10.4	9.9	11.6	11.6	9.6	-2.0 pps
Low-skilled (15-64)	19.9	22.7	26.5	22.5	18.1	-4.4 pps
Medium-skilled (15-64)	17.4	18.7	18.8	18.1	14.7	-3.4 pps
High-skilled (15-64)	10.8	11.4	9.6	9.4	7.9	-1.5 pps
Nationals (15-64)	16.2	17.5	17.4	16.4	13.3	-3.1 pps
Non-nationals (15-64)	0.0	0.0	0.0	0.0	0.0	0.0 pps
Male	15.8	17.6	16.6	15.6	12.7	-2.9 pps
Female	15.8	17.2	18.0	16.7	14.1	-2.6 pps
12 - **Long-term unemployment** (% of total unemployment)	63.7	63.6	58.5	63.1	50.6	-12.5 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.7	40.4	40.4	39.6	39.7	0.3 %
Male	41.1	40.8	40.8	40.1	40.2	0.2 %
Female	40.1	39.9	39.8	38.9	39.2	0.8 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-19.1	-14.3	-9.4	-1.9	-17.4	-15.5 pps
Building and construction	-7.4	-0.8	-3.8	5.0	2.8	-2.2 pps
Services	-0.9	-2.7	4.9	2.8	3.2	0.4 pps
Manufacturing industry	-2.2	-4.6	2.8	-1.8	2.7	4.5 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	0.2	-0.6	-5.3	-0.3	-0.2	0.1 pps
Real compensation per employee based on GDP	-1.3	-1.4	-5.3	-0.3	-0.1	0.2 pps
Labour cost index (compens. of employees plus taxes minus subs.)	3.0	2.4	-0.5	1.9	4.0	2.1 pps
Labour cost index (wages and salaries, total)	1.5	2.4	-0.5	1.9	4.0	2.1 pps
Labour productivity (GDP/person employed)	1.5	1.6	-3.1	1.0	2.7	1.7 pps

Italy		2012	2013	2014	2015	2016	2015-2016
1	- **Population** (LFS, total, 1000 pers.)	60339	60646	60789	60731	60628	-0.2 %
2	- **Population** (LFS, working age:15-64, 1000 pers.)	39108	39172	39161	39035	38871	-0.4 %
	(% of total population)	64.8	64.6	64.4	64.3	64.1	-0.2 pps
3	- **Labour force** (15-64, 1000 pers.)	24832	24816	25039	24997	25243	1.0 %
	Male	14303	14253	14327	14382	14464	0.6 %
	Female	10530	10563	10712	10615	10779	1.5 %
4	- **Activity rate** (% of population 15-64)	63.5	63.4	63.9	64.0	64.9	0.9 pps
	Young (15-24)	28.6	27.1	27.1	26.2	26.6	0.4 pps
	Prime age (25-54)	77.8	77.1	77.0	76.8	77.5	0.7 pps
	Older (55-64)	42.5	45.3	48.9	51.1	53.4	2.3 pps
	Nationals (15-64)	62.8	62.6	63.2	63.3	64.3	1.0 pps
	Non-nationals (15-64)	70.5	70.5	70.4	70.3	70.4	0.1 pps
	Male	73.7	73.3	73.6	74.1	74.8	0.7 pps
	Young (15-24)	32.9	30.7	31.0	30.4	30.2	-0.2 pps
	Prime age (25-54)	89.4	88.3	87.7	87.7	88.2	0.5 pps
	Older (55-64)	53.6	56.6	60.2	63.3	65.9	2.6 pps
	Female	53.4	53.6	54.4	54.1	55.2	1.1 pps
	Young (15-24)	24.0	23.4	23.1	21.7	22.8	1.1 pps
	Prime age (25-54)	66.5	66.1	66.4	65.9	66.8	0.9 pps
	Older (55-64)	32.2	34.7	38.3	39.6	41.7	2.1 pps
5	- **Employment rate** (% of population 15-64)	56.6	55.5	55.7	56.3	57.2	0.9 pps
	Young (15-24)	18.5	16.3	15.6	15.6	16.6	0.9 pps
	Prime age (25-54)	70.4	68.5	67.9	68.2	68.8	0.7 pps
	Older (55-64)	40.3	42.7	46.2	48.2	50.3	2.1 pps
	Low-skilled (15-64)	43.3	42.0	41.8	42.2	42.9	0.7 pps
	Medium-skilled (15-64)	64.1	62.5	62.6	62.9	63.7	0.8 pps
	High-skilled (15-64)	76.7	75.9	75.5	76.3	77.5	1.2 pps
	Nationals (15-64)	56.3	55.2	55.4	56.0	57.0	1.0 pps
	Non-nationals (15-64)	60.6	58.3	58.5	58.9	59.5	0.7 pps
	Male	66.3	64.7	64.7	65.5	66.5	0.9 pps
	Young (15-24)	21.8	18.7	18.2	18.6	19.2	0.6 pps
	Prime age (25-54)	81.7	79.2	78.2	78.6	79.3	0.7 pps
	Older (55-64)	50.4	52.8	56.5	59.3	61.7	2.4 pps
	Female	47.1	46.5	46.8	47.2	48.1	0.9 pps
	Young (15-24)	15.0	13.7	12.8	12.4	13.7	1.3 pps
	Prime age (25-54)	59.2	58.0	57.6	57.9	58.5	0.6 pps
	Older (55-64)	30.8	33.2	36.6	37.9	39.7	1.8 pps
6	- **Employed persons** (15-64, 1000 pers.)	22149.2	21755.3	21809.5	21972.6	22241.1	1.2 %
7	- **Employment growth** (%, National accounts)	-0.3	-1.8	0.1	0.7	1.3	0.6 pps
	Employment growth (%, 15-64, LFS)	-0.3	-1.8	0.2	0.7	1.2	0.5 pps
	Male	-1.4	-2.2	0.0	1.0	1.1	0.0 pps
	Female	1.2	-1.1	0.5	0.4	1.4	1.1 pps
8	- **Self employed** (15-64, % of total employment)	22.5	22.4	22.2	21.9	21.5	-0.4 pps
	Male	27.3	27.2	26.7	26.2	25.6	-0.6 pps
	Female	15.9	15.8	16.0	15.9	15.8	-0.1 pps
9	- **Temporary employment** (15-64, % of total employment)	13.8	13.2	13.6	14.1	14.0	-0.1 pps
	Male	12.9	12.4	13.1	13.6	13.5	-0.1 pps
	Female	14.9	14.2	14.2	14.6	14.7	0.1 pps
10	- **Part-time** (15-64, % of total employment)	16.8	17.6	18.1	18.3	18.5	0.2 pps
	Male	6.6	7.4	7.8	8.0	8.2	0.2 pps
	Female	30.9	31.7	32.1	32.4	32.7	0.3 pps
11	- **Unemployment rate** (harmonised:15-74)	10.7	12.1	12.7	11.9	11.7	-0.2 pps
	Young (15-24)	35.3	40.0	42.7	40.3	37.8	-2.5 pps
	Prime age (25-49)	9.6	11.2	11.8	11.2	11.1	-0.1 pps
	Older (55-64)	5.3	5.7	5.5	5.5	5.7	0.2 pps
	Low-skilled (15-64)	13.9	16.2	17.0	15.9	16.0	0.1 pps
	Medium-skilled (15-64)	10.1	11.5	12.0	11.5	11.2	-0.3 pps
	High-skilled (15-64)	6.7	7.3	8.0	7.2	6.9	-0.3 pps
	Nationals (15-64)	10.4	11.7	12.4	11.6	11.4	-0.2 pps
	Non-nationals (15-64)	14.1	17.3	17.0	16.3	15.4	-0.9 pps
	Male	9.8	11.5	11.9	11.3	10.9	-0.4 pps
	Female	11.8	13.1	13.8	12.7	12.8	0.1 pps
12	- **Long-term unemployment** (% of total unemployment)	53.1	56.9	61.4	58.9	58.3	-0.6 pps
13	- **Worked hours** (full-time, average actual weekly hours)	39.5	39.6	39.6	39.7	39.9	0.5 %
	Male	40.7	40.8	40.8	40.9	41.1	0.5 %
	Female	37.2	37.4	37.5	37.5	37.7	0.5 %
14	- **Sectoral employment growth** (% change)						
	Agriculture	-2.5	-2.9	-0.2	1.0	1.3	0.3 pps
	Building and construction	-4.8	-7.6	-4.0	-1.2	-3.2	-2.0 pps
	Services	0.6	-1.2	0.5	1.6	2.3	0.7 pps
	Manufacturing industry	-1.9	-2.9	-1.8	-0.9	0.8	1.7 pps
15	- **Indicator board on wage developments** (% change)						
	Compensation per employee	-1.1	0.8	0.2	1.1	0.7	-0.4 pps
	Real compensation per employee based on GDP	-1.0	0.1	-1.0	-0.5	-0.5	0.0 pps
	Labour cost index (compens. of employees plus taxes minus subs.)	2.0	2.2	0.5	-0.2	-0.8	-0.6 pps
	Labour cost index (wages and salaries, total)	2.1	1.9	0.4	0.6	-0.1	-0.7 pps
	Labour productivity (GDP/person employed)	-2.5	0.1	0.0	0.3	-0.3	-0.6 pps

Cyprus	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	864	862	853	848	852	0.5 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	580	578	572	559	556	-0.6 %
(% of total population)	67.2	67.0	67.0	65.9	65.2	-0.7 pps
3 - **Labour force** (15-64, 1000 pers.)	426	425	425	413	408	-1.2 %
Male	223	221	218	210	209	-0.6 %
Female	204	204	207	202	199	-1.8 %
4 - **Activity rate** (% of population 15-64)	73.5	73.6	74.3	73.9	73.4	-0.5 pps
Young (15-24)	38.9	38.4	40.3	37.8	37.3	-0.6 pps
Prime age (25-54)	87.6	87.7	88.4	87.9	86.8	-1.2 pps
Older (55-64)	56.1	56.6	56.0	57.4	59.0	1.5 pps
Nationals (15-64)	71.7	72.4	73.2	72.9	73.0	0.1 pps
Non-nationals (15-64)	79.9	78.4	79.4	78.3	75.2	-3.2 pps
Male	80.7	80.6	80.0	78.8	78.7	-0.1 pps
Young (15-24)	42.7	40.7	41.1	36.9	35.8	-1.1 pps
Prime age (25-54)	93.8	94.0	93.5	92.6	92.2	-0.4 pps
Older (55-64)	71.2	71.3	69.9	70.0	70.5	0.5 pps
Female	66.9	67.2	69.1	69.4	68.5	-0.8 pps
Young (15-24)	35.6	36.3	39.5	38.9	38.5	-0.4 pps
Prime age (25-54)	82.0	82.0	83.9	83.8	81.8	-2.0 pps
Older (55-64)	41.3	42.3	42.3	45.3	47.8	2.5 pps
5 - **Employment rate** (% of population 15-64)	64.6	61.7	62.1	62.7	63.7	1.1 pps
Young (15-24)	28.2	23.4	25.8	25.4	26.3	0.9 pps
Prime age (25-54)	78.4	75.5	76.2	76.5	76.6	0.1 pps
Older (55-64)	50.6	49.6	46.9	48.5	52.2	3.7 pps
Low-skilled (15-64)	43.7	40.5	40.4	40.7	42.6	1.9 pps
Medium-skilled (15-64)	66.0	62.4	62.5	62.4	62.6	0.2 pps
High-skilled (15-64)	78.8	76.3	77.3	78.3	78.3	-0.1 pps
Nationals (15-64)	63.3	60.7	60.8	61.6	63.2	1.7 pps
Non-nationals (15-64)	69.3	65.9	68.1	67.5	65.7	-1.8 pps
Male	70.4	67.0	66.1	66.7	68.6	1.9 pps
Young (15-24)	30.4	24.0	25.9	24.0	26.5	2.5 pps
Prime age (25-54)	83.3	80.4	79.6	80.6	81.7	1.0 pps
Older (55-64)	63.6	61.1	57.2	57.7	60.9	3.2 pps
Female	59.4	56.9	58.6	59.0	59.2	0.2 pps
Young (15-24)	26.0	23.0	25.8	26.7	26.3	-0.3 pps
Prime age (25-54)	74.0	71.1	73.1	72.7	72.0	-0.7 pps
Older (55-64)	38.2	38.4	36.9	39.4	43.7	4.3 pps
6 - **Employed persons** (15-64, 1000 pers.)	375.0	356.7	355.1	350.0	353.9	1.1 %
7 - **Employment growth** (%, National accounts)	-3.2	-5.9	-1.8	1.5	3.2	1.7 pps
Employment growth (%, 15-64, LFS)	-2.9	-4.9	-0.4	-1.4	1.1	2.6 pps
Male	-3.1	-5.2	-2.4	-0.9	2.4	3.4 pps
Female	-2.8	-4.5	1.7	-1.9	-0.2	1.7 pps
8 - **Self employed** (15-64, % of total employment)	13.7	14.9	15.2	13.0	12.2	-0.8 pps
Male	18.9	20.4	20.3	15.9	15.5	-0.4 pps
Female	8.1	9.0	10.0	9.9	8.6	-1.3 pps
9 - **Temporary employment** (15-64, % of total employment)	15.1	17.5	19.0	18.4	16.5	-1.9 pps
Male	9.0	10.3	13.1	13.2	11.7	-1.5 pps
Female	20.9	24.2	24.4	23.4	21.3	-2.1 pps
10 - **Part-time** (15-64, % of total employment)	9.7	11.9	13.5	13.0	13.4	0.4 pps
Male	6.4	8.4	10.3	10.3	11.3	1.0 pps
Female	13.1	15.6	16.8	15.8	15.6	-0.2 pps
11 - **Unemployment rate** (harmonised:15-74)	11.9	15.9	16.1	15.0	13.0	-2.0 pps
Young (15-24)	27.7	38.9	36.0	32.8	29.1	-3.7 pps
Prime age (25-49)	10.5	13.9	13.9	13.1	11.7	-1.4 pps
Older (55-64)	9.7	12.4	16.3	15.6	11.5	-4.1 pps
Low-skilled (15-64)	14.2	20.2	20.3	19.4	16.4	-3.0 pps
Medium-skilled (15-64)	12.9	17.2	18.4	16.7	14.5	-2.2 pps
High-skilled (15-64)	10.3	13.3	13.0	12.1	10.9	-1.2 pps
Nationals (15-64)	11.7	16.1	16.9	15.5	13.4	-2.1 pps
Non-nationals (15-64)	13.2	15.9	14.1	13.7	12.6	-1.1 pps
Male	12.6	16.6	17.1	15.1	12.7	-2.4 pps
Female	11.1	15.2	15.1	14.8	13.4	-1.4 pps
12 - **Long-term unemployment** (% of total unemployment)	30.0	38.2	47.7	45.6	44.5	-1.1 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.9	40.8	40.5	40.5	40.9	1.0 %
Male	41.7	41.6	41.7	41.7	42.0	0.7 %
Female	39.9	39.7	39.3	39.1	39.6	1.3 %
14 - **Sectoral employment growth** (% change)						
Agriculture	0.3	-12.0	-3.9	2.1	0.1	-2.0 pps
Building and construction	-14.0	-20.1	-9.5	0.0	5.9	5.9 pps
Services	-1.6	-3.7	0.5	2.6	4.0	1.4 pps
Manufacturing industry	-7.3	-9.9	-4.7	1.7	3.4	1.7 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	1.5	-5.4	-3.8	-0.8	-1.0	-0.3 pps
Real compensation per employee based on GDP	-0.4	-4.4	-2.3	0.5	0.3	-0.2 pps
Labour cost index (compens. of employees plus taxes minus subs.)	0.5	-2.9	-2.9	-0.8	0.8	1.6 pps
Labour cost index (wages and salaries, total)	0.1	-2.6	-3.4	-0.7	0.7	1.4 pps
Labour productivity (GDP/person employed)	0.0	0.0	0.2	0.2	-0.4	-0.6 pps

Latvia	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	2034	2013	1994	1977	1961	-0.8 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	1352	1333	1295	1275	1254	-1.6 %
(% of total population)	66.5	66.2	65.0	64.5	64.0	-0.5 pps
3 - **Labour force** (15-64, 1000 pers.)	1006	986	966	965	957	-0.8 %
Male	499	491	486	486	479	-1.6 %
Female	507	495	480	479	478	-0.1 %
4 - **Activity rate** (% of population 15-64)	74.4	74.0	74.6	75.7	76.3	0.6 pps
Young (15-24)	40.2	39.4	40.4	41.3	39.7	-1.6 pps
Prime age (25-54)	88.4	87.6	87.2	87.6	87.8	0.3 pps
Older (55-64)	61.9	61.2	62.6	65.5	67.6	2.1 pps
Nationals (15-64)	74.3	74.3	74.9	76.1	76.9	0.8 pps
Non-nationals (15-64)	75.0	72.0	72.6	73.3	72.8	-0.5 pps
Male	77.1	76.6	77.8	78.9	78.8	-0.1 pps
Young (15-24)	44.0	42.6	45.3	45.2	43.2	-2.0 pps
Prime age (25-54)	91.2	90.6	90.5	90.7	90.2	-0.4 pps
Older (55-64)	63.2	62.2	63.7	68.0	69.5	1.5 pps
Female	72.0	71.6	71.6	72.8	74.0	1.2 pps
Young (15-24)	36.0	36.0	35.3	37.1	35.9	-1.2 pps
Prime age (25-54)	85.8	84.8	84.0	84.6	85.5	0.9 pps
Older (55-64)	60.9	60.5	61.7	63.6	66.1	2.6 pps
5 - **Employment rate** (% of population 15-64)	63.0	65.0	66.3	68.1	68.7	0.6 pps
Young (15-24)	28.7	30.2	32.5	34.5	32.8	-1.7 pps
Prime age (25-54)	76.3	77.9	78.2	79.2	79.7	0.5 pps
Older (55-64)	52.7	54.8	56.4	59.4	61.4	2.0 pps
Low-skilled (15-64)	31.5	31.8	32.6	34.7	35.5	0.8 pps
Medium-skilled (15-64)	62.8	65.6	67.7	68.8	68.2	-0.6 pps
High-skilled (15-64)	85.3	84.2	83.4	85.1	86.5	1.4 pps
Nationals (15-64)	64.0	66.0	67.0	68.8	69.6	0.8 pps
Non-nationals (15-64)	57.8	59.4	61.9	63.6	63.5	-0.1 pps
Male	64.4	66.8	68.4	69.9	70.0	0.1 pps
Young (15-24)	31.7	33.2	36.5	37.1	34.0	-3.1 pps
Prime age (25-54)	77.6	79.9	80.3	81.2	81.4	0.2 pps
Older (55-64)	53.2	55.1	56.4	60.1	61.3	1.2 pps
Female	61.7	63.4	64.4	66.4	67.6	1.2 pps
Young (15-24)	25.4	27.0	28.2	31.9	31.6	-0.3 pps
Prime age (25-54)	75.0	76.1	76.0	77.3	78.1	0.7 pps
Older (55-64)	52.4	54.6	56.4	58.9	61.4	2.5 pps
6 - **Employed persons** (15-64, 1000 pers.)	851.8	866.5	858.6	867.9	862.3	-0.6 %
7 - **Employment growth** (%, National accounts)	1.4	2.3	-1.3	1.3	-0.1	-1.4 pps
Employment growth (%, 15-64, LFS)	1.3	1.7	-0.9	1.1	-0.6	-1.7 pps
Male	2.5	2.6	-0.3	1.0	-1.4	-2.3 pps
Female	0.2	0.9	-1.5	1.2	0.0	-1.2 pps
8 - **Self employed** (15-64, % of total employment)	10.2	10.5	10.6	11.6	11.8	0.2 pps
Male	12.6	12.6	13.2	14.7	14.7	0.0 pps
Female	8.0	8.4	8.0	8.5	9.0	0.5 pps
9 - **Temporary employment** (15-64, % of total employment)	4.7	4.3	3.3	3.8	3.7	-0.1 pps
Male	6.3	5.3	4.3	4.6	4.6	0.0 pps
Female	3.3	3.4	2.4	3.0	2.8	-0.2 pps
10 - **Part-time** (15-64, % of total employment)	8.9	7.5	6.8	7.2	8.5	1.3 pps
Male	6.7	5.7	4.7	4.5	6.1	1.6 pps
Female	11.0	9.4	8.9	10.0	10.8	0.8 pps
11 - **Unemployment rate** (harmonised:15-74)	15.0	11.9	10.8	9.9	9.6	-0.3 pps
Young (15-24)	28.5	23.2	19.6	16.3	17.3	1.0 pps
Prime age (25-49)	13.7	11.0	10.4	9.5	9.3	-0.2 pps
Older (55-64)	14.7	10.5	9.9	9.3	9.2	-0.1 pps
Low-skilled (15-64)	27.4	25.7	24.5	22.3	21.1	-1.2 pps
Medium-skilled (15-64)	17.8	13.3	11.9	11.1	11.6	0.5 pps
High-skilled (15-64)	6.6	6.1	5.7	5.0	4.4	-0.6 pps
Nationals (15-64)	13.9	11.3	10.5	9.6	9.5	-0.1 pps
Non-nationals (15-64)	22.9	17.5	14.8	13.2	12.7	-0.5 pps
Male	16.2	12.6	11.8	11.1	10.9	-0.2 pps
Female	14.0	11.1	9.8	8.6	8.4	-0.2 pps
12 - **Long-term unemployment** (% of total unemployment)	52.1	48.7	43.0	45.5	41.5	-4.0 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.1	39.9	40.0	39.8	40.3	1.3 %
Male	40.5	40.3	40.3	40.1	40.6	1.2 %
Female	39.7	39.5	39.7	39.5	39.9	1.0 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-0.9	-0.3	-3.8	9.9	3.1	-6.8 pps
Building and construction	-1.4	6.2	3.3	4.3	-0.9	-5.2 pps
Services	1.8	3.6	0.5	1.6	-0.8	-2.4 pps
Manufacturing industry	4.7	0.1	-5.0	-1.2	-1.2	0.0 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	7.7	5.5	8.6	6.9	6.9	0.0 pps
Real compensation per employee based on GDP	3.9	4.0	6.9	6.5	6.1	-0.4 pps
Labour cost index (compens. of employees plus taxes minus subs.)	4.1	4.9	5.9	7.4	7.4	0.0 pps
Labour cost index (wages and salaries, total)	4.3	5.0	7.1	7.4	6.7	-0.7 pps
Labour productivity (GDP/person employed)	2.5	0.3	3.5	1.4	2.0	0.6 pps

Lithuania	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	2988	2958	2932	2905	2869	-1.3 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	2007	1984	1961	1935	1899	-1.8 %
(% of total population)	67.2	67.1	66.9	66.6	66.2	-0.4 pps
3 - **Labour force** (15-64, 1000 pers.)	1441	1436	1446	1434	1433	-0.1 %
Male	713	716	721	710	709	-0.2 %
Female	728	721	724	724	724	0.0 %
4 - **Activity rate** (% of population 15-64)	71.8	72.4	73.7	74.1	75.5	1.3 pps
Young (15-24)	29.3	31.5	34.2	33.8	35.4	1.5 pps
Prime age (25-54)	89.7	89.5	89.7	89.3	89.3	0.1 pps
Older (55-64)	58.7	60.1	63.0	66.2	70.0	3.8 pps
Nationals (15-64)	71.8	72.4	73.7	74.1	75.5	1.4 pps
Non-nationals (15-64)	79.3	81.7	82.1	73.3	70.5	-2.9 pps
Male	73.7	74.7	76.0	75.8	77.1	1.3 pps
Young (15-24)	32.4	35.8	38.6	36.7	38.7	1.9 pps
Prime age (25-54)	90.5	90.6	90.8	90.4	90.2	-0.2 pps
Older (55-64)	64.6	65.3	68.2	69.8	73.6	3.8 pps
Female	70.1	70.3	71.6	72.5	73.9	1.4 pps
Young (15-24)	26.1	27.0	29.6	30.8	31.8	1.1 pps
Prime age (25-54)	89.0	88.3	88.7	88.2	88.5	0.3 pps
Older (55-64)	54.2	56.1	58.9	63.3	67.2	3.8 pps
5 - **Employment rate** (% of population 15-64)	62.0	63.7	65.7	67.2	69.4	2.2 pps
Young (15-24)	21.5	24.6	27.6	28.3	30.2	1.9 pps
Prime age (25-54)	78.5	79.6	80.8	81.6	82.7	1.2 pps
Older (55-64)	51.7	53.4	56.2	60.4	64.6	4.2 pps
Low-skilled (15-64)	15.7	17.1	19.5	19.9	19.2	-0.6 pps
Medium-skilled (15-64)	61.7	63.0	64.6	66.1	67.6	1.6 pps
High-skilled (15-64)	87.0	87.6	88.4	88.7	90.4	1.7 pps
Nationals (15-64)	62.0	63.7	65.6	67.2	69.4	2.2 pps
Non-nationals (15-64)	64.7	73.1	72.6	67.5	64.8	-2.7 pps
Male	62.3	64.7	66.6	68.0	70.0	1.9 pps
Young (15-24)	22.8	27.6	31.0	30.9	32.5	1.7 pps
Prime age (25-54)	77.7	79.8	80.7	81.8	82.6	0.8 pps
Older (55-64)	55.9	56.1	58.8	62.4	66.9	4.4 pps
Female	61.8	62.8	64.9	66.5	68.8	2.4 pps
Young (15-24)	20.1	21.5	24.0	25.7	27.8	2.2 pps
Prime age (25-54)	79.1	79.4	80.9	81.4	82.9	1.5 pps
Older (55-64)	48.6	51.2	54.3	58.8	62.8	4.0 pps
6 - **Employed persons** (15-64, 1000 pers.)	1244.4	1264.3	1288.0	1300.6	1317.7	1.3 %
7 - **Employment growth** (%, National accounts)	1.8	1.3	2.0	1.3	2.0	0.7 pps
Employment growth (%, 15-64, LFS)	1.5	1.6	1.9	1.0	1.3	0.3 pps
Male	2.1	2.9	1.9	0.9	0.9	0.1 pps
Female	1.0	0.4	1.9	1.1	1.7	0.6 pps
8 - **Self employed** (15-64, % of total employment)	9.6	10.5	10.6	10.8	11.1	0.3 pps
Male	12.0	13.0	12.6	13.4	14.3	1.0 pps
Female	7.3	8.1	8.6	8.4	8.1	-0.3 pps
9 - **Temporary employment** (15-64, % of total employment)	2.6	2.7	2.8	2.1	2.0	-0.1 pps
Male	3.5	3.5	3.6	2.4	2.2	-0.2 pps
Female	1.9	1.9	2.0	1.8	1.7	-0.1 pps
10 - **Part-time** (15-64, % of total employment)	8.9	8.4	8.6	7.6	7.1	-0.5 pps
Male	6.9	6.4	6.4	5.5	5.4	-0.1 pps
Female	10.7	10.2	10.6	9.7	8.8	-0.9 pps
11 - **Unemployment rate** (harmonised:15-74)	13.4	11.8	10.7	9.1	7.9	-1.2 pps
Young (15-24)	26.7	21.9	19.3	16.3	14.5	-1.8 pps
Prime age (25-49)	12.6	11.0	9.9	8.6	7.4	-1.2 pps
Older (55-64)	11.9	11.2	10.7	8.7	7.7	-1.0 pps
Low-skilled (15-64)	36.2	33.9	30.7	27.3	25.9	-1.4 pps
Medium-skilled (15-64)	16.7	14.5	13.7	11.9	10.6	-1.3 pps
High-skilled (15-64)	5.7	5.2	4.3	3.7	3.0	-0.7 pps
Nationals (15-64)	13.6	12.0	10.9	9.3	8.1	-1.2 pps
Non-nationals (15-64)	0.0	0.0	0.0	0.0	0.0	0.0 pps
Male	15.2	13.1	12.2	10.1	9.1	-1.0 pps
Female	11.6	10.5	9.2	8.2	6.7	-1.5 pps
12 - **Long-term unemployment** (% of total unemployment)	49.2	42.9	44.6	42.8	38.2	-4.6 pps
13 - **Worked hours** (full-time, average actual weekly hours)	39.8	39.7	39.6	39.6	39.7	0.3 %
Male	40.2	40.2	40.1	40.1	40.3	0.5 %
Female	39.3	39.2	39.1	39.1	39.1	0.0 %
14 - **Sectoral employment growth** (% change)						
Agriculture	5.5	-3.0	11.0	0.2	-10.3	-10.5 pps
Building and construction	5.1	10.9	0.0	5.8	-1.4	-7.2 pps
Services	1.6	2.0	2.6	-0.1	3.5	3.6 pps
Manufacturing industry	2.8	-0.4	-0.4	2.1	3.6	1.5 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	4.2	5.4	4.7	5.3	5.2	-0.1 pps
Real compensation per employee based on GDP	1.5	3.9	3.7	5.1	4.0	-1.1 pps
Labour cost index (compens. of employees plus taxes minus subs.)	4.9	6.8	4.5	5.4	8.4	3.0 pps
Labour cost index (wages and salaries, total)	4.1	6.4	5.0	5.9	8.4	2.5 pps
Labour productivity (GDP/person employed)	2.0	2.1	1.5	0.5	0.3	-0.2 pps

Luxembourg	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	532	545	558	569	584	2.5 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	355	359	364	386	396	2.5 %
(% of total population)	66.8	65.9	65.3	67.8	67.8	0.0 pps
3 - **Labour force** (15-64, 1000 pers.)	247	251	258	274	277	1.2 %
Male	137	139	143	149	151	1.5 %
Female	110	112	116	125	126	1.0 %
4 - **Activity rate** (% of population 15-64)	69.4	69.8	70.8	70.9	70.0	-0.9 pps
Young (15-24)	26.8	25.9	26.4	35.2	30.7	-4.5 pps
Prime age (25-54)	87.0	87.6	88.0	87.7	87.2	-0.6 pps
Older (55-64)	41.9	42.5	44.4	40.4	41.7	1.3 pps
Nationals (15-64)	64.7	65.1	66.3	66.8	66.1	-0.7 pps
Non-nationals (15-64)	74.7	75.0	75.6	75.1	73.8	-1.3 pps
Male	75.9	76.3	77.2	76.0	75.1	-0.9 pps
Young (15-24)	29.0	30.0	29.5	36.3	30.5	-5.8 pps
Prime age (25-54)	94.7	94.4	95.0	93.9	93.0	-0.9 pps
Older (55-64)	48.3	50.7	52.0	45.4	49.1	3.7 pps
Female	62.8	63.2	64.2	65.6	64.7	-0.9 pps
Young (15-24)	24.6	21.9	22.9	34.2	30.9	-3.2 pps
Prime age (25-54)	79.1	80.5	80.9	81.4	81.1	-0.3 pps
Older (55-64)	35.0	34.4	36.5	35.1	34.0	-1.2 pps
5 - **Employment rate** (% of population 15-64)	65.8	65.7	66.6	66.1	65.6	-0.6 pps
Young (15-24)	21.7	21.9	20.3	29.0	24.9	-4.2 pps
Prime age (25-54)	83.1	82.9	83.8	82.6	82.5	-0.1 pps
Older (55-64)	41.1	40.6	42.5	38.4	39.6	1.2 pps
Low-skilled (15-64)	44.7	43.2	41.9	46.8	42.1	-4.7 pps
Medium-skilled (15-64)	65.8	65.4	65.9	65.9	65.3	-0.6 pps
High-skilled (15-64)	83.5	82.9	83.0	83.3	83.8	0.5 pps
Nationals (15-64)	62.6	62.8	63.8	63.9	63.3	-0.5 pps
Non-nationals (15-64)	69.4	69.0	69.7	68.4	67.7	-0.7 pps
Male	72.4	72.1	72.6	71.3	70.5	-0.7 pps
Young (15-24)	23.5	24.2	21.9	29.5	24.3	-5.1 pps
Prime age (25-54)	91.1	90.1	90.6	89.3	88.5	-0.8 pps
Older (55-64)	47.2	48.3	49.7	42.9	46.4	3.5 pps
Female	59.1	59.1	60.5	60.8	60.4	-0.4 pps
Young (15-24)	19.9	19.5	18.8	28.9	25.5	-3.5 pps
Prime age (25-54)	75.0	75.5	76.8	75.7	76.4	0.6 pps
Older (55-64)	34.3	32.3	35.2	33.5	32.4	-1.1 pps
6 - **Employed persons** (15-64, 1000 pers.)	233.7	236.1	242.8	255.2	259.4	1.6 %
7 - **Employment growth** (%, National accounts)	2.4	1.8	2.6	2.6	3.0	0.4 pps
Employment growth (%, 15-64, LFS)	5.1	1.0	2.8	5.1	1.6	-3.5 pps
Male	3.6	0.9	1.9	4.3	1.6	-2.6 pps
Female	6.9	1.1	4.1	6.1	1.7	-4.3 pps
8 - **Self employed** (15-64, % of total employment)	8.0	7.9	7.8	8.6	9.0	0.4 pps
Male	8.7	8.4	9.0	9.4	10.3	0.8 pps
Female	7.1	7.2	6.4	7.5	7.5	0.0 pps
9 - **Temporary employment** (15-64, % of total employment)	7.6	7.0	8.1	10.2	9.0	-1.2 pps
Male	7.2	5.6	7.1	10.2	8.9	-1.3 pps
Female	8.2	8.8	9.2	10.2	9.1	-1.1 pps
10 - **Part-time** (15-64, % of total employment)	18.5	18.7	18.5	18.5	19.2	0.7 pps
Male	4.7	5.1	4.7	5.6	6.2	0.6 pps
Female	36.1	35.9	35.6	34.2	35.1	0.9 pps
11 - **Unemployment rate** (harmonised:15-74)	5.1	5.9	6.0	6.5	6.3	-0.2 pps
Young (15-24)	18.8	15.5	22.6	17.3	18.9	1.6 pps
Prime age (25-49)	4.5	5.3	4.9	5.8	5.3	-0.5 pps
Older (55-64)	2.1	4.7	4.3	4.7	5.0	0.3 pps
Low-skilled (15-64)	8.5	10.3	10.2	10.7	9.9	-0.8 pps
Medium-skilled (15-64)	5.2	5.9	6.3	6.3	6.8	0.5 pps
High-skilled (15-64)	3.6	3.9	4.0	4.7	4.0	-0.7 pps
Nationals (15-64)	3.3	3.6	3.8	4.3	4.2	-0.1 pps
Non-nationals (15-64)	7.0	8.1	7.8	8.9	8.2	-0.7 pps
Male	4.5	5.6	5.8	5.9	6.1	0.2 pps
Female	5.8	6.2	6.4	7.1	6.6	-0.5 pps
12 - **Long-term unemployment** (% of total unemployment)	30.3	30.4	27.3	28.4	34.9	6.5 pps
13 - **Worked hours** (full-time, average actual weekly hours)	41.8	41.4	41.5	41.3	41.1	-0.5 %
Male	42.5	42.2	42.1	42.2	42.0	-0.5 %
Female	40.4	39.9	40.3	39.7	39.5	-0.5 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-0.6	-2.2	-0.9	-0.3	0.2	0.5 pps
Building and construction	1.1	0.0	1.6	1.7	2.6	0.9 pps
Services	2.6	2.0	2.8	3.1	3.9	0.8 pps
Manufacturing industry	-1.5	-2.0	-0.3	1.0	1.2	0.2 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	1.8	2.7	2.1	1.7	0.4	-1.3 pps
Real compensation per employee based on GDP	-0.7	1.2	0.5	1.0	1.1	0.1 pps
Labour cost index (compens. of employees plus taxes minus subs.)	2.5	3.6	3.2	0.5	1.1	0.6 pps
Labour cost index (wages and salaries, total)	2.4	3.6	3.4	0.6	1.2	0.6 pps
Labour productivity (GDP/person employed)	-2.7	2.1	3.0	1.4	1.1	-0.3 pps

Hungary	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	9920	9893	9866	9839	9815	-0.2 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	6694	6647	6588	6530	6478	-0.8 %
(% of total population)	67.5	67.2	66.8	66.4	66.0	-0.4 pps
3 - **Labour force** (15-64, 1000 pers.)	4265	4300	4413	4483	4543	1.3 %
Male	2291	2324	2384	2426	2465	1.6 %
Female	1974	1977	2029	2057	2079	1.0 %
4 - **Activity rate** (% of population 15-64)	63.7	64.7	67.0	68.6	70.1	1.5 pps
Young (15-24)	25.7	27.4	29.5	31.0	32.3	1.3 pps
Prime age (25-54)	82.9	83.3	85.0	85.8	86.1	0.3 pps
Older (55-64)	39.5	41.2	44.6	48.1	52.1	4.0 pps
Nationals (15-64)	63.7	64.6	66.9	68.6	70.1	1.5 pps
Non-nationals (15-64)	68.8	72.6	74.9	70.6	68.4	-2.2 pps
Male	69.6	71.0	73.4	75.3	76.9	1.7 pps
Young (15-24)	27.9	31.0	33.0	34.4	36.1	1.8 pps
Prime age (25-54)	89.4	89.5	91.2	92.0	92.4	0.4 pps
Older (55-64)	45.4	49.0	53.2	57.8	62.4	4.6 pps
Female	58.0	58.6	60.7	62.2	63.5	1.3 pps
Young (15-24)	23.4	23.6	25.9	27.5	28.2	0.8 pps
Prime age (25-54)	76.5	77.1	78.8	79.6	79.8	0.2 pps
Older (55-64)	34.5	34.7	37.4	39.9	43.5	3.6 pps
5 - **Employment rate** (% of population 15-64)	56.7	58.1	61.8	63.9	66.5	2.6 pps
Young (15-24)	18.4	20.1	23.5	25.7	28.1	2.5 pps
Prime age (25-54)	74.6	75.7	79.2	80.6	82.2	1.6 pps
Older (55-64)	36.1	37.9	41.8	45.3	49.8	4.5 pps
Low-skilled (15-64)	26.0	26.9	31.5	33.9	36.6	2.7 pps
Medium-skilled (15-64)	61.9	63.3	66.7	68.8	71.5	2.7 pps
High-skilled (15-64)	78.5	78.8	80.8	82.1	84.4	2.3 pps
Nationals (15-64)	56.6	58.0	61.7	63.9	66.5	2.6 pps
Non-nationals (15-64)	61.2	64.6	71.0	67.5	65.3	-2.2 pps
Male	61.6	63.7	67.8	70.3	73.0	2.7 pps
Young (15-24)	19.8	23.0	26.4	28.1	31.5	3.4 pps
Prime age (25-54)	80.2	81.4	85.3	86.8	88.2	1.4 pps
Older (55-64)	41.4	44.8	49.6	54.4	59.7	5.3 pps
Female	51.9	52.6	55.9	57.8	60.2	2.4 pps
Young (15-24)	17.0	17.0	20.5	23.1	24.6	1.5 pps
Prime age (25-54)	69.0	70.0	73.2	74.4	76.2	1.8 pps
Older (55-64)	31.7	32.1	35.2	37.7	41.5	3.8 pps
6 - **Employed persons** (15-64, 1000 pers.)	3792.8	3860.0	4069.9	4175.8	4309.4	3.2 %
7 - **Employment growth** (%, National accounts)	0.2	1.1	4.8	2.3	2.2	-0.1 pps
Employment growth (%, 15-64, LFS)	1.8	1.8	5.4	2.6	3.2	0.6 pps
Male	1.4	2.8	5.7	2.8	3.2	0.4 pps
Female	2.4	0.6	5.2	2.4	3.2	0.8 pps
8 - **Self employed** (15-64, % of total employment)	11.0	10.6	10.3	10.2	10.0	-0.2 pps
Male	13.7	13.2	13.0	12.6	12.1	-0.4 pps
Female	8.0	7.5	7.1	7.4	7.5	0.1 pps
9 - **Temporary employment** (15-64, % of total employment)	9.5	10.9	10.8	11.4	9.7	-1.7 pps
Male	10.5	11.4	11.2	11.6	9.4	-2.2 pps
Female	8.5	10.4	10.3	11.1	10.2	-0.9 pps
10 - **Part-time** (15-64, % of total employment)	6.7	6.4	6.0	5.7	4.8	-0.9 pps
Male	4.3	4.2	4.1	4.0	3.1	-0.9 pps
Female	9.4	9.0	8.3	7.7	6.8	-0.9 pps
11 - **Unemployment rate** (harmonised:15-74)	11.0	10.2	7.7	6.8	5.1	-1.7 pps
Young (15-24)	28.2	26.6	20.4	17.3	12.9	-4.4 pps
Prime age (25-49)	10.0	9.1	6.8	6.0	4.5	-1.5 pps
Older (55-64)	8.4	8.1	6.4	5.8	4.4	-1.4 pps
Low-skilled (15-64)	25.0	23.8	18.6	17.4	13.3	-4.1 pps
Medium-skilled (15-64)	10.8	10.0	7.4	6.4	4.8	-1.6 pps
High-skilled (15-64)	4.5	4.0	3.2	2.4	1.8	-0.6 pps
Nationals (15-64)	11.1	10.2	7.8	6.9	5.2	-1.7 pps
Non-nationals (15-64)	11.1	10.9	0.0	0.0	0.0	0.0 pps
Male	11.3	10.2	7.6	6.6	5.1	-1.5 pps
Female	10.6	10.1	7.9	7.0	5.1	-1.9 pps
12 - **Long-term unemployment** (% of total unemployment)	45.4	48.5	47.4	45.5	46.5	1.0 pps
13 - **Worked hours** (full-time, average actual weekly hours)	39.6	39.4	39.3	39.3	39.8	1.3 %
Male	40.3	40.0	39.8	39.9	40.4	1.3 %
Female	38.9	38.6	38.7	38.6	39.1	1.3 %
14 - **Sectoral employment growth** (% change)						
Agriculture	3.9	-2.5	1.3	-3.9	0.2	4.1 pps
Building and construction	-0.4	0.0	3.3	0.7	-1.1	-1.8 pps
Services	2.0	2.9	6.5	2.5	3.3	0.7 pps
Manufacturing industry	-3.2	-4.6	2.9	0.0	2.6	2.6 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	2.0	1.6	1.3	1.5	5.3	3.8 pps
Real compensation per employee based on GDP	-1.4	-1.3	-2.0	-0.2	4.3	4.5 pps
Labour cost index (compens. of employees plus taxes minus subs.)	5.5	2.3	3.6	3.9	4.9	1.0 pps
Labour cost index (wages and salaries, total)	5.5	3.8	3.9	4.2	5.2	1.0 pps
Labour productivity (GDP/person employed)	-1.8	1.0	-0.7	0.9	-0.2	-1.1 pps

Malta	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	419	423	427	432	438	1.3 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	284	285	285	285	287	0.6 %
(% of total population)	67.7	67.2	66.7	66.0	65.6	-0.4 pps
3 - **Labour force** (15-64, 1000 pers.)	179	185	189	193	198	2.9 %
Male	113	115	116	118	120	2.1 %
Female	67	70	73	75	78	4.0 %
4 - **Activity rate** (% of population 15-64)	63.1	65.0	66.3	67.6	69.1	1.5 pps
Young (15-24)	51.0	52.7	52.3	51.7	51.9	0.2 pps
Prime age (25-54)	76.5	78.1	79.6	80.9	82.0	1.0 pps
Older (55-64)	36.0	38.5	40.3	42.3	45.5	3.2 pps
Nationals (15-64)	62.9	65.0	66.2	67.5	69.0	1.5 pps
Non-nationals (15-64)	67.4	65.3	68.3	68.3	70.1	1.8 pps
Male	78.3	79.3	79.9	80.8	82.0	1.3 pps
Young (15-24)	54.1	56.0	52.9	53.3	54.5	1.2 pps
Prime age (25-54)	94.3	94.5	95.1	95.4	95.9	0.5 pps
Older (55-64)	54.9	57.1	60.1	62.2	63.7	1.5 pps
Female	47.5	50.2	52.2	53.8	55.6	1.8 pps
Young (15-24)	47.8	49.6	51.7	50.0	49.4	-0.6 pps
Prime age (25-54)	58.2	61.1	63.5	65.8	67.3	1.5 pps
Older (55-64)	17.2	19.7	20.7	22.8	26.9	4.1 pps
5 - **Employment rate** (% of population 15-64)	59.1	60.8	62.4	63.9	65.7	1.9 pps
Young (15-24)	43.7	46.0	46.2	45.6	46.1	0.5 pps
Prime age (25-54)	72.6	74.0	75.9	77.4	78.8	1.4 pps
Older (55-64)	34.6	36.3	37.8	40.3	44.1	3.8 pps
Low-skilled (15-64)	48.0	48.9	50.4	52.0	54.6	2.6 pps
Medium-skilled (15-64)	66.5	68.3	69.8	69.6	69.8	0.2 pps
High-skilled (15-64)	85.4	86.6	86.5	88.6	89.6	1.0 pps
Nationals (15-64)	59.0	60.9	62.5	63.9	65.8	1.9 pps
Non-nationals (15-64)	61.4	58.5	61.2	63.4	66.4	2.9 pps
Male	73.8	74.1	74.9	76.2	78.3	2.1 pps
Young (15-24)	46.6	47.5	45.7	46.0	48.5	2.5 pps
Prime age (25-54)	89.7	89.6	90.6	91.2	92.6	1.4 pps
Older (55-64)	53.2	54.1	56.0	58.8	61.7	2.9 pps
Female	44.0	47.1	49.4	51.0	52.7	1.7 pps
Young (15-24)	40.7	44.4	46.7	45.3	43.9	-1.4 pps
Prime age (25-54)	55.0	57.9	60.6	62.8	64.3	1.5 pps
Older (55-64)	16.2	18.6	20.0	21.8	26.5	4.8 pps
6 - **Employed persons** (15-64, 1000 pers.)	167.8	173.0	177.9	182.2	188.7	3.6 %
7 - **Employment growth** (%, National accounts)	2.5	3.7	5.1	3.9	3.7	-0.2 pps
Employment growth (%, 15-64, LFS)	2.1	3.1	2.8	2.4	3.6	1.2 pps
Male	0.0	0.9	1.4	2.0	3.3	1.3 pps
Female	6.0	6.8	4.9	3.0	4.1	1.0 pps
8 - **Self employed** (15-64, % of total employment)	13.1	13.3	13.2	13.3	13.1	-0.2 pps
Male	17.1	17.7	17.3	17.6	17.9	0.3 pps
Female	6.0	6.1	6.7	6.7	5.8	-0.9 pps
9 - **Temporary employment** (15-64, % of total employment)	6.8	7.5	7.7	7.4	7.5	0.1 pps
Male	6.1	6.8	6.6	6.5	6.2	-0.3 pps
Female	8.0	8.4	9.3	8.7	9.3	0.6 pps
10 - **Part-time** (15-64, % of total employment)	13.2	14.2	15.5	14.5	14.0	-0.5 pps
Male	5.7	6.7	7.0	6.3	5.9	-0.4 pps
Female	26.2	26.5	28.8	27.3	26.5	-0.8 pps
11 - **Unemployment rate** (harmonised:15-74)	6.3	6.4	5.8	5.4	4.7	-0.7 pps
Young (15-24)	14.1	13.0	11.7	11.8	11.0	-0.8 pps
Prime age (25-49)	5.1	5.2	4.6	4.4	3.9	-0.5 pps
Older (55-64)	3.8	5.7	6.3	4.8	3.2	-1.6 pps
Low-skilled (15-64)	9.6	10.0	9.2	8.8	7.6	-1.2 pps
Medium-skilled (15-64)	4.1	4.2	3.7	3.6	3.4	-0.2 pps
High-skilled (15-64)	2.6	2.6	2.6	1.8	1.5	-0.3 pps
Nationals (15-64)	6.3	6.3	5.7	5.4	4.7	-0.7 pps
Non-nationals (15-64)	8.7	10.9	10.1	6.9	5.9	-1.0 pps
Male	5.7	6.5	6.1	5.5	4.4	-1.1 pps
Female	7.3	6.3	5.3	5.2	5.2	0.0 pps
12 - **Long-term unemployment** (% of total unemployment)	48.4	45.6	46.9	43.4	40.7	-2.7 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.4	40.3	40.1	40.0	40.7	1.8 %
Male	41.4	41.3	41.1	41.1	41.8	1.7 %
Female	38.1	38.1	38.0	37.7	38.4	1.9 %
14 - **Sectoral employment growth** (% change)						
Agriculture	1.8	-3.9	-5.0	1.2	1.6	0.4 pps
Building and construction	-0.3	-2.2	0.6	3.3	1.0	-2.3 pps
Services	4.1	4.7	7.3	5.9	5.3	-0.5 pps
Manufacturing industry	-2.7	1.4	1.8	-0.1	-1.3	-1.2 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	3.6	2.0	1.6	3.2	2.7	-0.5 pps
Real compensation per employee based on GDP	1.4	0.0	-0.7	0.8	1.2	0.5 pps
Labour cost index (compens. of employees plus taxes minus subs.)	4.9	4.8	2.2	4.6	-2.3	-6.9 pps
Labour cost index (wages and salaries, total)	4.9	4.8	2.3	4.5	-2.3	-6.8 pps
Labour productivity (GDP/person employed)	0.1	0.8	2.9	3.0	1.8	-1.2 pps

Netherlands	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	16752	16800	16863	16932	17030	0.6 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	10992	11014	10980	10950	10988	0.3 %
(% of total population)	65.6	65.6	65.1	64.7	64.5	-0.2 pps
3 - **Labour force** (15-64, 1000 pers.)	8684	8743	8677	8719	8754	0.4 %
Male	4632	4663	4638	4641	4645	0.1 %
Female	4053	4079	4040	4078	4109	0.8 %
4 - **Activity rate** (% of population 15-64)	79.0	79.4	79.0	79.6	79.7	0.0 pps
Young (15-24)	69.2	69.2	67.4	68.5	68.2	-0.3 pps
Prime age (25-54)	87.6	87.4	87.1	87.1	86.9	-0.2 pps
Older (55-64)	60.8	63.5	64.9	67.1	68.4	1.2 pps
Nationals (15-64)	79.5	80.0	79.6	80.2	80.3	0.1 pps
Non-nationals (15-64)	69.8	68.9	69.1	69.0	68.8	-0.2 pps
Male	83.9	84.3	84.2	84.6	84.4	-0.2 pps
Young (15-24)	67.7	68.4	67.0	67.6	67.2	-0.3 pps
Prime age (25-54)	93.0	92.3	92.2	92.1	91.7	-0.3 pps
Older (55-64)	70.6	74.2	75.5	77.6	78.2	0.6 pps
Female	74.0	74.4	73.8	74.7	75.0	0.3 pps
Young (15-24)	70.8	70.0	67.7	69.4	69.2	-0.2 pps
Prime age (25-54)	82.3	82.6	81.9	82.1	82.2	0.0 pps
Older (55-64)	51.0	52.8	54.3	56.7	58.6	1.9 pps
5 - **Employment rate** (% of population 15-64)	74.4	73.6	73.1	74.1	74.8	0.7 pps
Young (15-24)	61.1	60.1	58.8	60.8	60.8	0.1 pps
Prime age (25-54)	83.6	82.2	81.7	82.2	82.9	0.7 pps
Older (55-64)	57.6	59.2	59.9	61.7	63.5	1.8 pps
Low-skilled (15-64)	58.8	57.2	55.6	57.0	57.8	0.7 pps
Medium-skilled (15-64)	77.6	76.2	76.0	76.5	77.4	0.9 pps
High-skilled (15-64)	86.6	86.9	86.8	87.4	87.4	0.0 pps
Nationals (15-64)	75.0	74.4	73.9	74.9	75.6	0.7 pps
Non-nationals (15-64)	62.1	59.3	60.5	59.8	61.5	1.7 pps
Male	79.3	78.2	78.1	79.0	79.6	0.6 pps
Young (15-24)	59.7	59.2	58.7	59.9	59.6	-0.3 pps
Prime age (25-54)	89.1	86.8	86.9	87.5	88.1	0.6 pps
Older (55-64)	66.9	68.9	69.4	71.1	72.8	1.7 pps
Female	69.4	69.0	68.1	69.2	70.1	0.9 pps
Young (15-24)	62.5	61.0	58.8	61.7	62.1	0.4 pps
Prime age (25-54)	78.1	77.5	76.5	77.0	77.7	0.8 pps
Older (55-64)	48.3	49.5	50.4	52.4	54.2	1.8 pps
6 - **Employed persons** (15-64, 1000 pers.)	8174.5	8103.6	8028.5	8115.5	8223.4	1.3 %
7 - **Employment growth** (%, National accounts)	-0.2	-1.2	-0.1	0.9	1.1	0.2 pps
Employment growth (%, 15-64, LFS)	0.3	-0.9	-0.9	1.1	1.3	0.2 pps
Male	0.0	-1.2	-0.5	0.7	1.1	0.3 pps
Female	0.6	-0.5	-1.5	1.5	1.6	0.1 pps
8 - **Self employed** (15-64, % of total employment)	14.0	14.8	15.1	15.3	15.5	0.2 pps
Male	17.2	18.1	18.4	18.3	18.6	0.3 pps
Female	10.4	11.0	11.4	12.0	12.1	0.1 pps
9 - **Temporary employment** (15-64, % of total employment)	19.2	20.2	21.1	20.0	20.6	0.6 pps
Male	18.1	19.2	20.2	18.8	19.3	0.5 pps
Female	20.4	21.3	22.0	21.2	22.0	0.8 pps
10 - **Part-time** (15-64, % of total employment)	49.0	49.8	49.6	50.0	49.7	-0.3 pps
Male	24.6	26.0	26.1	26.5	26.2	-0.3 pps
Female	77.0	77.1	76.7	76.9	76.4	-0.5 pps
11 - **Unemployment rate** (harmonised:15-74)	5.8	7.3	7.4	6.9	6.0	-0.9 pps
Young (15-24)	11.7	13.2	12.7	11.3	10.8	-0.5 pps
Prime age (25-49)	4.6	6.0	6.2	5.6	4.6	-1.0 pps
Older (55-64)	5.3	6.8	7.7	8.1	7.2	-0.9 pps
Low-skilled (15-64)	9.4	11.5	12.3	11.3	10.0	-1.3 pps
Medium-skilled (15-64)	5.6	7.3	7.5	7.0	6.1	-0.9 pps
High-skilled (15-64)	3.4	4.1	4.0	3.8	3.5	-0.3 pps
Nationals (15-64)	5.6	7.0	7.2	6.6	5.8	-0.8 pps
Non-nationals (15-64)	11.0	13.9	12.4	13.3	10.6	-2.7 pps
Male	5.5	7.2	7.2	6.5	5.6	-0.9 pps
Female	6.2	7.3	7.8	7.3	6.5	-0.8 pps
12 - **Long-term unemployment** (% of total unemployment)	33.5	35.3	39.4	43.2	42.4	-0.8 pps
13 - **Worked hours** (full-time, average actual weekly hours)	41.3	41.3	41.7	41.5	41.7	0.5 %
Male	41.8	41.9	42.2	42.1	42.3	0.5 %
Female	39.4	39.3	39.8	39.6	39.9	0.8 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-1.0	-1.5	-0.5	-0.5	0.5	1.0 pps
Building and construction	-2.5	-6.1	-2.5	-0.9	-0.4	0.5 pps
Services	0.1	-0.8	1.0	2.4	2.1	-0.4 pps
Manufacturing industry	-1.1	-1.8	-0.5	0.1	0.3	0.2 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	2.1	2.1	1.6	-0.3	1.6	1.9 pps
Real compensation per employee based on GDP	1.1	0.8	1.5	-1.1	0.6	1.6 pps
Labour cost index (compens. of employees plus taxes minus subs.)	3.0	1.8	1.2	-0.2	0.9	1.1 pps
Labour cost index (wages and salaries, total)	2.0	1.2	-0.3	1.8	1.1	-0.7 pps
Labour productivity (GDP/person employed)	-0.9	1.0	1.5	1.3	1.1	-0.2 pps

Austria	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	8426	8477	8544	8630	8739	1.3 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	5621	5643	5676	5721	5790	1.2 %
(% of total population)	66.7	66.6	66.4	66.3	66.3	0.0 pps
3 - **Labour force** (15-64, 1000 pers.)	4222	4261	4279	4319	4412	2.2 %
Male	2241	2257	2260	2287	2340	2.3 %
Female	1981	2004	2018	2032	2072	1.9 %
4 - **Activity rate** (% of population 15-64)	75.1	75.5	75.4	75.5	76.2	0.7 pps
Young (15-24)	59.2	58.8	58.0	57.4	57.5	0.0 pps
Prime age (25-54)	88.1	88.3	88.0	88.0	88.4	0.4 pps
Older (55-64)	43.1	45.5	46.9	48.6	51.7	3.2 pps
Nationals (15-64)	75.8	76.3	76.0	76.2	77.2	1.0 pps
Non-nationals (15-64)	70.4	70.4	71.6	71.5	71.3	-0.3 pps
Male	80.2	80.4	80.0	80.1	80.7	0.6 pps
Young (15-24)	63.1	62.3	60.7	60.7	60.2	-0.5 pps
Prime age (25-54)	92.3	92.1	91.5	91.6	91.8	0.2 pps
Older (55-64)	52.3	55.1	56.8	57.4	61.2	3.8 pps
Female	70.1	70.7	70.8	70.9	71.7	0.8 pps
Young (15-24)	55.4	55.3	55.4	54.1	54.6	0.5 pps
Prime age (25-54)	84.0	84.5	84.5	84.4	84.9	0.5 pps
Older (55-64)	34.5	36.4	37.5	40.2	42.7	2.5 pps
5 - **Employment rate** (% of population 15-64)	71.4	71.4	71.1	71.1	71.5	0.4 pps
Young (15-24)	53.7	53.1	52.1	51.4	51.0	-0.3 pps
Prime age (25-54)	84.3	84.0	83.4	83.5	83.6	0.1 pps
Older (55-64)	41.6	43.8	45.1	46.3	49.2	2.9 pps
Low-skilled (15-64)	48.3	47.3	47.5	47.2	47.3	0.0 pps
Medium-skilled (15-64)	75.8	76.2	73.8	73.5	73.8	0.3 pps
High-skilled (15-64)	86.2	85.3	83.3	83.3	84.0	0.8 pps
Nationals (15-64)	72.5	72.7	72.3	72.5	73.3	0.8 pps
Non-nationals (15-64)	63.7	63.3	63.6	63.3	62.6	-0.7 pps
Male	76.2	76.0	75.3	75.1	75.4	0.3 pps
Young (15-24)	57.1	56.4	54.3	54.0	52.9	-1.0 pps
Prime age (25-54)	88.3	87.5	86.6	86.6	86.6	-0.1 pps
Older (55-64)	50.2	52.8	54.3	54.1	57.6	3.5 pps
Female	66.7	66.9	66.9	67.1	67.7	0.6 pps
Young (15-24)	50.3	49.7	49.9	48.7	49.0	0.3 pps
Prime age (25-54)	80.4	80.5	80.3	80.3	80.6	0.3 pps
Older (55-64)	33.5	35.2	36.4	38.8	41.1	2.3 pps
6 - **Employed persons** (15-64, 1000 pers.)	4013.4	4030.0	4034.2	4067.6	4142.7	1.8 %
7 - **Employment growth** (%, National accounts)	1.0	0.3	0.9	0.6	1.3	0.7 pps
Employment growth (%, 15-64, LFS)	0.8	0.4	0.1	0.8	1.8	1.0 pps
Male	0.4	0.2	-0.3	0.9	2.0	1.1 pps
Female	1.2	0.6	0.6	0.8	1.7	0.9 pps
8 - **Self employed** (15-64, % of total employment)	10.8	11.0	10.9	11.0	10.8	-0.2 pps
Male	13.2	13.3	13.3	13.3	13.2	-0.1 pps
Female	8.2	8.4	8.3	8.4	8.1	-0.3 pps
9 - **Temporary employment** (15-64, % of total employment)	9.3	9.2	9.2	9.1	9.0	-0.1 pps
Male	9.3	9.4	9.2	9.1	8.9	-0.2 pps
Female	9.3	9.0	9.2	9.1	9.1	0.0 pps
10 - **Part-time** (15-64, % of total employment)	25.2	26.0	26.9	27.3	27.8	0.5 pps
Male	8.0	9.0	9.6	9.8	10.5	0.7 pps
Female	44.6	45.1	46.3	46.8	47.1	0.3 pps
11 - **Unemployment rate** (harmonised:15-74)	4.9	5.4	5.6	5.7	6.0	0.3 pps
Young (15-24)	9.4	9.7	10.3	10.6	11.2	0.6 pps
Prime age (25-49)	4.3	4.9	5.2	5.2	5.4	0.2 pps
Older (55-64)	3.4	3.8	3.8	4.7	5.0	0.3 pps
Low-skilled (15-64)	10.1	10.6	11.8	11.5	13.0	1.5 pps
Medium-skilled (15-64)	4.5	4.8	5.1	5.5	5.8	0.3 pps
High-skilled (15-64)	2.4	3.5	4.0	3.9	3.6	-0.3 pps
Nationals (15-64)	4.3	4.7	4.8	4.9	5.0	0.1 pps
Non-nationals (15-64)	9.5	10.1	11.3	11.4	12.1	0.7 pps
Male	5.0	5.4	5.9	6.1	6.5	0.4 pps
Female	4.8	5.3	5.4	5.3	5.6	0.3 pps
12 - **Long-term unemployment** (% of total unemployment)	24.9	24.6	27.2	29.2	32.2	3.0 pps
13 - **Worked hours** (full-time, average actual weekly hours)	41.6	41.4	41.3	40.9	41.0	0.2 %
Male	42.4	42.2	42.0	41.5	41.7	0.5 %
Female	40.2	39.9	39.9	39.5	39.5	0.0 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-5.5	-1.4	3.2	-6.4	-2.7	3.7 pps
Building and construction	0.9	-0.7	0.5	0.1	0.9	0.8 pps
Services	1.7	0.5	1.0	1.2	1.5	0.2 pps
Manufacturing industry	1.3	-0.7	0.1	0.6	1.6	1.0 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	2.7	2.1	1.9	1.9	1.3	-0.5 pps
Real compensation per employee based on GDP	0.7	0.5	0.1	0.0	0.1	0.1 pps
Labour cost index (compens. of employees plus taxes minus subs.)	4.2	2.9	2.8	3.1	0.6	-2.5 pps
Labour cost index (wages and salaries, total)	4.1	2.8	3.0	3.2	0.5	-2.7 pps
Labour productivity (GDP/person employed)	-0.3	-0.2	-0.3	0.3	0.2	-0.1 pps

Poland	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	38534	38502	38484	38455	38427	-0.1 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	25697	25525	25278	25128	24649	-1.9 %
(% of total population)	66.7	66.3	65.7	65.3	64.1	-1.2 pps
3 - **Labour force** (15-64, 1000 pers.)	17086	17101	17153	17112	16961	-0.9 %
Male	9394	9409	9419	9389	9315	-0.8 %
Female	7691	7692	7734	7723	7646	-1.0 %
4 - **Activity rate** (% of population 15-64)	66.5	67.0	67.9	68.1	68.8	0.7 pps
Young (15-24)	33.6	33.3	33.9	32.8	34.5	1.7 pps
Prime age (25-54)	84.6	84.6	85.1	85.1	84.9	-0.2 pps
Older (55-64)	41.8	44.0	45.6	46.9	48.3	1.4 pps
Nationals (15-64)	66.5	67.0	67.8	68.1	68.8	0.7 pps
Non-nationals (15-64)	71.7	71.3	73.7	67.8	67.9	0.1 pps
Male	73.3	73.9	74.6	74.8	75.7	0.9 pps
Young (15-24)	38.5	38.4	38.8	38.4	39.8	1.4 pps
Prime age (25-54)	90.0	90.0	90.5	90.6	90.8	0.2 pps
Older (55-64)	53.5	55.9	57.2	57.5	58.6	1.1 pps
Female	59.7	60.1	61.1	61.4	62.0	0.6 pps
Young (15-24)	28.4	27.9	28.7	26.9	28.9	2.0 pps
Prime age (25-54)	79.1	79.1	79.6	79.6	79.0	-0.6 pps
Older (55-64)	31.3	33.3	35.2	37.3	39.0	1.7 pps
5 - **Employment rate** (% of population 15-64)	59.7	60.0	61.7	62.9	64.5	1.6 pps
Young (15-24)	24.7	24.2	25.8	26.0	28.4	2.4 pps
Prime age (25-54)	77.2	77.0	78.4	79.5	80.3	0.9 pps
Older (55-64)	38.7	40.6	42.5	44.3	46.2	1.8 pps
Low-skilled (15-64)	23.4	22.4	22.7	23.3	23.0	-0.3 pps
Medium-skilled (15-64)	61.7	61.6	62.9	64.0	65.6	1.7 pps
High-skilled (15-64)	82.1	82.3	83.9	85.0	85.8	0.8 pps
Nationals (15-64)	59.7	60.0	61.7	62.9	64.5	1.6 pps
Non-nationals (15-64)	66.1	60.8	66.0	62.4	60.5	-2.0 pps
Male	66.3	66.6	68.2	69.2	71.0	1.7 pps
Young (15-24)	29.3	28.6	30.0	30.5	32.9	2.4 pps
Prime age (25-54)	82.9	82.7	83.9	84.9	86.1	1.2 pps
Older (55-64)	49.3	51.3	53.1	54.2	55.7	1.5 pps
Female	53.1	53.4	55.2	56.6	58.1	1.4 pps
Young (15-24)	19.9	19.5	21.4	21.3	23.7	2.4 pps
Prime age (25-54)	71.5	71.2	72.7	73.9	74.5	0.5 pps
Older (55-64)	29.2	31.0	32.9	35.5	37.6	2.1 pps
6 - **Employed persons** (15-64, 1000 pers.)	15340.3	15313.3	15591.0	15811.6	15901.8	0.6 %
7 - **Employment growth** (%, National accounts)	0.1	-0.1	1.7	1.5	0.6	-0.9 pps
Employment growth (%, 15-64, LFS)	0.2	-0.2	1.8	1.4	0.6	-0.8 pps
Male	0.0	-0.1	1.4	1.0	0.5	-0.4 pps
Female	0.4	-0.2	2.3	2.0	0.6	-1.4 pps
8 - **Self employed** (15-64, % of total employment)	18.4	18.1	17.9	17.9	17.7	-0.2 pps
Male	22.2	21.9	21.9	21.8	21.7	-0.1 pps
Female	13.8	13.4	13.0	13.1	12.7	-0.4 pps
9 - **Temporary employment** (15-64, % of total employment)	26.8	26.8	28.3	28.0	27.5	-0.5 pps
Male	27.3	27.2	28.5	28.0	27.3	-0.7 pps
Female	26.2	26.3	28.0	27.9	27.6	-0.3 pps
10 - **Part-time** (15-64, % of total employment)	7.2	7.1	7.1	6.8	6.4	-0.4 pps
Male	4.5	4.5	4.4	4.2	3.7	-0.5 pps
Female	10.6	10.4	10.3	9.9	9.7	-0.2 pps
11 - **Unemployment rate** (harmonised:15-74)	10.1	10.3	9.0	7.5	6.2	-1.3 pps
Young (15-24)	26.5	27.3	23.9	20.8	17.7	-3.1 pps
Prime age (25-49)	8.8	9.0	7.9	6.6	5.4	-1.2 pps
Older (55-64)	7.4	7.7	6.8	5.4	4.4	-1.0 pps
Low-skilled (15-64)	20.3	21.3	19.7	17.3	14.9	-2.4 pps
Medium-skilled (15-64)	11.0	11.5	10.2	8.4	7.0	-1.4 pps
High-skilled (15-64)	5.7	5.7	4.7	4.0	3.3	-0.7 pps
Nationals (15-64)	10.2	10.4	9.1	7.6	6.2	-1.4 pps
Non-nationals (15-64)	0.0	14.6	0.0	0.0	11.0	11.0 pps
Male	9.4	9.7	8.5	7.3	6.1	-1.2 pps
Female	10.9	11.1	9.6	7.7	6.2	-1.5 pps
12 - **Long-term unemployment** (% of total unemployment)	40.3	42.5	42.7	39.3	34.9	-4.4 pps
13 - **Worked hours** (full-time, average actual weekly hours)	41.0	40.8	41.1	41.1	41.2	0.2 %
Male	42.4	42.2	42.3	42.3	42.3	0.0 %
Female	39.2	39.0	39.4	39.4	39.6	0.5 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-2.4	-4.8	-2.6	2.1	-8.0	-10.1 pps
Building and construction	-2.8	-5.5	-0.9	1.9	0.7	-1.2 pps
Services	1.2	-0.5	3.6	1.9	0.8	-1.1 pps
Manufacturing industry	-0.5	2.2	2.2	3.0	4.9	1.9 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	3.6	1.7	2.2	1.7	1.3	-0.4 pps
Real compensation per employee based on GDP	1.2	1.4	1.7	0.9	1.1	0.2 pps
Labour cost index (compens. of employees plus taxes minus subs.)	3.0	3.4	3.6	4.1	3.7	-0.4 pps
Labour cost index (wages and salaries, total)	3.0	3.4	3.6	4.1	3.7	-0.4 pps
Labour productivity (GDP/person employed)	1.5	1.5	1.5	2.3	2.1	-0.2 pps

Portugal	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	10515	10457	10401	10358	10326	-0.3 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	6930	6859	6794	6743	6700	-0.6 %
(% of total population)	65.9	65.6	65.3	65.1	64.9	-0.2 pps
3 - **Labour force** (15-64, 1000 pers.)	5087	5010	4976	4949	4940	-0.2 %
Male	2609	2550	2523	2501	2498	-0.1 %
Female	2478	2460	2454	2448	2441	-0.3 %
4 - **Activity rate** (% of population 15-64)	73.4	73.0	73.2	73.4	73.7	0.3 pps
Young (15-24)	37.1	35.0	34.3	33.5	33.2	-0.4 pps
Prime age (25-54)	88.5	88.3	88.6	88.8	89.1	0.3 pps
Older (55-64)	53.3	54.4	55.3	57.0	58.5	1.4 pps
Nationals (15-64)	73.2	72.9	73.2	73.3	73.6	0.3 pps
Non-nationals (15-64)	80.0	77.5	76.3	76.7	78.7	1.9 pps
Male	77.3	76.5	76.7	76.7	77.2	0.5 pps
Young (15-24)	39.2	36.2	34.8	34.2	35.0	0.8 pps
Prime age (25-54)	92.1	91.1	91.6	91.7	91.9	0.2 pps
Older (55-64)	60.4	62.7	64.0	65.0	66.9	1.9 pps
Female	69.7	69.8	70.0	70.3	70.5	0.2 pps
Young (15-24)	34.9	33.8	33.8	32.8	31.3	-1.6 pps
Prime age (25-54)	85.0	85.5	85.8	86.0	86.6	0.5 pps
Older (55-64)	47.0	46.9	47.5	49.9	51.0	1.1 pps
5 - **Employment rate** (% of population 15-64)	61.4	60.6	62.6	63.9	65.2	1.3 pps
Young (15-24)	23.0	21.7	22.4	22.8	23.9	1.1 pps
Prime age (25-54)	75.5	74.6	77.4	78.8	80.2	1.3 pps
Older (55-64)	46.5	46.9	47.8	49.9	52.1	2.1 pps
Low-skilled (15-64)	56.2	54.7	55.4	56.3	57.0	0.8 pps
Medium-skilled (15-64)	62.9	63.5	65.9	66.9	68.3	1.4 pps
High-skilled (15-64)	78.7	76.9	79.4	80.4	81.8	1.5 pps
Nationals (15-64)	61.5	60.8	62.7	64.0	65.3	1.3 pps
Non-nationals (15-64)	58.7	54.9	59.4	61.4	65.1	3.7 pps
Male	64.5	63.5	65.8	66.9	68.3	1.4 pps
Young (15-24)	24.8	22.9	22.9	24.1	25.5	1.4 pps
Prime age (25-54)	78.6	77.1	80.6	81.8	83.0	1.2 pps
Older (55-64)	51.6	53.5	54.3	56.0	58.5	2.5 pps
Female	58.5	57.9	59.6	61.1	62.4	1.3 pps
Young (15-24)	21.2	20.4	21.9	21.5	22.2	0.8 pps
Prime age (25-54)	72.5	72.2	74.3	76.1	77.6	1.5 pps
Older (55-64)	42.0	41.0	42.0	44.5	46.3	1.8 pps
6 - **Employed persons** (15-64, 1000 pers.)	4255.9	4158.0	4254.5	4309.0	4371.2	1.4 %
7 - **Employment growth** (%, National accounts)	-4.1	-2.9	1.4	1.4	1.6	0.2 pps
Employment growth (%, 15-64, LFS)	-4.4	-2.3	2.3	1.3	1.4	0.2 pps
Male	-5.6	-2.8	2.2	0.8	1.3	0.5 pps
Female	-3.2	-1.8	2.4	1.7	1.6	-0.1 pps
8 - **Self employed** (15-64, % of total employment)	17.0	17.1	15.5	14.5	13.9	-0.6 pps
Male	20.4	20.4	19.3	17.8	17.1	-0.7 pps
Female	13.4	13.6	11.7	11.1	10.7	-0.4 pps
9 - **Temporary employment** (15-64, % of total employment)	20.5	21.4	21.4	22.0	22.3	0.3 pps
Male	20.7	21.2	21.6	22.4	22.5	0.1 pps
Female	20.4	21.6	21.1	21.5	22.1	0.6 pps
10 - **Part-time** (15-64, % of total employment)	11.2	11.1	10.1	9.8	9.5	-0.3 pps
Male	8.4	8.2	7.6	7.1	6.8	-0.3 pps
Female	14.2	14.0	12.6	12.5	12.1	-0.4 pps
11 - **Unemployment rate** (harmonised:15-74)	15.8	16.4	14.1	12.6	11.2	-1.4 pps
Young (15-24)	37.9	38.1	34.8	32.0	28.0	-4.0 pps
Prime age (25-49)	14.7	15.5	12.7	11.2	10.0	-1.2 pps
Older (55-64)	12.7	13.7	13.5	12.5	11.0	-1.5 pps
Low-skilled (15-64)	17.4	18.4	16.2	14.2	12.7	-1.5 pps
Medium-skilled (15-64)	17.7	17.5	15.3	14.0	12.3	-1.7 pps
High-skilled (15-64)	11.8	12.8	10.1	9.3	8.4	-0.9 pps
Nationals (15-64)	16.0	16.6	14.3	12.7	11.4	-1.3 pps
Non-nationals (15-64)	26.6	29.2	22.1	20.0	17.3	-2.7 pps
Male	15.9	16.3	13.8	12.4	11.1	-1.3 pps
Female	15.6	16.6	14.5	12.9	11.3	-1.6 pps
12 - **Long-term unemployment** (% of total unemployment)	48.7	56.3	59.5	57.2	55.2	-2.0 pps
13 - **Worked hours** (full-time, average actual weekly hours)	41.5	41.5	41.5	41.4	40.7	-1.7 %
Male	42.6	42.6	42.4	42.4	41.7	-1.7 %
Female	40.2	40.3	40.4	40.3	39.6	-1.7 %
14 - **Sectoral employment growth** (% change)						
Agriculture	1.9	-5.4	-4.6	-5.7	-1.5	4.2 pps
Building and construction	-20.3	-10.2	-4.7	1.3	0.5	-0.8 pps
Services	-4.4	-2.2	4.8	3.3	3.0	-0.3 pps
Manufacturing industry	-3.8	-1.8	2.3	3.1	2.1	-1.0 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	-3.1	3.6	-1.8	0.4	2.1	1.7 pps
Real compensation per employee based on GDP	-2.7	1.3	-2.5	-2.3	-0.2	2.1 pps
Labour cost index (compens. of employees plus taxes minus subs.)	-5.7	-0.7	-1.0	2.8	-0.2	-3.0 pps
Labour cost index (wages and salaries, total)	-4.4	-1.3	-1.2	3.1	0.2	-2.9 pps
Labour productivity (GDP/person employed)	0.1	1.8	-0.5	0.4	-0.1	-0.5 pps

Romania	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	20060	19989	19913	19820	19760	-0.3 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	13658	13606	13527	13404	13263	-1.1 %
(% of total population)	68.1	68.1	67.9	67.6	67.1	-0.5 pps
3 - **Labour force** (15-64, 1000 pers.)	8849	8832	8883	8858	8696	-1.8 %
Male	5003	5021	5061	5099	5006	-1.8 %
Female	3846	3811	3822	3759	3690	-1.9 %
4 - **Activity rate** (% of population 15-64)	64.8	64.9	65.7	66.1	65.6	-0.5 pps
Young (15-24)	30.5	30.1	29.6	31.3	28.0	-3.2 pps
Prime age (25-54)	81.5	81.5	82.1	82.5	81.9	-0.6 pps
Older (55-64)	43.0	43.4	44.6	42.7	44.2	1.5 pps
Nationals (15-64)	64.8	64.9	65.7	66.1	65.6	-0.5 pps
Non-nationals (15-64)	0.0	0.0	0.0	0.0	0.0	0.0 pps
Male	73.2	73.4	74.3	75.3	74.8	-0.6 pps
Young (15-24)	35.3	35.1	34.8	37.0	33.9	-3.1 pps
Prime age (25-54)	89.9	90.0	90.5	91.6	91.0	-0.6 pps
Older (55-64)	53.6	53.9	55.4	53.8	55.1	1.3 pps
Female	56.4	56.3	56.9	56.7	56.2	-0.5 pps
Young (15-24)	25.5	24.7	23.9	25.2	21.8	-3.4 pps
Prime age (25-54)	72.9	72.7	73.3	72.9	72.4	-0.6 pps
Older (55-64)	33.7	34.1	35.0	32.8	34.4	1.6 pps
5 - **Employment rate** (% of population 15-64)	60.2	60.1	61.0	61.4	61.6	0.1 pps
Young (15-24)	23.7	22.9	22.5	24.5	22.3	-2.2 pps
Prime age (25-54)	76.6	76.3	77.1	77.4	77.6	0.2 pps
Older (55-64)	41.6	41.8	43.1	41.1	42.8	1.7 pps
Low-skilled (15-64)	42.0	42.2	44.4	42.6	41.0	-1.6 pps
Medium-skilled (15-64)	64.2	63.7	65.0	64.9	65.2	0.2 pps
High-skilled (15-64)	82.5	82.6	82.5	85.3	86.2	0.9 pps
Nationals (15-64)	60.2	60.1	61.0	61.4	61.6	0.1 pps
Non-nationals (15-64)	0.0	0.0	0.0	0.0	0.0	0.0 pps
Male	67.6	67.6	68.7	69.5	69.7	0.2 pps
Young (15-24)	27.5	27.0	26.6	29.4	27.2	-2.2 pps
Prime age (25-54)	84.1	83.7	84.6	85.2	85.5	0.3 pps
Older (55-64)	51.2	51.4	53.2	51.2	53.0	1.8 pps
Female	52.8	52.6	53.3	53.2	53.3	0.1 pps
Young (15-24)	19.6	18.6	18.0	19.3	17.1	-2.2 pps
Prime age (25-54)	68.9	68.6	69.3	69.2	69.2	0.0 pps
Older (55-64)	33.1	33.2	34.2	32.1	33.6	1.6 pps
6 - **Employed persons** (15-64, 1000 pers.)	8221.6	8178.9	8254.4	8234.8	8166.1	-0.8 %
7 - **Employment growth** (%, National accounts)	-4.8	-0.9	0.8	-0.9	-0.9	0.0 pps
Employment growth (%, 15-64, LFS)	1.0	-0.5	0.9	-0.2	-0.8	-0.6 pps
Male	1.5	0.0	1.2	0.6	-0.8	-1.4 pps
Female	0.4	-1.2	0.5	-1.3	-0.9	0.4 pps
8 - **Self employed** (15-64, % of total employment)	18.9	18.8	18.4	17.6	16.5	-1.2 pps
Male	24.5	24.3	23.8	22.5	21.2	-1.4 pps
Female	11.8	11.7	11.5	11.1	10.2	-1.0 pps
9 - **Temporary employment** (15-64, % of total employment)	1.5	1.4	1.5	1.4	1.4	0.0 pps
Male	1.9	1.7	1.7	1.6	1.7	0.1 pps
Female	1.1	1.1	1.2	1.1	1.0	-0.1 pps
10 - **Part-time** (15-64, % of total employment)	9.3	9.0	8.7	8.8	7.4	-1.4 pps
Male	8.7	8.6	8.2	8.5	7.3	-1.2 pps
Female	10.0	9.6	9.5	9.2	7.7	-1.5 pps
11 - **Unemployment rate** (harmonised:15-74)	6.8	7.1	6.8	6.8	5.9	-0.9 pps
Young (15-24)	22.6	23.7	24.0	21.7	20.6	-1.1 pps
Prime age (25-49)	6.1	6.4	6.1	6.2	5.3	-0.9 pps
Older (55-64)	3.4	3.7	3.3	3.7	3.2	-0.5 pps
Low-skilled (15-64)	7.9	7.9	7.7	9.1	8.6	-0.5 pps
Medium-skilled (15-64)	7.4	7.8	7.2	7.3	6.3	-1.0 pps
High-skilled (15-64)	5.1	5.4	5.9	4.1	3.1	-1.0 pps
Nationals (15-64)	7.1	7.4	7.1	7.0	6.1	-0.9 pps
Non-nationals (15-64)	0.0	0.0	0.0	0.0	0.0	0.0 pps
Male	7.4	7.7	7.3	7.5	6.6	-0.9 pps
Female	6.1	6.3	6.1	5.8	5.0	-0.8 pps
12 - **Long-term unemployment** (% of total unemployment)	44.2	45.2	41.1	43.9	50.0	6.1 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.5	40.4	40.4	40.1	40.2	0.2 %
Male	41.1	40.9	40.8	40.5	40.6	0.2 %
Female	39.7	39.7	39.8	39.5	39.6	0.3 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-2.7	-2.2	-2.4	-10.1	-9.7	0.4 pps
Building and construction	-6.5	-1.1	1.3	-4.7	7.3	12.0 pps
Services	-3.8	1.2	3.0	6.0	2.2	-3.8 pps
Manufacturing industry	-7.8	0.2	4.1	-2.2	3.0	5.2 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	9.4	3.8	6.7	0.9	11.3	10.4 pps
Real compensation per employee based on GDP	4.5	0.4	5.0	-1.4	7.6	9.1 pps
Labour cost index (compens. of employees plus taxes minus subs.)	5.8	4.2	5.0	5.6	10.6	5.0 pps
Labour cost index (wages and salaries, total)	5.7	3.7	6.5	8.2	10.6	2.4 pps
Labour productivity (GDP/person employed)	5.7	4.4	2.3	4.9	5.8	0.9 pps

Slovenia	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	2057	2060	2062	2063	2065	0.1 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	1415	1404	1397	1382	1371	-0.8 %
(% of total population)	68.8	68.2	67.8	67.0	66.4	-0.6 pps
3 - **Labour force** (15-64, 1000 pers.)	996	990	991	992	982	-1.0 %
Male	536	536	535	536	524	-2.2 %
Female	460	454	456	456	458	0.4 %
4 - **Activity rate** (% of population 15-64)	70.4	70.5	70.9	71.8	71.6	-0.1 pps
Young (15-24)	34.4	33.9	33.6	35.3	33.7	-1.6 pps
Prime age (25-54)	90.8	90.7	90.3	90.8	90.5	-0.3 pps
Older (55-64)	35.1	36.0	38.4	39.7	41.2	1.5 pps
Nationals (15-64)	70.3	70.4	71.0	71.5	71.4	-0.1 pps
Non-nationals (15-64)	74.4	75.4	67.8	77.6	76.7	-0.9 pps
Male	73.7	74.2	74.3	75.4	74.5	-0.8 pps
Young (15-24)	38.2	37.2	36.6	38.9	36.9	-2.1 pps
Prime age (25-54)	92.4	92.6	92.2	92.9	92.0	-0.9 pps
Older (55-64)	43.6	45.1	45.7	46.3	47.1	0.7 pps
Female	66.9	66.6	67.2	67.9	68.6	0.7 pps
Young (15-24)	30.0	30.2	30.5	31.7	30.5	-1.2 pps
Prime age (25-54)	89.1	88.7	88.3	88.6	88.9	0.3 pps
Older (55-64)	26.4	27.0	31.1	32.9	35.2	2.3 pps
5 - **Employment rate** (% of population 15-64)	64.1	63.3	63.9	65.2	65.8	0.6 pps
Young (15-24)	27.3	26.5	26.8	29.6	28.6	-1.0 pps
Prime age (25-54)	83.3	81.9	81.9	82.9	83.5	0.5 pps
Older (55-64)	32.9	33.5	35.4	36.6	38.5	1.9 pps
Low-skilled (15-64)	34.6	33.7	36.1	35.7	32.3	-3.4 pps
Medium-skilled (15-64)	65.8	64.6	64.9	65.9	67.4	1.4 pps
High-skilled (15-64)	84.2	82.4	82.0	83.1	84.0	0.9 pps
Nationals (15-64)	64.1	63.5	64.2	65.2	65.8	0.6 pps
Non-nationals (15-64)	62.8	56.7	55.1	66.3	66.4	0.2 pps
Male	67.4	67.1	67.5	69.2	68.9	-0.3 pps
Young (15-24)	30.4	29.7	29.5	32.0	31.1	-1.0 pps
Prime age (25-54)	85.4	84.3	84.6	86.1	85.6	-0.5 pps
Older (55-64)	40.7	41.8	41.7	42.6	43.6	1.0 pps
Female	60.5	59.2	60.0	61.0	62.6	1.6 pps
Young (15-24)	23.8	23.0	23.9	27.0	26.0	-1.0 pps
Prime age (25-54)	81.0	79.3	79.1	79.5	81.2	1.7 pps
Older (55-64)	25.1	25.3	29.0	30.5	33.4	2.9 pps
6 - **Employed persons** (15-64, 1000 pers.)	906.5	888.1	892.5	901.6	902.5	0.1 %
7 - **Employment growth** (%, National accounts)	-0.9	-1.1	0.4	1.2	1.9	0.7 pps
Employment growth (%, 15-64, LFS)	-0.9	-2.0	0.5	1.0	0.1	-0.9 pps
Male	-0.9	-1.2	0.3	1.2	-1.6	-2.8 pps
Female	-1.0	-3.0	0.7	0.8	2.1	1.3 pps
8 - **Self employed** (15-64, % of total employment)	11.6	11.6	12.1	12.1	11.5	-0.6 pps
Male	15.3	15.3	15.9	15.7	15.1	-0.7 pps
Female	7.3	7.2	7.7	7.8	7.4	-0.4 pps
9 - **Temporary employment** (15-64, % of total employment)	17.0	16.3	16.5	17.8	16.9	-0.9 pps
Male	15.6	15.6	16.0	17.0	15.9	-1.1 pps
Female	18.5	17.1	17.1	18.7	18.0	-0.7 pps
10 - **Part-time** (15-64, % of total employment)	9.0	9.3	10.0	10.1	9.3	-0.8 pps
Male	6.3	6.5	6.8	7.0	6.0	-1.0 pps
Female	12.2	12.6	13.7	13.7	13.1	-0.6 pps
11 - **Unemployment rate** (harmonised:15-74)	8.9	10.1	9.7	9.0	8.0	-1.0 pps
Young (15-24)	20.6	21.6	20.2	16.3	15.2	-1.1 pps
Prime age (25-49)	8.3	9.7	9.3	8.7	7.7	-1.0 pps
Older (55-64)	6.2	7.0	7.8	7.8	6.5	-1.3 pps
Low-skilled (15-64)	15.7	18.8	16.4	14.6	15.1	0.5 pps
Medium-skilled (15-64)	9.2	10.8	10.5	10.0	8.1	-1.9 pps
High-skilled (15-64)	6.1	6.2	6.3	5.8	6.2	0.4 pps
Nationals (15-64)	8.8	9.8	9.6	8.9	7.9	-1.0 pps
Non-nationals (15-64)	15.5	25.0	18.8	14.6	13.4	-1.2 pps
Male	8.4	9.5	9.0	8.1	7.5	-0.6 pps
Female	9.4	10.9	10.6	10.1	8.6	-1.5 pps
12 - **Long-term unemployment** (% of total unemployment)	47.9	51.0	54.5	52.3	53.3	1.0 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.6	40.9	41.0	41.0	40.5	-1.2 %
Male	41.2	41.4	41.5	41.6	41.2	-1.0 %
Female	39.8	40.1	40.4	40.2	39.6	-1.5 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-1.0	0.0	-1.7	-0.8	-2.1	-1.3 pps
Building and construction	-7.6	-7.0	-1.1	0.4	-1.0	-1.4 pps
Services	-0.5	-0.7	0.8	1.9	2.8	0.9 pps
Manufacturing industry	-1.5	-2.1	0.2	1.4	3.0	1.6 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	-1.0	0.5	1.3	1.4	2.8	1.5 pps
Real compensation per employee based on GDP	-1.4	-1.1	0.5	0.4	1.9	1.5 pps
Labour cost index (compens. of employees plus taxes minus subs.)	0.7	-1.1	2.4	1.4	1.8	0.4 pps
Labour cost index (wages and salaries, total)	1.3	-1.1	2.5	1.0	1.4	0.4 pps
Labour productivity (GDP/person employed)	-1.8	0.0	2.6	1.0	1.2	0.2 pps

Slovak Republic	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	5406	5413	5419	5422	5431	0.2 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	3881	3870	3853	3834	3810	-0.6 %
(% of total population)	71.8	71.5	71.1	70.7	70.2	-0.5 pps
3 - **Labour force** (15-64, 1000 pers.)	2695	2703	2707	2719	2738	0.7 %
Male	1500	1498	1501	1493	1499	0.5 %
Female	1195	1205	1206	1226	1239	1.0 %
4 - **Activity rate** (% of population 15-64)	69.4	69.9	70.3	70.9	71.9	0.9 pps
Young (15-24)	30.5	30.8	31.0	31.7	32.4	0.7 pps
Prime age (25-54)	87.1	87.2	87.3	87.3	87.6	0.3 pps
Older (55-64)	48.5	49.5	50.1	51.8	53.9	2.1 pps
Nationals (15-64)	69.4	69.8	70.2	70.9	71.8	1.0 pps
Non-nationals (15-64)	78.7	87.5	81.5	81.8	75.8	-6.1 pps
Male	77.1	77.2	77.6	77.5	78.3	0.8 pps
Young (15-24)	37.1	37.5	38.0	38.3	39.7	1.5 pps
Prime age (25-54)	93.8	93.6	94.0	93.6	93.5	-0.1 pps
Older (55-64)	60.3	59.5	58.9	58.4	60.1	1.7 pps
Female	61.7	62.5	62.9	64.3	65.4	1.1 pps
Young (15-24)	23.6	23.7	23.6	24.9	24.7	-0.2 pps
Prime age (25-54)	80.4	80.5	80.4	80.8	81.5	0.7 pps
Older (55-64)	38.0	40.4	42.2	45.8	48.2	2.4 pps
5 - **Employment rate** (% of population 15-64)	59.7	59.9	61.0	62.7	64.9	2.1 pps
Young (15-24)	20.1	20.4	21.8	23.3	25.2	1.9 pps
Prime age (25-54)	76.4	76.0	76.8	78.2	80.0	1.8 pps
Older (55-64)	43.1	44.0	44.8	47.0	49.0	2.1 pps
Low-skilled (15-64)	15.0	15.8	17.7	18.4	19.8	1.4 pps
Medium-skilled (15-64)	65.8	65.6	66.9	68.6	70.9	2.3 pps
High-skilled (15-64)	74.8	74.7	75.6	76.5	77.3	0.7 pps
Nationals (15-64)	59.7	59.9	60.9	62.7	64.9	2.2 pps
Non-nationals (15-64)	68.9	78.1	77.8	77.3	69.7	-7.6 pps
Male	66.7	66.4	67.6	69.5	71.4	1.9 pps
Young (15-24)	24.1	24.4	26.9	28.4	31.9	3.5 pps
Prime age (25-54)	83.0	82.2	83.2	85.1	86.3	1.2 pps
Older (55-64)	53.7	53.2	53.2	53.6	55.1	1.5 pps
Female	52.7	53.4	54.3	55.9	58.3	2.4 pps
Young (15-24)	15.9	16.2	16.5	18.0	18.2	0.2 pps
Prime age (25-54)	69.6	69.6	70.2	71.0	73.5	2.5 pps
Older (55-64)	33.6	35.7	37.2	41.0	43.5	2.6 pps
6 - **Employed persons** (15-64, 1000 pers.)	2317.2	2317.7	2349.2	2405.1	2471.7	2.8 %
7 - **Employment growth** (%, National accounts)	0.1	-0.8	1.4	2.0	2.4	0.4 pps
Employment growth (%, 15-64, LFS)	0.6	0.0	1.4	2.4	2.8	0.4 pps
Male	0.9	-0.6	1.5	2.3	2.2	-0.1 pps
Female	0.2	0.8	1.2	2.5	3.5	1.0 pps
8 - **Self employed** (15-64, % of total employment)	15.3	15.4	15.2	14.9	15.2	0.3 pps
Male	19.7	20.1	19.6	18.8	19.1	0.3 pps
Female	9.7	9.6	9.7	10.0	10.4	0.4 pps
9 - **Temporary employment** (15-64, % of total employment)	6.7	6.8	8.8	10.5	9.9	-0.6 pps
Male	6.4	6.6	9.0	9.8	9.7	-0.1 pps
Female	7.2	7.0	8.5	11.3	10.2	-1.1 pps
10 - **Part-time** (15-64, % of total employment)	4.0	4.5	5.1	5.8	5.8	0.0 pps
Male	2.8	3.3	3.7	4.0	4.1	0.1 pps
Female	5.5	6.2	6.8	8.0	7.9	-0.1 pps
11 - **Unemployment rate** (harmonised:15-74)	14.0	14.2	13.2	11.5	9.7	-1.8 pps
Young (15-24)	34.0	33.7	29.7	26.5	22.2	-4.3 pps
Prime age (25-49)	12.4	12.8	12.0	10.5	8.7	-1.8 pps
Older (55-64)	11.2	11.0	10.6	9.3	9.0	-0.3 pps
Low-skilled (15-64)	44.7	42.6	41.4	37.7	31.7	-6.0 pps
Medium-skilled (15-64)	13.5	14.0	12.6	11.0	9.2	-1.8 pps
High-skilled (15-64)	6.9	7.3	6.4	6.1	5.7	-0.4 pps
Nationals (15-64)	14.0	14.3	13.2	11.6	9.7	-1.9 pps
Non-nationals (15-64)	0.0	0.0	0.0	0.0	0.0	0.0 pps
Male	13.5	14.0	12.8	10.3	8.8	-1.5 pps
Female	14.5	14.5	13.6	12.9	10.8	-2.1 pps
12 - **Long-term unemployment** (% of total unemployment)	67.3	70.2	70.2	65.8	60.2	-5.6 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.4	40.5	40.0	40.2	40.1	-0.2 %
Male	41.2	41.3	40.9	40.9	40.8	-0.2 %
Female	39.3	39.4	38.9	39.2	39.1	-0.3 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-3.4	4.8	-2.1	1.3	-1.4	-2.7 pps
Building and construction	-3.1	-3.0	-1.4	-0.6	3.3	3.9 pps
Services	2.0	-0.9	1.6	2.8	2.1	-0.7 pps
Manufacturing industry	-0.7	-1.5	2.0	2.4	3.8	1.4 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	2.6	2.6	1.8	3.1	1.8	-1.3 pps
Real compensation per employee based on GDP	1.3	2.1	2.0	3.3	2.1	-1.2 pps
Labour cost index (compens. of employees plus taxes minus subs.)	2.4	2.8	4.9	3.8	3.0	-0.8 pps
Labour cost index (wages and salaries, total)	2.3	1.5	5.1	4.1	2.9	-1.2 pps
Labour productivity (GDP/person employed)	1.6	2.3	1.1	1.8	0.9	-0.9 pps

Finland	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	5414	5439	5463	5481	5495	0.3 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	3505	3489	3472	3455	3445	-0.3 %
(% of total population)	64.7	64.1	63.6	63.0	62.7	-0.4 pps
3 - **Labour force** (15-64, 1000 pers.)	2637	2622	2617	2619	2615	-0.2 %
Male	1359	1350	1344	1343	1350	0.6 %
Female	1278	1272	1274	1277	1265	-0.9 %
4 - **Activity rate** (% of population 15-64)	75.2	75.2	75.4	75.8	75.9	0.1 pps
Young (15-24)	51.6	51.8	52.1	52.2	52.2	0.0 pps
Prime age (25-54)	87.3	86.8	86.6	86.6	86.3	-0.3 pps
Older (55-64)	62.3	62.9	63.8	65.2	66.4	1.2 pps
Nationals (15-64)	75.4	75.3	75.6	76.1	76.3	0.1 pps
Non-nationals (15-64)	70.2	70.2	68.8	67.9	67.3	-0.5 pps
Male	77.1	76.8	76.8	77.2	77.7	0.6 pps
Young (15-24)	51.2	50.7	51.5	51.1	51.2	0.1 pps
Prime age (25-54)	90.4	90.1	89.5	89.6	89.7	0.1 pps
Older (55-64)	61.6	61.5	61.9	63.2	65.2	2.0 pps
Female	73.4	73.4	73.9	74.4	74.1	-0.4 pps
Young (15-24)	52.0	52.9	52.6	53.3	53.2	-0.1 pps
Prime age (25-54)	84.1	83.3	83.6	83.6	82.8	-0.8 pps
Older (55-64)	62.9	64.3	65.5	67.2	67.6	0.5 pps
5 - **Employment rate** (% of population 15-64)	69.4	68.9	68.7	68.5	69.1	0.5 pps
Young (15-24)	41.8	41.5	41.4	40.5	41.7	1.2 pps
Prime age (25-54)	82.0	81.0	80.5	80.0	79.9	0.0 pps
Older (55-64)	58.2	58.5	59.1	60.0	61.4	1.4 pps
Low-skilled (15-64)	41.0	39.7	39.3	37.9	38.6	0.6 pps
Medium-skilled (15-64)	72.2	71.2	70.6	70.2	70.6	0.4 pps
High-skilled (15-64)	84.2	83.8	83.3	82.9	82.9	0.0 pps
Nationals (15-64)	69.7	69.2	69.2	69.0	69.7	0.6 pps
Non-nationals (15-64)	58.9	58.7	56.7	55.9	55.5	-0.4 pps
Male	70.5	69.9	69.5	69.3	70.5	1.2 pps
Young (15-24)	41.0	39.1	39.8	38.2	40.1	1.9 pps
Prime age (25-54)	84.4	83.9	82.7	82.5	83.0	0.5 pps
Older (55-64)	56.6	56.5	56.8	57.4	59.8	2.4 pps
Female	68.2	67.8	68.0	67.7	67.6	-0.1 pps
Young (15-24)	42.7	43.9	43.0	42.8	43.3	0.4 pps
Prime age (25-54)	79.4	78.1	78.1	77.3	76.7	-0.6 pps
Older (55-64)	59.7	60.5	61.4	62.5	63.0	0.5 pps
6 - **Employed persons** (15-64, 1000 pers.)	2431.0	2403.2	2385.9	2367.9	2379.5	0.5 %
7 - **Employment growth** (%, National accounts)	0.9	-0.7	-0.5	-0.1	0.5	0.6 pps
Employment growth (%, 15-64, LFS)	0.1	-1.1	-0.7	-0.8	0.5	1.2 pps
Male	-0.4	-1.3	-1.1	-0.7	1.6	2.3 pps
Female	0.6	-1.0	-0.4	-0.8	-0.6	0.1 pps
8 - **Self employed** (15-64, % of total employment)	12.3	12.2	12.6	12.7	12.4	-0.2 pps
Male	16.4	16.3	16.5	16.7	16.4	-0.3 pps
Female	8.0	7.9	8.4	8.5	8.2	-0.3 pps
9 - **Temporary employment** (15-64, % of total employment)	15.5	15.3	15.4	15.1	15.6	0.5 pps
Male	12.6	12.2	12.3	12.3	12.9	0.6 pps
Female	18.2	18.3	18.2	17.8	18.2	0.4 pps
10 - **Part-time** (15-64, % of total employment)	14.1	14.0	14.1	14.1	14.9	0.8 pps
Male	9.1	8.8	9.2	9.7	10.0	0.3 pps
Female	19.4	19.4	19.3	18.7	20.2	1.5 pps
11 - **Unemployment rate** (harmonised:15-74)	7.7	8.2	8.7	9.4	8.8	-0.6 pps
Young (15-24)	19.0	19.9	20.5	22.4	20.1	-2.3 pps
Prime age (25-49)	6.1	6.6	7.1	7.7	7.4	-0.3 pps
Older (55-64)	6.6	7.0	7.3	8.0	7.5	-0.5 pps
Low-skilled (15-64)	16.6	17.8	18.0	18.7	17.6	-1.1 pps
Medium-skilled (15-64)	8.3	8.9	9.5	10.4	9.7	-0.7 pps
High-skilled (15-64)	3.9	4.5	5.1	6.1	5.9	-0.2 pps
Nationals (15-64)	7.6	8.1	8.5	9.3	8.7	-0.6 pps
Non-nationals (15-64)	16.3	16.5	17.6	17.6	17.6	0.0 pps
Male	8.3	8.8	9.3	9.9	9.0	-0.9 pps
Female	7.1	7.5	8.0	8.8	8.6	-0.2 pps
12 - **Long-term unemployment** (% of total unemployment)	21.3	20.8	22.4	24.6	25.9	1.3 pps
13 - **Worked hours** (full-time, average actual weekly hours)	38.7	38.5	38.4	38.5	38.8	0.8 %
Male	40.2	40.0	39.8	40.0	40.2	0.5 %
Female	36.9	36.7	36.7	36.7	37.1	1.1 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-0.5	-2.1	-0.9	-2.8	-3.8	-1.0 pps
Building and construction	-0.3	-1.3	-1.3	1.8	4.8	3.0 pps
Services	1.6	-0.3	0.4	-0.2	1.2	1.5 pps
Manufacturing industry	-0.3	-3.8	-2.8	-1.5	-1.5	0.0 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	2.8	1.3	1.0	1.4	1.0	-0.4 pps
Real compensation per employee based on GDP	-0.2	-1.2	-0.7	-0.5	0.1	0.6 pps
Labour cost index (compens. of employees plus taxes minus subs.)	4.2	1.8	1.7	1.4	0.6	-0.8 pps
Labour cost index (wages and salaries, total)	4.2	2.0	1.5	1.2	0.1	-1.1 pps
Labour productivity (GDP/person employed)	-2.3	0.0	-0.2	0.1	1.4	1.3 pps

Sweden	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	9519	9600	9696	9799	9923	1.3 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	6114	6120	6141	6170	6214	0.7 %
(% of total population)	64.2	63.8	63.3	63.0	62.6	-0.3 pps
3 - **Labour force** (15-64, 1000 pers.)	4909	4963	5005	5044	5100	1.1 %
Male	2567	2592	2612	2624	2658	1.3 %
Female	2342	2371	2393	2420	2442	0.9 %
4 - **Activity rate** (% of population 15-64)	80.3	81.1	81.5	81.7	82.1	0.3 pps
Young (15-24)	52.6	54.5	55.4	55.1	54.8	-0.3 pps
Prime age (25-54)	90.6	90.9	90.8	90.9	90.9	0.0 pps
Older (55-64)	77.0	77.5	78.2	78.7	79.7	1.1 pps
Nationals (15-64)	81.0	81.8	82.2	82.5	82.9	0.4 pps
Non-nationals (15-64)	70.3	72.5	73.5	73.1	73.7	0.5 pps
Male	82.6	83.3	83.6	83.5	83.9	0.4 pps
Young (15-24)	51.8	53.9	54.9	53.8	54.2	0.3 pps
Prime age (25-54)	93.5	93.6	93.5	93.3	93.3	0.0 pps
Older (55-64)	80.9	81.6	81.5	81.8	82.5	0.7 pps
Female	77.9	78.8	79.3	79.9	80.2	0.3 pps
Young (15-24)	53.4	55.2	56.1	56.5	55.5	-1.0 pps
Prime age (25-54)	87.6	88.1	88.0	88.4	88.5	0.1 pps
Older (55-64)	73.0	73.4	74.9	75.5	76.9	1.4 pps
5 - **Employment rate** (% of population 15-64)	73.8	74.4	74.9	75.5	76.2	0.7 pps
Young (15-24)	40.2	41.7	42.8	43.9	44.5	0.6 pps
Prime age (25-54)	85.2	85.4	85.4	85.6	85.9	0.3 pps
Older (55-64)	73.0	73.6	74.0	74.5	75.5	1.0 pps
Low-skilled (15-64)	46.3	45.5	45.9	46.0	45.8	-0.2 pps
Medium-skilled (15-64)	79.7	80.3	80.2	80.9	81.6	0.7 pps
High-skilled (15-64)	87.0	87.3	87.3	87.7	88.1	0.4 pps
Nationals (15-64)	75.1	75.8	76.2	77.0	78.0	0.9 pps
Non-nationals (15-64)	55.6	57.3	58.4	57.7	57.6	0.0 pps
Male	75.6	76.3	76.5	77.0	77.5	0.5 pps
Young (15-24)	38.8	40.5	41.6	42.4	43.1	0.7 pps
Prime age (25-54)	87.8	88.0	87.9	87.9	88.1	0.1 pps
Older (55-64)	76.3	76.9	76.5	76.8	77.5	0.6 pps
Female	71.8	72.5	73.1	74.0	74.8	0.8 pps
Young (15-24)	41.6	42.9	44.0	45.5	45.9	0.5 pps
Prime age (25-54)	82.5	82.7	82.8	83.3	83.7	0.5 pps
Older (55-64)	69.6	70.3	71.5	72.1	73.5	1.4 pps
6 - **Employed persons** (15-64, 1000 pers.)	4509.6	4554.3	4597.5	4659.9	4735.6	1.6 %
7 - **Employment growth** (%, National accounts)	0.7	1.0	1.4	1.5	1.7	0.2 pps
Employment growth (%, 15-64, LFS)	0.3	1.0	0.9	1.4	1.6	0.3 pps
Male	-0.2	1.0	0.7	1.2	1.6	0.3 pps
Female	0.8	1.0	1.2	1.5	1.7	0.2 pps
8 - **Self employed** (15-64, % of total employment)	9.2	9.4	9.1	8.9	8.7	-0.2 pps
Male	12.8	12.9	12.4	12.1	11.8	-0.3 pps
Female	5.3	5.5	5.4	5.4	5.3	-0.1 pps
9 - **Temporary employment** (15-64, % of total employment)	15.9	16.3	16.8	16.6	16.1	-0.5 pps
Male	13.8	14.0	14.7	14.9	14.5	-0.4 pps
Female	18.0	18.6	18.8	18.3	17.7	-0.6 pps
10 - **Part-time** (15-64, % of total employment)	25.0	24.7	24.6	24.3	23.9	-0.4 pps
Male	12.5	12.8	12.8	13.2	13.0	-0.2 pps
Female	38.6	37.7	37.3	36.3	35.6	-0.7 pps
11 - **Unemployment rate** (harmonised:15-74)	8.0	8.0	7.9	7.4	6.9	-0.5 pps
Young (15-24)	23.6	23.5	22.9	20.4	18.9	-1.5 pps
Prime age (25-49)	5.9	6.1	6.0	5.8	5.5	-0.3 pps
Older (55-64)	5.2	5.1	5.4	5.3	5.3	0.0 pps
Low-skilled (15-64)	18.2	19.5	20.0	19.7	19.7	0.0 pps
Medium-skilled (15-64)	7.2	7.3	7.1	6.4	5.8	-0.6 pps
High-skilled (15-64)	4.4	4.4	4.4	4.3	4.1	-0.2 pps
Nationals (15-64)	7.3	7.4	7.2	6.6	5.9	-0.7 pps
Non-nationals (15-64)	21.0	21.0	20.6	21.1	21.8	0.7 pps
Male	8.2	8.2	8.2	7.5	7.3	-0.2 pps
Female	7.7	7.9	7.7	7.3	6.5	-0.8 pps
12 - **Long-term unemployment** (% of total unemployment)	19.0	18.6	19.0	20.8	19.4	-1.4 pps
13 - **Worked hours** (full-time, average actual weekly hours)	39.6	39.4	39.2	39.1	39.4	0.8 %
Male	40.3	40.2	39.9	39.8	40.1	0.8 %
Female	38.4	38.2	38.1	37.9	38.3	1.1 %
14 - **Sectoral employment growth** (% change)						
Agriculture	1.7	0.5	-0.1	-1.6	-5.3	-3.7 pps
Building and construction	1.8	0.9	2.5	2.9	3.7	0.8 pps
Services	1.2	1.2	1.5	2.5	1.5	-1.0 pps
Manufacturing industry	-1.9	-2.2	-1.1	-4.3	-0.6	3.7 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	3.1	1.9	2.2	2.7	2.8	0.0 pps
Real compensation per employee based on GDP	2.0	0.9	0.4	0.7	1.2	0.6 pps
Labour cost index (compens. of employees plus taxes minus subs.)	4.0	1.8	2.7	2.8	3.8	1.0 pps
Labour cost index (wages and salaries, total)	3.4	2.2	2.5	2.5	2.6	0.1 pps
Labour productivity (GDP/person employed)	-1.0	0.3	1.2	3.0	1.6	-1.4 pps

United Kingdom	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	63705	64106	64597	65110	65572	0.7 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	40970	40991	41117	41283	41397	0.3 %
(% of total population)	64.3	63.9	63.7	63.4	63.1	-0.3 pps
3 - **Labour force** (15-64, 1000 pers.)	31161	31334	31533	31742	32005	0.8 %
Male	16650	16685	16754	16840	16969	0.8 %
Female	14511	14649	14779	14902	15036	0.9 %
4 - **Activity rate** (% of population 15-64)	76.1	76.4	76.7	76.9	77.3	0.4 pps
Young (15-24)	58.6	58.3	57.8	58.5	58.4	-0.1 pps
Prime age (25-54)	85.5	85.7	86.0	85.8	86.1	0.3 pps
Older (55-64)	61.1	62.8	63.5	64.4	65.8	1.4 pps
Nationals (15-64)	76.3	76.6	76.9	77.0	77.5	0.5 pps
Non-nationals (15-64)	73.8	74.5	74.9	75.9	75.9	0.0 pps
Male	82.0	82.1	82.2	82.2	82.5	0.3 pps
Young (15-24)	60.9	60.2	59.5	60.0	59.3	-0.7 pps
Prime age (25-54)	92.0	92.0	92.2	91.9	92.2	0.2 pps
Older (55-64)	69.5	70.6	70.9	71.4	72.6	1.2 pps
Female	70.2	70.9	71.3	71.7	72.2	0.6 pps
Young (15-24)	56.3	56.4	56.1	57.0	57.5	0.5 pps
Prime age (25-54)	79.2	79.5	79.9	79.8	80.1	0.3 pps
Older (55-64)	53.0	55.3	56.4	57.7	59.2	1.5 pps
5 - **Employment rate** (% of population 15-64)	69.9	70.5	71.9	72.7	73.5	0.8 pps
Young (15-24)	46.2	46.3	48.0	50.0	50.8	0.9 pps
Prime age (25-54)	80.5	80.8	82.1	82.4	82.9	0.6 pps
Older (55-64)	58.1	59.8	61.0	62.2	63.4	1.2 pps
Low-skilled (15-64)	53.0	53.2	55.0	55.9	58.3	2.4 pps
Medium-skilled (15-64)	71.3	71.4	72.7	73.3	73.7	0.5 pps
High-skilled (15-64)	83.1	83.8	84.3	84.7	84.9	0.2 pps
Nationals (15-64)	70.2	70.9	72.2	72.9	73.7	0.8 pps
Non-nationals (15-64)	66.9	67.6	69.4	71.0	71.5	0.5 pps
Male	75.0	75.4	76.8	77.6	78.3	0.7 pps
Young (15-24)	46.4	46.4	48.2	50.3	50.5	0.3 pps
Prime age (25-54)	86.6	86.7	88.0	88.3	89.0	0.7 pps
Older (55-64)	65.4	66.8	67.8	68.6	69.6	0.9 pps
Female	64.9	65.8	67.1	67.9	68.8	0.9 pps
Young (15-24)	46.0	46.2	47.8	49.7	51.1	1.5 pps
Prime age (25-54)	74.5	75.1	76.2	76.6	77.0	0.5 pps
Older (55-64)	51.0	53.0	54.4	56.0	57.4	1.4 pps
6 - **Employed persons** (15-64, 1000 pers.)	28650.2	28917.1	29558.7	30015.7	30423.8	1.4 %
7 - **Employment growth** (%, National accounts)	1.1	1.2	2.4	1.7	1.4	-0.3 pps
Employment growth (%, 15-64, LFS)	0.9	0.9	2.2	1.5	1.4	-0.2 pps
Male	1.0	0.6	2.2	1.5	1.3	-0.2 pps
Female	0.8	1.3	2.2	1.6	1.4	-0.2 pps
8 - **Self employed** (15-64, % of total employment)	13.5	13.4	14.0	13.6	14.1	0.5 pps
Male	17.7	17.4	18.0	17.4	17.9	0.5 pps
Female	8.7	8.9	9.5	9.4	9.9	0.5 pps
9 - **Temporary employment** (15-64, % of total employment)	6.2	6.1	6.3	6.1	6.0	-0.1 pps
Male	5.7	5.6	5.8	5.6	5.4	-0.2 pps
Female	6.7	6.5	6.8	6.5	6.5	0.0 pps
10 - **Part-time** (15-64, % of total employment)	26.0	25.6	25.4	25.2	25.2	0.0 pps
Male	11.6	11.5	11.2	11.2	11.3	0.1 pps
Female	42.3	41.5	41.3	41.0	40.8	-0.2 pps
11 - **Unemployment rate** (harmonised:15-74)	7.9	7.5	6.1	5.3	4.8	-0.5 pps
Young (15-24)	21.2	20.7	17.0	14.6	13.0	-1.6 pps
Prime age (25-49)	6.0	5.7	4.6	4.0	3.6	-0.4 pps
Older (55-64)	4.9	4.8	4.0	3.4	3.7	0.3 pps
Low-skilled (15-64)	14.4	14.4	11.7	10.0	8.6	-1.4 pps
Medium-skilled (15-64)	8.7	8.4	7.0	6.1	5.5	-0.6 pps
High-skilled (15-64)	4.3	4.0	3.2	3.0	3.0	0.0 pps
Nationals (15-64)	7.9	7.6	6.2	5.3	4.8	-0.5 pps
Non-nationals (15-64)	9.3	9.2	7.2	6.5	5.8	-0.7 pps
Male	8.4	8.0	6.4	5.5	5.0	-0.5 pps
Female	7.4	7.1	5.8	5.1	4.7	-0.4 pps
12 - **Long-term unemployment** (% of total unemployment)	34.6	36.2	35.7	30.6	27.0	-3.6 pps
13 - **Worked hours** (full-time, average actual weekly hours)	41.3	41.3	41.3	41.3	41.4	0.2 %
Male	42.6	42.6	42.6	42.6	42.7	0.2 %
Female	38.9	38.9	39.1	39.0	39.2	0.5 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-0.2	-11.0	15.0	-9.7	1.3	11.0 pps
Building and construction	-0.8	0.0	3.3	2.5	3.5	1.0 pps
Services	2.2	1.6	2.9	2.7	1.7	-1.0 pps
Manufacturing industry	0.8	-0.7	0.6	0.8	-0.6	-1.4 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	1.7	2.1	0.7	1.2	2.8	1.6 pps
Real compensation per employee based on GDP	0.2	0.2	-0.9	0.6	1.1	0.4 pps
Labour cost index (compens. of employees plus taxes minus subs.)	1.2	1.1	1.5	4.3	1.6	-2.7 pps
Labour cost index (wages and salaries, total)	0.9	1.0	1.6	3.9	1.8	-2.1 pps
Labour productivity (GDP/person employed)	0.2	0.7	0.7	0.5	0.4	-0.1 pps

European Union (28 countries)	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	505981	507015	508201	509667	511400	0.3 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	329878	329084	329418	328912	328734	-0.1 %
(% of total population)	65.2	64.9	64.8	64.5	64.3	-0.3 pps
3 - **Labour force** (15-64, 1000 pers.)	236367	236813	238133	238494	239668	0.5 %
Male	127931	127821	128265	128407	128928	0.4 %
Female	108436	108993	109868	110087	110740	0.6 %
4 - **Activity rate** (% of population 15-64)	71.7	72.0	72.3	72.5	72.9	0.4 pps
Young (15-24)	42.3	42.0	41.7	41.5	41.5	0.0 pps
Prime age (25-54)	85.4	85.4	85.5	85.4	85.5	0.1 pps
Older (55-64)	52.5	54.3	55.9	57.3	59.1	1.8 pps
Nationals (15-64)	71.6	72.0	72.3	72.6	73.1	0.5 pps
Non-nationals (15-64)	71.8	71.8	71.7	71.6	71.2	-0.4 pps
Male	77.8	77.9	78.1	78.3	78.5	0.3 pps
Young (15-24)	45.2	44.8	44.4	44.1	43.9	-0.1 pps
Prime age (25-54)	91.8	91.5	91.5	91.4	91.4	0.0 pps
Older (55-64)	61.0	62.6	63.9	65.0	66.6	1.6 pps
Female	65.5	66.0	66.5	66.8	67.3	0.5 pps
Young (15-24)	39.3	39.2	38.8	38.7	38.9	0.2 pps
Prime age (25-54)	79.0	79.2	79.4	79.4	79.5	0.1 pps
Older (55-64)	44.6	46.5	48.4	50.0	52.0	2.0 pps
5 - **Employment rate** (% of population 15-64)	64.1	64.1	64.8	65.6	66.6	1.0 pps
Young (15-24)	32.5	32.1	32.4	33.0	33.7	0.7 pps
Prime age (25-54)	77.3	76.9	77.4	78.0	78.7	0.7 pps
Older (55-64)	48.7	50.1	51.8	53.3	55.2	2.0 pps
Low-skilled (15-64)	44.4	43.7	43.3	43.7	44.5	0.8 pps
Medium-skilled (15-64)	68.0	67.7	68.4	69.0	69.9	0.9 pps
High-skilled (15-64)	81.8	81.7	82.0	82.7	83.4	0.7 pps
Nationals (15-64)	64.5	64.5	65.2	66.0	67.1	1.0 pps
Non-nationals (15-64)	59.0	58.8	59.8	60.7	61.4	0.7 pps
Male	69.6	69.4	70.1	70.8	71.8	1.0 pps
Young (15-24)	34.4	33.9	34.2	34.8	35.4	0.6 pps
Prime age (25-54)	83.3	82.6	83.1	83.8	84.6	0.8 pps
Older (55-64)	56.2	57.4	58.8	60.1	62.0	1.9 pps
Female	58.6	58.8	59.5	60.4	61.3	1.0 pps
Young (15-24)	30.5	30.2	30.5	31.2	31.9	0.8 pps
Prime age (25-54)	71.3	71.1	71.7	72.2	72.9	0.7 pps
Older (55-64)	41.7	43.3	45.2	46.9	48.9	2.0 pps
6 - **Employed persons** (15-64, 1000 pers.)	211351.1	210783.6	213420.7	215709.7	218843.2	1.5 %
7 - **Employment growth** (%, National accounts)	-0.4	-0.3	1.0	1.1	1.2	0.1 pps
Employment growth (%, 15-64, LFS)	-0.3	-0.3	1.3	1.1	1.5	0.4 pps
Male	-0.7	-0.6	1.1	1.0	1.5	0.4 pps
Female	0.1	0.1	1.4	1.1	1.4	0.3 pps
8 - **Self employed** (15-64, % of total employment)	14.5	14.4	14.4	14.1	14.0	-0.2 pps
Male	18.4	18.3	18.2	17.8	17.5	-0.3 pps
Female	9.9	9.9	9.9	9.9	9.9	0.0 pps
9 - **Temporary employment** (15-64, % of total employment)	13.7	13.6	13.9	14.1	14.2	0.1 pps
Male	13.2	13.2	13.5	13.8	13.8	0.0 pps
Female	14.2	14.1	14.3	14.5	14.7	0.2 pps
10 - **Part-time** (15-64, % of total employment)	19.2	19.6	19.6	19.6	19.5	-0.1 pps
Male	8.4	8.7	8.8	8.9	8.9	0.0 pps
Female	31.9	32.4	32.2	32.1	31.9	-0.2 pps
11 - **Unemployment rate** (harmonised:15-74)	10.5	10.9	10.2	9.4	8.6	-0.8 pps
Young (15-24)	23.2	23.6	22.2	20.3	18.7	-1.6 pps
Prime age (25-49)	9.5	10.0	9.4	8.7	7.9	-0.8 pps
Older (55-64)	7.3	7.7	7.4	7.0	6.5	-0.5 pps
Low-skilled (15-64)	18.6	19.7	19.0	17.8	16.6	-1.2 pps
Medium-skilled (15-64)	9.7	10.1	9.5	8.8	7.9	-0.9 pps
High-skilled (15-64)	6.1	6.5	6.2	5.7	5.1	-0.6 pps
Nationals (15-64)	10.0	10.4	9.9	9.1	8.2	-0.9 pps
Non-nationals (15-64)	17.7	18.1	16.5	15.2	13.8	-1.4 pps
Male	10.4	10.8	10.1	9.3	8.4	-0.9 pps
Female	10.5	10.9	10.3	9.5	8.8	-0.7 pps
12 - **Long-term unemployment** (% of total unemployment)	44.5	47.3	49.6	48.5	46.8	-1.7 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.7	40.6	40.5	40.5	40.6	0.2 %
Male	41.7	41.6	41.5	41.5	41.5	0.0 %
Female	39.0	38.9	38.9	38.9	39.0	0.3 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-2.2	-2.7	-0.5	-3.1	-4.0	-0.9 pps
Building and construction	-3.6	-2.9	-0.6	0.4	1.0	0.6 pps
Services	0.3	0.0	1.6	1.9	2.0	0.0 pps
Manufacturing industry	-1.1	-1.1	0.4	0.6	1.2	0.6 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	2.9	0.8	1.9	3.1	-0.6	-3.7 pps
Real compensation per employee based on GDP	0.5	0.3	0.2	0.0	0.6	0.6 pps
Labour cost index (compens. of employees plus taxes minus subs.)	2.3	1.2	1.5	2.2	1.7	-0.5 pps
Labour cost index (wages and salaries, total)	2.2	1.3	1.5	2.5	1.7	-0.8 pps
Labour productivity (GDP/person employed)	-0.1	0.5	0.7	1.1	0.7	-0.4 pps

Euro Area	2012	2013	2014	2015	2016	2015-2016
1 - **Population** (LFS, total, 1000 pers.)	336567	337278	338013	339020	340283	0.4 %
2 - **Population** (LFS, working age:15-64, 1000 pers.)	218124	217723	218438	218215	218683	0.2 %
(% of total population)	64.8	64.6	64.6	64.4	64.3	-0.1 pps
3 - **Labour force** (15-64, 1000 pers.)	156954	157111	157934	158055	159197	0.7 %
Male	84881	84661	84874	84888	85398	0.6 %
Female	72073	72451	73060	73167	73799	0.9 %
4 - **Activity rate** (% of population 15-64)	72.0	72.2	72.3	72.4	72.8	0.4 pps
Young (15-24)	41.3	40.8	40.1	39.6	39.5	-0.1 pps
Prime age (25-54)	85.6	85.5	85.4	85.3	85.4	0.1 pps
Older (55-64)	52.8	54.6	56.4	58.0	59.8	1.8 pps
Nationals (15-64)	72.0	72.3	72.4	72.6	73.1	0.5 pps
Non-nationals (15-64)	71.4	71.2	70.9	70.6	70.0	-0.6 pps
Male	78.1	78.1	78.0	78.1	78.3	0.2 pps
Young (15-24)	44.0	43.3	42.6	41.9	41.7	-0.2 pps
Prime age (25-54)	92.2	91.8	91.5	91.4	91.4	-0.1 pps
Older (55-64)	60.7	62.4	63.8	65.2	66.9	1.7 pps
Female	65.8	66.3	66.6	66.8	67.4	0.5 pps
Young (15-24)	38.5	38.2	37.5	37.1	37.1	0.0 pps
Prime age (25-54)	79.0	79.2	79.3	79.3	79.6	0.3 pps
Older (55-64)	45.3	47.3	49.5	51.1	53.1	1.9 pps
5 - **Employment rate** (% of population 15-64)	63.7	63.4	63.8	64.5	65.4	0.9 pps
Young (15-24)	31.6	30.9	30.6	30.7	31.2	0.5 pps
Prime age (25-54)	76.5	75.9	76.0	76.6	77.4	0.8 pps
Older (55-64)	48.6	50.0	51.7	53.3	55.3	2.0 pps
Low-skilled (15-64)	45.7	44.7	43.6	44.1	44.7	0.7 pps
Medium-skilled (15-64)	68.6	68.2	68.4	68.8	69.6	0.8 pps
High-skilled (15-64)	81.3	80.9	81.0	81.5	82.4	0.8 pps
Nationals (15-64)	64.3	64.1	64.4	65.1	66.1	1.0 pps
Non-nationals (15-64)	57.4	56.9	57.7	58.4	59.1	0.7 pps
Male	69.3	68.7	68.9	69.6	70.5	0.9 pps
Young (15-24)	33.5	32.7	32.3	32.3	32.8	0.5 pps
Prime age (25-54)	82.7	81.7	81.8	82.4	83.2	0.8 pps
Older (55-64)	55.6	56.7	58.0	59.5	61.5	2.0 pps
Female	58.2	58.2	58.7	59.4	60.3	0.9 pps
Young (15-24)	29.6	29.1	28.8	29.0	29.5	0.5 pps
Prime age (25-54)	70.4	70.1	70.3	70.8	71.5	0.8 pps
Older (55-64)	41.9	43.6	45.7	47.4	49.4	2.0 pps
6 - **Employed persons** (15-64, 1000 pers.)	138982.1	138108.8	139356.5	140666.8	143022.1	1.7 %
7 - **Employment growth** (%, National accounts)	-0.4	-0.6	0.6	1.0	1.4	0.4 pps
Employment growth (%, 15-64, LFS)	-0.7	-0.6	0.9	0.9	1.7	0.7 pps
Male	-1.2	-1.0	0.7	0.9	1.7	0.8 pps
Female	-0.2	-0.2	1.2	1.0	1.6	0.6 pps
8 - **Self employed** (15-64, % of total employment)	14.4	14.3	14.2	14.0	13.8	-0.2 pps
Male	18.2	18.2	17.9	17.6	17.3	-0.4 pps
Female	9.8	9.9	9.9	9.9	9.9	0.0 pps
9 - **Temporary employment** (15-64, % of total employment)	15.0	14.9	15.1	15.4	15.6	0.2 pps
Male	14.4	14.3	14.6	15.1	15.2	0.1 pps
Female	15.8	15.5	15.5	15.8	16.0	0.2 pps
10 - **Part-time** (15-64, % of total employment)	20.7	21.5	21.5	21.6	21.6	0.0 pps
Male	8.4	8.9	9.1	9.3	9.3	0.0 pps
Female	35.3	36.1	36.0	36.0	35.9	-0.1 pps
11 - **Unemployment rate** (harmonised:15-74)	11.4	12.0	11.6	10.9	10.0	-0.9 pps
Young (15-24)	23.4	24.2	23.8	22.4	20.9	-1.5 pps
Prime age (25-49)	10.6	11.3	11.0	10.3	9.5	-0.8 pps
Older (55-64)	8.0	8.5	8.4	8.1	7.6	-0.5 pps
Low-skilled (15-64)	19.5	20.9	20.6	19.3	18.2	-1.1 pps
Medium-skilled (15-64)	9.9	10.4	10.2	9.7	9.0	-0.7 pps
High-skilled (15-64)	6.9	7.5	7.3	6.9	6.2	-0.7 pps
Nationals (15-64)	10.7	11.3	11.1	10.4	9.6	-0.8 pps
Non-nationals (15-64)	19.5	20.0	18.6	17.2	15.6	-1.6 pps
Male	11.2	11.9	11.5	10.7	9.7	-1.0 pps
Female	11.5	12.1	11.8	11.0	10.4	-0.6 pps
12 - **Long-term unemployment** (% of total unemployment)	46.4	49.6	52.6	51.5	50.2	-1.3 pps
13 - **Worked hours** (full-time, average actual weekly hours)	40.6	40.5	40.4	40.4	40.4	0.0 %
Male	41.6	41.5	41.4	41.4	41.4	0.0 %
Female	38.9	38.8	38.7	38.7	38.8	0.3 %
14 - **Sectoral employment growth** (% change)						
Agriculture	-1.2	-1.8	0.0	-1.1	-0.4	0.7 pps
Building and construction	-4.3	-3.6	-1.6	0.0	0.0	0.0 pps
Services	0.0	-0.5	1.0	1.6	2.1	0.4 pps
Manufacturing industry	-0.9	-1.4	-0.3	0.2	0.7	0.5 pps
15 - **Indicator board on wage developments** (% change)						
Compensation per employee	1.5	1.5	1.4	1.3	1.2	-0.1 pps
Real compensation per employee based on GDP	0.5	0.4	0.5	-0.1	0.3	0.4 pps
Labour cost index (compens. of employees plus taxes minus subs.)	2.4	1.1	1.3	1.6	1.4	-0.2 pps
Labour cost index (wages and salaries, total)	2.4	1.2	1.3	2.0	1.4	-0.6 pps
Labour productivity (GDP/person employed)	-0.5	0.4	0.8	1.0	0.4	-0.6 pps

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