

# Estimating labour market slack in the European Union





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**When citing this report, please use the following wording:**

Eurofound (2017), *Estimating labour market slack in the European Union*, Publications Office of the European Union, Luxembourg.

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**Authors:** John Hurley and Valentina Patrini

**Research manager:** John Hurley

**Eurofound project:** Unemployment, underemployment and inactivity: Estimating labour market slack in the European Union

**Acknowledgments**

The authors would like to thank Anthony Rafferty (UMIST, UK), Chiara Mussida (Università Cattolica, Italy), Maja Ferancic and Kristine van Herck (European Commission, DG for Employment, Social Affairs and Inclusion) as well as colleagues Enrique Fernández-Macías, Donald Storrie, Robert Anderson and Anna Ludwinek for their input into this report.

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**Luxembourg:** Publications Office of the European Union

**Print:** ISBN: 978-92-897-1589-8

doi:10.2806/495895

TJ-02-17-461-EN-C

**Web:** ISBN: 978-92-897-1588-1

doi:10.2806/610691

TJ-02-17-461-EN-N

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**European Foundation for the Improvement of Living and Working Conditions**

**Telephone:** (+353 1) 204 31 00

**Email:** [information@eurofound.europa.eu](mailto:information@eurofound.europa.eu)

**Web:** [www.eurofound.europa.eu](http://www.eurofound.europa.eu)

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**Printed in Luxembourg**

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# Contents

	<b>Executive summary</b>	<b>1</b>
	<b>Introduction</b>	<b>3</b>
<b>1</b>	<b>What is labour market slack?</b>	<b>5</b>
	Unemployment	6
	Employment and underemployment	7
	Inactivity	7
<b>2</b>	<b>How is labour market slack measured?</b>	<b>9</b>
	Alternative approaches to measuring labour slack	9
	Summary	11
<b>3</b>	<b>An estimate of labour market slack in the EU</b>	<b>13</b>
	Involuntary part-time work	15
	Inactivity	23
	Country-level summary	28
<b>4</b>	<b>Changes in labour market participation</b>	<b>31</b>
	Changes in employment rate by age and sex	31
	Labour market participation of core-age men	32
	Possible factors affecting core-age male employment and activity	34
	Reasons for inactivity	36
	Summary	40
<b>5</b>	<b>Conclusions</b>	<b>41</b>
	<b>References</b>	<b>43</b>
	<b>Annexes</b>	<b>45</b>
	Annex 1: Member State unemployment and labour slack rates 2008	45
	Annex 2: Estimates of involuntary part-time employment	46
	Annex 3: Breakdown of inactive workers, seeking but not available for work	47

## Country codes

AT	Austria	FI	Finland	NL	Netherlands
BE	Belgium	FR	France	PL	Poland
BG	Bulgaria	HR	Croatia	PT	Portugal
CY	Cyprus	HU	Hungary	RO	Romania
CZ	Czech Republic	IE	Ireland	SE	Sweden
DE	Germany	IT	Italy	SI	Slovenia
DK	Denmark	LU	Luxembourg	SK	Slovakia
EE	Estonia	LT	Lithuania	UK	United Kingdom
EL	Greece	LV	Latvia		
ES	Spain	MT	Malta		

**EU15:** Member States of the EU prior to the enlargement of 2004 (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK)

## Abbreviations and acronyms used in the report

<b>EPI</b>	Economic Policy Institute
<b>EU-LFS</b>	European Union Labour Force Survey
<b>EU-SILC</b>	European Union Statistics on Income and Living Conditions
<b>ILO</b>	International Labour Organization
<b>NAIRU</b>	non-accelerating inflation rate of unemployment
<b>NAWRU</b>	non-accelerating wage rate of unemployment

# Executive summary

## Introduction

The unemployment rate is an important and well-publicised measure of labour market performance in developed market economies. It is currently high in the EU compared with other developed countries and still well above its historical average nearly a decade after the beginning of the global financial crisis. But focusing exclusively on the unemployment rate fails to take account of other numerically important manifestations of labour market slack (or simply labour slack), defined in this report as the shortfall between the volume of work desired by workers and the actual volume of work available. These other indicators have grown significantly since the crisis and have been slower to respond to the recovery than the unemployment rate itself.

This report provides a broader measure of labour slack in the EU, based on EU Labour Force Survey data that cover involuntary part-timers and inactive people with some labour market attachment as well as the unemployed.

## Policy context

The Europe 2020 strategy for smart, sustainable and inclusive growth includes the commitment to raise the average EU employment rate to 75% (for those aged 20–64 years) by 2020. Progress to this target was dented by the lingering recession that followed the global financial crisis. Aggregate EU employment rates and levels have had a sustained recovery since 2013, however, while employment has been boosted by a structural increase in the labour market participation of older people and women, traditionally underrepresented categories. In the medium term, demographic shifts mean that there is likely to be a growing need to reintegrate those who are inactive but willing to work into the labour market and to make it easier for the underemployed to work the number of hours they wish and, in many cases, need to work.

The European Commission's revised package of employment guidelines from 2015 targets improvements in labour supply and underlines the importance of tackling both high unemployment *and* inactivity. Growing inactivity among core-age men has been evident in some developed market economies, including in many EU Member States, over the last generation and has been exacerbated by the sector-specific effects of the crisis. One approach to addressing resurgent populism, which holds a growing appeal for this demographic group, is to tackle the decline in the labour market fortunes of core-age men, particularly those with educational attainment below tertiary level.

## Key findings

- Four-fifths of the jobless population of working age (15–64 years-old) in the EU are inactive as opposed to unemployed. Many have some form of labour market attachment, and many indicate that they would like to work, are seeking work or are available to work. In addition, part-time work has been growing in most Member States and so, too, has the share of part-time workers who would like to work longer hours.
- There were close to 23 million unemployed people of working age in the EU in 2015 but around 50 million people in a broader category of labour slack, encompassing inactive people wishing to work and underemployed, involuntary part-timers as well as the unemployed. Labour slack has been slower to unwind than unemployment following the upturn in labour market performance since 2013.
- The estimated labour slack rate in the EU rose more between 2008 and 2015 (from 11.8% to 14.9%) than the unemployment rate (from 7.1% to 9.5%).
- Beyond the unemployed population, the largest category of labour slack was involuntary part-timers (nearly 10 million in 2015, approximately one in four part-timers), followed by those who were available and wanting to work but who were not seeking work and therefore considered inactive rather than unemployed (nearly 9 million in 2015).
- Involuntary part-timers were more likely to have started their current job within the last year and to work in basic or lower-level service occupations and sectors (for example, household work). They were also more likely to be women, although this is mainly a result of the greater female share of part-time workers overall. Looking just at the part-time population and controlling for other factors, men were more likely than women to be working part time involuntarily.
- Among inactive people available for but not seeking work, the main reason given for not seeking work is 'discouragement', the belief that no work is available. This has increased, markedly so for men, since 2008, most likely as a result of the severe impacts of the recession on predominantly male-employing sectors such as manufacturing and construction. The strongest determinants of belonging to this category were age – the older, the more likely – and the time elapsed since one's last job.

- Despite rapidly increasing rates of older worker participation, there remains a sizeable potential workforce among older people willing to work but discouraged from doing so. The fact that there is such a steep age gradient for discouragement could imply barriers (perceived or actual) of age discrimination or of obsolete skills.
- While employment and participation rates have grown for women and older people in recent years, they have declined for core-age men (25–54 years-old), traditionally the category with the strongest labour market attachment. This decline has been most marked in the USA, but a milder version of the same phenomenon can be observed in EU Member States as well. At least two circumstances conducive to inactivity among core-age men appear to have gained importance in recent years: self-reported discouragement (probably related to depressed labour demand in traditionally male-employing sectors) and self-reported disability.
- The variation in increased labour market performance across EU Member States after 2008 is also evident in broader labour slack trends. Two Member States in particular stand out in the analysis: Italy and Germany. The labour slack rate in Italy was almost double that of the unemployment rate; a quarter of the working-age population were either unemployed or in one of the other labour slack categories. In 2015, over a half of the EU's discouraged workers were located in Italy. On the other hand, the improved labour market performance in Germany is even more evident when measured in terms of labour slack than unemployment. There were, for example, almost a million fewer involuntary part-timers in Germany in 2015 than in 2008.

## Conclusions

The focus on addressing unemployment ought not to distract from the potentially equally important task of strengthening the labour market attachment of various categories of inactive or underemployed citizens. Concentrating solely on the unemployment rate gives only a partial picture of the real labour demand. There are, for example, more inactive 'job-wanters' than active job-seekers (unemployed). While they can represent particular challenges to active labour market policy, many of these can and will be mobilised to return to the labour market if the recovery that began in 2013 can be sustained.

It is also the case that structural shifts in labour demand – towards services – mean that an increasing share of those in work are working part time or irregular hours and would prefer to work longer hours. A growing share of precarious work has implications for earnings, employment outcomes and ultimately well-being at the individual level but is also likely to undermine growth and output at the aggregate level.



# Introduction

This report analyses the phenomenon of joblessness and underemployment in the EU and identifies recent trends using European Union Labour Force Survey (EU-LFS) data. The aim is to develop a more nuanced estimate of labour market slack and, in particular, the extent to which the aggregate demand for work by individuals is not being met by employer demand for paid labour.

One of the motivations for the analysis is the simple observation that a large majority of jobless people of working age (15–64 years-old) are not unemployed but are inactive. Unemployed people, according to the definition of the International Labour Organization (ILO), are without work but seeking work and available for work; anyone who is neither employed nor unemployed is categorised as inactive. As Figure 1 shows, around 35% of the working-age population were in the combined group of unemployed and inactive – the non-employed – in the European Union in 2015.

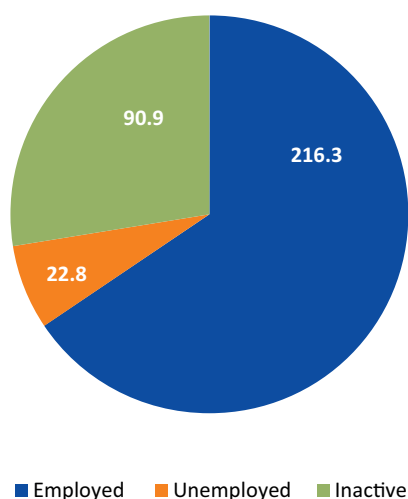
Within the non-employed, about one in five were unemployed. The unemployment rate remains high in the EU (8.2% in the third quarter of 2016) compared with other developed countries and still well above its historical average eight years after the beginning of the global financial crisis. It also remains exceptionally high in certain Member States – for instance, above 22% in Greece and 18% in Spain. But an exclusive focus on the unemployment rate as an indicator of labour market performance fails to take account of the four-fifths of the jobless population who are inactive rather than

unemployed. Many of these individuals, as will be seen, have some form of labour market attachment – they would like to work, are seeking work or are available to work.

A second motivation for the report is the increasingly fragmented nature of the modern labour market, not just, for example, in terms of the increasing diversity of working time schedules of the employed, but also in the degrees of attachment to the labour market of those not currently employed. The EU-LFS includes many questions that offer a way to describe and characterise different groups, some of which are relatively under-used.

A third motivation is that improving labour market performance in recent years has not to date resulted in the anticipated wage or price pressures. Inflation in the euro zone, for example, has consistently undershot the 2% target rate set by the European Central Bank, not just in the dual crisis period (2008–2013) as would be expected, but also largely in the period of relatively robust employment expansion since 2013. This is reflected also in subdued upward pressure on wages. With demand increasing but prices (and wages) remaining largely stable, this suggests that there may be an additional reserve of potential labour supply restraining wage levels from rising, and that conventional measures (the unemployment rate or employment growth) may be increasingly unreliable proxies for estimating labour market slack.

**Figure 1: Total working-age population (in millions) by employment status, EU, 2015**



**Note:** Workers aged 15–64 years-old.  
**Source:** EU-LFS microdata (authors' calculation)

One way of addressing the inadequacies of the unemployment rate as a labour market performance indicator is to focus instead on the employment rate (or the non-employment rate, its simple obverse). The employment rate covers all people, including the inactive population, in its denominator. This gives it the advantage of being more comprehensive than the unemployment rate, which disregards the inactive population altogether. It represents the total of people in employment as a percentage of the overall population of a given age. This has been the approach in EU employment policy going back to the European Employment Strategy in the mid-1990s. The numerical employment targets in the Lisbon Agenda (a 70% overall employment rate for the working age population, 60% for women and 50% for older people) and the Europe 2020 strategy (a 75% employment rate for those aged 20–64 years-old) have been framed in terms of the employment rate, not the unemployment rate.

Nevertheless, the employment rate fails to capture some dimensions of labour market slack. As a pure headcount measure, it fails to distinguish between the labour input of someone working 1 hour per week and someone working 40 hours. The EU-LFS offers different possibilities to characterise individuals working very short hours, including those for whom such short hours are involuntary. Later this report estimates an average worker headcount equivalent of the paid labour desired but not worked by such workers. As a necessary complement, it draws attention to broader secular trends in labour market participation such as the increased labour market participation of older people and women, the declining participation of younger people (linked particularly to extended periods of education) and declining core-age (25–54 years-old) male employment rates. The combination of these factors has led to increasing aggregate participation rates, as growth in participation in the structurally increasing categories has tended to outweigh declines in the structurally decreasing categories. But, for instance, for core-age male workers – the traditional

mainstay of the labour force in male-breadwinner-based systems – it is fair to assume that declining participation and employment rates represent an important and growing category of labour market slack, one only partially captured by unemployment data.

The remainder of this report is set out as follows.

Chapter 1 describes in more detail what is meant by ‘labour market slack’.

Chapter 2 presents a brief overview of existing measures of underemployment and broad unemployment. This overview is selective and far from exhaustive but is indicative of the extensive efforts of economists, statisticians and labour market analysts to delve beyond the simple (and very useful) three-category ILO labour force model – comprising the employed, the unemployed and the inactive – that underpins most labour market data. It seeks to look at these categories as part of a continuum with many grey zones between individual statuses. It is these grey zones that are of most interest to this report.

Chapter 3 presents an extended descriptive analysis of the ‘potential additional labour force’ categories developed by Eurostat in its supplementary indicators of unemployment. The EU-LFS, for example, contains a number of questions that make it possible to probe more deeply the extent to which the inactive may have some attachment to the labour force; these include questions on respondents’ self-reported employment status and their willingness to work.

Chapter 4 takes a different approach and tries to identify employment categories where the existence of labour market slack may be inferred from changing trends of labour market participation. It looks in particular at employment and participation rates by age and sex, as well as changes in the reasons cited for inactivity – notably, increases in levels of self-reported incapacity or disability. Where declines have occurred for specific groups, such as core-age male workers, an assessment is made of the contribution of this secular trend to labour market slack.

A final chapter offers some summary conclusions.

# 1 What is labour market slack?

Labour market slack can be defined in different ways. For the purposes of this report, labour market slack (or simply labour slack) is considered to be the shortfall between the volume of work desired by workers and the actual volume of available work. It describes the unmet demand for paid labour in a population.

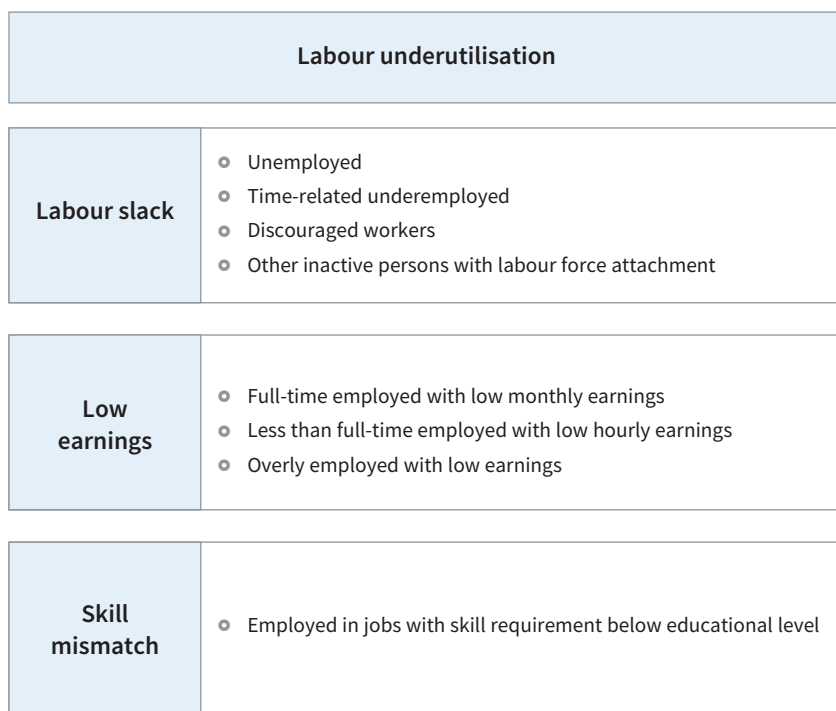
Labour slack exists when there are more workers willing to work a given number of hours than available jobs providing those hours of work. In such cases, some people’s demand for employment remains frustrated, and they stay involuntarily jobless; alternatively, they work fewer hours than they would like. A tight labour market is one in which demand for labour is at least as strong as supply – in other words, one in which employers compete for workers. As such, it is generally one in which employee bargaining power on wages and employment conditions is stronger. A slack labour market is one in which the existence of substitute labour (a labour reserve) gives employers an upper hand in the employer–employee relationship, potentially bidding down wages. Tight labour markets

tend to benefit the employment and working conditions of workers; slack labour markets tend to favour employer interests.

There are other manifestations of underemployment or of labour slack, for example that arising from skill mismatches between highly qualified workers in low-skill jobs. However, these are covered in an established and fast-growing literature and are outside the scope of the current report. Similarly, this report does not address the issue of inadequate pay, another important element of the ‘labour underutilisation framework’,<sup>1</sup> which underpins much of the methodological and conceptual work on underemployment carried out by the ILO since the 1960s. This report is concerned purely with the component of the framework labelled labour slack in Figure 2 or ‘the insufficiency of the volume of work’ (ILO, 2008).

From a monetary policy perspective, an estimation of labour slack is an important parameter for calibrating the output gap and, therefore, for informing interest-rate-setting and other monetary policy interventions. It

**Figure 2: Labour underutilisation schema**



Source: ILO (2008, p. 17)

<sup>1</sup> Devised in the 1970s as a way of operationalising the measurement of labour underutilisation and underemployment and adopted by the ILO’s International Conference of Labour Statisticians. For a summary of its historical development, see ILO, 2008, pp. 12–14.

is often in this macroeconomic perspective that estimations of labour slack are framed. The approach often relies on comparing the real unemployment rate against a reference rate such as the structural unemployment rate – for instance, the non-accelerating inflation rate of unemployment (NAIRU) or the non-accelerating wage rate of unemployment (NAWRU). A real unemployment rate higher than the reference rate indicates labour slack and the potential to expand employment without triggering price (or wage) increases. A real unemployment rate lower than the reference rate indicates a tight labour market, where further decreases in unemployment are apt to increase upward pressure on prices and wages. In essence, the basis of these calculations is that unemployment is subordinate as a public policy concern to price stability and that measuring labour slack is useful primarily as a proxy measure of overall economic conditions.

While these data are important, in particular for economic and monetary policy-setting, the main consideration in this report is that unemployment and joblessness represent a waste of resources at economic and societal level that is also damaging to many of the individuals affected. Joblessness correlates with social stress along various dimensions as documented in an extensive literature – increased risk of poverty and homelessness, divorce, suicide, mortality and mental ill-health (see Bell and Blanchflower, 2009, for a summary). In work-centred societies, being jobless is often stigmatising and is one of the main sources of reduced social, material and psychological well-being. There is also an emerging literature that points to similar negative consequences of underemployment (Dooley and Prause, 2004). The approach taken in this report, therefore, is to look in more detail at different categories of joblessness and underemployment based on microdata from the EU-LFS: how they are evolving, how they are composed and what factors may be contributing to trend changes.<sup>2</sup> The policy interest is more to inform labour market, employment and activation policies than macroeconomic policy more broadly.

## Unemployment

The most important proxy of labour slack is the unemployment rate. To be considered unemployed, one must be without work, seeking work and available for work. This means that there is an active individual demand for work that is not being met.

In an ideally functioning labour market, all adults wishing to work would be employed and would be working their desired number of hours. But existing labour markets are not ideal, and are not ideal along a number of dimensions. To begin with, there are structural impediments to the full matching of labour supply and demand, which result in different types of unemployment.

First, there is unemployment that is ‘frictional’ in the sense that it relates to the period of job search of someone newly entering the labour market or someone who has just lost or quit their job and is seeking a suitable new job. One in five unemployed people had been unemployed for three months or fewer in 2015, so they were in the early stages of searching for a job. Job counselling and other forms of active engagement by public or private employment services are approaches to facilitating good-quality job-matching.

Second, there is ‘real wage unemployment’ where a job-seeker’s wage demands exceed employers’ wage offers for a given job. This is based on the classical economics paradigm of a competitive, market-clearing labour market. It may arise, for example, when market wage rates decline for a given occupation, and workers are unwilling to supply their labour at the new, lower rate. Tax incentives such as working tax credits are an example of a policy that aims to overcome the misalignment of wages demanded and those on offer.

A third form of structural unemployment is ‘mismatch unemployment’ where, for reasons of trade or technological change, individuals may possess skills for which there is no or limited labour market demand. A typical example would be a skilled craft worker in manufacturing in a region beset by deindustrialisation. The traditional panacea is retraining to adapt skill profiles to match the skill demands of growing sectors or occupations. Wage-insurance-type measures can also help to address such mismatches by incentivising those who lose their jobs to take up available alternative work by partially or fully compensating for any earnings loss, generally either for a given period or with declining levels of compensatory payment.

<sup>2</sup> The advantages of the EU-LFS for this type of analysis, compared with the European Union Statistics on Income and Living Conditions (EU-SILC), are that it adheres more strictly to the ‘official’ ILO labour force status categories and that its much larger sample allows for a more detailed breakdown by demographic or by other subcategory. With its more explicit longitudinal dimension, the EU-SILC offers greater possibilities for characterising individuals not just by their current labour force status but also by the change of that status over time. This has recently been exploited in the joint projects of the European Commission, the OECD and the World Bank – Faces of Joblessness and Portraits of Labour Market Exclusion – investigating employment barriers preventing individuals from engaging fully in the labour market (Sundaram et al, 2014; Fernandez et al, 2016).

A fourth form of unemployment, and quantitatively the most important, relates to the broader macroeconomic context. Cyclical unemployment relates to alternations of labour demand over the business cycle. In a steep recession, such as the one suffered following the global financial crisis, demand for labour drops. As the economy has recovered in the EU, notably since 2013, increased labour demand is evident in improving employment and participation rates and in declining unemployment rates. Nonetheless, at aggregate level, much higher EU unemployment rates (8.2% in 2016 Q3) than in Japan (3%) or the USA (5%) are a simple indication that, of all developed market economies, labour slack is greatest in the EU. This is so particularly in those seven Member States with unemployment rates above 11% in 2015 (Table 10).

All of the above varieties of unemployment are to some extent inevitable in the dynamic churn of competitive labour markets. For this reason, there has been an increasing acceptance that mathematical ‘full employment’ (0% unemployment) is unachievable and that there is a ‘natural rate’ (Friedman, 1968) of unemployment in developed economies. This is sometimes formalised as NAIRU or NAWRU. These formulations imply that assessing the equilibrium between labour market supply and demand should take into account the impact of employment and unemployment on other important economic variables such as wages and prices. Unemployment rates that fall below NAIRU – 5% is a common ‘guesstimate’ of NAIRU in developed market economies – may have negative consequences, prompting increased inflation with destabilising second-order effects including in the labour market. Without some labour slack, there may be wage price spirals or other pathologies of labour market functioning. In other words, some unemployment may be not only inevitable but actually beneficial – ‘no economy can function well without some unemployment’, according to the authors of a seminal labour economics text on the subject (Layard et al, 1991).

## Employment and underemployment

For a variety of reasons related to the specific definitions of different labour force statuses, the employment rate is at best an imperfect proxy of the phenomenon of labour slack, that is, the mismatch between hours of work wanted and those actually worked.

In the first instance, the ILO definition of employment is broad and permissive and includes all of those who worked for at least one hour for pay or profit in a reference week. But, according to EU-LFS data, most of those working less than eight hours do not consider their main status as being employed; their own assessment of their labour market status therefore differs from that of official statistics. Also, many people working a small number of hours a week may wish to work more. They are employed but underemployed and represent one important category of labour slack, the so-called involuntary part-timers.

## Inactivity

While the official ILO definition of employment is quite broad and permissive, that of unemployment is quite strict and relies on a number of conditions being met simultaneously. An unemployed person must not have been employed during a reference week, must be available to work within the next two weeks and must have actively sought work in the last four weeks.<sup>3</sup>

Those who meet only some of those conditions are not considered unemployed but inactive. This happens, for instance, with people who are not working, are available for work but are not seeking work, or with those seeking work but who are not available (for instance, due to household or education commitments) in the next two weeks.

In the USA, versions of these categories are considered ‘marginally attached’ to the labour force. They occupy a grey zone somewhere between outright inactivity and the active labour market. The category of people who are not working, available for work but not seeking work includes, with some definitional modifications, a subgroup of ‘discouraged workers’, people who want to work but have given up looking because they do not believe that suitable work is available. The scale of this group tends to reflect that of the unemployed, growing

<sup>3</sup> The definition of unemployment used in the EU-LFS refers to the age group 15–74. This is broader than the working-age population, generally understood as those between 15 and 64 years-old. For the purposes of calculating unemployment rates, the addition of those aged 65–74 rarely makes much difference in developed economy labour markets. The unemployment rate is the share of those unemployed in the total labour force (the sum of employed and unemployed people). Most people over 65 are inactive (voluntarily retired); only a very small proportion is jobless and seeking employment.

in a recession as job opportunities diminish and declining in a recovery as fresh job possibilities draw the inactive back into the labour market. Their willingness to work makes discouraged workers similar to the unemployed. In the USA, their transition rates to employment are also more like those of the unemployed than of the inactive. Nonetheless, they are categorised as inactive as they have not sought work in the previous four weeks.

This is an important category numerically, amounting to some 10 million people in the EU in 2015 (equivalent to 5% of those in employment and nearly 50% of the unemployed). The existence of a high non-employment rate or of a low employment rate (employment to population ratio) is often an indication of a high share of discouraged workers. As will be seen later, Italy is

currently an example of a country with a high share of inactive people with some labour market attachment. The important thing is that they are not counted in the official unemployment statistics and can be considered a category of 'hidden unemployment'.<sup>4</sup>

In most cases, inactivity is ostensibly voluntary – for example, in cases of retirement, domestic caring activities or participation in full-time education. A large majority of individuals of working age in the EU who are classified as inactive do not want to work (82%), but the remaining 18% – including the categories described above – indicate a willingness to work. They represent nearly 16 million potential workers in the EU, nearly all of whom indicate a wish to work and include many who could be activated into employment.

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<sup>4</sup> Or in some cases as the 'hidden employed', for example if they are engaged in undeclared work in the informal economy but self-reporting as inactive in the EU-LFS, possibly out of a preference for not revealing their irregular work status. According to Contini and Grand (2014), a high share of those classified as inactive in the Italian labour market may be active in the informal economy.



## 2 How is labour market slack measured?

There are different proxy measures of labour slack based on macroeconomic data:

- decreased numbers of advertised vacancies or a decreasing ratio of vacancies to unemployed people (measured, among other methods, by the Beveridge curve);
- less difficulty for employers in filling vacant posts;
- suppressed real wage levels;<sup>5</sup>
- unemployment higher than some threshold level consistent with ‘full employment’;
- other forms of ‘visible’ underemployment that are measurable using labour force surveys, including sharp drops in average weekly working hours or increases in the share of those working part time involuntarily.

As already indicated, the particular interest in this report is to enrich or supplement the final two measures in this list by identifying those non-employed with potentially stronger labour market attachment. These can be considered as a ‘halo’ around unemployment in a broader operationalisation of labour slack (ILO, 2008).

The EU-LFS includes many variables that allow a more detailed characterisation of joblessness to be developed. Three categories – involuntary part-time workers, inactive people seeking work but not available, and inactive people available for but not seeking work – have been identified by Eurostat as belonging to the potential additional labour force in its supplementary indicators of unemployment (De la Fuente, 2011). Data on the potential additional labour force have been reported regularly by Eurostat since 2011 based on the EU-LFS. As the next section highlights, it is just one of a variety of measures that have been operationalised to address the inadequacies of the unemployment rate as a proxy of labour slack.

### Alternative approaches to measuring labour slack

The potential additional labour force indicators have been influenced by the broader M4–M6 unemployment rate measures developed in the USA by the Bureau of Labor Statistics, which cover similar categories of the employed (involuntary part-time) and the inactive (discouraged or marginally attached workers). They are more directly also an offshoot of methodological work carried out at the ILO in its working group on labour underutilisation (see, for example, ILO, 2008). Other measures have also been devised by labour economists, think tanks and labour statisticians. A small selection of interesting operationalisations, mainly developed with application to the US labour market, are described below.

#### US Bureau of Labor Statistics measures

The US Bureau of Labor Statistics proposes six alternative measures of labour market underutilisation (US Bureau of Labor Statistics, 2016). Three of them refer to:

- people unemployed for 15 weeks or longer as a percentage of the civilian labour force (U-1);
- job losers and people who completed temporary jobs as a percentage of the civilian labour force (U-2);
- total unemployed as a percentage of the civilian labour force (U-3, the official unemployment rate).

The other three measures are broader, as they take into account additional groups apart from the unemployed, as follows.

- **Marginally attached:** Individuals who are not in the labour force, want work and are available for work, and had looked for a job at some time in the previous 12 months but not in the last four weeks, for any reason.
- **Discouraged workers:** A subgroup of the marginally attached, whose defining characteristic is that they have not looked for a job in the last four weeks because they were discouraged about their job prospects.

<sup>5</sup> An important driver of recent research on labour slack in the USA and the EU has been slower real wage growth than at similar stages of earlier recoveries or similar levels of unemployment (see, for example, European Commission, 2016a, p. 23).

- **People employed part time for economic reasons (or ‘involuntary part-time workers’):** Individuals who want and are available to work full time, but who are working fewer than 35 hours per week because of economic reasons (such as a reduction of their hours or inability to find a full-time job).

These three broader measures are described, respectively, as follows by the US Bureau of Labor Statistics (2016):

- U-4: Total unemployed plus discouraged workers as a percentage of the civilian labour force plus discouraged workers. When compared with the standard unemployment rate, U-4 reflects the level of discouragement of ‘would be job-seekers’.
- U-5: Total unemployed plus discouraged workers plus all other marginally attached workers as a percentage of the civilian labour force plus all marginally attached workers.
- U-6: Total unemployed plus all marginally attached workers plus total employed part time for economic reasons as a percentage of the civilian labour force plus all marginally attached workers. The larger the difference between U-6 and U-5, the higher is the incidence of involuntary part-time workers as a form of underemployment.

Analysis of US data shows that the six measures of labour underutilisation tend to move together over time, even across business cycles.

### Extended non-employment index

Again in the USA, Hornstein et al (2014) proposed an extended non-employment index that aims to measure labour resource utilisation more accurately than through the standard unemployment rate. It does so by assigning weights to different categories of the non-employed based on their transition probabilities to employment, effectively an ‘employability’ weight. Based on data from the US Bureau of Labor Statistics, this index includes the unemployment rate and additional metrics referring to categories such as those ‘out of the labour force’ – neither employed nor actively looking for work – and involuntary part-time workers. More specifically, these additional categories consist of the following.

- **Individuals who are out of the labour force and want a job.** They include the subgroup of the marginally attached, which also covers the discouraged workers (see the definitions above).
- **Individuals who are out of the labour force and do not want a job.** These are classified as retired, disabled, currently in school, or other inactive categories (‘neither retired, nor disabled, nor in school’; Hornstein et al, 2014, p. 2).
- **Individuals who are working part time due to economic reasons,** but who would prefer to work full time, and so can be considered an underutilised labour resource (see the definition above).

The extended non-employment index is a weighted average of these groups. It measures the total availability of labour in terms of the short-term unemployed, by using the following weights.

- For each subgroup of the unemployed (short- and long-term) and of the groups out of the labour force (wanting a job or not), the weight corresponds to the sample average of its job-finding rate relative to the job-finding rate of the short-term unemployed.
- For workers who are part time for economic reasons, the weight is fixed at 50% (because these workers are already employed, and it is not possible to use their probability of entering employment as a weight).

Findings from the analysis performed on US data (1994–2013) show similar time trends in the extended non-employment index and the standard unemployment rate, suggesting that the latter does not overstate the level of labour resource utilisation.

### Underemployment index

Bell and Blanchflower (2013) stressed that the unemployment rate does not fully capture the amount of excess capacity in the labour market. For instance, during economic recoveries, workers may want to work additional hours, and employers may prefer to opt for that possibility rather than creating new jobs. Such changes would not be reflected in the unemployment rate.

These authors developed an ‘underemployment index’, combining measures of excess capacity in the labour market, both of hours (intensive margin) and jobs (extensive margin). The index aims to capture the excess offer of demand in the labour market more accurately than through the unemployment rate by measuring the ratio of net unemployed hours to total available hours. For a given unemployment rate, a higher underemployment index indicates the availability of extra labour capacity (willingness to work additional hours) over and above those already in employment.

The underemployment index is based on the calculation of hours and is expressed in a rate form. Its construction follows these steps.

- The unemployment rate is converted into a measurement **based on the number of hours**, implicitly allocating equal hours to the employed and the unemployed ( $h$ ). The product of average hours worked and employment equals the total number of hours worked in the economy:

$$u = \frac{U}{U + E} = \frac{U\bar{h}}{U\bar{h} + E\bar{h}} = \frac{U\bar{h}}{U\bar{h} + \sum_i h_i}$$



- The **preferences over hours** (addition of the intensive margin of the labour market) are included in the numerator as the net effect between the positive (index  $k$  is defined over all workers who want more hours) and negative (index  $j$  is defined over all workers who want fewer hours) desired changes in hours. If they are equal in size, the index will reproduce the value of the unemployment rate, and the excess capacity will be only influenced by the extensive margin. On the other hand,  $u_{BB}$  will differ from the unemployment rate in cases of excess demand or supply of labour in the internal labour market:

$$u_{BB} = \frac{U\bar{h} + \sum_k \tilde{h}_k^u - \sum_j \tilde{h}_j^o}{U\bar{h} + \sum_i h_i}$$

In the same paper, Bell and Blanchflower (2013) presented findings from their analysis of UK data (2001–2013) comparing the unemployment rates with their underemployment equivalents. They drew the following conclusions.

- The unemployment rates underestimate the real differences in excess labour capacity between age groups. Differences between unemployment rates by age groups increase when taking into account the desired additional or fewer working hours (younger workers want to work more hours, and the opposite is the case for older workers).
- The unemployment rates overestimate differences between the sexes. If women are more likely than men to find employment, they are also more likely to be employed part time and to want to work longer hours. Thus, despite lower female unemployment rates, the underemployment index shows similar levels of excess capacity within the labour market for men and women.

### ‘Missing workers’ estimation

The Economic Policy Institute (EPI), a US think tank, stresses that a large number of individuals not in employment are not searching for a job because of weak job opportunities in the US labour market, but they would be either in employment or actively seeking a job if the job opportunities were stronger (similar to ‘discouraged workers’). These people are defined as ‘missing workers’ (Economic Policy Institute, 2017). The method for estimating the number of missing workers relies on extrapolating participation rate trends in 16 age–sex classes from the 1980s to the present, with greater weight given to more recent periods. This contributes to establishing a reference level of the expected structural level of employment in the economy. The shortfall between that reference level and the actual level of employment are ‘missing workers’. By not taking into account jobless individuals not looking for a job, the unemployment rate does not cover the category of missing workers and thus understates the weakness of job opportunities. Data from October 2016 show that if missing workers were looking for work, the unemployment rate in the USA would amount to 6.1% rather than the official unemployment rate of 4.9%.

### Summary

Each of the measures described above has been developed to address perceived weaknesses of the unemployment rate as a measure of labour market performance, while nonetheless building on the unemployment rate as their basic foundation. They proceed by adding supplementary forms of underemployment or of marginally attached workers on top of this foundation. Their identification of supplementary forms of labour slack is likely to be increasingly salient with the increasing share of part-time work, including part-time work involving very short hours, and the emergence of other forms of very atypical or marginal employment such as, for example, that facilitated by online platforms.



### 3 An estimate of labour market slack in the EU

There were approximately 22.8 million unemployed people in the EU in 2015 out of a total working age population of 330 million. Using Eurostat’s supplementary indicators of unemployment, it is possible to identify a further 21 million people who are either underemployed or in the potential additional labour force (De La Fuente, 2011).

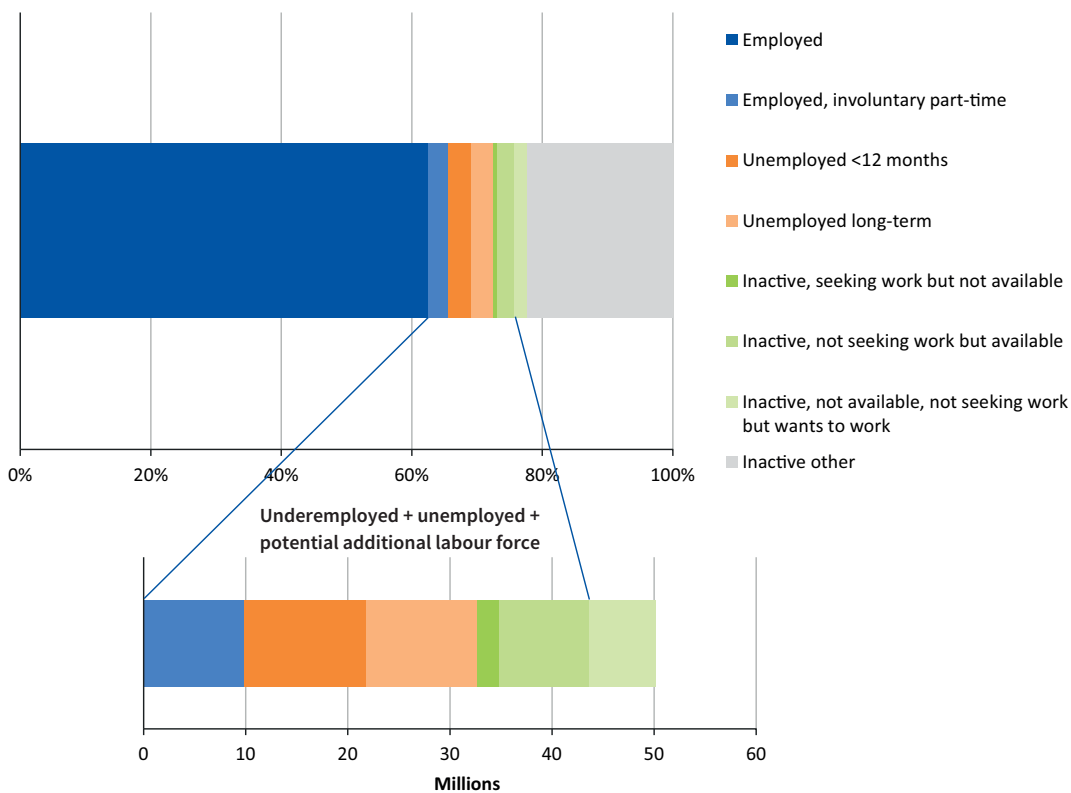
As Figure 3 illustrates, around 10 million of these were in employment, classified as involuntary part-timers. These workers wished to work longer hours and were carrying out part-time work only in the absence of a position offering them their desired working hours.

The remaining 11 million were inactive people – neither employed nor unemployed. They were either available for but not seeking work (including the so-called discouraged workers) or seeking work but not immediately available to work. These two groups comprise the potential additional labour force. They

fulfil two of the three required criteria to be considered unemployed – out of work, seeking work, available to work – and so can be considered to have some attachment to the labour market. Of the two, the biggest group is that of individuals available to work but not seeking work (approximately nine million) (Figure 3).

Another category of interest – outside the potential additional labour force definition – are those individuals who, though not seeking employment and not available in the next two weeks, indicate that they would ‘nevertheless like to have work’. While it is understandable that Eurostat should omit this group from the potential additional labour force, since they fulfil none of the criteria to be considered unemployed or employed, their willingness to work implies some labour market attachment. In 2015, there were over six million people in this category.

**Figure 3: Total working-age population by employment status (top panel) with close-up on categories of labour slack (bottom panel), EU, 2015**



**Note:** Workers aged 15–64 years-old.  
**Source:** EU-LFS (authors’ elaboration)

### Box 1: Workers on lay-off

A final specific category of labour slack is that of workers on lay-off or a temporary employer-initiated break from work, where the employment relationship has been suspended but not severed. Nearly 940,000 workers were on lay-off in the EU in 2015, an increase of around 25% since 2008. Italy accounted for around 45% of laid-off workers in the EU in both years.

Lay-offs may arise for a number of reasons, including technical (machinery breakdowns) or economic (slack demand). The EU-LFS has different ways of categorising workers on lay-off based on whether the employee continues to draw a wage (and how much as a share of their usual wage) and whether there is a specified date of return to work (and how far away that is from the reference week). These, in turn, determine the employment status of the laid-off worker. Where a worker currently not working either has an assurance of a return to work within three months or continues to receive at least half of their salary from an employer, they are considered employed.

More than half (56%) of laid-off workers were considered employed in 2015 (Table 1). Laid-off workers are, however, considered to be unemployed if they receive less than half of their salary and do not have an assurance of return to work (or have an agreed date of return more than three months from the date of lay-off) and if they comply with the other requirements to be considered a job-seeker – namely having sought work in the previous four weeks and being available to work in the next two weeks. In practice, this series of conditions results in only a very marginal share of the laid-off being considered unemployed (1%–2%). In all other circumstances, laid-off workers are considered inactive and these account for the remaining 42%–43%.

**Table 1: Employment status of workers on lay-off (thousands), EU, 2015**

	Laid off with no return in < 3 months and paid < 50% salary	Employed but laid off with return assured within 3 months or paid ≥ 50% salary	Others laid off awaiting recall	Total
Employed	0	438	2	440
Employed, involuntary part-time	0	85	0	85
Unemployed	16	0	0	16
Inactive but potential additional labour force	11	0	233	243
Other inactive but willing to work	4	0	32	36
Other inactive	18	0	100	118
<b>Total</b>	49	523	366	938

**Note:** Due to rounding, some of the totals do not correspond exactly to the sum of the numbers added.  
**Source:** EU-LFS (authors' calculations)

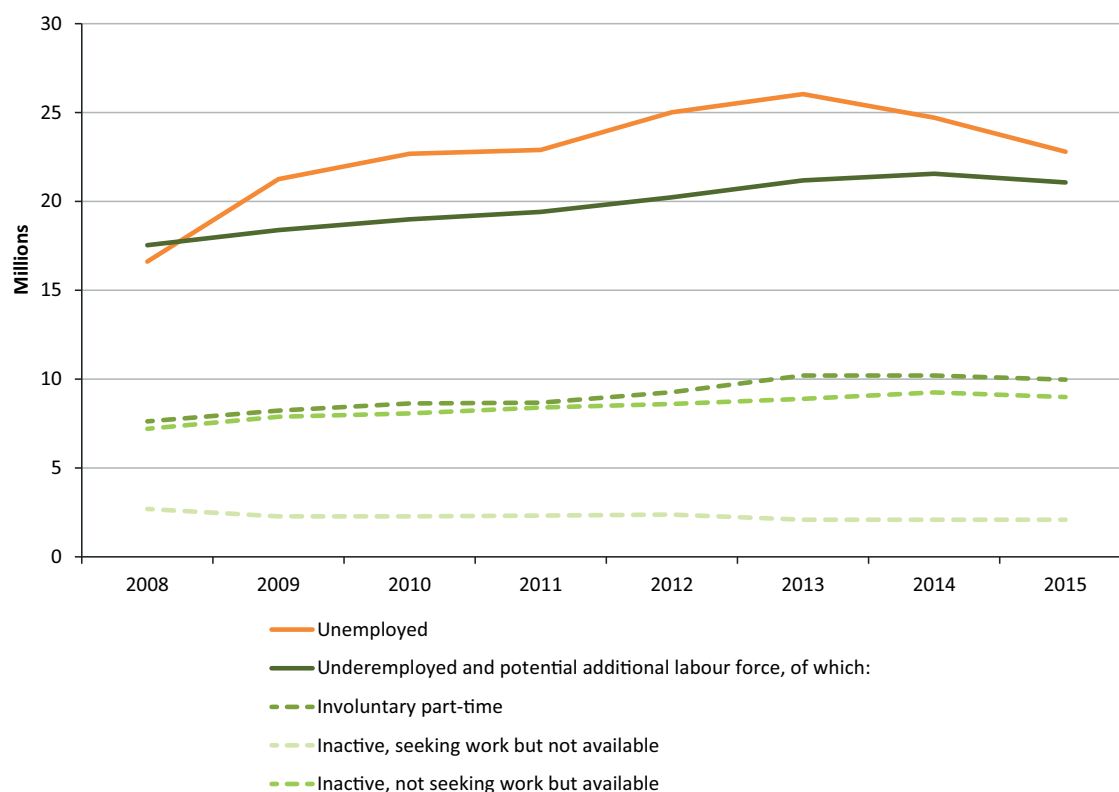
It is of particular interest that over 60% of workers on lay-off in 2015 (amounting to 558,000 individuals – the figures in bold in Table 1) do not appear in any of the previously defined categories of labour slack (shaded in blue in Table 1). Most of those on short-term lay-off or receiving at least half of their pay are classified as employed. Many of those who are on longer-term lay-off are classified as inactive but neither seeking, nor available for nor wishing to work ('Other inactive' in Table 1).

The first conclusion is that the 'halo' of people (De la Fuente, 2011) with some labour market attachment is large, nearly doubling the figure for the unemployed population as a whole – or more than doubling it if those expressing a willingness to work are also included.

Unemployment is typically countercyclical, going up when economic growth goes down or stalls. Since the global financial crisis in 2008, data for unemployment, underemployment and the potential additional labour force have followed similar trajectories (Figure 4). These latter indicators of labour slack have, however,

exhibited some distinctive trend characteristics compared with unemployment. Firstly, unemployment has been more volatile, rising faster post-crisis and then contracting faster after 2013 when the economic and labour market recovery strengthened. Unemployment levels were marginally lower in 2008 than those of the other categories combined (16.7 million compared with 17.1 million). However, they rose from trough to peak (2013) by nearly 10 million compared with a 4 million trough to peak (2014) increase in the underemployed and potential additional labour force.

Figure 4: Unemployed, underemployed and potential additional labour force, EU, 2008–2015



Note: Workers aged 15–64 years-old.

Source: EU-LFS (authors' calculations)

Unemployment is generally characterised as a lagging indicator. It tends to increase only with some delay after growth stalls, as employers tend to retain staff in anticipation of a short-lived downturn, so avoiding the significant costs of job separations. In this comparison between official unemployment and other forms of labour slack, it is unemployment that appears to have the earliest and most sensitive response to the economic downturn. Underemployment plus the potential additional labour force grew as well, but did so more slowly, and its response to economic conditions lagged even more than that of unemployment.

Within the supplementary indicators of unemployment, the subcategory of those available to work but not seeking work – including discouraged workers – has lagged the most. It grew steadily until 2014 before beginning to contract, a year after unemployment began to decline. This is likely to reflect inactive individuals moving ‘off the sidelines’ as labour market conditions improved and starting to search for and find jobs. It is a well-documented dynamic of recovering labour markets that increased labour demand matches existing job-seekers to new jobs first and only later attracts back to the labour market some of those who were previously inactive. The other numerically large subcategory – involuntary part-timers – has grown somewhat faster but peaked earlier (in 2012) before

stabilising at around 10 million workers. A tentative explanation is that, as labour demand began to improve in 2012–2013, employers initially responded by increasing the hours of work of those already in work and wanting to work more hours before increasing the headcount by taking on new workers; the average working hours of part-time employees rose from 20.2 hours per week in 2012 to 20.5 in 2015.

Overall, the main observation from Figure 4 is that a broader measure of labour slack has grown alongside unemployment since 2008, though not quite at the same rate and lagging economic activity to a greater extent. There were 6.1 million more unemployed people in the EU in 2015 than in 2008 and 3.7 million more people either underemployed or in the potential additional labour force.

## Involuntary part-time work

One of the most striking developments in European labour markets in recent decades, accentuated since the global financial crisis, has been the growing share of part-time employment. This share now accounts for some 20% of all jobs in the EU28 (24% in the pre-2004 Member States, the EU15), up from 16% in 1996. The recent increase in the share of part-time work has been based, since 2008, on a combination of growing levels of part-time work and contracting levels of full-time work.

In part, the explanation is structural. Growing service sectors tend to have more diversified working time requirements and tend to employ more part-time

workers. In part, there is also likely to have been a cyclical component, as employers hire or retain staff on a part-time basis in a context of reduced labour demand.

### Box 2: Very short part-time hours

Part-time work itself comes in many varieties, from very short weekly working hours to levels comparable with full-time work (up to and over 30 hours per week is one conventional cut-off for determining part-time weekly working hours). Over 3% of those usually working 35 hours per week report themselves as being part-time workers in the EU-LFS. However, as part-time work has become more common in the past two decades, there has been an increase in the share of workers working every type of schedule, from very short (up to 10 hours) to long, near full-time hours (31–35 hours per week).

As Table 2 illustrates, nearly 1 in 20 workers in the EU15 Member States worked 10 hours or fewer a week in 2015.<sup>6</sup> Although still a marginal part of overall employment, this share has grown by nearly a third since 1996. It was also more likely in 2015 to indicate a desire to work a greater number of hours than in 2002 (33% compared with 24%, EU27<sup>7</sup>).

**Table 2: Categorisation of workers according to usual weekly working hours, EU15, 1996–2015**

Usual weekly working hours	1996 %	2002 %	2008 %	2015 %
≤10 hours	3.4	3.8	4.0	4.6
11–15 hours	2.0	2.3	2.5	2.6
16–20 hours	5.4	5.8	6.1	6.4
21–25 hours	3.2	3.4	3.9	4.5
26–30 hours	3.8	4.3	5.0	5.8
31–35 hours	4.8	10.4	9.4	9.6
36+ hours	77.4	70.2	69.2	66.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Note:** Workers aged 15–64 years-old.  
**Source:** EU-LFS (authors' calculations)

The share of those working such short weekly hours has grown in nearly all Member States. Over the period 1996–2015, notable increases were observed in Austria (from 1.6% to 5.8%), Germany (from 3.5% to 6.9%) and Denmark (from 6.1% to 9.2%). While women account for the majority of part-time work with very short hours, the share of men has grown relatively faster since 1996 (from 1.5% to 2.8% of all male workers) compared with women's share (from 6.1% to 6.6% of all female workers). Highest shares were recorded among both young workers (up to 24 years of age) and workers above 64 years of age, and it was in these groups, in particular the younger group, that the greatest growth in the share of part-time work with very short hours was recorded.

Short hours' part-time workers are different from other part-time workers in dimensions other than weekly working hours. Firstly, almost half of them (47%) in the EU26<sup>8</sup> in 2015 did not consider their main labour status to be that of a worker.<sup>9</sup> Over a quarter (26%) said they were students, 9% were retired and the remainder stated they

6 Reference is made to the EU15 in order to extend the data series back to the 1990s. It is also the case that part-time shares of employment tend to be much higher in the older than in the newer Member States.

7 Excluding Germany, for which no data were available for 2002. There are no data for the relevant EU-LFS variable (WISHMORE) in 1996.

8 Data are not available for the main labour status variable (MAINSTAT) for Germany and the UK.

9 The relevant category of the MAINSTAT variable in the EU-LFS is described more precisely as 'carries out a job or profession, including unpaid work for a family business or holding, including an apprenticeship or paid traineeship, etc.'

were unemployed or inactive. In addition, the share of those wanting to work longer hours was much greater for those working short part-time hours compared with those working longer part-time hours.

Interestingly, one in six (16%) of involuntary part-timers working very short hours gave their professional status in 2015 as self-employed. This has increased by four percentage points since 2008. It is not possible to identify other emerging forms of precarious work (such as zero-hours contracts and platform-based or ‘gig’ work) using existing EU-LFS questions, but their growth and the growth of very short hours self-employed part-time work are likely to be significantly overlapping phenomena.

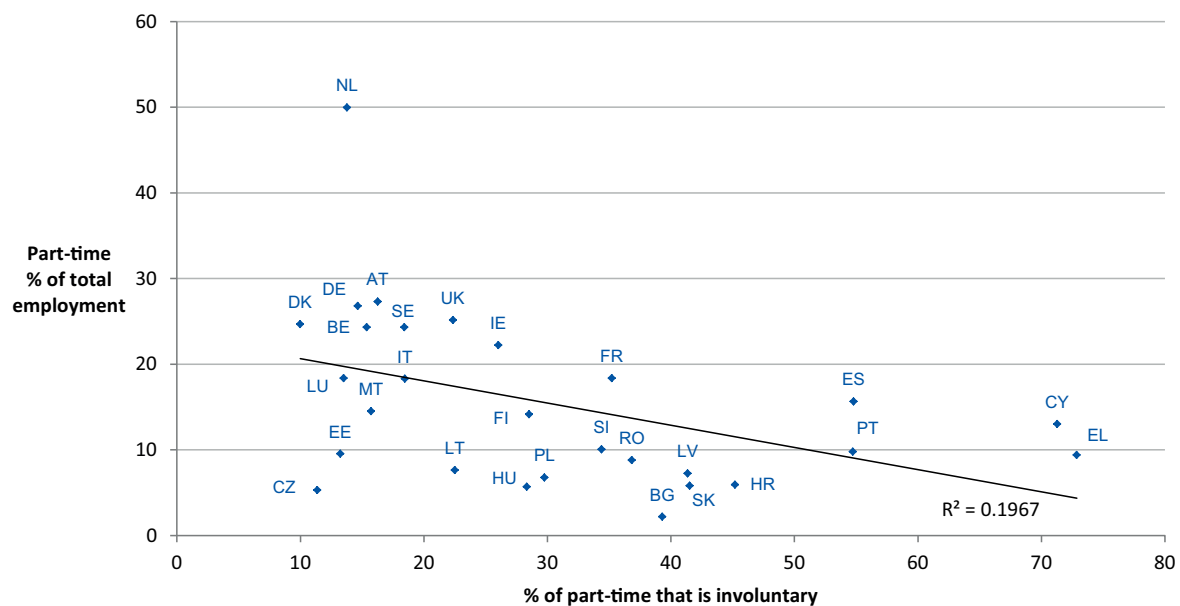
As the part-time share has grown (+2.1 percentage points, EU28, 2008–2015), so too has that of involuntary part-timers – those part-timers who indicate they are ready and willing to work more hours.<sup>10</sup> As a share of all part-timers, the percentage of involuntary part-timers increased by 1.8 percentage points during 2008–2015.

Underemployment is associated with many of the same negative outcomes at personal level identified in the unemployment literature. Dooley and Prause (2004) identified increased levels of depression and alcohol abuse and lower self-esteem. Based on an analysis of UK survey data, Heyes et al (2017) concluded that increased underemployment was associated with increased dissatisfaction with workload and with being ‘hours-constrained’ as well as undermining workers’ sense that work allowed them to make use of their abilities.

Inadequate income also raises the risk of in-work poverty, while lower rates of transition to better-quality jobs (better hours, security or average pay) may have scarring effects on future employability and work income.

The country scatterplots shown in Figures 5 to 7 cover a relatively limited period (2008–2015). They show, first of all, that the share of part-time work that is involuntary is not associated with the part-time share of overall employment at country level (Figure 5). In fact, the correlation is negative. Countries with high part-time employment shares such as Belgium, Germany, the Netherlands, Sweden and the UK have lower-than-average shares of involuntary part-time employment. In countries where part-time work is widespread, and has been a commonplace of the labour market for some decades, part-time status appears to be more accepted and more likely to be voluntary.

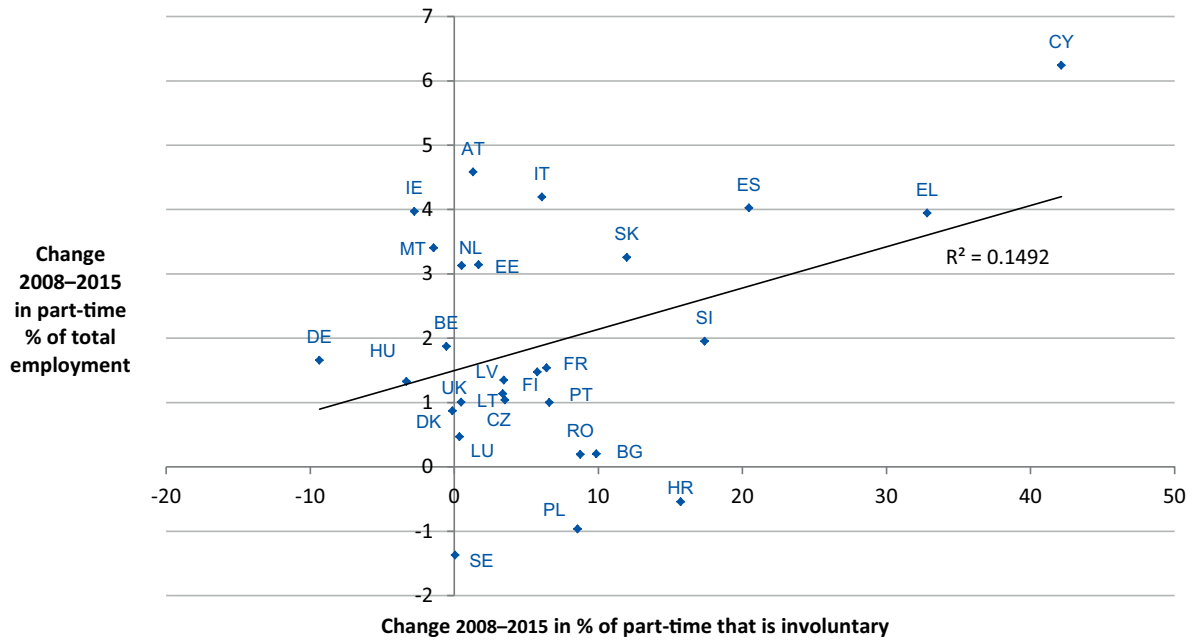
**Figure 5: Involuntary part-time employment share and part-time share of total employment, EU Member States, 2015**



Source: EU-LFS (authors' calculations)

<sup>10</sup> Or who indicate that the reason that they are working part time is that they could not find a full-time job. The EU-LFS offers two ways of identifying involuntary part-time workers, and each provides somewhat different estimates. Of the two alternatives, the approach used here is the one that Eurostat has adopted in its definition of ‘underemployed part-time workers’, that is, those who self-report as part-time workers, who indicate that they would like to work more hours and are available to do so. This approach tends to generate lower estimates of the involuntary part-time population. For this reason, the main reported figures in this report for the involuntary part-time headcount and its increase between 2008 and 2015 can be considered conservative, lower bound estimates. See Annex 2 for a comparison.

**Figure 6: Change in involuntary part-time employment share and in part-time share, EU Member States, 2008–2015**

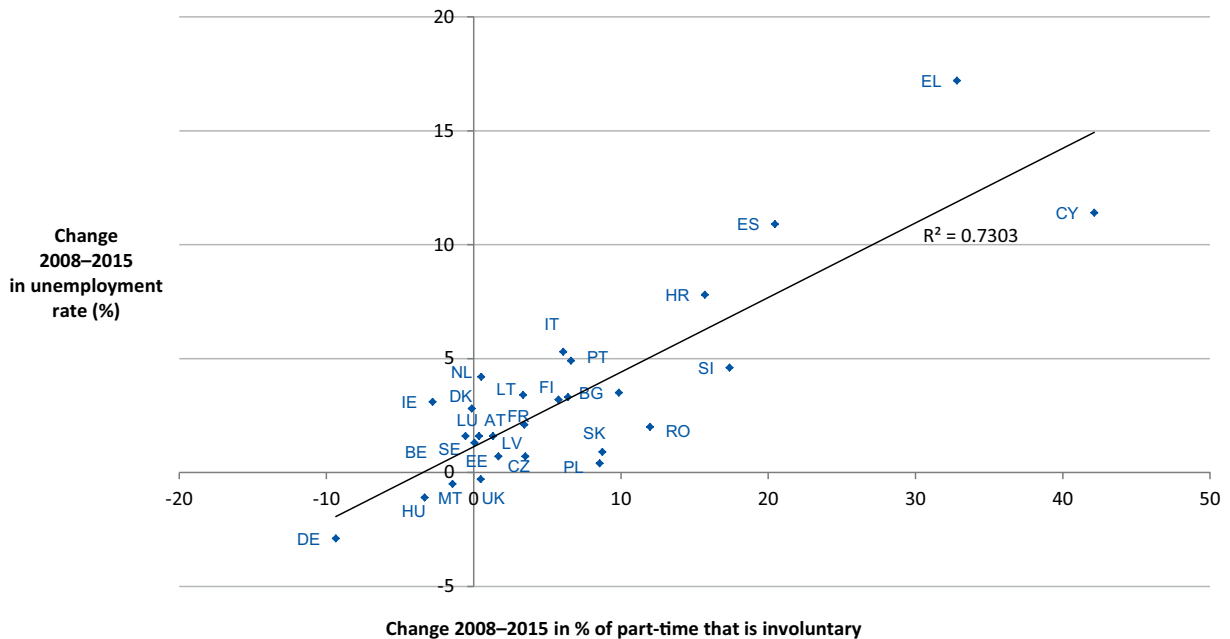


Source: EU-LFS (authors' calculations)

Where (modest) positive associations are found is in the change in involuntary part-time employment share and the change in part-time share (Figure 6). The part-time share of employment has increased in all but three Member States (Croatia, Poland and Sweden). Where this indicator has increased the most since 2008, there is a greater likelihood that the share of involuntary

part-timers has also increased significantly. Countries such as Cyprus, Greece and Spain are illustrative of this association, though there are also some counter-examples such as Ireland, where the involuntary share has declined despite an increase of four percentage points in part-time employment share.

**Figure 7: Change in involuntary part-time employment share and in unemployment rate, EU Member States, 2008–2015**



Source: EU-LFS (authors' calculations)



The strongest association, however, is between overall labour market performance at country level and changes in the overall share of involuntary part-time work (Figure 7). Where the unemployment rate has increased most, there is a strong likelihood that the involuntary part-time share has also grown strongly.<sup>11</sup> Cyprus, Greece and Spain are again illustrative. The corollary is also true. Germany, the Member State with the most improved unemployment record over the period, is also the one with the sharpest decline in involuntary part-time share.

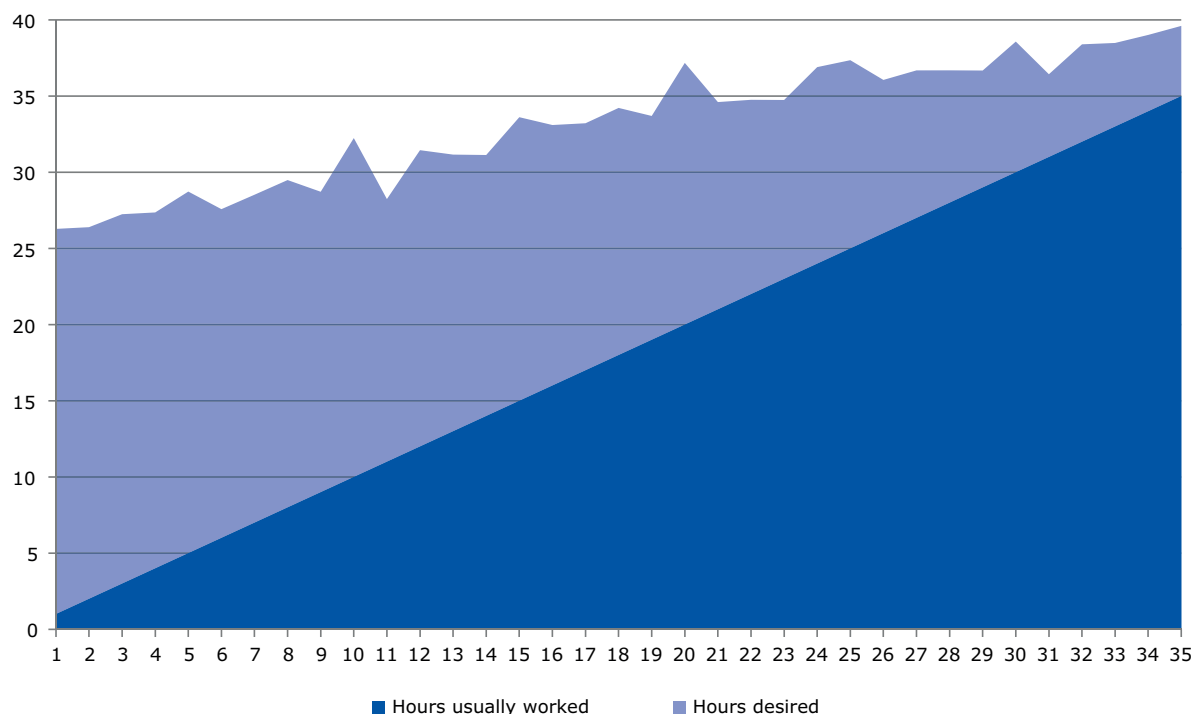
As a first run, this is a strong indication that involuntary part-time work is associated with poor labour market performance in general and moves largely in tandem with other primary indicators of labour slack such as the unemployment rate.

In the EU-LFS, respondents are not only asked if they want to work more hours but also how many hours they would like to work in total. Involuntary part-time workers tend to work shorter hours on average than other part-time workers. The EU average is over one and a-half hours less a week, but as much as three or more hours less a week in Belgium, France, Italy and Sweden.

In addition, the desired weekly working hours of involuntary part-timers tend to be much closer to full-time working hours than to the average weekly hours of other part-time workers. This is unsurprising as over two-thirds of involuntary part-timers (using the definition adopted in this report, namely those who self-report as part-time workers, who indicate that they would like to work longer hours and are available to do so) indicate that the main reason for working part time is their inability to find a full-time job. By implication, they are likely to aspire to work the hours of full-time counterparts.

Figure 8 shows that the gap between the average desired hours of work of involuntary part-timers and the number of usual worked hours decreases as actual weekly working hours increase. For workers with very short hours, in particular, the gap is very large. Those who have worked fewer than 5 hours per week would like to work between 24 and 28 hours per week. For those involuntary part-timers working 18 hours and above per week, desired weekly hours fall into the range of 34–40 hours per week, effectively full-time work. The gap between desired and actual weekly hours converges, therefore, as actual weekly hours approach full-time hours.

**Figure 8: Gap between desired and actual hours of work of involuntary part-timers, EU, 2015**



**Notes:** Usual weekly hours worked includes second jobs where indicated; around 8% of part-timers (involuntary or not) indicated that they have a second job; desired hours of work (HWWISH) capped at 40 hours a week.

**Source:** EU-LFS (authors' calculation)

11 A similar finding is observed if the employment rate (sign reversed) is used rather than the unemployment rate ( $R^2 = 0.69$ ).

Table 3 provides confirmation at country level that desired weekly hours of work of involuntary part-timers tends to correlate well with their average usual weekly hours ( $R^2 = 0.80$ ). Desired weekly hours of work tend to be greatest in some eastern European Member States (as well as Greece), which generally have longer working weeks for all workers. They tend to be much shorter in western European Member States, notably in countries with shorter average working weeks and with higher shares of part-time employment (such as Denmark and the Netherlands). The biggest gaps between average

usual and desired hours of involuntary part-timers are clearly observed in Bulgaria, Portugal, Slovakia and Spain. In each country, the gap is bigger than the usual weekly working hours.

Overall, the gap between hours of work worked and hours desired amounts to nearly 150 million hours per week across the EU. This is equivalent to four million average worker equivalents or nearly 2% of existing EU employment. Four larger Member States (France, Germany, Spain and the UK) account for nearly two-thirds of all of the involuntary part-timers in Europe,

**Table 3: Average usual and desired weekly hours of involuntary part-time workers, EU Member States, 2015**

	Usual weekly working hours	Weekly working hours desired	Gap between actual and desired hours	No. of involuntary part-timers (thousands)	Total weekly hours desired, not worked by involuntary part-timers (millions)	Average weekly hours worked, all workers	Total hours desired but not worked by involuntary part-timers (thousand AWEs)
Austria	20.3	33.6	13.3	180.5	2.4	36.8	65.4
Belgium	22.1	35.6	13.5	168.0	2.3	37.0	61.4
Bulgaria	19.8	39.7	19.9	27.3	0.5	40.9	13.3
Croatia	20.6	39.8	19.2	41.9	0.8	39.7	20.2
Cyprus	19.9	38.3	18.3	32.5	0.6	39.6	15.1
Czech Republic	20.8	38.5	17.7	29.9	0.5	40.8	13.0
Denmark	17.3	28.9	11.6	65.9	0.8	33.5	22.8
Estonia	21.8	38.2	16.4	7.7	0.1	38.9	3.2
Finland	18.0	32.8	14.8	94.0	1.4	37.0	37.5
France	22.1	33.8	11.7	1,848.6	21.5	37.5	574.9
Germany	19.3	33.8	14.5	1,550.9	22.4	35.5	631.3
Greece	20.7	39.1	18.4	242.4	4.5	42.1	106.0
Hungary	22.3	39.6	17.3	67.1	1.2	39.9	29.1
Ireland	19.2	36.1	16.9	109.7	1.9	35.9	51.8
Italy	18.5	36.0	17.4	742.1	12.9	37.0	349.6
Latvia	21.2	38.2	17.0	26.0	0.4	39.2	11.3
Lithuania	21.4	38.8	17.4	22.4	0.4	38.5	10.1
Luxembourg	18.2	30.8	12.7	6.3	0.1	37.6	2.1
Malta	22.2	36.5	14.3	4.2	0.1	38.6	1.5
Netherlands	17.5	30.6	13.2	573.0	7.5	30.4	248.6
Poland	22.6	38.5	15.8	318.1	5.0	40.9	123.1
Portugal	18.4	38.1	19.8	231.0	4.6	40.0	114.1
Romania	24.0	39.9	15.9	267.1	4.2	40.0	106.3
Slovakia	17.3	38.2	20.9	57.8	1.2	40.3	30.1
Slovenia	20.0	37.6	17.7	31.2	0.6	39.4	14.0
Spain	18.3	38.4	20.1	1,497.2	30.1	37.8	797.6
Sweden	22.7	36.5	13.8	208.7	2.9	36.8	78.1
UK	19.8	31.9	12.1	1,398.8	16.9	37.3	454.5
EU	19.9	35.0	15.2	9,850.3	149.3	37.4	3,993.1

Notes: Usual and desired hours based on EU-LFS annual microdata 2015; desired hours of work (HWWISH) capped at 40 hours a week. AWEs = average worker equivalents. The last column – thousands of average worker equivalents – represents the total volume of work desired but not worked by involuntary part-timers and is calculated as a simple ratio of the previous two columns in each country, that is, total weekly hours desired but not worked / average weekly hours (all workers), in the specific country.

Source: EU-LFS (authors' calculations)

and each of these countries also makes a disproportionate contribution to the aggregate hours gap. In Spain, this gap amounts to the equivalent of 800,000 jobs.

To identify what categories of worker are more likely to fall into the category of involuntary part-timers, Table 4 compares workers with different personal and work characteristics according to the share of overall employment, part-time employment and involuntary part-time work in the EU. This is a static, descriptive analysis based on the EU-LFS 2015 annual data.

Nearly four out of five part-time workers in the EU are women, but among involuntary part-time workers, the gender imbalance is not so marked, indicating a stronger likelihood that part-time men fall into the category rather than part-time women. Nonetheless,

there are twice as many involuntary female part-timers in the EU than involuntary male part-timers. Younger workers, less educated workers and, especially, workers new to their current job (tenure of less than one year) or those on temporary contracts are more likely to be involuntary part-time workers. Attachment to the labour market is therefore precarious across several dimensions for involuntary part-timers – both contractually, in terms of human capital endowment, and in terms of accumulated work experience, in general and in the current job.

The fact that younger workers are more likely to report involuntary part-time employment adds an additional layer of youth underemployment to the more remarked trend of high youth unemployment. In their analysis of underemployment in the UK, Bell and Blanchflower

**Table 4: Share of overall employment, voluntary part-time and involuntary part-time, by personal and work characteristics, EU, 2015**

Variable	Category	All workers (%)	Voluntary part-time (%)	Involuntary part-time (%)
Sex	Male	53.9	21.8	33.5
	Female	46.1	78.2	66.5
Age	15–24 years	8.5	13.3	15.4
	25–39 years	35.3	29.1	35.9
	40–54 years	40.3	37.4	36.9
	55–64 years	16.0	20.1	11.8
Education	Lower secondary	18.0	21.4	27.7
	Upper secondary	48.4	50.0	47.1
	Tertiary	33.5	28.7	25.2
Tenure	< 12 months	13.6	17.9	31.9
	1–5 years	24.3	26.1	31.8
	> 5 years	62.1	56.0	36.3
Contract type*	Permanent	85.9	83.5	63.7
	Temporary	14.1	16.5	36.3
Selected sectors (high prevalence)	Activities of households as employer	1.1	2.5	5.6
	Arts, entertainment and recreation	1.8	2.7	3.6
	Accommodation and food service activities	4.7	7.3	10.4
	Administrative and support service activities	4.2	6.2	8.9
Selected sectors (low prevalence)	Manufacturing	15.7	6.4	4.1
	Financial and insurance activities	3.0	2.4	0.9
	Construction	6.8	2.4	3.3
Selected occupations (high prevalence)	Elementary occupations	9.1	16.1	26.5
	Service and sales workers	17.0	26.8	30.1
Selected occupations (low prevalence)	Managers	5.9	2.2	0.9
	Craft and related trades workers	11.8	3.2	4.9
	Plant and machine operators and assemblers	7.4	2.4	3.3

\* Employees only

Note: 'Don't knows' and 'Not applicable' omitted from calculations.

Source: EU-LFS 2015 annual microdata

(2013) observed that the desire for extra working hours is greatest among younger workers and weakest, indeed negative in absolute terms, among older workers, who would prefer on average to work fewer hours. There is room therefore for policies encouraging the adaptation of actual working times to the working time preferences for the two age groups. One example of such a policy is partial or phased retirement in the case of older workers, possibly accompanied by mentoring possibilities where younger workers are assigned to older workers nearing retirement.

An imbalance is also reflected in the prevalence of involuntary part-timers in specific occupations. Generally, lower-paid service occupations – elementary occupations and sales and service workers – account for 57% of all involuntary part-time employment but around one-quarter of total employment (26%). Managers, on the other hand, are much less likely to be working part-time and, if working part-time, to be doing so involuntarily.

Sector-wise, traditionally male-employing sectors such as manufacturing and construction combine a prevalence of full-time employment with very low shares of involuntary part-time employment. This is interesting as it implies that the disproportionately high male share of involuntary part-timers is concentrated in

service sector employment. A gender-disaggregated breakdown by occupation (not shown in Table 4) confirms that this is the case; the retail sector and the accommodation and food services sector are both predominantly female-employing sectors but are also those that account for the highest shares of involuntary part-time employment among male workers.

Of the other service sectors with high shares of involuntary part-time employment, the most important is administrative and support service activities, a broad grouping that includes private security, services to buildings (including cleaning and facilities support) as well as call centres. The highest likelihood of being an involuntary part-time worker is in domestic employment, working for individual householders, which accounts for just over 1% of all workers but 6% of all involuntary part-timers. This sector has a large majority of female workers.

Using the rather basic work income measure in the EU-LFS (an income decile assignment by country based on monthly take-home pay from the main job), it can be seen that 73% of involuntary part-timers are in the bottom 20% of the wage distribution. A combination of employment in sectors and occupations with low hourly pay and insufficient working hours are a recipe for working poverty. Though the ordinal wage measure

**Table 5: Determinants of involuntary part-time employment, EU, 2015**

Covariate and category	Reference category	Model 1 population: all employed	Model 2 population: all other part-timers
<b>Contract</b>			
Temporary	Permanent	2.124***	1.672***
<b>Education</b>			
Tertiary	Second level completed	0.895***	n.s.
<b>Occupation</b>			
Sales and service workers	Technician/associate professional	2.100***	1.594***
Elementary occupations		3.513***	2.044***
<b>Age</b>			
15–24 years	25–39 years	0.824***	0.625***
55–64 years		0.938*	0.617***
<b>Sex</b>			
Female	Male	1.759***	0.646***
<b>Sector</b>			
Manufacturing	Retail	0.309***	0.663***
Arts and entertainment		1.869***	1.275***
Households as employers		2.128***	1.276***
<b>Tenure</b>			
< 1 year	1–5 years	1.332***	1.226***
5+ years		0.525***	0.605***

**Notes:** Selected outputs from a logit model. Exponentiated coefficients (odds ratios). \* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$ . n.s. = not significant. Dependent variable: involuntary part-time status. Model 1: Compared with all other employed. Model 2: Compared to all other part-timers (that is, voluntary part-timers).

**Source:** EU-LFS (authors' elaboration)

used in the EU-LFS does not allow any formal measurement of (in-work) poverty to be derived, it does provide strong circumstantial evidence that inadequate work income is an important driver of the desire to work longer hours among involuntary part-timers.

Supplementing the above summary based on tabular, descriptive data, two logit models have been estimated to assess the extent to which some of the above variables are important determinants of involuntary part-time status while controlling for the other variables and resulting composition effects (Table 5). A brief summary of the most important results follows (full outputs are available on request from the authors).

The multivariate analysis reinforces some of the findings of the descriptive analysis, but falsifies some of the others. It confirms that being of temporary status, working in lower-level service occupations (sales and service workers and, especially, elementary occupations) or similar sectors (households as employers) as well as having only started one's current job within the last year are all factors associated with a higher prevalence of involuntary part-time work. Conversely, being of long tenure or working in a predominantly male-employing sector such as manufacturing (also utilities and construction) is associated with a lower prevalence of involuntary part-time work.

While having a graduate-level education provides a (modest) level of protection against involuntary part-time status compared with those who completed secondary education in the full model (where all employees is the population), this effect becomes insignificant in the part-time only model.

Controlling for the other variables, women are much more likely to self-report as involuntary part-time workers than men in the full model, reflecting women's predominance in part-time work overall. When, however, the population is restricted to just the part-timers (Model 2), the reverse is the case; it is men who are more likely than women to self-report as involuntary part-timers.

Finally, while older workers (55–64 years-old) are less likely to work part-time involuntarily compared with the reference category (25–39 years-old), this is also surprisingly the case for younger workers (15–24 years-old). One possible explanation is that the main factor predisposing individuals to self-report involuntary part-time status is low tenure rather than age.

## Inactivity

A far larger share of the jobless or non-employed is inactive as opposed to unemployed. In the population of working age, there are around four inactive people for every one unemployed person, and this ratio has tended to decrease as labour market participation has increased. In 2015, there were 2.5 million more unemployed people in the EU than in 2002, but 9 million fewer inactive people of working age.

In comparisons of the relative labour market performance of the EU and the USA since the global financial crisis, one of the more interesting – but less remarked upon – phenomena has been the outperformance of the EU as regards labour market participation. The share of job-holders and job-seekers combined as a proportion of the total working-age population has increased every year since 2002 (from 68.6% to 72.5%), by an average of 0.4 percentage points in higher growth years but also by 0.1–0.2 percentage points even during the 2008–2010 period of sharp recession. Recent analysis has suggested one mechanism supporting increasing participation rates in times of cyclical downturn: the mobilisation into labour market activity of second or third earners in a household when a primary earner loses their job (European Commission, 2016a, p. 11). This 'additional worker effect' is consistent with the observation that participation rates for core-age individuals rose most for those in the lowest household income quartile.

Inactivity may in many cases be a voluntary or even a desired status. In 2015, 36% of inactive people gave participation in education or training as their main reason for not seeking work (an increasing share compared with previous years); 15% were retired, while 16% cited family or caring responsibilities. Both of these shares were decreasing, as women – still the main carers – and older people were increasingly likely to be in the market for paid work.

### Available to work but not seeking work

However, over one in six inactive people in the EU – or over 15 million working-age individuals – indicated a wish to work in the 2015 EU-LFS. The majority of these fall into the first main category of the potential additional labour force – those willing and available to work but not seeking it. There were 8.8 million such individuals in 2015 (Table 6).

Table 6: Inactive people available for but not seeking work, EU Member States, 2015

	Available but not seeking work (thousands)	% of inactive	Of which, discouraged (thousands)	Discouraged % of inactive
Austria	139.4	9.9	3.7	0.3
Belgium	85.5	3.6	22.2	0.9
Bulgaria	217.6	15.2	170.8	11.9
Croatia	150.6	16.2	33.7	3.6
Cyprus	17.8	12.2	7.4	5.1
Czech Republic	34.7	1.9	5.9	0.3
Denmark	40.6	5.2	1.2	0.2
Estonia	22.4	11.2	5.1	2.6
Finland	108.4	12.8	34.9	4.1
France	747.7	6.3	188.2	1.6
Germany	471.3	3.9	62.0	0.5
Greece	95.2	4.2	21.3	0.9
Hungary	139.3	6.8	66.1	3.2
Ireland	21.9	2.4	10.2	1.1
Italy	3,450.9	24.6	1,611.8	11.5
Latvia	38.9	12.6	13.9	4.5
Lithuania	12.2	2.4	3.8	0.8
Luxembourg	14.2	12.8	0.9	0.9
Malta	2.0	2.2	0.1	0.1
Netherlands	301.8	13.6	71.9	3.2
Poland	533.4	6.7	256.7	3.2
Portugal	243.0	13.5	90.7	5.1
Romania	355.7	7.8	71.8	1.6
Slovakia	51.9	4.7	15.8	1.4
Slovenia	25.4	6.5	11.2	2.9
Spain	954.2	12.2	375.4	4.8
Sweden	109.3	9.7	14.8	1.3
UK	400.3	4.1	12.5	0.1
EU	8,785.7	9.7	3,183.9	3.5

Note: Workers aged 15–64 years-old. In colour-coded columns, highest values are gradations of red, middle values of yellow and lowest values of green.

Source: EU-LFS (authors' calculations)

There is little correlation between general labour market indicators such as the employment or unemployment rate at national level and the share of those who are inactive, not seeking work but available and willing to work. Italy alone has nearly 3.5 million working-age individuals available but not seeking work – more than one in three of the EU total – but a country such as Greece, with much higher unemployment, has a much lower share. This suggests that specificities of national employment regimes – and possibly also differences in the survey categorisation of inactive individuals across Member States – affect this share more than labour market or economic performance. As already indicated (Figure 4), this category of inactivity has grown by over 1.5 million people since 2008, though it has begun to decline since 2014.

The most important reason that those inactive people willing and available to work are not seeking work – reported by 36% – is their belief that no work is

available. These inactive people are also referred to as 'discouraged workers',<sup>12</sup> those that have given up searching for a job and have thus exited unemployment to become inactive. Their availability and willingness to work means, however, that they remain 'marginally attached' to the labour market. Their discouragement is subjective, but one could expect a strong correlation between this measure and other measures of objective labour market conditions, such as the employment or unemployment rate. Again, in the simple cross-country comparison (Table 6), there is only a very weak positive association ( $R^2 = 0.06$ ) between unemployment rates and discouraged worker share. Italy accounts for an even higher share of discouraged workers – nearly half of the EU total – despite having an unemployment rate only somewhat higher than the EU average. Spain, however, is an example of a country where high unemployment is mirrored in a high share of discouraged workers – there were almost 400,000 of them in 2015.

12 Measures of discouraged workers are not always harmonised across countries and depend on the particular questions asked in labour force surveys. In the USA, for example, one specific condition of being included in the category is that a job search has been undertaken in the previous 12 months (but not in the previous 4 weeks). There is no question in the EU-LFS that makes it possible to gauge whether a job search has taken place over the previous 12 months, so the operationalisation of discouraged workers in this report is broader and less exclusive. It refers to those without a job who are willing to work, available to work (in the next two weeks) but have not undertaken a job search in the previous four weeks.



The share of discouraged workers among those available but not seeking work was more or less the same for women as for men (37% and 36%, respectively), but there were significant gender differences in the shares of other cited reasons for not seeking work. Women were much more likely to cite family or caring responsibilities (21% among women, 6% among men) but less likely to cite illness or disability (5% compared with 8%) or participation in education or training (10% compared with 14%).

Regarding the composition of the two categories in focus in this section – inactive, available but not seeking work and the subgroup of discouraged workers – Table 7 allows the categories to be characterised by the extent to which they differ in personal and (previous)

work-related characteristics compared with the unemployed population and the inactive population. One of the implicit assumptions of the labour underutilisation literature – and the potential additional labour force concept that it underpins – is that the identified categories represent a grey zone between inactivity and unemployment and that they share many attributes with the population of job-seekers. Based on this assumption, it might be expected to find population characteristics for the group(s) that differ from those of the inactive population more generally and approximate more those of the unemployed. The first step in this analysis is to compare the fifth column in Table 7 (inactive people available for but not seeking work, hereafter referred to as ‘target group’) with the third and fourth columns.

**Table 7: Share of different non-employed categories, by personal and previous work characteristics, EU, 2015**

Variable	Category	All unemployed (%)	All inactive (%)	Available but not seeking work (%)	Discouraged workers (%)
Sex	Male	53.5	39.5	42.2	41.6
	Female	46.5	60.5	57.8	58.4
Age	15–24 years	20.5	35.8	20.0	11.1
	25–39 years	37.3	16.2	29.3	24.7
	40–54 years	30.8	17.4	32.4	38.8
	55–64 years	11.4	30.6	18.3	25.5
Education	Lower secondary	36.8	46.6	45.8	55.2
	Upper secondary	43.9	41.5	41.7	37.4
	Tertiary	19.3	12.0	12.5	7.3
When last worked	Never employed	18.8	45.2	30.6	27.7
	< 12 months	34.1	9.2	19.6	13.2
	12–47 months	25.4	13.1	17.6	18.1
	48+ months	21.6	32.5	32.2	41.0
Reason for leaving last job (selected categories)	Dismissed	34.7	15.6	33.1	43.2
	Job of limited duration ended	43.7	17.0	39.5	39.9
	Family or caring responsibilities	3.8	10.9	5.4	2.7
	Own illness or disability	2.9	14.1	4.5	2.5
	Early or normal retirement	0.4	26.4	3.4	1.8
Sector last worked (selected, high prevalence)	Agriculture, forestry and fishing	4.2	4.6	7.0	9.1 (4.2)
	Manufacturing	14.7	16.5	14.9	17.2 (15.6)
	Construction	12.2	7.0	10.6	12.4 (6.8)
	Wholesale and retail trade, repair of motor vehicles	16.9	14.5	15.9	15.7 (14.0)
	Accommodation and food service activities	10.3	7.7	10.4	8.7 (4.7)
Occupation last worked (selected, high prevalence)	Service and sales workers	23.9	22.6	25.0	22.1 (17.0)
	Skilled agricultural, forestry and fishing	1.8	2.8	2.8	4.0 (3.5)
	Craft and related trades workers	15.4	12.1	14.6	17.8 (11.8)
	Elementary occupations	22.1	16.6	23.4	27.2 (9.1)

**Note:** 2015 share of total employment by sector and occupation in parentheses for comparison.

**Source:** EU-LFS 2015 (authors' calculations)

The sex and educational attainment share of the target group is much more akin to that of the broader inactive category than the unemployed population, with a higher share of women and a higher share of people with low educational attainment. The reverse is true of the age profile. Here, the target group does resemble that of the unemployed population, although the high share of inactivity among the younger group due to educational participation and among the older age group due to retirement skews this comparison. For example, those younger people available but not seeking work are presumably less likely to be in full-time education. The share of older workers is somewhat higher in the target group, but with a preponderance among the middle-aged (40–54 years-old) rather than the older age category (55–64 years-old). In terms of when they last worked, the target group's labour market attachment falls somewhere between the unemployed and inactive populations; they are much less likely never to have worked before than the inactive in general, but also more likely to have been out of work for a long period (four years or more) than the unemployed. The one area in which the target group resembles most the composition of the unemployed population is in relation to the reasons given for loss of their last job, which are mainly business-initiated (dismissal or redundancy and non-renewal of limited duration work). The inactive population more generally cite a broader range of reasons including retirement, own illness or disability and caring responsibilities.

Finally, the target group is more likely to report having last worked in agriculture, construction (both contracting sectors in terms of employment in the period before the survey) and food and accommodation services (a high turnover sector) – in each case, the share indicated is higher than for the inactive population as a whole and closer to that of the unemployed population. By occupation in their last job, the target population is similar in composition to the unemployed, notably as regards the high share of blue collar occupations cited (both higher skilled and lower skilled). In terms of their most recent work experience, the target population is more likely to have worked in high-turnover or contracting sectors as well as in lower-skilled occupations.

Overall, the data provide some support for the contention that the target group is distinct from the inactive population more generally and resembles that of the job-seeking population in some key respects – principally in relation to the characteristics of previous employment.

Table 7 also allows a preliminary assessment to be made of how the subgroup of discouraged workers differs from the other broader inactive categories of which it is part. In hierarchies of labour market attachment, the group of discouraged workers tends to rank high with stronger labour market attachment than

all other forms of inactivity (see, for example, ILO, 2008, p. 21). This has been the justification, for example, for including discouraged workers in the first additional 'broad unemployment' measure covered by the US Bureau of Labor Statistics, the U-4 rate. This is the category of the inactive considered closest to the labour market and most similar in profile to job-seekers. However, earlier analysis of labour slack found that the attachment of many discouraged workers to the labour market was even less than marginal, with little recent work experience and high levels of persistence in non-employment (OECD, 1995).

A comparison of the third, fourth and fifth columns of Table 7 shows that recent EU-LFS data do support a sceptical view of the labour market attachment of discouraged workers. They are more likely to have been out of work for a longer period than the broader group to which they belong, that is, those who are inactive, available but not seeking work; 41% have not worked in the previous four years and a further 28% have never worked. They also have an older age profile – nearly two-thirds are over 40 – and tend to have lower levels of educational attainment. This could imply that their lack of job search is in part motivated by problems of obsolete skills or age discrimination in the labour market rather than the common explanation of discouragement based on business cycle effects (reduced labour demand in a downturn). Discouraged workers are also more likely to have lost their last jobs for economic reasons (dismissal or redundancy or ending of a job of limited duration) and their last jobs were disproportionately in contracting sectors (such as agriculture) or in low-skilled elementary occupations.

In terms of composition, the discouraged workers group appears to face more, not fewer, labour market challenges than the broader category of inactive, available but not seeking work, and more even than the inactive population more generally. The traditional view that they are a source of reserve labour easily mobilised as a labour market emerges from a downturn is, on this evidence, hard to justify. As a group, they appear to share more in common with the long-term unemployed and to be less, not more, attached to the labour market than other inactive categories.

Table 8 shows selected results after testing some of the descriptive findings above using a multivariate model to isolate which of the identified factors predispose to discouragement and other specific inactive categories when controlling for the other factors. Specifically, a multinomial logistic regression is estimated to identify prevalent characteristics of three inactive categories (the discouraged, the inactive who are available but not seeking work for reasons other than discouragement, and a third residual group of other inactive people, which includes those not wishing to work, namely those voluntarily inactive) against the baseline non-employment category of the unemployed. The



Table 8: Determinants of various non-employment statuses, EU, 2015

Covariate and category	Reference category	Base category: unemployed		
		Inactive, available not seeking work due to discouragement	Inactive, not seeking work for other reasons	Other inactive
<b>Sex</b>				
Female	Male	1.336***	1.462***	2.049***
<b>Age</b>				
40–54 years	25–39 years	1.476***	1.032	0.884***
55–64 years		3.259***	1.337***	2.923***
<b>Education</b>				
Basic only	Second level completed	1.260***	n.s.	n.s.
Tertiary		0.700***	n.s.	0.909***
<b>Sector of last job</b>				
Agriculture	Retail	1.453***	1.534***	1.722***
<b>Occupation in last job</b>				
Skilled agricultural worker	Technician/associate professional	2.110***	n.s.	n.s.
Craft and trade worker		n.s.	n.s.	0.848***
Plant and machine operator		n.s.	n.s.	0.825***
Elementary occupation		1.216**	n.s.	0.805***
<b>Reason for leaving last job</b>				
Family or caring responsibilities	Dismissal or made redundant	n.s.	2.474***	6.926***
Own illness or disability		n.s.	2.990***	13.43***
Early or normal retirement		2.848***	14.87***	126.6***
<b>When last worked</b>				
12–23 months ago	6–11 months ago	1.359***	1.042	1.223***
24–47 months ago		1.942***	1.167***	1.573***
4+ years ago		2.519***	1.448***	2.221***

Notes: Selected coefficients from a multinomial logit model. Exponentiated coefficients (relative risk ratios). \* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$ . n.s. = not significant. Baseline outcome: unemployment.

Source: EU-LFS (authors' elaboration)

coefficients of the model express the relative risk ratios of a non-employed person falling into one of the three indicated inactive categories compared with unemployment based on the categories of the covariates. The covariates cover personal characteristics (age, sex, education level) as well as labour market history characteristics (when last worked, reason for leaving last job, occupation and sector of last job).

A sample interpretation from the coefficients table is that the relative risk of being a discouraged worker rather than unemployed would be expected to increase by a factor of 1.33 for a woman compared with a man, holding the other variables in the model constant.

Table 8 confirms again the importance of labour market detachment in pushing individuals into inactivity and especially into discouragement; the longer the time elapsed since working, the more likely it is that the non-employed will have left the labour market altogether.

For those who gave their reason for leaving their last job as retirement (early or normal), the expected increased risk of being in the other (mainly voluntary) inactive category is observed but also an increased risk of being discouraged – relating mainly to those who have taken early retirement but still wish to work. Leaving work for reasons of illness or disability or because of family or caring responsibilities makes no difference in determining whether an individual becomes discouraged as opposed to unemployed, but they do substantially raise the risk of being in other forms of inactivity compared with unemployment. Sector or occupation in the last job worked are generally less important determinants, though discouragement is more prevalent among those whose last job was in agriculture – a sector in secular decline.

In terms of personal characteristics, higher levels of educational attainment make it less likely that an individual becomes discouraged rather than unemployed. Women are more likely than men to be

discouraged rather than unemployed, controlling for each of the other variables, but even more likely to be in the other inactive category, reflecting the greater share of working women who are absent from the labour market due to caring responsibilities. Finally, there is an important age gradient in the relative risk of being discouraged rather than unemployed with the highest risk among 55–64 year-olds.

In summary, the multivariate analysis confirms how distinctive are the inactive discouraged from the unemployed. They are more likely to be older and female, with generally lower levels of educational attainment and greater detachment from the labour market as measured by time elapsed since they last worked.

### Seeking work but not available to work

The third and smallest category of the potential additional labour force, by numbers of individuals, is that of inactive people who are seeking work but not available to work. There were just over two million such individuals in 2015. The category comprises a number of distinct subgroups, but the main component are those who have actively sought work during the last four weeks but are not available for work in the next two weeks. Of the other smaller subgroups in this category, two refer to ‘future starters’, those who have found a job starting within or after the next three months. By definition, these groups have high labour market attachment and are best considered as representing a form of frictional unemployment, despite being classified as inactive. There were around half a million such individuals in 2015.

For the category as a whole, the main reasons given for not being available for work are the completion of education or training (26%), personal or family

responsibilities (21%) and illness or disability (17%). In terms of composition, the category is predominantly female (55%), younger than the general inactive population and with more recent work experience. It is also more likely to have higher levels of education than either the unemployed or inactive, but this is probably related to the high share of those citing education or training as their reason for unavailability.

Country-level estimates for those inactive people who are seeking but not available to work are included in the summary table (Table 9) in the next section. The detailed breakdown by country is given in Annex 3. This brings together data on the three main categories covered in this report and combines them with unemployment data for a more comprehensive indicator of labour slack for each Member State.

### Country-level summary

The unemployment rate is calculated as the unemployed divided by the total labour force (in other words, the unemployed plus the employed). Table 9 presents a detailed analysis of the 2015 annual EU-LFS microdata, which calculates an analogous labour slack rate for different Member States, based on the previous descriptive analysis using the potential additional labour force categories. It is the sum of the unemployed, the extra work hours desired by involuntary part-timers (converted into a headcount measure of ‘average worker equivalents’ based on the average usual hours of work in each country) and the two potential additional labour force categories as a share of the total labour force plus the potential additional labour force. In all countries, the labour slack rate is greater than the unemployment rate but with wide variations in the gap across countries. Similar data for 2008 are given in Annex 1.

**Table 9: Summary of labour force categories and unemployment and labour slack rates, EU Member States, 2015**

	Employed (thousands)	Labour slack (thousands)				Unemployment rate (%)	Labour slack rate (%)
		Unemployed	Extra desired work of involuntary part-timers (average worker equivalent)	Inactive, seeking work, not available	Inactive, available, not seeking work		
Austria	4,068	251	65	40	139	5.8	10.9
Belgium	4,499	421	61	53	86	8.6	12.1
Bulgaria	2,971	303	13	20	218	9.2	15.7
Croatia	1,564	309	20	12	151	16.5	23.9
Cyprus	350	63	15	3	18	15.2	21.9
Czech Republic	4,891	267	13	18	35	5.2	6.4
Denmark	2,678	180	23	21	41	6.3	9.0
Estonia	613	41	3	3	22	6.3	10.2
Finland	2,372	250	37	58	108	9.5	16.1
France	26,065	3,050	575	298	748	10.5	15.2
Germany	39,741	1,946	631	486	471	4.7	8.2

	Employed (thousands)	Labour slack (thousands)				Unemployment rate (%)	Labour slack rate (%)
		Unemployed	Extra desired work of involuntary part-timers (average worker equivalent)	Inactive, seeking work, not available	Inactive, available, not seeking work		
Greece	3,548	1,190	106	41	95	25.1	28.8
Hungary	4,176	307	29	9	139	6.8	10.4
Ireland	1,899	202	52	13	22	9.6	13.2
Italy	21,973	3,024	350	103	3,451	12.1	24.0
Latvia	868	97	11	5	39	10.1	15.0
Lithuania	1,301	134	10	11	12	9.3	11.4
Luxembourg	257	19	2	8	14	6.8	14.3
Malta	182	11	2	0	2	5.5	7.3
Netherlands	8,123	603	249	156	302	6.9	13.9
Poland	15,812	1,300	123	102	533	7.6	11.5
Portugal	4,309	640	114	23	243	12.9	19.1
Romania	8,235	623	106	4	356	7.0	11.7
Slovakia	2,405	314	30	14	52	11.5	14.6
Slovenia	902	90	14	4	25	9.1	12.9
Spain	17,697	5,052	798	203	954	22.2	28.4
Sweden	4,660	384	78	107	109	7.6	12.7
UK	30,113	1,748	454	332	400	5.5	8.9
EU	216,271	22,820	3,993	2,145	8,786	9.5	14.9

Note: Those aged 15–64 years-old.

Source: EU-LFS (authors' elaboration)

At aggregate EU level, the unmet labour demand represented by the labour slack categories would have been equivalent to an additional 5.5 percentage points beyond that represented by the unemployment rate. By some margin, the biggest gap is in Italy where the labour slack rate is almost double the official unemployment rate. This arises principally as a result of high levels of inactive people available but not seeking work, including high levels of discouraged workers.

The gap is also somewhat greater than average in some Mediterranean countries – Croatia, Cyprus, Portugal and Spain – as well as Bulgaria, Finland and the Netherlands (due mainly to relatively high numbers of involuntary part-time workers).

In Greece, on the other hand, there is little additional labour slack over and above that indicated by the unemployment rate. But there was still enough to bring the overall labour slack rate to nearly 29% of the working-age population – as also in the case of Spain. Other countries where additional labour slack appears to be less of a concern include the Czech Republic, Denmark, Lithuania and Malta, while two other larger

Member States with comparatively positive labour market performance in the post-crisis period – Germany and the UK – both have below-average unemployment rates and modest levels of additional slack (+3.5 percentage points and +3.4 percentage points, respectively).

The unemployment rate increased by 2.4 percentage points at aggregate EU level between 2008 and 2015, while the labour slack rate increased by 3.1 percentage points (Table 10).<sup>13</sup> This average concealed widely different paths at Member State level, though in the majority of Member States, increased unemployment rates were accompanied by even greater increases in labour slack.

In the three countries that recorded declining unemployment over this period (Germany, Hungary and the UK), the measure of broader unemployment also declined or remained stable. The performance of Germany is especially noteworthy in unemployment, having moved from being above the EU average pre-crisis rate to being the EU's best performer in 2015, and also in reducing labour slack more generally. It was the

13 Malta is excluded as data are not available for 2008.

Table 10: Unemployment and labour slack rates, EU Member States, 2008 and 2015

	2008		2015	
	Unemployment rate (%)	Labour slack rate (%)	Unemployment rate (%)	Labour slack rate (%)
Austria	4.2	8.9	5.8	10.9
Belgium	7.0	9.4	8.6	12.1
Bulgaria	5.7	11.6	9.2	15.7
Croatia	8.7	14.3	16.5	23.9
Cyprus	3.8	6.0	15.2	21.9
Czech Republic	4.4	5.5	5.2	6.4
Denmark	3.5	6.1	6.3	9.0
Estonia	5.6	8.8	6.3	10.2
Finland	6.4	11.0	9.5	16.1
France	7.3	11.6	10.5	15.2
Germany	7.5	12.4	4.7	8.2
Greece	7.9	9.8	25.1	28.8
Hungary	7.9	11.8	6.8	10.4
Ireland	6.5	8.2	9.6	13.2
Italy	6.8	16.7	12.1	24.0
Latvia	8.0	13.1	10.1	15.0
Lithuania	5.9	10.1	9.3	11.4
Netherlands	3.0	7.0	6.9	13.9
Poland	7.2	11.5	7.6	11.5
Portugal	8.0	10.2	12.9	19.1
Romania	6.1	9.6	7.0	11.7
Slovakia	9.5	11.6	11.5	14.6
Slovenia	4.5	6.6	9.1	12.9
Spain	11.3	16.4	22.2	28.4
Sweden	6.3	11.2	7.6	12.7
UK	5.7	8.9	5.5	8.9
EU	7.1	11.8	9.5	14.9

Notes: Malta omitted due to missing data for 2008; Luxembourg omitted due to data breaks.

Source: EU-LFS (authors' elaboration)

country in which the decline was greatest (-4.2 percentage points). One indication of just how distinctive German labour market performance was over this period is that the population of involuntary part-timers shrank by 900,000 even as it grew by 3.3 million in the remaining Member States. Also on the positive side, the Czech Republic combined low unemployment with only marginal levels of labour slack both at the beginning and end of the period covered.

The change in the labour slack rate was greatest in Cyprus, Greece and Spain; the gap between unemployment and labour slack has also been at the higher end of the range in all of the countries in the EU–International Monetary Fund assistance programmes, suggestive of additional labour slack in these countries over and above generally high headline unemployment rates.

In summary, with very few exceptions (notably Germany), labour slack has grown since 2008, and its expansion represents an additional 2.4 million potential workers that can be added to the 6.1 million extra unemployed people in the EU28 in 2015 compared with pre-crisis. Finally, even as labour market conditions have improved (since 2013), this has been more evident in terms of official measurement of unemployment, rather than in terms of additional labour slack as measured in this report. One conclusion is that relying exclusively on the unemployment rate as a proxy of labour slack is likely to paint too positive a picture of the current performance of European labour markets. There were still many more working-age individuals in 2015 on the sidelines of the labour market, willing to work but not working, than there were in 2008.

## 4 Changes in labour market participation

The descriptive analysis so far has consisted of an analysis of labour slack, based mainly on the most recent available year of annual EU-LFS microdata (2015) as well as some recent trend data going back to 2008, to show the effects of the global financial crisis and its aftermath. But, more generally in the labour market and over a longer period, structural changes have been taking place in labour market participation, with implications for any assessment of labour slack. For example, over the period 1998–2015, the working-age employment rate in the EU15<sup>14</sup> increased by 4.9 percentage points (from 61.2% to 66.1%) in spite of demographic trends that would have predicted a declining employment rate – as the population has aged and employment rates for older people tend to be lower. The reason that there are more potential workers now than two decades ago is that the extensive and structural labour slack that existed for certain categories has gradually eroded. The probability of non-employment has tended to decrease for many specific age–sex groups, notably for older people (both sexes) as well as core-age women over the past 20 years.

For some other groups, however, it has increased. A long-term decline in the participation and employment rates for core-age men has been highlighted in the USA (Council of Economic Advisers, 2016; Eberstadt, 2016), and a similar phenomenon appears to have occurred in the EU, though not quite to the dramatic extent observed in the USA.

The Great Recession, in particular, with its disproportionate impact on male-employing sectors, has further weakened labour market attachment for many men. A coincident and possibly related trend has been the increasing share of inactivity attributed to disability or illness; this has been marked among core-age men. This chapter describes some of these longer-term trends and sets out possible explanatory factors to draw out some of the relevant national policy, institutional or demographic factors in those countries with high rates of inactivity resulting from discouragement or disability.

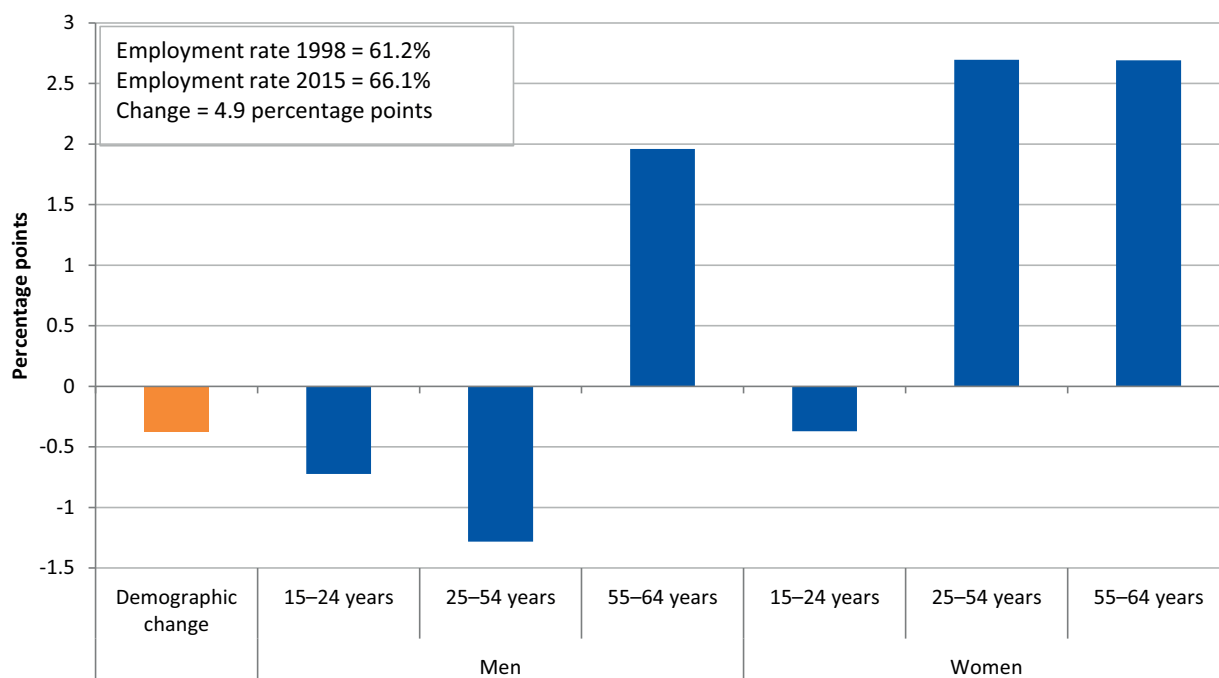
### Changes in employment rate by age and sex

Figure 9 disaggregates the employment rate change between 1998 and 2015 (in the EU15) into the separate contributions by age–sex group. It describes a period of rapid workforce ageing and also of gender convergence.

Younger workers (aged 15–24) are the only group to have experienced a negative employment change in both sex groups. This overall decrease relates mainly to increased participation of this group in education and training. As a consequence, the Europe 2020 strategic objective for third-level educational attainment (40% of 30–35 year-olds to have achieved such a level) is likely to be met in advance of the 2020 deadline. Of course, to the extent that this decline in the youth employment rate is attributable to extended periods of education, it is an increase in ‘good’ inactivity, with positive long-term implications for the stock of human capital. It is, however, also the case that the long recessionary period (2008–2013) saw a steep rise in youth unemployment and inactivity. Youth non-employment – especially that of so-called NEETs (not in education, employment or training), where the disengagement is from both the world of work and of education – is clearly an important dimension of labour slack with longer-term scarring effects both for the individuals affected and for aggregate labour market performance. Data also show that, mainly as a consequence of the crisis, young people have tended to remain in education longer before joining the labour market (Eurostat, 2015). Taking shelter in education as an alternative to searching for work in a labour market with limited labour demand can be considered another manifestation of labour slack.

14 EU15 figures cited for longer time series going back to 1998 because of the unavailability of data for all current EU28 Member States. The main trends identified by age–sex group are in any case similar across older and newer Member States.

Figure 9: Contributions to employment rate change, EU15, 1998–2015



Source: EU-LFS (authors' calculations)

A strong contrast exists between the employment rate shift contributions of core-age men (traditionally a mainstay of the labour force) and core-age women, 'core age' being 25–54 years. Women contributed positively (+2.7 percentage points) while men contributed negatively (-1.3 percentage points). While the employment gaps are closing, they are still notable, with an employment rate gap of 11.6 percentage points between women (72.2%) and men (83.8%) aged 25–54 in 2015. The differences are decreasing over time but with a strong heterogeneity among European countries (Eurofound, 2016).

Another interesting trend is the strong increase in the employment rates of male and female older workers (more pronounced in the case of women). The higher participation of older workers – the result of demographic ageing and of individuals in these groups remaining longer in the labour force – offset the decline of young people (15–24 years-old) and the stagnation of the activity rate of the prime working-age population (25–54 years-old). This represented a reversal of previous trends towards shorter working lives and early retirement (Arranz, 2016).

### Labour market participation of core-age men

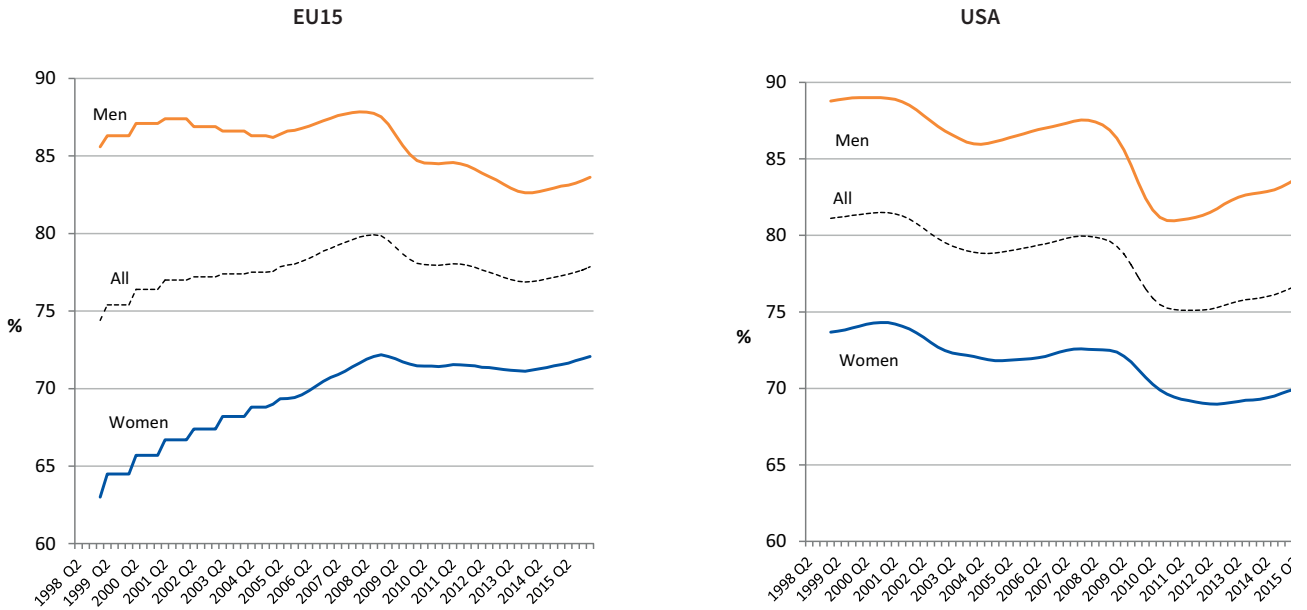
The 25–54 age group (the core-age group) is of special interest for different reasons. Demographically, it is by far the largest component of the working-age population, encompassing 209 million people in the EU

in 2015, of whom 30 million were inactive. It corresponds to the age when workers are at their most productive, have generally completed their formal education and have not yet retired, resulting in high labour market activity rates. For these reasons, this has always been the age cohort with the highest employment and activity rates. Nonetheless, the employment rate of core-age men in Europe has been in secular decline since the 1970/1980s. In the most recent years, this decline was sharpened by the global financial crisis, and the employment rate in the EU in 2015 remains well below pre-crisis levels, three percentage points lower. A similar phenomenon started earlier and more intensively in the USA, where employment and activity rates in this category have been in decline since the mid-1950s (Council of Economic Advisers, 2016).

Women have accounted for more than three-quarters of the overall increase in the core-age labour force in the EU in the past 20 years. And unlike the USA, where peak female employment rates occurred in the late 1990s, the labour market integration of women in Europe appears still to be in a phase of structural increase, albeit one interrupted by the economic shocks post-2008 (Figure 10).

For core-age men, recent aggregate employment trajectories are more similar between the EU and the USA. In both, employment rates are significantly lower now than in 1998 (and lower still compared with the 1960s and early 1970s). In the EU15, the employment rate decreased from 86% in 1998 to 83% in 2015 – with a steeper decline since the economic crisis – and has not

Figure 10: Core-age employment rate trends, by year and sex, EU15 and USA, 1998–2015



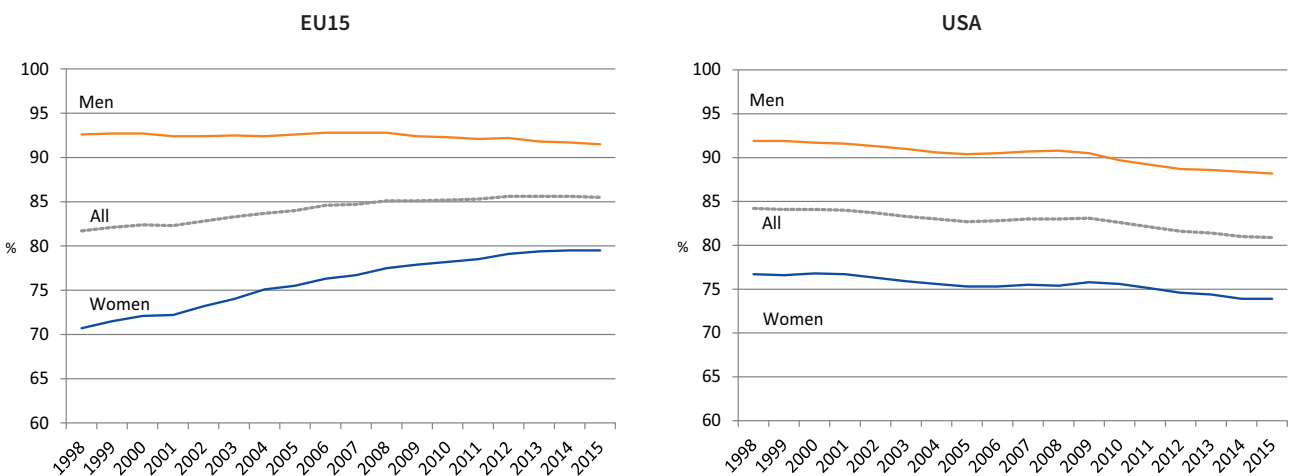
Note: Workers aged 25–54 years-old.  
 Source: EU-LFS (EU15) (authors' calculations) and EPI (USA data)

reached the pre-recession rate. In the USA, the rate decreased from 89% in 1998 to 84% in 2015, with the lowest values in the years of the crisis (Figure 10).

Looking instead at labour market participation (that is, the share of the population either employed or seeking employment), the decline in the male core-age employment rate in the USA has been mirrored by a decrease in overall participation. After reaching its peak in the mid-1950s (98% in 1954), the activity rate saw

faster declines from the mid-1960s and, since then, it has fallen continuously (more intensively during recessionary periods) until the present (88% in 2015). The trend in the overall European activity rate has been quite different; despite having slowed down over time, it maintained a positive and growing trend until 2014 and remains very close to its recent high at 85.5% in 2015 – a figure which is 3.8 percentage points above the 1998 value (Figure 11).

Figure 11: Core-age labour market activity rate trends, by year and sex, EU15 and USA, 1998–2015



Note: Workers aged 25–54 years-old.  
 Source: EU-LFS (EU15) (authors' calculations) and EPI (USA data)



Core-age female employment and activity rates in the EU15 have to a certain extent counterbalanced the overall effects of decreasing employment and participation rates for men of the same age group. Female participation has contributed strongly to maintaining the positive trend in the overall average participation rate over time.

### Possible factors affecting core-age male employment and activity

Analyses from the Council of Economic Advisers (2016) explore the factors that may have contributed to the decrease in the core-age male employment and activity rates in the USA. These encompass demographic characteristics (education, family and migration status), supply-driven factors (men choosing not to work given a certain set of labour market conditions), demand-related factors (secular employment decline in male-employing sectors) and institutional factors, and can provide a framework for a similar analysis on Europe. The following sections identify selectively some of the important contributing factors identified in the US analysis that may be playing a role in both the EU and the USA.

#### Education

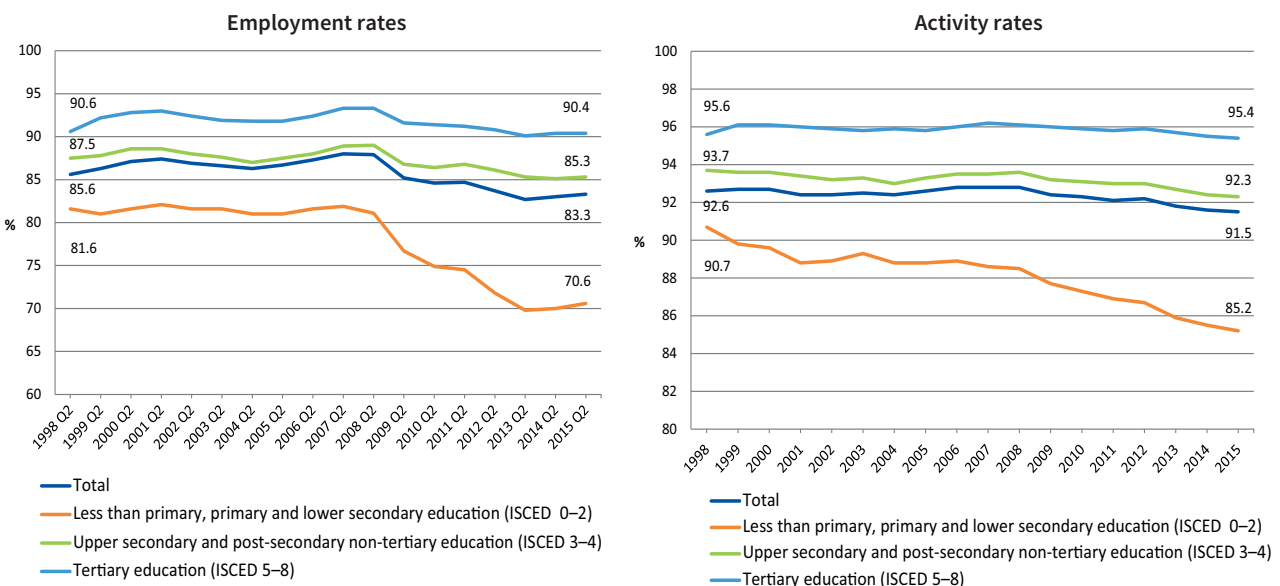
Educational attainment levels have been rising in the workforce as older, generally less-well-educated cohorts retire and younger, better-educated cohorts start their working careers. In the EU as a whole, there were 20 million more core-age graduates in employment in 2015 compared with 2002, but 15 million fewer people with lower-level qualifications.

While the educational outperformance of women over the period is reflected in their disproportionate share of net new graduate jobs (an increase of 12.2 million compared with 8.1 million for men), there has still been a very significant educational upgrading among core-age men. As higher levels of education generally signal greater probability of successful labour market integration, it is perhaps surprising that overall educational upgrading has been accompanied by a decrease, not an increase, in core-age male employment rates.

Taking data for men for the EU15 for 1998–2015, Figure 12 offers an answer to this conundrum. Both employment rates and participation rates have decreased over the period in each of the educational categories but the lower the level of qualifications, the sharper the declines. Both rates were not too dissimilar in 2002. For example, the gap between the core-age employment rate for men of basic education (ISCED 0–2) and those with a tertiary-level degree (ISCED 5–8) was only nine percentage points in 2002. By 2015, it was nearly 20 percentage points.

In summary, even though educational level has become an even more important determinant of labour market participation and employment rates, the actual rates of employment and participation of tertiary-level-educated people in the EU have been stable or slightly declining since 2002. Greater differences in labour market participation by educational level relate almost entirely to the increasing penalties attaching to those without tertiary education in the labour market. The cushioning effect of a university degree is likely to have benefited women more than men as they make up the majority of recent graduates.

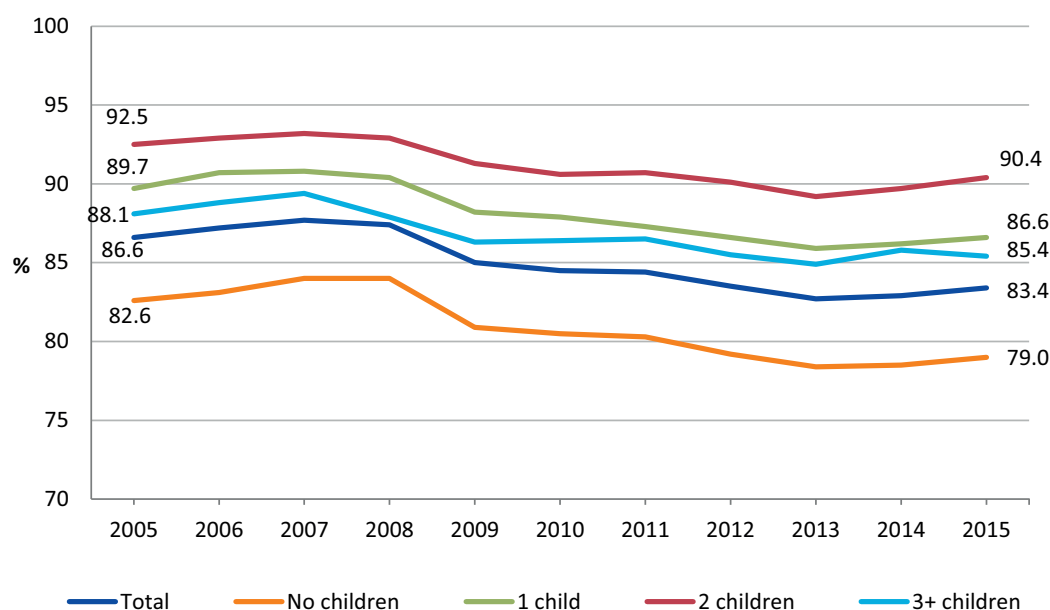
Figure 12: Core-age male employment and activity rates, by educational attainment, EU15, 1998–2015



Note: Core-age men aged 25–54 years-old.  
 Source: EU-LFS (authors' calculations)



Figure 13: Core-age male employment rates, by number of children, EU15, 2005–2015



Note: Core-age men aged 25–54 years-old.

Source: EU-LFS (authors' calculations)

## Family status

One possible hypothesis for decreasing core-age male employment and labour market participation is that greater sharing of family and household responsibilities between sexes may be responsible. Working-age men may increasingly have alternative, desirable options outside the labour market. They may, for example, have taken on the responsibilities traditionally performed by stay-at-home mothers as women have increased their labour market participation. Alternatively, the increased incidence of female 'breadwinners' may have opened up other non-work possibilities for male spouses. However, US data that take into account the family status of core-age men show that the decline in participation rates for men without children has been almost double the decline in the group with children. Since 1968, the former saw a 9.4 percentage point decline compared with 4.9 points in the latter (Council of Economic Advisers, 2016).

Similar patterns can be observed in the EU for both employment rates (Figure 13) and participation rates. While core-age women in Europe have higher inactivity rates if they are mothers of children aged six or under, the opposite is the case for men: men without small children have a higher inactivity rate (9.9% in 2015) and a lower inactivity rate (4.1%) if they have one or more. Again, these differences are replicated for employment rates, which are at their lowest levels relatively for core-age men with no children and where recent declines have been sharper for this group than for fathers. As in the USA, this suggests the limited relevance of greater childcare or family responsibilities as an explanatory

factor of the labour force decline of core-age men in the past decades.

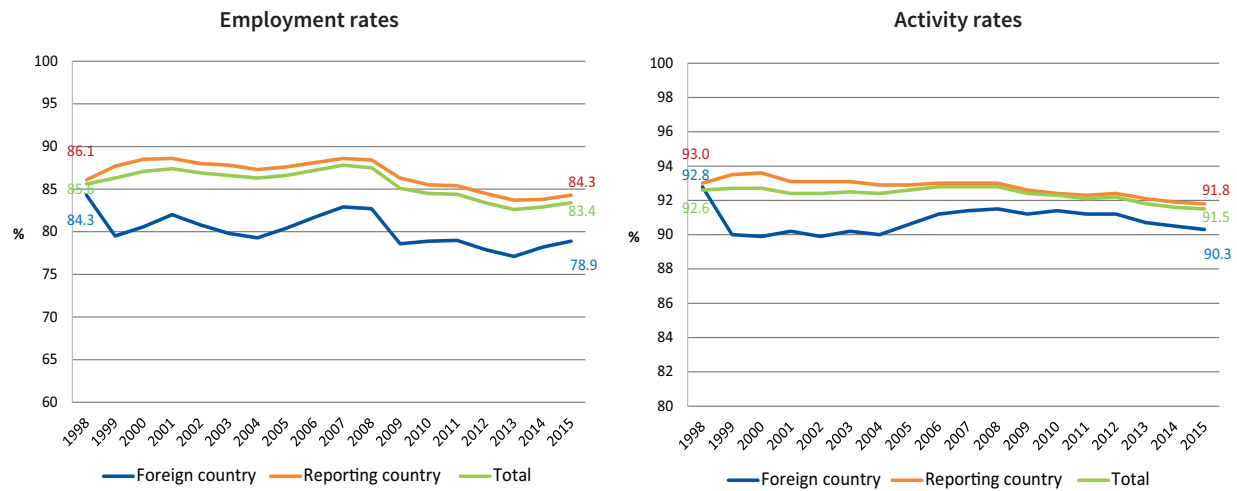
## Country of birth

The overall EU working-age and core-age populations have been contracting since 2009. These declines have arisen principally as a result of demographic patterns among natives, where the declines began even earlier. There were, for example, eight million fewer natives of core age in the EU28 in 2015 compared with 2006, a decline of over 4%. The decline of the native population has been partly offset by an increase in the non-native population of over five million. A redistribution of similar proportions has occurred with respect to employment, with absolute declines in the core-age native population partially compensated by increases in the non-native core-age population.

Two factors contribute to understanding why the core-age male employment rates have been declining. The first is that core-age natives account for a contracting share of the employed core-age population. This pattern is accentuated for core-age men in particular. The second is that employment rates of non-native men (especially those from non-EU countries) tend to be lower than for natives (Figure 14).

Taken in combination, these two factors have contributed compositionally to a modest decline in core-age male employment rates. But the shifts in the native–non-native employment balance are relatively marginal phenomena. Non-natives account for around 1 in 10 workers in Europe, and the overall decline in core-age male employment rates has been experienced by natives and non-natives alike.

Figure 14: Core-age male employment and activity rates, by country of birth, EU15, 1998–2015



Note: Core-age men aged 25–54 years-old.  
 Source: EU-LFS (authors' calculations)

In summary, there is limited evidence that the above three supply-side factors explain why core-age male employment rates have declined while those for women and older people of both sexes have increased. Improvements in educational attainment, while greater for women than men, have been substantial for both sexes and should have boosted male employment. This has not occurred. There is no evidence to support changing gender roles between home and workplace as an explanation for core-age male withdrawal from the labour market. And the impact of the contracting share of native core-age males with increased migration is likely to have been marginal.

Other factors on the demand side and relating to labour market and welfare policies may offer more useful potential explanations. In the US analysis, shifts in labour demand appear better able to explain the decrease in core-age male participation in the USA (Council of Economic Advisers, 2016). This relates to the shifting sectoral composition of employment and, in particular, contracting demand in predominantly male-employing sectors such as manufacturing and construction. The decline in demand for manufacturing employment has been particularly sharp in the USA, but has been a secular trend throughout the advanced economies since the 1970s. Even in Germany, the industry share has declined from over 30% to 19% of employment between 1990 and 2015.

The decline in demand for middle-skilled and mid-paid, blue-collar jobs in mainly male sectors is likely to have impacted male employment through various channels. Firstly, because the alternative jobs on offer do not match their relatively high wage demands, they may exit the labour market altogether. Alternatively, by adding to the supply pool for lower-skilled work, they

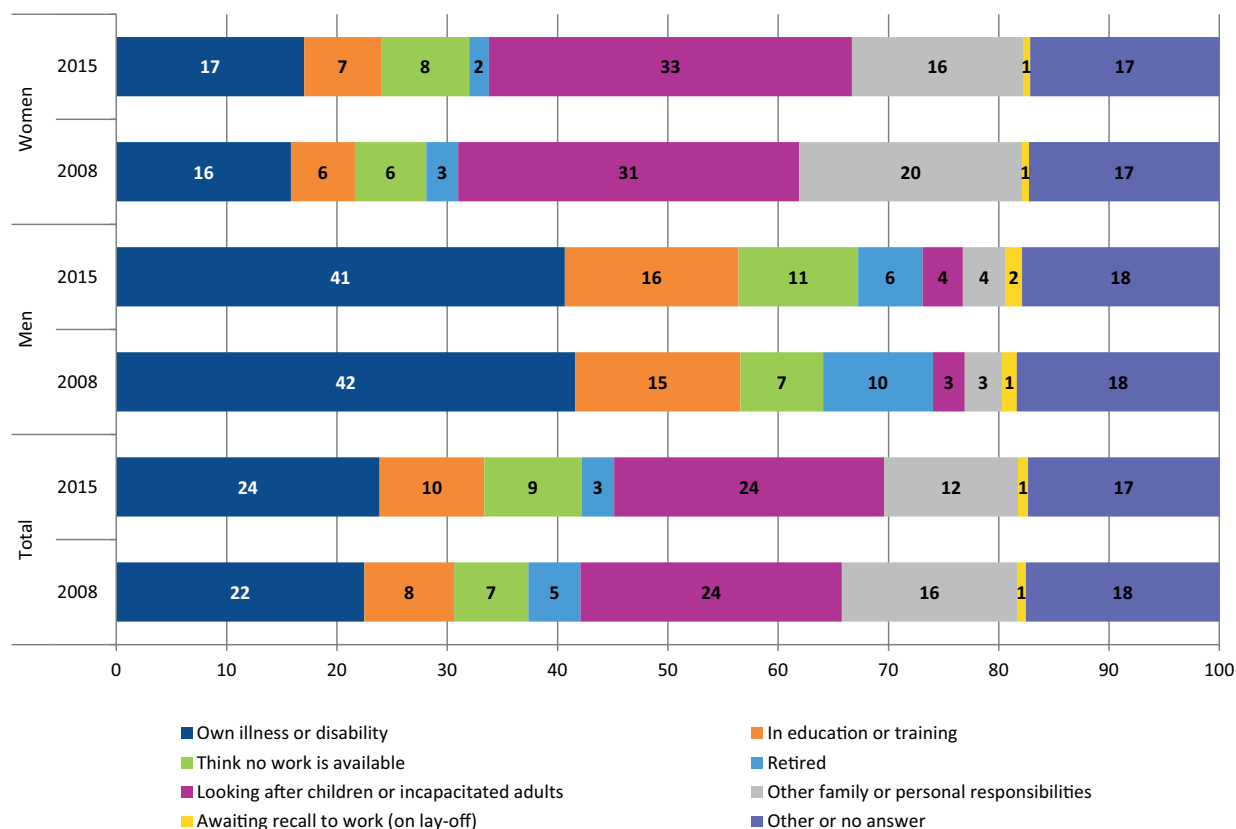
may have squeezed some lower-skilled workers into unemployment or inactivity. The salience of sector-level developments in explaining the recent decline in male employment rates becomes obvious when one sees that the declines sharpen noticeably after 2008 and continue through to 2013, a period when nearly nine million net jobs were lost in construction and manufacturing combined in the EU. Men accounted for over three-quarters of these losses.

### Reasons for inactivity

EU-LFS data show that the main reason reported for core-age male inactivity is having an illness or disability (Figure 15). It is not indicated whether this is related to receiving disability benefits or public support, though in many cases the assumption is that this is the case. There was a much higher incidence of inactivity attributed to illness or disability for men than for women in this age group in 2015 (41% versus 17%), but this is in very large part a result of the even bigger gender gap in family or caring responsibilities. This is the main gender difference: around half of inactive women in 2015 cited personal or family reasons as the main causes of their inactivity compared with less than 1 out of 10 inactive men (49% compared with 8%).

The second most cited reason for male inactivity is participation in education or training (16%) and the third is discouragement (11%). There was a small increase between 2008 and 2015 in the share of core-age men citing family or caring responsibilities as their reason for inactivity, but the main shift over the period – mainly for men – has been the decline in (early) retirement and the increase in discouragement (those who are inactive because of their belief that no work is available).

Figure 15: Main reason for not seeking employment among inactive core-age population, total and by sex, EU, 2008–2015



Notes: Notes: Core-age workers aged 25–54 years-old. EU25 (France, Ireland due to high rate of non-response and Malta due to non-availability of data for 2008).

Source: EU-LFS (authors' calculations)

Looking at the correlations between the reasons for inactivity and the activity rates in 2015 and their changes since 2002, the results suggest that countries with higher activity rates are also the ones where inactivity is more likely to be related to having an illness or being in education or training, and less likely to be due to discouragement or other family or personal

responsibilities. As expected, discouragement is more likely in countries with lower activity rates in 2015.

Another interesting aspect is the correlation between change in the activity rate and the status of being in education or training. The negative correlation suggests that those countries where activity rates have declined are more likely to observe an increase in inactivity due to participation in education or training (Table 11).

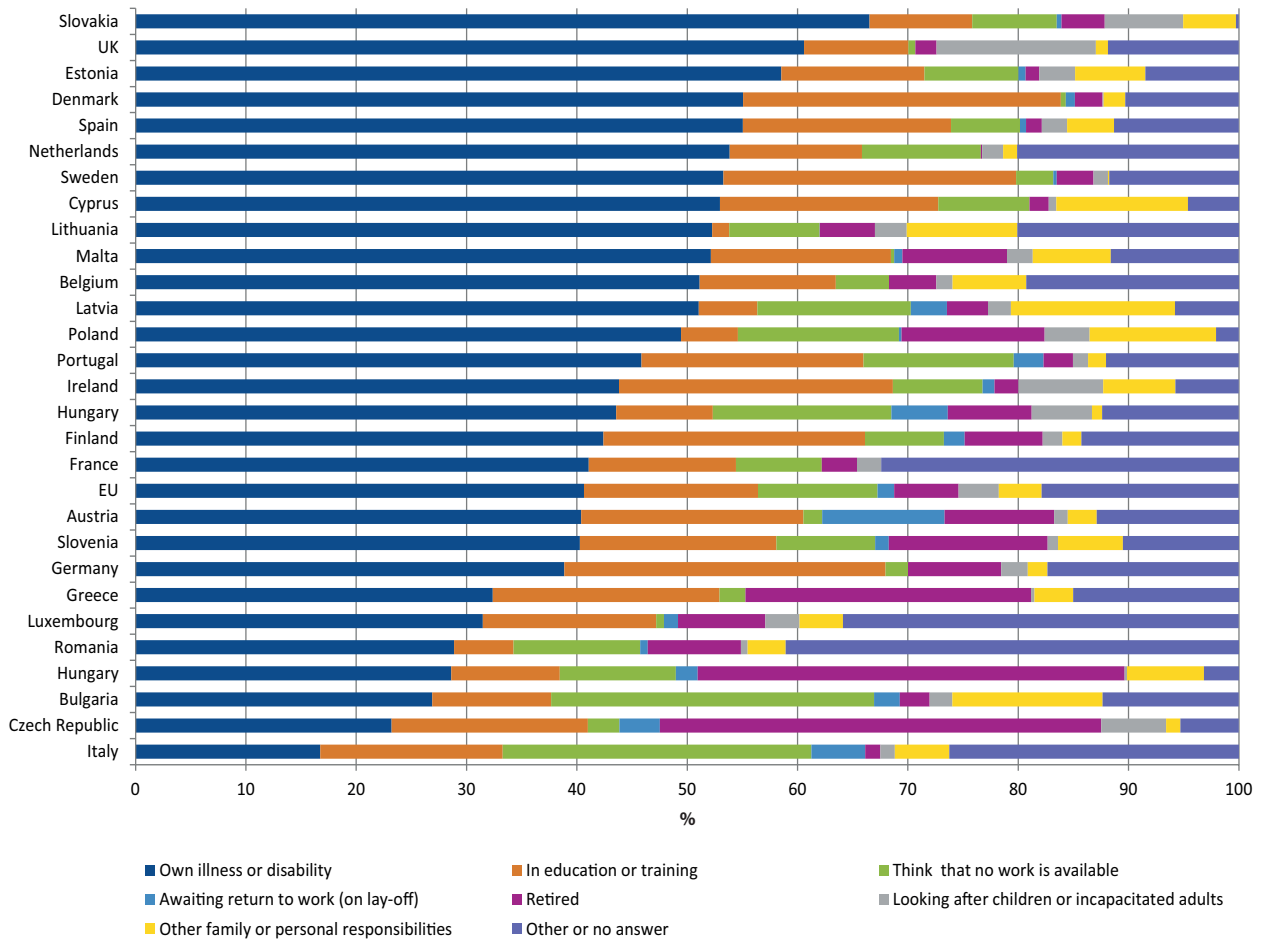
Table 11: Cross-country correlations between activity rates and reasons for inactivity, male core-age workers, EU, 2015

Correlations	Activity rate 2015	Change in activity rate 2002–2015
Own illness or disability	0.29	very weak
In education or training	0.25	-0.38
Think no work is available	-0.60	very weak
Looking after children or incapacitated adults	very weak	very weak
Other family or personal responsibilities	-0.46	very weak
Retired	very weak	very weak
Awaiting recall to work (on lay-off)	very weak	very weak
Other	very weak	very weak

Notes: Reasons are reported for men aged 25–49; activity and employment rates for men aged 25–54. Weak = 0.20–0.39; moderate = 0.40–0.59; strong = 0.60–0.79; very strong = 0.80–1.0.

Source: EU-LFS (authors' calculations)

Figure 16: Main reason of inactive core-age men for not seeking employment, EU Member States, 2015



Source: EU-LFS (authors' calculations)

Reasons cited for inactivity vary widely across countries for men of core age. While the main reason cited (illness or disability) accounts for over half of inactivity in this category in 11 Member States in 2015, in Italy it accounted for only 17% (Figure 16). Similarly, the share of inactive core-age men citing education or training as the main reason for not seeking work was much higher in Denmark and Germany (both 29%) and Sweden (27%), but 5% or less in Member States such as Latvia, Lithuania and Poland. The share of those citing discouragement – namely their belief that no work exists – was correspondingly much higher in Bulgaria (29%) and Italy (28%) but in the low single-digit percentages in the Czech Republic, Denmark, Germany, Sweden and the UK.

### Focus on disability and disability schemes

The differences between countries in the main reasons given for being out of work can be, at least in part, interpreted as a function of existing institutional frameworks and incapacity schemes. This may also help identify possible substitution effects between inactivity and unemployment. An example of special relevance is

inactivity due to illness, as the characteristics of disability schemes can play a role in determining the size of the inactive population and in influencing those substitution effects.

Looking at the main disability schemes in the UK and at their reforms over time, Banks et al (2015) highlighted the high impact of these schemes on overall public spending (until the 1980s), which subsequent reforms have tried to reduce. Despite this, the number of recipients in 2013 was still at very high levels. According to Banks et al (2015, p. 2):

*at the end of 2013, 2.3 million individuals in Great Britain were receiving disability benefits, and while this was lower than the 2.5 million recipients of these benefits in 1995, the total was still higher than any year prior to the mid-1990s and more than twice the level seen in any year in the 1970s or the first half of the 1980s.*

Participation in these schemes varied based on sex, age and educational levels. For instance, looking at recent data on the Employment and Support Allowance scheme, launched through the last 2008 reform, the

authors observed that for a given level of health status, men were more likely to be on disability benefits than women. Increasingly, as the replacement levels of disability benefits have declined over time, the share of those with low education on such benefits has increased. It is also noted that there has been a systematic growth over time in the share of claimants citing mental or behavioural disorders as their principal health condition.

A recent analysis sheds light on the relationship between economic inactivity among working-age men, the destruction of manufacturing jobs and the use of incapacity benefits in the UK (Beatty and Fothergill, 2016). These authors observed strong variations across the country in the distribution of incapacity claimants. The highest incapacity claimant rates (10% and above) were found in old industrial areas, while they were much lower in areas with a strong local economy. Despite the higher level of health problems associated with industrial activities, incapacity rates only increased when the local industrial economy started to shrink. Many longer-term incapacity claimants also benefit from other allowances, such as the Disability Living Allowance, in addition to the Employment and Support Allowance. The old industrial regions record higher numbers of unemployment claimants and of inactivity. Once well-paid manufacturing workers have tended to opt out of the labour market due to the low wages they are currently offered in the only alternative forms of employment.

Earlier work by the same authors estimated that around 35% of the 2.55 million incapacity benefit claimants in the UK in 2012 were in reality 'hidden unemployed' (Beatty et al, 2012). This was based on benchmarking claimant levels across UK regions against southern England and controlling for observed variations in historical levels of incapacity and ill-health across the regions. It made clear that such benefits were relatively attractive compared with Jobseekers' Allowance – the main unemployment benefit – as they were subject to less conditionality, less means testing and limited obligations to 'sign on', and benefit levels were generally somewhat higher. They noted that the UK incapacity claimant count had quadrupled in 30 years and that such increases were impossible to explain in terms of health alone as general health levels had improved over the same period.

Another relevant example is the Dutch case: the Netherlands also has a generous disability insurance scheme in place compared with other European countries (Koning and Lindeboom, 2015). It also has one of the highest national shares of core-age men declaring illness or disability as the cause for inactivity. This scheme was first conceived in the 1960s as a broad programme addressing not only workers with serious health problems, but also all those who for health reasons were less employable than others. It differs

from other schemes as its eligibility covers any worker who would experience income losses due to any injury (and not necessarily occupational injuries) and because sick workers are paid their wages in the waiting period before receiving disability benefit. These factors make it particularly attractive for workers and also weaken the incentive for eligible workers to return to work quickly. In addition, employers find the scheme attractive as an alternative to unemployment since it eliminates the need to pay severance or firing costs. As in the UK, changes have been introduced more recently to reduce substitution effects between disability and unemployment.

Estonia is another Member State where a high share of core-age male inactivity is attributable to illness or incapacity. The analysis by Sundaram et al (2014) of EU-SILC data shows that levels of disability increased significantly in absolute numbers between 2007 and 2011 in the country. Disabled Estonians (above 35 years of age) tend to have little or no previous work experience and to receive 'quite generous' disability benefits (often accounting for a large part of their household income – 70% on average). According to the authors, the combination of age, the receipt of substantial disability benefits and the lack of previous work experience makes this group less likely to re-enter the labour market, even in those cases where the physical disability levels are not high.

### Focus on discouraged core-age men

After illness or disability and being in education or training, thinking that no work is available is the third most common reason mentioned by core-age men in Europe for not seeking employment. As already indicated, shares of 'discouraged' core-age men are especially high in Bulgaria and Italy – two Member States where the workforce has contracted and unemployment rates were significantly higher in 2015 than in 2008.

In their analysis of labour market exclusion in Bulgaria, Sundaram et al (2014) identified the cluster of middle-aged unemployed as one of key groups within the out-of-work population in the country (accounting for around one-quarter of it). This class – previously not so relevant – grew as a consequence of the crisis and the resulting increase in joblessness and long-term unemployment in the country. The coverage of the unemployment benefits is comparatively low in Bulgaria, with strict eligibility criteria and quite a short entitlement period for those with a limited work history. Nonetheless, the job search requirements for those receiving the benefits are limited, restricting the possibilities of a quick activation of those who would be ready to work (European Commission, 2016b).

In Italy, Contini and Grand (2014) stressed the relevance of the phenomenon of 'workforce disposal' in the country – referring to the process by which individuals,

having lost their regular job, are unlikely to re-enter regular employment again over a long subsequent period. Based on longitudinal data, they estimated survival rates in employment for young men aged 19–30 in the late 1980s/early 1990s and found that one in five was inactive by the time they were in their 40s or early 50s. Many of them become long-term unemployed, abandon the workforce or join the irregular economy, engaging in undeclared work. One mechanism is that of the non-renewal of short-term and precarious contracts, especially for younger workers, and their subsequent replacement by new, even less-experienced workers. A high share of those made jobless in this way end up formally inactive. Contini (2016, p. 20) speculated based on available data that ‘the vast majority of disposed individuals are either irregular workers or self-report as inactive (available to work) or both, but only a few could be officially unemployed’. He estimated that the share who end up working in the informal or irregular economy could be as high as 80%–85%, but also argued that a realistic estimate of unemployment in Italy would be 4–5 percentage points higher than the current official estimate, given the large share of individuals self-reporting in surveys as inactive

but available to work who are in reality ‘discouraged unemployed’. One conclusion is that the EU-LFS offers only a very approximate characterisation of the ‘disposed’ worker phenomenon. Another is that the EU-LFS data for Italy that show relatively high levels of inactivity and discouragement, including among core-age men, conceal significant shares of both ‘hidden employment’ and ‘hidden unemployment’.

As in other European countries, job losses during the Great Recession affected men in Italy more than women (Ghignoni and Verashchagina, 2016) and levels of non-employment grew more among men than among women (Ghignoni and Verashchagina, 2013). This can be in part explained as an ‘added worker’ effect in certain households (female partners entering the labour force to offset the job or income loss of their male partners) (Eurofound, 2016). This happened in a context of one of the lowest female participation and employment rates in Europe (European Commission, 2016c) and is consistent with the observation of Bettio et al (2013) that there was a reduction in gender gaps in activity, employment and unemployment over the crisis period in Europe.

## Summary

Although the recent structural trend has been for increasing employment and participation rates overall, there has been one important category in particular for which this has not been the case – core-age men. Relatively high and increasing shares of inactivity resulting from labour market discouragement or illness or disability appear to have been contributory factors to this decline. As in the USA, there has been a decline in the EU in labour demand for lower-skilled workers, which appears to have impacted disproportionately on men and on predominantly male-employing sectors. This decline has been partly structural (for instance, in manufacturing) but was exacerbated by sector-specific developments in many countries following the global financial crisis (for instance, in construction). The fact that alternative service sector jobs for those male workers losing their construction and manufacturing jobs were comparatively poorly paid may also have discouraged many from re-entering the labour market. Where other forms of social support such as incapacity benefits were accessible, it appears that they have become an important alternative path to non-employment.



## 5 | Conclusions

Labour supply in Europe is changing in ways that make labour markets more capable of absorbing more workers. There are more people of working age in the labour market due to increasing participation rates, in particular among women and older workers. There have also been increases in the number of people who report themselves to be willing to work but who remain inactive and of people who are working part time but would like to work longer hours, as well as the number of unemployed job-seekers. Only the latter group are captured by the unemployment rate – the standard metric of labour market performance.

It is essential, therefore, to look beyond the unemployment rate if a more nuanced and complete picture of labour slack is to be developed. There are four people of working age who are inactive for every one that is unemployed in Europe; many in the inactive category express a wish to work even though they do not fulfil the strict conditions that define unemployed status.

The approach in this report has been to estimate and characterise the broader category of labour slack, mainly based on the concept of ‘potential additional labour force’ developed by Eurostat, itself based on long-running ILO methodological work. It is one of a number of different methods that have been developed to estimate labour slack, many of them originating in the USA, but it has the advantage of lending itself to a detailed analysis of Member State labour markets using the EU-LFS. It offers a useful methodology for describing the grey areas between the three core labour market statuses of employment, unemployment and inactivity. In particular, it allows the significant share of those who are technically inactive but who nonetheless are available, seeking or willing to work to be identified. The analysis in this report estimates a broader labour slack rate including these categories and taking account also of the working hours desired but not worked by involuntary part-timers. It then compares this with the more publicised, official unemployment rates in each Member State.

There were 23 million people unemployed in the EU in 2015 but an average worker equivalent of 38–44 million individuals who indicated some labour market attachment using broader measures of labour slack. Both unemployment and labour slack levels and rates were higher in 2015 than in 2008, with the labour slack rate at nearly 15% compared with an unemployment rate of 9.5%. The labour slack rate rose more slowly than the unemployment rate in the immediate aftermath of the Great Recession, but it also took longer to peak and only began recovering in 2014, a year after

the unemployment rate. Not unlike the long-term unemployment rate, there is evidence, therefore, that labour slack, broadly defined, reacts with some lag to broader economic and labour market conditions. This is important as it suggests that a strengthening recovery need not necessarily entail increased inflation. A buffer of labour reserve made up of those wanting to work longer hours or of the inactive who may be mobilised by increased labour demand to come off the sidelines of the labour market should serve to mitigate such pressures. While this buffer began shrinking in 2014 and the analysis in this report ends in 2015, based on extrapolating from recent trends, it is likely to still have some way to go before it returns to pre-crisis levels.

Beyond the population of unemployed job-seekers, the two largest categories of labour slack were involuntary part-timers (nearly 10 million in 2015, almost 1 in 4 part-timers) and those who were available and wishing to work but who were not seeking work and therefore considered inactive rather than unemployed (nearly 9 million in 2015).

In terms of the characteristics of these two largest groups, involuntary part-timers were more likely to have started their current job within the last year and to work in basic or lower-level service occupations and sectors (for instance, household work). They were also more likely to be women, but this is mainly a result of the greater female share of part-time workers overall; looking just at the part-time population and controlling for other factors, men were more likely than women to be working part time involuntarily.

The second large category of labour slack is that of inactive people available for but not seeking work. The main reason given by this group for not seeking work is discouragement – the belief that no work is available. This has increased – markedly so for men – since 2008, probably as a result of the severe impacts of the recession on predominantly male-employing sectors such as manufacturing and construction. Controlling for other characteristics, however, women were at greater risk of being inactive and available but not seeking work compared with being unemployed. The strongest determinants of belonging to this category were age – the older, the more likely – and time elapsed since the person’s last job.

One policy-relevant conclusion is that, despite rapidly increasing older worker participation rates, there still remains a sizeable potential workforce among older people willing to work but discouraged from doing so. The fact that there is such a steep age gradient for discouragement could imply barriers of perceived or actual age discrimination or of obsolete skills.



The variation in increased labour market performance across EU Member States after 2008 is also evident in broader labour slack trends. Indeed, the addition of labour slack categories beyond those of the formally unemployed tends to increase the gaps between the most recession-affected countries and those where labour markets recovered more quickly and more robustly. Two Member States in particular stand out in the analysis: Italy and Germany. The labour slack rate in Italy was almost double that of the unemployment rate; a quarter of the working-age population are either unemployed or in one of the other labour slack categories. Over a half of the EU's discouraged workers were in Italy in 2015. The improved labour market performance in Germany is, if anything, more evident when measured in terms of labour slack rather than unemployment. There were, for example, almost a million fewer involuntary part-timers in Germany in 2015 compared with 2008, and the other labour slack categories had also contracted. Alongside Hungary, it was one of only two Member States in which the labour slack rate shrank between 2008 and 2015.

One of the less-heralded achievements of European labour markets in recent years has been the belated surpassing of the employment targets originally set in the Lisbon Strategy of 2010 – despite a major recession. But while employment and participation rates have grown in comparatively underrepresented categories, they have declined for core-age men (25–54 years-old), traditionally the category with the strongest labour market attachment. This decline has been most marked in the USA, where related policy concerns about this development have resulted in extensive recent analysis, but a milder version of the same phenomenon can be observed in EU Member States as well.

In large part, the explanations are likely to be structural. Men are overrepresented in sectors such as agriculture and manufacturing that have been shrinking in relative terms over an extended period. This longer-term trend has been compounded by the strongly selective effects of the recession on both manufacturing as well as construction, again another predominantly male-employing sector.

Other alternative explanations for decreasing core-age male activity prove less convincing, in the EU as well as the USA. Improvements in educational attainment, while greater for women than men, have been substantial for both sexes over recent decades and ought to have boosted male employment. This has not happened, and the penalty for lower levels of educational attainment has become more severe. Men are also only marginally more likely now than in the past to be outside the labour market due to the assumption of unpaid caring responsibilities. This is unlikely to be an important reason for increasing core-age male inactivity.

There is some evidence from national research (for example, in the UK) showing high levels of inactivity associated with receipt of incapacity benefits; this has tended to be concentrated in older industrial regions. Alternative employment possibilities are also likely to be less well paid than the relatively well-paid, blue-collar jobs in manufacturing or construction that many such men have worked in until recently. Less stringently applied eligibility requirements for incapacity benefits may make take-up of such benefits, relatively speaking, an attractive alternative to unemployment in locally depressed labour markets. Individuals receiving such benefits, mainly male, are categorised as inactive rather than unemployed. More generally, the EU-LFS data point to increasing withdrawal from the labour market due to discouragement – believing no work is available – among core-age men. That such patterns are observed in regions and countries where the process of deindustrialisation has advanced most suggests a linkage between processes of structural change and labour market participation that appears to be unfavourable for core-age men, in particular to those without higher-level educational qualifications.

One final conclusion is that it is of increasing importance to look beyond the headline labour market indicators in order to see what is happening in our labour markets and why. There are more inactive 'job-wanters' than active job-seekers (unemployed). While they can represent particular challenges to active labour market policy, many of these can and will be mobilised to return to the labour market if the recovery that began in 2013 can be sustained.

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# Annexes

## Annex 1: Member State unemployment and labour slack rates 2008

Table A1: Summary of labour force categories and unemployment and labour slack rates, by EU Member State, 2008

	Employed (thousands)	Labour slack (thousands)			Unemployment rate (%)	Labour slack rate (%)	
		Unemployed	Extra desired work of involuntary part-timers (average worker equivalent)	Inactive, seeking work, not available			Inactive, available, not seeking work
Austria	3,929	172	45	37	132	4.2	8.9
Belgium	4,414	333	18	73	33	7.0	9.4
Bulgaria	3,305	198	8	21	207	5.7	11.6
Croatia	1,725	165	14	12	98	8.7	14.3
Cyprus	371	15	3	2	5	3.8	6.0
Czech Republic	4,934	229	5	22	33	4.4	5.5
Denmark	2,807	101	21	20	42	3.5	6.1
Estonia	632	37	2	0	21	5.6	8.8
Finland	2,496	172	23	54	61	6.4	11.0
France	25,813	2,019	409	474	485	7.3	11.6
Germany	38,652	3,140	1,046	789	473	7.5	12.4
Greece	4,523	387	40	22	43	7.9	9.8
Hungary	3,818	326	3	12	168	7.9	11.8
Ireland	2,081	145	17	9	15	6.5	8.2
Italy	22,699	1,658	148	159	2,598	6.8	16.7
Latvia	1,009	88	8	7	48	8.0	13.1
Lithuania	1,397	87	7	28	35	5.9	10.1
Luxembourg	202	11	1	1	1	5.1	6.3
Netherlands	8,405	260	46	73	255	3.0	7.0
Poland	15,557	1,207	96	110	614	7.2	11.5
Portugal	4,786	417	45	13	68	8.0	10.2
Romania	8,882	575	78	2	284	6.1	9.6
Slovakia	2,423	256	6	9	47	9.5	11.6
Slovenia	975	46	5	4	14	4.5	6.6
Spain	20,318	2,594	392	210	790	11.3	16.4
Sweden	4,494	303	81	87	93	6.3	11.2
UK	28,916	1,758	329	295	437	5.7	8.9
EU	219,563	16,701	2,896	2,545	7,098	7.1	11.8

Notes: Malta omitted due to missing data.

Source: EU-LFS (authors' calculation)

## Annex 2: Estimates of involuntary part-time employment

There are two possible measures of involuntary part-time work using EU-LFS data. Method 1, the one used in the report, is based on those self-reported part-timers who indicate a wish to work more hours and an

availability to do so. Method 2 is based on those self-reported part-timers who give as their reason for working part time that ‘they could not find a full-time job’.

**Table A2: Different estimates of involuntary part-time employment (thousands), EU Member States, 2008 and 2015**

	2008		2015	
	Method 1	Method 2	Method 1	Method 2
Austria	133	100	180	138
Belgium	37	143	168	109
Bulgaria	18	31	27	38
Croatia	33	24	42	25
Cyprus	7	8	32	31
Czech Republic	17	29	30	41
Denmark	67	85	66	104
Estonia	5	5	8	8
Finland	69	88	94	105
France	1,362	1,474	1,849	1,974
Germany	2,449	2,175	1,551	1,448
Greece	98	108	242	234
Hungary	6	47	67	87
Ireland	44	48	110	151
Italy	396	1,319	742	2,629
Latvia	23	19	26	21
Lithuania	17	20	22	32
Luxembourg	1	3	6	7
Malta	n.d.	n.d.	4	4
Netherlands	98	155	573	348
Poland	255	223	318	326
Portugal	94	169	231	211
Romania	215	396	267	427
Slovakia	18	14	58	42
Slovenia	13	n.d.	31	n.d.
Spain	817	871	1,497	1,773
Sweden	212	273	209	306
UK	959	n.d.	1,399	1,302
EU	7,464	7,830	9,850	11,920

Note: n.d. = no data.

Source: EU-LFS (authors' calculation)

## Annex 3: Breakdown of inactive workers seeking but not available for work

**Table A3: Categories of inactive workers, seeking but not available for work (thousands), EU Member States, 2015**

	Actively seeking work, not available	Future starters	Other	Total
Austria	36.0	3.2	0.4	39.6
Belgium	21.8	17.6	14.0	53.3
Bulgaria	5.7	4.5	9.4	19.6
Croatia	0.7	1.4	0.6	2.7
Cyprus	13.1	4.7	0.5	18.2
Czech Republic	331.9	78.3	75.7	485.9
Denmark	17.4	2.7	0.6	20.7
Estonia	2.0	0.9	0.0	2.9
Finland	103.9	43.2	55.8	202.9
France	43.4	12.6	1.7	57.7
Germany	162.8	100.4	35.0	298.2
Greece	14.2	18.4	8.2	40.8
Hungary	10.0	1.9	0.0	11.9
Ireland	6.2	2.1	0.9	9.2
Italy	5.0	2.1	5.7	12.9
Latvia	39.8	53.9	9.6	103.3
Lithuania	8.4	2.3	0.1	10.8
Luxembourg	5.0	2.6	0.1	7.7
Malta	4.4	0.8	0.1	5.2
Netherlands	0.2	0.0	0.0	0.3
Poland	133.7	22.3	0.0	156.0
Portugal	62.5	37.7	2.0	102.2
Romania	14.3	1.5	7.2	23.0
Slovakia	3.5	0.9	0.0	4.4
Slovenia	62.4	40.7	3.5	106.5
Spain	3.1	0.2	0.4	3.6
Sweden	10.8	2.5	0.5	13.8
UK	253.6	65.8	12.2	331.6
EU	1,375.8	525.2	244.1	2,145.1

Note: People aged 15–64.

Source: EU-LFS (authors' calculation)







Labour market slack is the shortfall between the volume of work desired by workers and the actual volume of work available. The most important indicator of labour slack is the unemployment rate, but an exclusive focus on this fails to take account of the four-fifths of the jobless population who are inactive rather than unemployed. Many people in this group have some form of labour market attachment – they would like to work, are seeking work or are available to work. In addition, many part-time workers would like to work longer hours. The aim of this report is to develop a more nuanced estimate of labour slack using EU Labour Force Survey data, which allows involuntary part-timers and inactive people with some labour market attachment to be identified and quantified. The authors calculate that there were around 50 million people in the broad category of labour slack in 2015 and that labour slack has been slower to fall in response to the recovery than unemployment.

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