

OECD Employment Outlook 2015

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Foreword

The OECD Employment Outlook provides an annual assessment of key labour market developments and prospects in member countries. Each edition also contains chapters focusing on specific aspects of how labour markets function and the implications for policy in order to promote more and better jobs. This year's chapters cover five topics: minimum wages; skills and wage inequality; activation policies for more inclusive labour markets; earnings mobility, labour market risk and long-term inequality; and job quality in emerging economies. Reference statistics are also included.

The 2015 OECD Employment Outlook is the joint work of staff of the Directorate for Employment, Labour and Social Affairs. It has greatly benefited from contributions from national government delegates. However, the Outlook's assessments of each country's labour market prospects do not necessarily correspond to those made by the national authorities concerned.

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Editorial

Time is running out to help workers move up the jobs ladder

The recovery is underway, but millions of workers risk being trapped at the bottom of the economic ladder

The jobs recovery is becoming more widespread and gaining momentum putting unemployment on a declining path in most countries, including those hardest hit by the crisis. However, the recovery is still far from complete and time is running out to prevent millions of workers from being left trapped at the bottom of the economic ladder. Many of the youth who finished their schooling during the crisis years and have struggled to gain a secure toe-hold in the labour market may be approaching the “make or break” point so far as being able to ascend the career ladder. Indeed, one of the striking findings in this edition of the *OECD Employment Outlook* is that long-term career prospects are largely determined in the first ten years of working life. Some of the experienced workers who have lost their jobs during the crisis are also having a difficult time putting their careers back on track. For example, a number of those who lost jobs in the manufacturing or construction sectors will need to make a career switch to growing service industries and often to adapt their skills if they are to avoid becoming trapped on the margins of the labour market.

The scarring effects of the crisis on the hardest hit groups are compounded by longer-run trends that are making it more difficult for low-skilled workers to move out of precarious, low-paid jobs into jobs that offer opportunities for career advancement. If the missing rungs are not put back into the jobs ladder, the legacy of the crisis is likely to include a further permanent increase in economic inequality above the already record high levels that had been reached before the crisis in many OECD countries. Governments need to take action now if they are to avoid a permanent increase in the number of workers stuck in chronic unemployment or cycling between unemployment and low-paid jobs.

Tackling persistently high unemployment remains a priority

While unemployment is on a downward trajectory in most countries, about one-half of the crisis-related increase in joblessness in the OECD area still persists more than seven years after the crisis began. Around 42 million persons were without work in May 2015 across the OECD, 10 million more than just before the crisis. However, there are sharp differences between countries. Whereas the euro area unemployment rate remains above 11%, unemployment has fallen below 6% in the United States and is under 4% in Japan, Korea and Norway.

Long-term unemployment has peaked in most countries, but it remains a major source of concern as it can lead to skill depreciation, loss of motivation and withdrawal from the labour market. The stigma associated with long spells of joblessness also makes

it more difficult for the affected workers to return to work and climb up the jobs ladder. For the OECD area as a whole, 15.7 million persons – more than one in three of all unemployed – had been out of work for 12 months or more in the fourth quarter of 2014. The size of this group has increased by 77% since 2007 and more than half of this group has been jobless for two years or longer (57%). For countries that saw the biggest increases, including the southern European countries, there is growing evidence that part of what was originally a cyclical increase in unemployment has become structural – either in the form of open unemployment or labour force withdrawal due to discouragement – and will thus be more difficult to reverse during the economic recovery.

Persistently high levels of unemployment – especially long-term unemployment – have knocked out the first rung of the jobs ladder for many young people entering the labour market and also more experienced job losers who have fallen down the ladder. Tackling unemployment where it remains high and driving down long-term unemployment, in particular, represent key policy priorities. However, lowering unemployment should be approached as part of a larger challenge to promote upward mobility at the bottom of the earnings ladder.

Polices to support upward mobility in the labour market are also needed

The *Employment Outlook* underlies the high social costs resulting from earnings inequality by showing that a substantial portion of the persons who are unemployed or in low-paid jobs at one point in time are at a high risk of becoming trapped at the bottom of the earnings ladder. Policy makers should thus place a high priority on assuring that the crisis does not leave additional workers permanently excluded from work or trapped in low-paying and insecure jobs, thereby ratcheting inequality up another notch.

Concerns about a possible increase in inequality are heightened by the fact that most OECD economies had already become significantly more unequal in the distribution of income during the decades preceding the crisis, reflecting a large rise in earnings inequality. It follows that the challenge to promote upward mobility at the bottom of the jobs ladder is much more than a cyclical issue related to the global crisis. It is also a key to helping all workers to participate successfully in a rapidly evolving economy. Technological change and the digital revolution in particular have been important drivers of this trend by skewing job demands towards high-level skills and putting downward pressure on the pay of less skilled workers. These structural changes in the economy are part of a continuous process of adaptation to new technologies and processes, as well as globalisation. In this context, workers must have the opportunity to build the skills needed by employers, but also to adapt them to changes in labour demand and to use their skills fully on the job. This is of crucial importance to ensure human capital plays its expected role in boosting innovation and productivity, but also to make growth inclusive.

Governments need to begin restoring the missing rungs back in the jobs ladder and help workers to climb them

Three types of policy measures are particularly important for improving the labour market prospects of the workers who are currently stuck at the bottom of the economic ladder. *First*, effective activation measures are needed that connect jobseekers with suitable jobs. *Second*, skill deficits in the workforce must be addressed since one of the strongest predictors of poor career outcomes is a low level of skills. *Finally*, direct measures to raise job quality have an essential role to play, especially in shoring up the earnings of

low-paid workers. The importance of these types of measures has long been apparent, but their importance has been magnified by the crisis and by the increased prevalence of temporary and other atypical jobs in a number of countries. Career advancement opportunities are often limited for workers in these types of jobs.

Effective activation policies can help connect the unemployed to more job opportunities

With job creation strengthening in many countries, it becomes imperative to scale up efforts to assist jobseekers and in particular the long-term unemployed back into work. This requires an effective and adequately resourced system of labour market activation measures. In some countries, re-employment and retraining programmes run by public and private employment services have borne too large a share of fiscal consolidation and more resources are required. Often, however, the greatest need is to improve the effectiveness of activation policies.

The *Employment Outlook* puts forward a new framework for the design of successful activation policies. While activation policies draw on many tools that can be assembled in different ways, the overall package needs to maintain the motivation of job seekers, especially of the long-term unemployed, to actively pursue employment. It is also crucial to improve their employability and expand their opportunities to be placed and retained in appropriate jobs. The implementation of these three elements – motivation, employability and opportunity – has to be managed by effective and efficient labour market institutions and policies, including effective public-private partnerships in placement and training of job seekers.

Skills policy is key to facilitate upward mobility and reduce overall wage inequality

A new finding of the *Employment Outlook* is that a substantial part of the cross-country differences in the level of wage inequality is related to skills differences. Moreover, the association between poor cognitive skills and low earnings tends to increase over time – it is much stronger over a twenty year horizon than in at a point in time, since skills deficiencies are a barrier to upward mobility in the labour market. A new analysis using data from the OECD's *Survey of Adult Skills* shows that countries in which the average level of information-processing skills is relatively low can both foster upward mobility and reduce overall inequality by putting policies in place that raise the skills of workers at the lower end of the distribution. Making better use of the skills workers already possess – for example, by better recognising skills workers actually possess and matching workers to jobs that make use of their skills – can also lower inequality while raising efficiency.

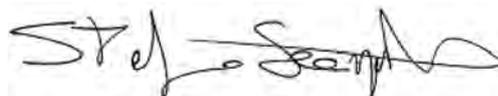
A carefully designed minimum wage that is coordinated with the tax/benefit system can help to raise living standards at the bottom of the earnings ladder

For workers at the bottom of the earnings ladder, adequate income support is needed to prevent in-work poverty and to make work pay. Mandatory minimum wages, which now exist in 26 OECD countries, can help underpin the wages of low-paid workers. Evidence suggests that, when set at an appropriate level, minimum wages tend to have only a small adverse effect on employment. Sensible minimum-wage design includes: i) taking account of differences by region in economic conditions – as applied largely in federal countries;

ii) including lower minima for very young, inexperienced people; and iii) ensuring that adjustments of the level of the minimum wage are considered on a regular schedule and informed by objective assessments of their potential impacts on low-skilled employment and living conditions. The comparative analysis in the *Employment Outlook* of minimum-wage arrangements also highlights the importance of coordinating minimum wages with other policy instruments, especially the tax/benefit system. For example, social security contributions can be set at a lower level for minimum wage workers, so as to limit disemployment effects. Interactions between the minimum wage and the tax/benefit system also have a large impact on how effectively increases in the minimum wage translate into increased disposable income for the working poor.

Turning the recovery into an opportunity to promote inclusive growth

Going forward, more attention should be paid not only to the number of job opportunities available, but also to the quality of these jobs and who requires targeted assistance to access them. In order to promote full recovery from the crisis and help workers to thrive in an ever-changing economy, governments must take action to foster stronger employment growth and improve workers' access to productive and rewarding jobs. Doing so will help to repair the broken rungs of the jobs ladder and reverse the long-run increase in inequality. It will also strengthen the sustainability of economic growth, another key requirement for promoting inclusive growth.



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Acronyms and abbreviation

ALMP	Active Labour Market Programme
BHPS	British Household Panel survey
COL	Colombia
CPI	Consumer Price Index
CT	Cash Transfer
EPL	Employment Protection Legislation
ERA	Employment Retention and Advancement
EU-LFS	European Union Labour Force Survey
EU-SILC	European Union Survey of Income and Living Conditions
EWCS	European Working Conditions Survey
GDP	Gross Domestic Product
HILDA	Household, Income and Labour Dynamics
IALS	International Adult Literacy Survey
ITC	Information and Communication Technology
LAC	Latin American and Caribbean
KHPS	Keio Household Panel Survey
KLIPS	Korean Labor and Income Panel Study
LFS	Labour Force Survey
MW	Median Wage
NEET	Neither Employed nor in Education or Training
NLYS	National Longitudinal Survey of Youth
OLS	Ordinary Least Squares
PES	Public Employment Service
PIAAC	Survey of Adult Skills
QWE	Quality of Working Environment
RCT	Randomised Control Trial
SHP	Swiss Household Panel
SIPP	Survey of Income and Program Participation
SME	Small- and Medium-Sized Enterprise
SOEP	German Socio-Economic Panel
UI	Unemployment Insurance
VET	Vocational Education and Training
ZAF	South Africa

Executive summary

Labour market conditions are improving but recovery is far from complete

Labour market conditions are generally improving in OECD countries but the recovery from the recent economic crisis remains very uneven across countries. Employment is still growing too slowly in the OECD area to close the jobs gap induced by the crisis any time soon. The jobs mix has shifted towards more part-time work and away from manufacturing and construction jobs which may be making it harder for some unemployed to find full-time jobs. Consequently, unemployment will remain high even by end 2016. At 7.1% in Q4 2014, the OECD average unemployment rate was still 1.6 percentage points above its pre-crisis level. Unemployment is projected to continue its slow decline during the rest of 2015 and 2016, reaching 6.6% in the last quarter of 2016 while remaining above 20% in Greece and Spain. Long-term unemployment also remains unacceptably high and there is a danger that many in this group have become disengaged from the labour market, making it harder to reduce unemployment. Youth unemployment remains well above its-pre crisis levels in many countries as does the share of young people who are not working or studying (the so-called NEETs). Weak real wage growth also remains a concern, particularly in the euro area.

Minimum wages must be closely co-ordinated with tax-benefit policies to be more effective in underpinning incomes of low-paid workers

A statutory minimum wage was recently introduced in Germany, bringing the number of OECD countries with some form of national minimum wage to 26 out of 34. Minimum wages can help underpin the income of low-paid workers but this is conditional on two important factors. *First*, they should not be set too high, otherwise they can lead to job loss and a loss of income for low-paid workers. *Second*, there needs to be co-ordination with tax-benefit policies in order to ensure that increases in the minimum wage translate into higher take-home pay while limiting the rise in labour costs for employers.

Wage inequality is lower in countries that are better at meeting the rising demand for skills

Inequality has been rising in a large majority of OECD countries and efforts to halt or reverse this rise rank very high on the policy agenda. New data on the information-processing skills of the workforce from the *Survey of Adult Skills* (PIAAC) highlight the role of skills in explaining cross-country differences in wage inequality which is a key driver of household income inequality. Overall, investing in skills matters for wage inequality – particularly where skills are scarce relative to demand. Countries where skills are less equally distributed also have higher wage inequality. Putting skills to better use can help reduce inequality, by strengthening the links between workers' skills, productivity and wages.

Activation policies for more inclusive labour markets

Ensuring that all people have better opportunities to participate actively in the labour market is essential given rapid population ageing and the need to heal the economic and social scars left by the global economic and financial crisis. Effective activation policies can help harness the productive potential of each country's population and contribute to economic growth, social cohesion and the sustainability of its social protection system. To do this, they need to maintain the motivation of jobseekers to actively pursue employment while also improving their employability and expanding their opportunities to be placed and retained in appropriate jobs. The implementation of these three elements – motivation, employability and opportunity – has to be managed by effective and efficient labour market institutions and policies, which are the keystone of any successful activation strategy.

The quality of working lives: Earnings mobility, labour market risk and long-term inequality

How earnings inequality at any point in time translates into long-term inequality in labour incomes depends on the degree of earnings mobility – defined as moving up or down the earnings ladder and in and out of work. Simulation techniques are used to analyse workers' careers for 24 OECD countries based on short panel data. On average, three quarters of inequality in a given year is shown to be permanent in nature, while the remainder evens out over the life cycle as a result of mobility. Mobility does not appear to be higher in countries with more inequality. Chronic unemployment, weak cognitive skills, atypical work arrangements and poor productivity firms are major determinants of low long-term earnings. Unemployment insurance plays a major role in securing worker careers by mitigating income risks due to unemployment. Minimum wages reduce the risk of extreme low pay, but their impact in reducing earning inequality is muted in the long-term due to the equalising effect of mobility and potential adverse employment effects.

Enhancing job quality in emerging economies

Poor job quality is a major policy concern in emerging economies. While not easy to measure because of limited data availability, job quality in key emerging economies is analysed along three dimensions in line with the *OECD's Job Quality Framework*: earnings quality (a combination of average earnings and inequality); labour market security (capturing both the risk of unemployment and the risk of extreme low pay); and the quality of the working environment (measured as the incidence of job strain or very long working hours). Emerging economies perform worse than OECD countries in all three dimensions. Youth and low-skilled and informal workers typically hold the poorest quality jobs. From a policy perspective, the experience of the best performing OECD countries shows that high job quality can be coupled with high employment rates. Thus, measures to improve job quality should not be viewed as a necessary drag on job creation. The labour market and social protection policies best suited to promote quality jobs in emerging economies are identified.

Chapter 1

Recent labour market developments with a focus on minimum wages

This chapter provides an overview of labour market developments in the OECD area since the onset of the financial and economic crisis in 2008 and discusses OECD projections through the end of 2016. Changes in the level and composition of employment are documented, as well as the evolution of real wages. A special section analyses statutory minimum wages. After describing the minima in place in 26 OECD countries, evidence about their effectiveness in supporting the incomes of workers at the bottom of the wage ladder is presented and assessed. Effective co-ordination of minimum wages with tax and benefit policy receives particular attention.

Key findings

Labour market conditions are generally improving in OECD countries. However, the recovery from the recent economic crisis remains incomplete in many countries. A survey of recent developments shows that:

- *Employment is still growing too slowly in the OECD area to close the jobs gap induced by the crisis.* The share of the population aged 15 years and over currently employed in the OECD area remains 1.4 percentage points lower than it was in the fourth quarter of 2007, just before the global financial crisis. This jobs gap is projected to decline to 1.0 percentage point by the fourth quarter of 2016 that is around 11 million jobs. The jobs gap is largest in hard-hit countries in the euro area, such as Greece, Ireland and Spain (10.8, 9.6 and 9.7 percentage points, respectively). By contrast, the employment rate is at least 5 percentage points above its pre-crisis level in Chile, Israel and Turkey, and also significantly up in Germany, Hungary and Poland.
- *Consequently, unemployment will remain high even by end 2016.* The jobs gap is largely reflected in higher unemployment, rather than inactivity (although the United States is an exception in this respect). Just over 43 million unemployed persons are unemployed in the OECD area, around 11 million persons more than before the crisis. At 7.1%, the OECD average unemployment rate is still 1.6 percentage points above its pre-crisis level. Unemployment is projected to continue its slow decline during the rest of 2015 and 2016, reaching 6.5% in the last quarter of 2016 while remaining above 20% in Greece.
- *And long-term unemployment has climbed.* On average for the OECD area, more than one in three unemployed persons has been out of work for 12 months or more. The size of this group has increased by 77.2% since the fourth quarter of 2007 and there is a danger that many in this group may have become disengaged from the labour market, making it harder to reduce unemployment.
- *Youth unemployment also remains very high in some OECD countries* raising concerns that the long-term career prospects of many recent school leavers could be permanently compromised. Many of the countries that have seen the sharpest increases in youth unemployment, including Greece, Italy and Spain, have also seen a sharp rise in the share of youth and young adults neither employed nor in education or training, the so-called NEET rate.
- *The jobs mix has shifted towards more part-time work.* The share of workers who are employed part time has risen from 18.6% immediately before the crisis to 20.6% currently. Most of the increase in part-time has been involuntary and reflects a shortage of opportunities for full-time employment. By contrast, the incidence of temporary employment has shown no general tendency since the onset of the crisis; with large drops in the recession and increases in the often hesitant and uncertain recovery when many employers prefer to expand their workforce through temporary contracts.

- *The sectoral mix of employment has also changed potentially increasing the mismatch unemployment and underemployment.* Many of the manufacturing and particularly construction jobs lost during the recent recession may never be recovered. Job growth has been concentrated in both relatively high-skilled professional services and relatively low-skilled services, such as jobs in wholesale and retail trade, accommodation and food services.
- *And weak real wage growth remains a concern.* Real wage growth has slowed since the crisis, particularly in the euro area. Wage restraint helped to limit employment losses during the recession and to encourage a rebound in employment during the recovery. However, slower wage growth – including real declines in some instances such as in the Czech Republic, Greece, Israel, Italy, Japan, the Netherlands, Portugal, Slovenia and the United Kingdom – has also reduced the incomes of many households further contributing to economic hardship, especially for those already on low incomes.

Both the recent crisis and longer-run increases in inequality have aroused new interest in the statutory minimum wage as a tool to ensure fair wages are paid, raise wages at the bottom of the wage distribution, and protect workers and their families from falling into poverty. A pragmatic debate around the role of minimum wages is needed which carefully frames the issues and pays attention to pertinent empirical evidence. This chapters show that:

- *Minimum wages are common but implemented in different ways.* Most (26 out of 34) OECD countries have a form of statutory minimum wage, and their number is increasing. Minimum wage levels and setting mechanisms vary markedly across countries, as do their coverage and the level of employer compliance. In many OECD countries, statutory minimum wage levels have risen relative to median wages during the recovery, and some have introduced one where it had not previously existed (e.g. Germany). In a few other countries, however, the value of the minimum wage has fallen relative to the median wage (e.g. Ireland, Spain and Turkey) and, in some cases, the nominal value of the minimum wage was cut (e.g. Greece).
- *Minimum wages can have a strong impact on wages at the bottom of the distribution.* Countries have therefore relied heavily on them throughout the recession and the recovery, either to boost (or sustain) the wages of the (working) poor and other low-paid workers, or to cut labour costs as a crisis-related measure (depending on which was the most pressing issue).
- *Minimum wages also serve other objectives.* In addition to their possible impacts on both the wage distribution and poverty, minimum wages can promote a number of other social objectives, including their role as: a key labour standard for ensuring fair pay and preventing exploitation; an instrument for making work pay; a tool to boost tax revenue and/or tax enforcement; and an anchor for wage bargaining.
- *At reasonable levels, increases in the minimum wage are unlikely to cause substantial job loss.* The weight of the evidence in both advanced and emerging economies suggests that moderate increases in the minimum wage are unlikely to have significant negative employment effects – although more vulnerable groups might be slightly more adversely affected. While on average across the OECD minimum wages are set at around 50% of the median wage, what defines a “reasonable” level of the minimum wage will inevitably be country-specific, and depend on the interactions of the minimum wage with other policies, as well as on the coverage of minimum-wage legislation, compliance, and macro-economic and labour market conditions.

- *Minimum wages are a relatively blunt tool for tackling poverty even in the absence of any negative effect on employment. Many poor families have no one working and, at the same time, many workers at the minimum wage live in households with above average incomes. Also, minimum wages do not guarantee that workers will be able to work a sufficient number of hours to lift them out of poverty.*
- *Minimum wages therefore need to be combined with other policies to be effective. The impact of the minimum wage on employment and incomes also depends on tax and benefit provisions, since these can drive a sizeable wedge between the amounts that employers pay (the minimum labour costs) and workers receive (their take-home pay net of taxes and related mandatory wage deductions). But some countries have taken active steps to reduce the tax wedge for low-paid workers in particular. In France, for example, the net minimum wage is relatively high (compared to the median wage), but minimum labour costs at the minimum wage are at the OECD average because of social security rebates. It is essential that minimum wage policy is co-ordinated with tax and benefit policies to ensure that increases in the headline value of the minimum wage translate into higher take-home pay while limiting the rise in labour costs for employers. In particular, a careful combination of minimum wages and in-work benefits and tax credits can be more effective in tackling poverty than either instrument on its own.*

Introduction

The global economic and financial crisis has cast a long shadow on employment and incomes from work. While a recovery is at long last beginning to gain momentum across OECD countries, some are still facing a large jobs gap and excessively high unemployment. Real wage growth in many countries has also suffered, putting a drag on the recovery in household consumption and causing economic hardship. The steep recession followed by a slow and uneven recovery has created a number of difficult challenges for labour market policy makers, at least in the short to medium-run, while also heightening pre-existing concerns about low job quality and the need to connect under-represented groups into employment. Section 1 of this chapter provides an overview of recent labour market developments, focussing in turn on the level and quality of employment.

Both the recent crisis and longer-run increases in inequality have aroused new interest in the minimum wage as a tool to raise wages at the bottom of the wage distribution and to protect workers and their families from falling into poverty. Indeed, many OECD countries have increased minimum wage levels during the recovery, and Germany has even introduced one where it had not previously existed. A few other countries, however, have allowed the real value of the minimum wage to erode, or even cut its nominal value. The special section of this chapter reviews the role that minimum wages can play in a context of growing inequality in incomes and earnings, and a lack of real wage growth in the recovery from the crisis. It argues that a pragmatic debate around the role of minimum wages is needed which carefully frames the issues and builds on the findings from the empirical evidence.

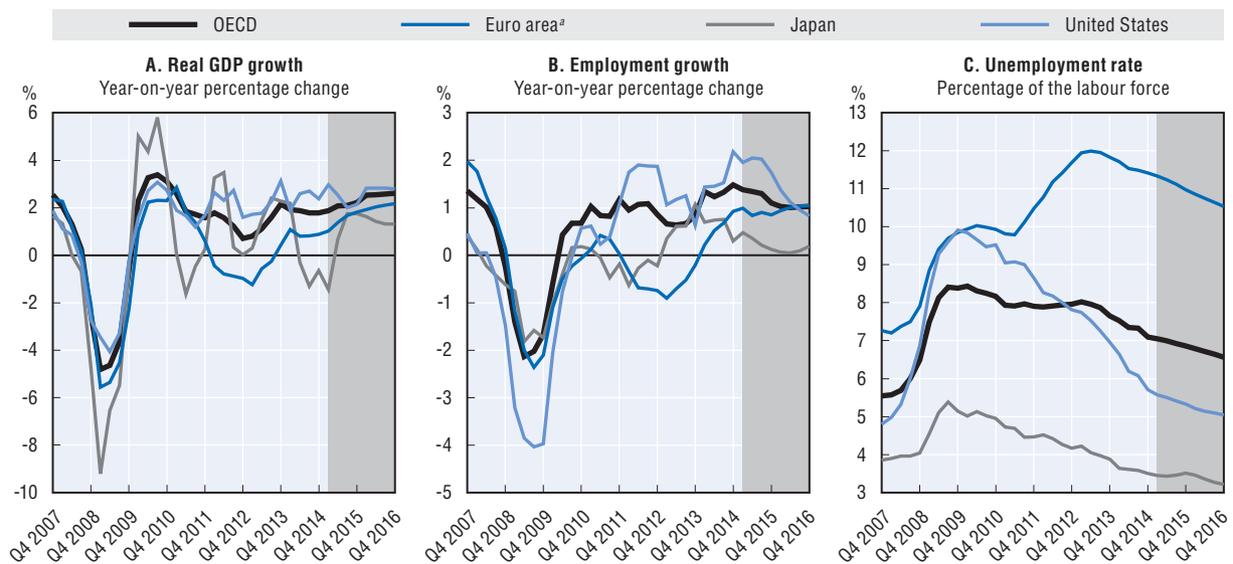
1. Recent labour market developments

Recent trends in the level of employment

The macroeconomic roller coaster ride since 2007 is reflected in labour market performance

The deep recession during 2008-09 and the uneven and halting recovery that followed have had a pronounced impact on the evolution of employment and unemployment, in recent years. As would be expected, the sharp fall in real GDP during the recession translated into significant job losses and a sharp rise in unemployment, while the subsequent resumption of output growth set the stage for labour market recovery to get under way (Figure 1.1). By Q4 2014, the OECD unemployment rate had descended to 7.1%. This is 1.3 percentage points below its post-war high of 8.4% in Q1 2010, but still 1.6 percentage points higher than its level immediately prior to the crisis. More than 43 million persons are currently unemployed in the OECD area, nearly 11 million more than immediately preceding the crisis.

Figure 1.1. Recent and projected developments in real GDP growth, employment growth and unemployment rate in OECD countries



Note: Shaded area refers to the OECD projections.

a) Aggregate of 15 OECD countries of the euro area.

Source: OECD calculations based on OECD Economic Outlook (database), <http://dx.doi.org/10.1787/eo-data-en>.

StatLink  <http://dx.doi.org/10.1787/888933239509>

Both the size of the initial fall in employment and the vigour of the subsequent recovery have differed significantly across national labour markets.¹ For example, initial job losses were large in the United States, in comparison with those in Japan and the euro area, but the subsequent rebound in employment has been stronger in the United States consistent with a steadier recovery in output growth. Unemployment rates peaked in the second half of 2009 in both Japan and the United States and then began to decline back towards pre-crisis levels, whereas the economic difficulties associated with the sovereign debt crisis in the euro area caused unemployment to continue to climb until 2013, when it peaked at nearly 12% before beginning a slow descent.

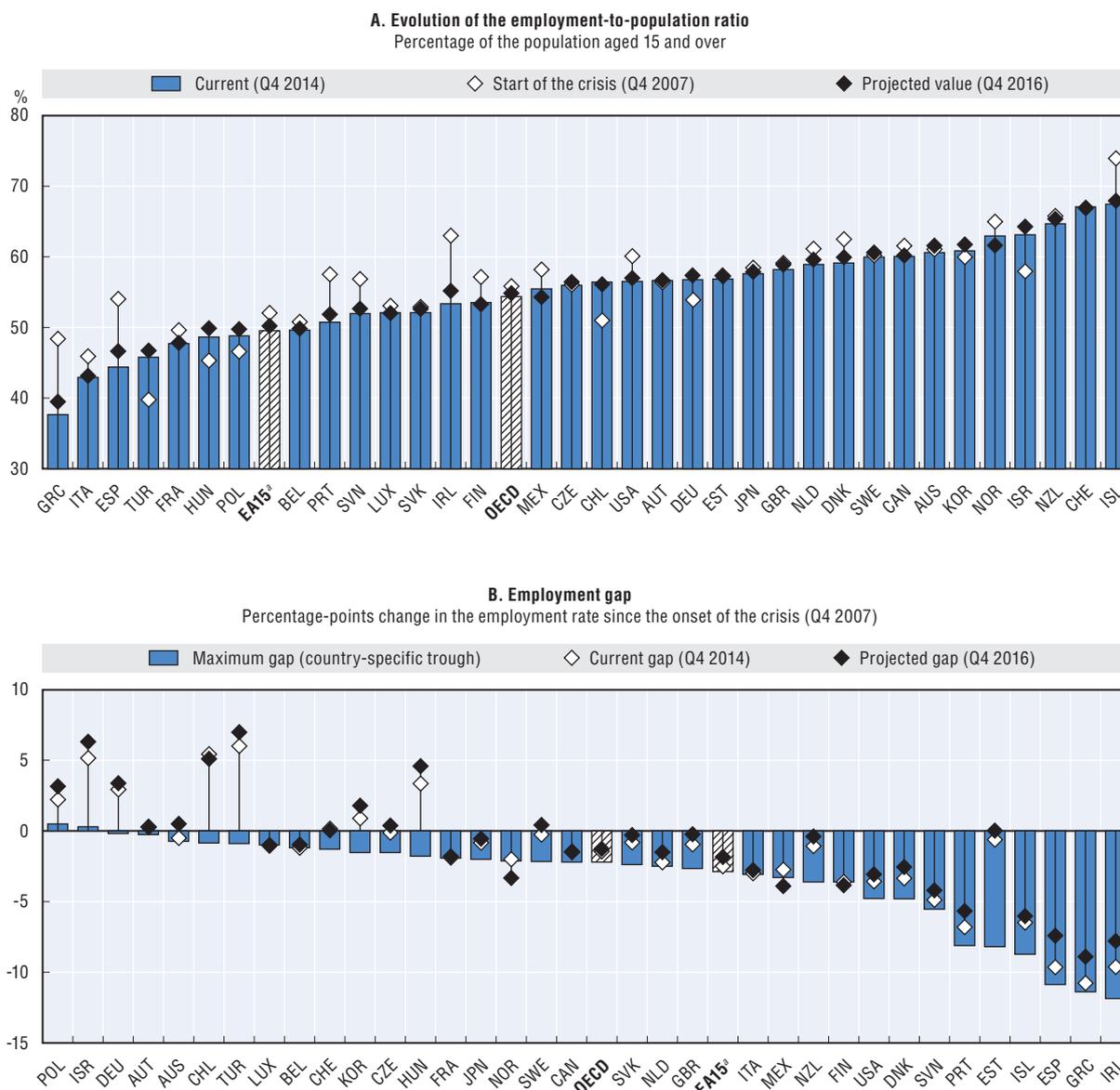
OECD economic projections through the end of 2016 foresee a moderate acceleration of economic growth in the OECD area on average which will result in continued slow

improvement in labour market conditions. Nonetheless, the labour market recovery is expected to remain incomplete in many OECD countries at the end of 2016, nine years after the on-set of the crisis.²

The labour market recovery remains far from complete in some OECD countries

A useful way to gauge the extent of labour market recovery is to compare the share of the population aged 15 years and over that is currently employed with the pre-crisis share. For the OECD area as a whole, the employment rate fell from 55.8% in Q4 2007 to 54.4% in Q4 2014 and is projected to only rise marginally to 54.8% by Q4 2016 (Figure 1.2). The jobs gap measured in this way is largest in hard-hit countries such as Greece, Ireland and Spain (10.8, 9.6 and

Figure 1.2. The jobs recovery remains incomplete



Note: Countries shown by ascending order of the current employment rate (Q4 2014) in Panel A and of the maximum employment gap (country-specific trough) in Panel B.

a) Aggregate of 15 OECD countries of the euro area.

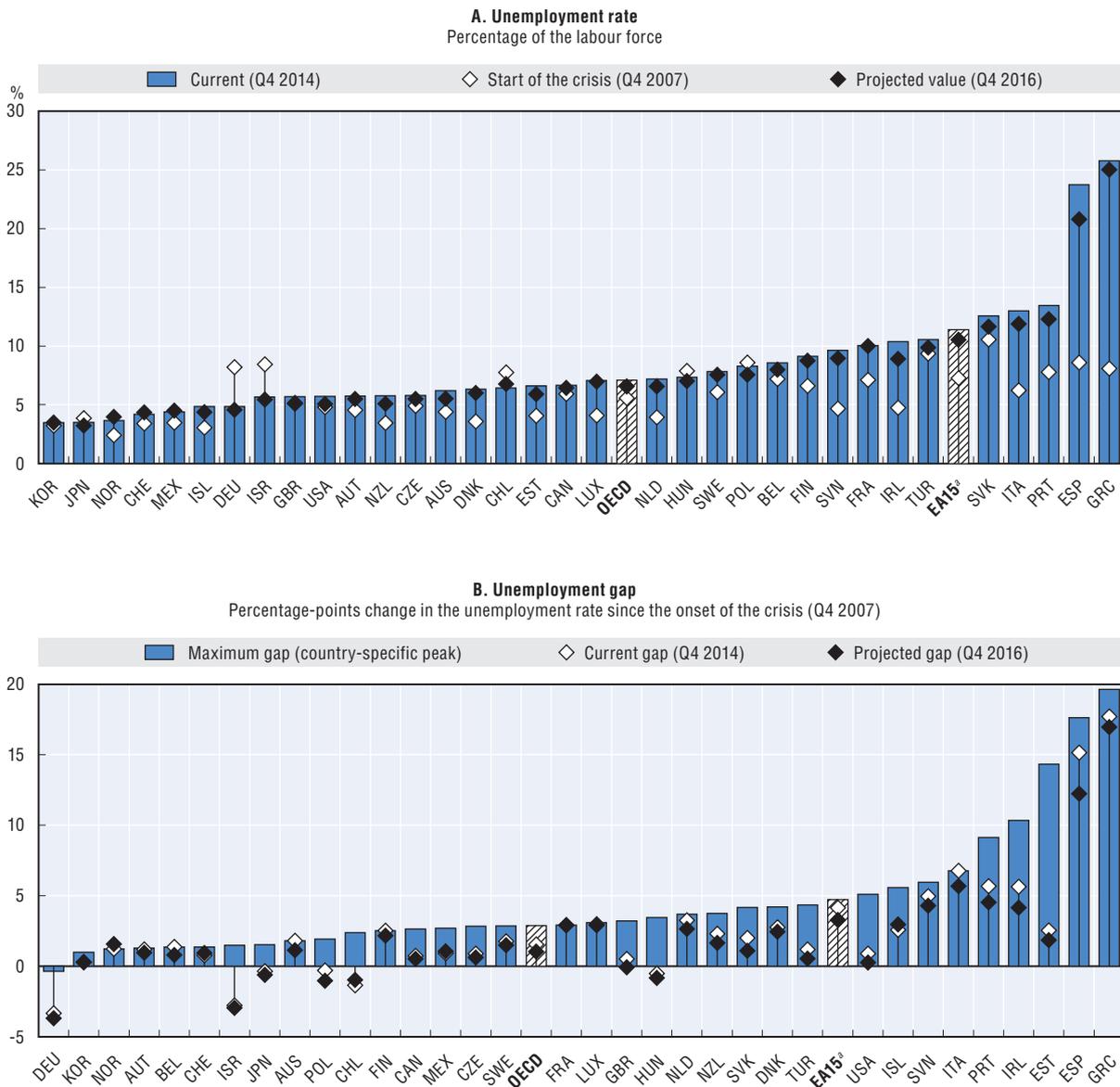
Source: OECD calculations based on OECD Economic Outlook (database), <http://dx.doi.org/10.1787/eo-data-en>.

StatLink  <http://dx.doi.org/10.1787/888933239514>

9.7 percentage points, respectively).³ While 25 of the 34 OECD countries have yet to regain their pre-crisis employment rates, employment exceeds the pre-crisis level in nine others. Most notably, the employment rate is approximately 5 percentage points above its level at the end of 2007 in Chile, Israel and Turkey. Germany, Hungary and Poland have also achieved significant increases in the employment rate.⁴

In the large majority of countries where employment remains below its pre-crisis level, it is important to know how much this reflects higher unemployment and discouragement, versus voluntary decisions to withdraw from the labour force, such as

Figure 1.3. **Unemployment remains significantly above its pre-crisis levels in the majority of OECD countries**



Note: Countries shown by ascending order of the current unemployment rate (Q4 2014) in Panel A and of the maximum unemployment gap (country-specific peak) in Panel B.

a) Aggregate of 15 OECD countries of the euro area.

Source: OECD calculations based on OECD Economic Outlook (database), <http://dx.doi.org/10.1787/eo-data-en>.

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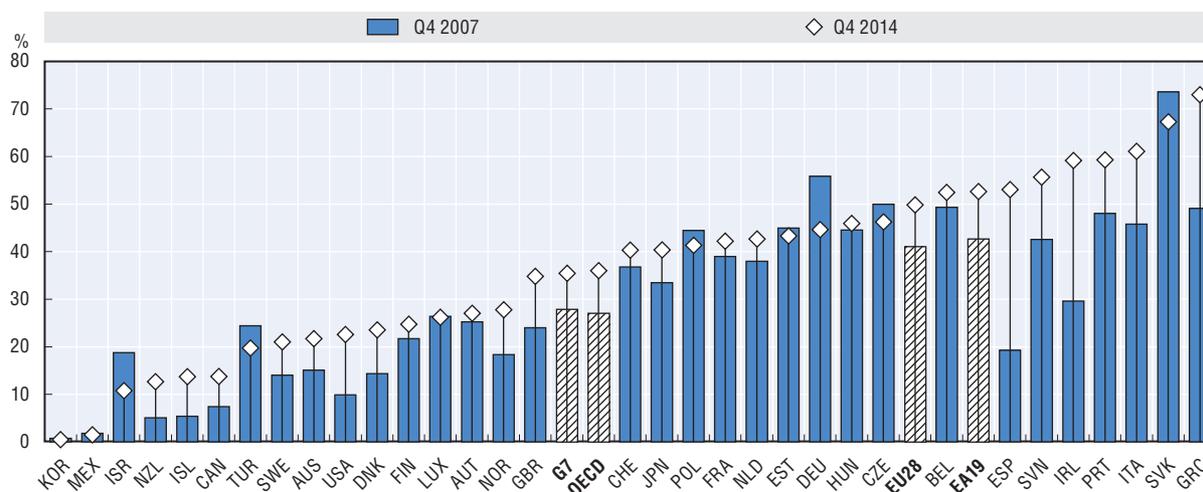
higher retirement rates related to population ageing. In fact, OECD average participation rates have not changed much, so that the post-crisis reduction in employment has translated almost one-for-one into increased unemployment (Figure 1.3).⁵ The latest OECD projections suggest that this predominantly cyclical increase in unemployment will only gradually shrink during 2015 and 2016. Most alarmingly, unemployment is projected to remain above 20% in Greece, and above 10% in four other countries. In marked contrast, unemployment in a few countries is already below its pre-crisis level with the decrease being particularly pronounced in Germany.

Long-term unemployment has risen sharply in some countries, bringing with it the risk of a rise in structural unemployment

For the OECD area as a whole, more than one in three unemployed persons had been out of work for 12 months or more in the fourth quarter of 2014 (Figure 1.4). This corresponds to 15.2 million persons who are long-term unemployed. The size of this group has increased by 77.2% since 2007.

Figure 1.4. Long-term unemployment has risen in a large majority of countries, but sharp hikes are confined to only a few, Q4 2007 and Q4 2014^{a, b}

Long-term unemployed (more than one year) as a percentage of total unemployed



Note: Countries are shown in ascending order of the incidence of long-term unemployment in Q4 2014.

a) Data are not seasonally adjusted but smoothed using three-quarter moving averages. OECD is the weighted average of 33 OECD countries excluding Chile.

b) 2014 for Israel.

Source: OECD calculations based on quarterly national labour force surveys.

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The share of the unemployed who are long-term unemployed has begun to decline in some countries as a result of renewed job growth. In the United States, it fell to 21.5% in Q3 2014 after reaching a post-war high of around one-third in Q3 2011, but remains well above its pre-crisis level of just under 10%. However, in those countries where overall unemployment has fallen significantly from its recessionary peak, long-term unemployment has been slower to decline in most cases.

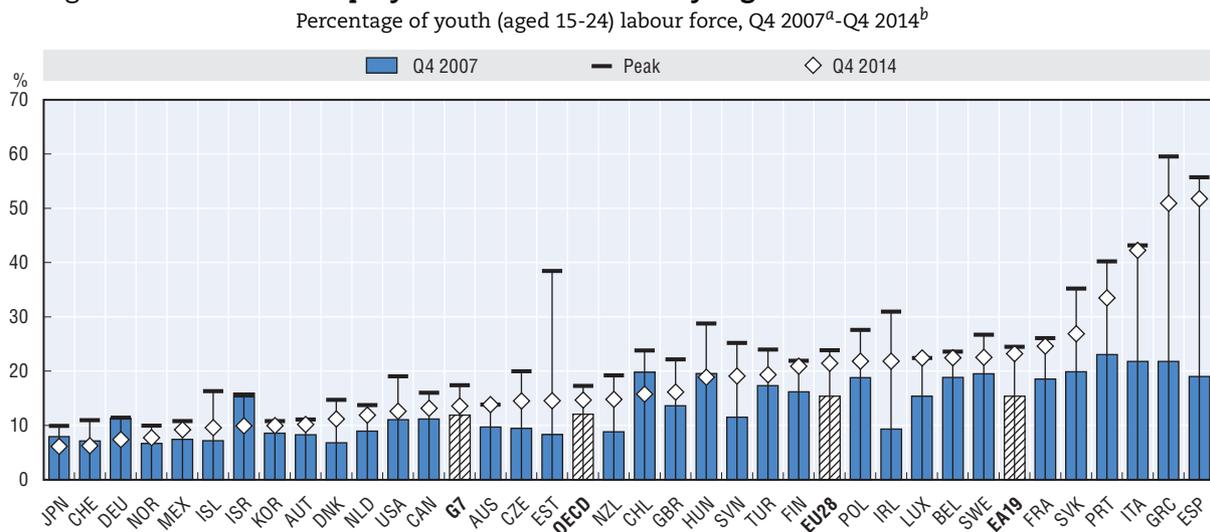
The high level of long-term unemployment in some countries is of particular concern because of the risk that unemployment remains permanently higher than its pre-crisis levels because of skill depreciation and loss of motivation of the individuals affected.⁶

Some of the long-term unemployed may become discouraged and drop out of the labour force, while others are compelled to accept new jobs where they are underemployed.

Youth have been among the hardest hit groups and may experience long-term scarring

Youth have been one of the groups whose employment has fallen most in recent years and this fall has been associated with a large rise in unemployment (Figure 1.5). The rise in youth unemployment is of great concern, particularly in those OECD countries where youth unemployment has risen to dramatic levels: 51.8% in Spain, 50.1% in Greece, 42.3% in Italy, 33.4% in Portugal and 28.8% in the Slovak Republic. In each of these countries, youth unemployment appears to have peaked and some recent falls have been recorded. Some countries have seen marked decreases in youth unemployment since the crisis peak, most notably Estonia (-23.6 percentage points), Hungary (-9.9 percentage points), Ireland (-8.7 percentage points) and Iceland (-8.3 percentage points). While this is encouraging, youth unemployment is still above the pre-crisis level in the large majority of countries (2.7 percentage points higher on average across the OECD area). The persistence of high unemployment among youth risks compromising their long-term career prospects.

Figure 1.5. **Youth unemployment has reached very high levels in some OECD countries**



Note: Countries shown in ascending order of the youth unemployment rates in Q4 2014.

a) Q2 2007 for Switzerland.

b) Q3 2014 for Greece, Turkey and the United Kingdom.

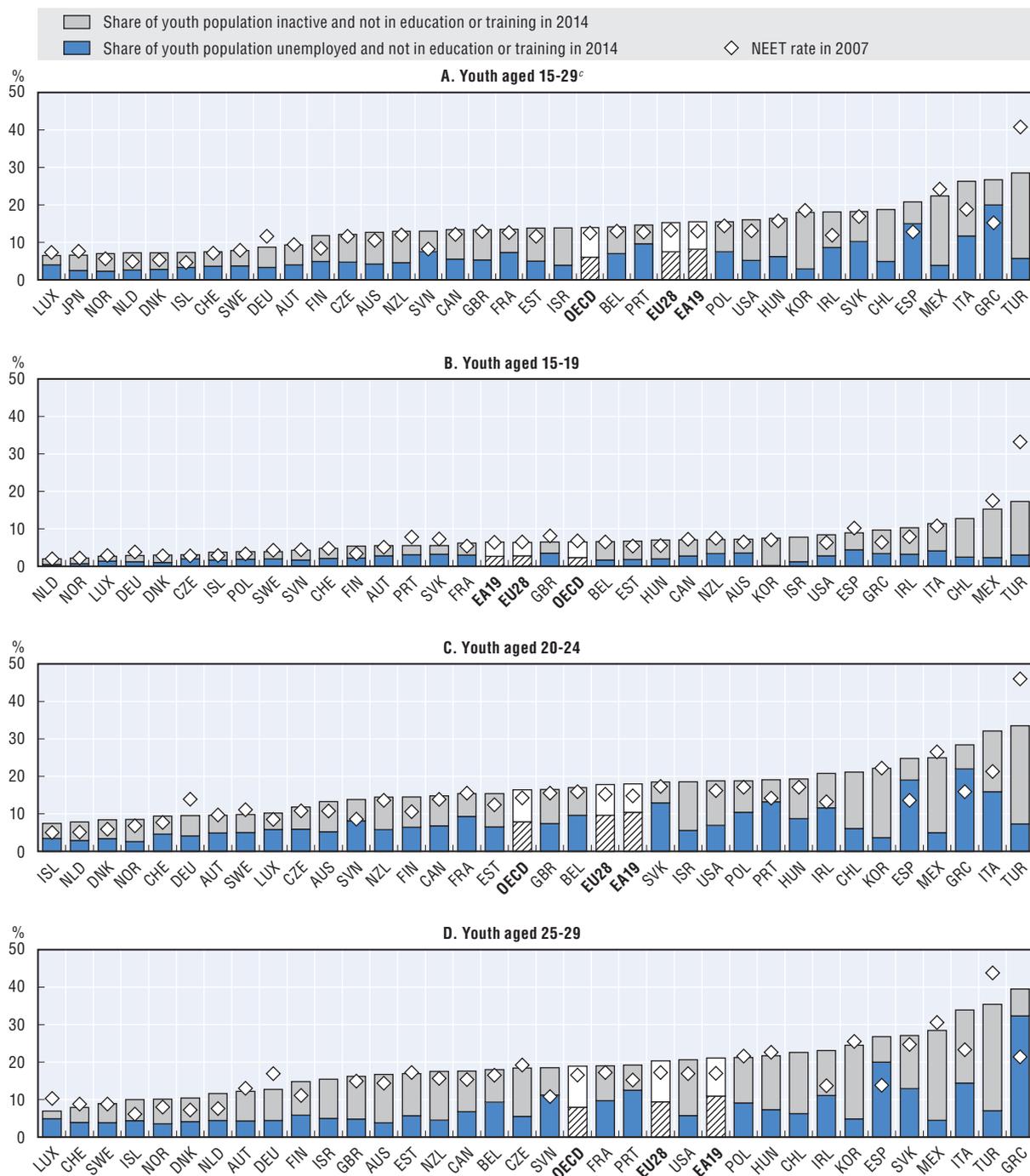
Source: OECD Short-Term Labour Market Statistics Database (cut-off date: 10 March 2015), <http://dx.doi.org/10.1787/data-00046-en>.

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Sharply lower youth employment since 2007 also reflects a fall in the share of youth participating in the labour force (either working or unemployed). To the extent lower participation reflects higher school enrolments or vocational training, lower employment now may translate into better employment opportunities in the future. Unfortunately, only part of the fall in participation rates reflects higher enrolments in education and training. The percentage of young people aged 15-29 who are neither employed nor in education or training – the so-called NEET rate – has increased since 2007 in more than three-quarters of the 32 OECD countries for which data are available (Figure 1.6, Panel A). Countries hit hard by the global crisis – Greece, Ireland, Italy, Slovenia and Spain – have seen particularly large increases in the NEET rate. Among the smaller number of countries where the NEET

Figure 1.6. **NEET rates among youth in OECD countries**

Percentage of the population of the indicated group, 2007^a-14^b



Note: Countries are shown by ascending order of the NEET rate in 2014. OECD is the unweighted average of countries shown (excluding Chile and Israel).

a) Data not available for Chile and Israel; 2008 for Korea.

b) 2013 for Korea and the United States.

c) Youth aged 15-24 for Japan.

Source: OECD estimates based on national labour force surveys.

rate has declined since 2007, the drop was especially large in Turkey, but also significant in Germany, Mexico and Japan. Some of the NEET group are also classified as active job seekers and hence show up in the statistics for youth unemployment, but more than half are classified as inactive in most countries.⁷

A finer age breakdown of NEETs shows that the problem mostly concerns young adults and not older teens, since the latter are mostly attending school. NEET rates increase between ages 20-24 and ages 25-29 and the part associated with inactivity also rises. A substantial part of that increase represents women in several countries where a significant proportion of young women choose not to combine raising a family with paid work (e.g. Mexico and Turkey). Since the onset of the global crisis, NEET rates increased in more than three-quarters of countries for youth aged 20-24 years and in around two-third of countries for those aged 25-29 years (Figure 1.6, Panels C and D), with the increases being particularly strong in Greece, Ireland, Italy, Portugal, Slovenia and Spain. Youth and young adults who left school without having completed upper secondary schooling and who are neither working nor improving their skills are of particular concern. More than one-half of NEETs between the ages of 15-29 years are early school leavers in a number of OECD countries, including Japan, Spain and Turkey (data not shown). This group is particularly likely to face limited career prospects.

Recent trends in the composition of employment

Labour market policies should seek to promote more and better jobs. Already prior to the crisis, there were long-standing concerns about high and possibly increasing numbers of workers in jobs offering little employment security or low hours or pay rates. In some instances, these concerns have been reinforced by the impact of the crisis on labour markets. Certain groups in the workforce have an elevated risk of holding low quality jobs, including women, immigrants, recent school leavers and low-skilled workers (OECD, 2014b). In this section, an overview is provided of how the crisis and recovery have had an impact on selected job characteristics that may be indicative of job quality or how well the skills and experience of the workforce match available jobs.

The crisis did not result in a uniform increase in the incidence of temporary work

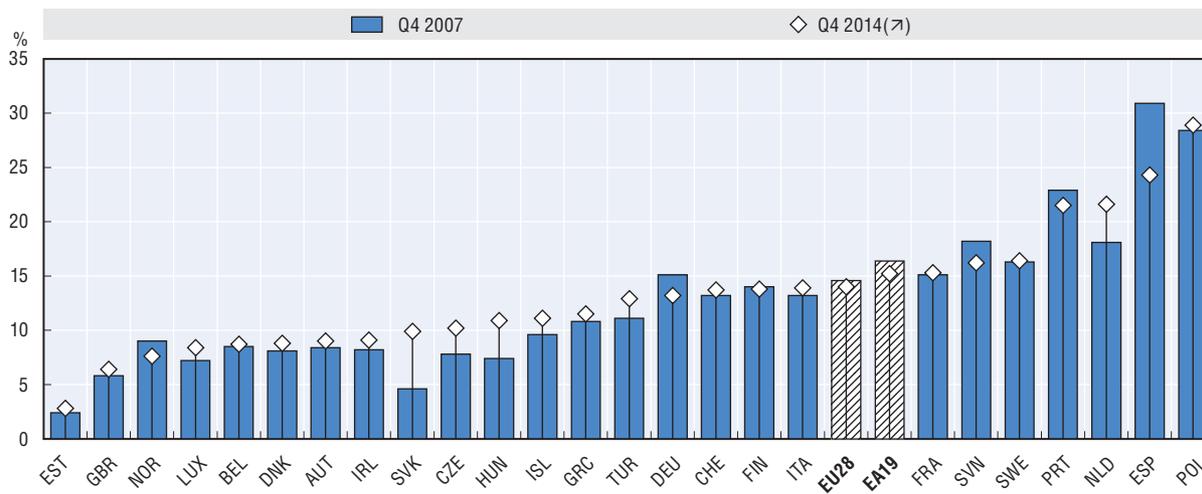
Much of the concern about precarious forms of employment relates to the considerable use of fixed-term contracts by European employers. The overall incidence of temporary work in the European Union has declined slightly since the start of the crisis, from 14.5% in the last quarter of 2007 to 14% in the third quarter of 2014 (Figure 1.7). This means that in the European Union more than one in seven employed persons continue to be employed on a fixed-term contract. It is difficult to assess whether the crisis will have any lasting impact on the incidence of temporary employment. However, it is clear that workers on fixed-term contracts are particularly quick to be affected by changes in business cycle conditions. This group accounted for most of the initial job losses when the recession struck, as well as most of the initial hiring once the recovery began.

Recent changes in the incidence of temporary contracts exhibit important differences across countries in terms of both its level as well as its trend:

- In Q3 2014, the incidence of fixed-term contracts was highest in Poland (28.6%), Spain (23.9%), Portugal (21.7%) and the Netherlands (21.5%). The incidence of fixed-term contracts was also relatively high in Finland, France, Slovenia and Sweden where it exceeded 15%. By contrast, the incidence of fixed-term contracts is relatively low in

Figure 1.7. **Incidence of temporary employment has declined in some countries, but risen in others**

Percentage of employees aged 15-64, Q4 2007-Q4 2014, European countries



Source: OECD calculations based on national labour force surveys.

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countries such as Estonia (3.4%), the United Kingdom (6.3%), Luxembourg (6.5%), Norway (7.9%) and Denmark (8.2%).

- The incidence of fixed-term contracts has declined most strongly in Spain (by nearly 7 percentage points since the start of the crisis), although it has started to edge back up recently. The large overall decline in Spain accounts for a significant part of the decline in the incidence of temporary work at the EU level. Countries where the incidence of fixed-term contracts is now between 1 and 2 percentage points lower than at the start of the crisis include Germany, Norway, Portugal and Slovenia.
- However, the incidence of fixed-term contracts increased significantly in a number of other European countries, including the Netherlands, the Slovak Republic and Hungary (between 3 and 4.4 percentage points), and the Czech Republic (2.2 percentage points). The increases in the three Central European countries are particularly notable as they depart from a relatively small base. They represent a doubling in Slovak Republic and increases between 25% and 50% in the Czech Republic and Hungary (as well as Estonia).

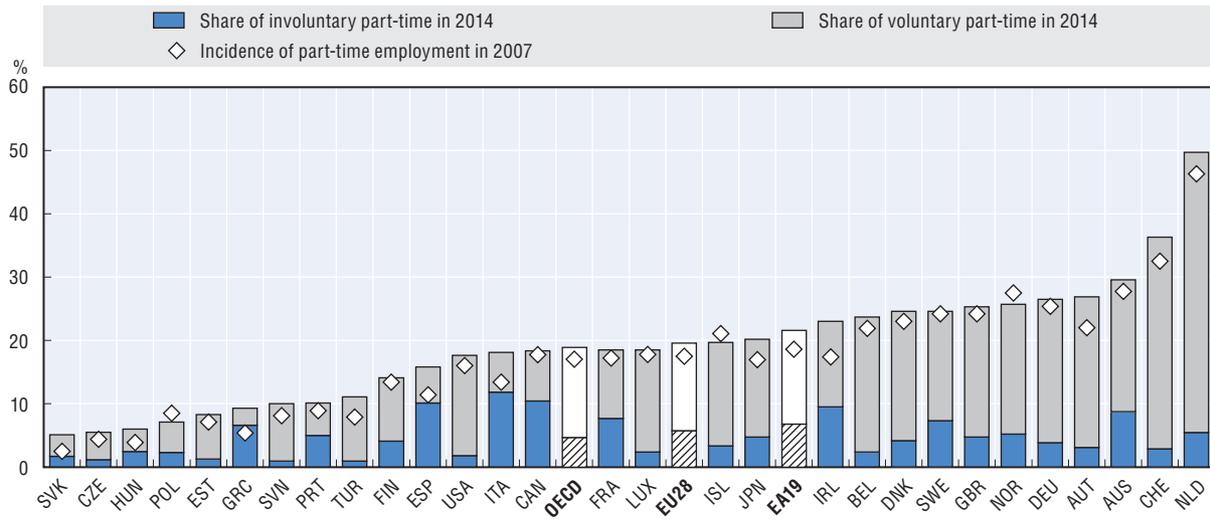
The incidence of part-time work has continued to increase

Across the OECD, about one in five employed persons worked part-time in the third quarter of 2014 and the importance of part-time work is increasing almost across-the-board (Figure 1.8).⁸ Since the start of the crisis in the last quarter of 2007, the incidence of part-time work has increased by over 2 percentage points on average. The increase largely takes the form of *involuntary* part-time working in the majority of countries, with voluntary part-time declining in a number of them (data not shown).⁹ Among the notable recent developments in the incidence of part-time working:

- The incidence of part-time work is highest in the Netherlands where more than half the working population is employed in part-time jobs (51.7%). More than one in three employees work part-time in Switzerland (36.8%) and over a quarter in Austria, Belgium, Denmark, Germany, Norway, Sweden and the United Kingdom. By contrast, less than

Figure 1.8. **The incidence of part-time employment has continued to increase**

Percentage of employees aged 15-64, 2007-14



Notes: National definitions of part-time employment. The internationally harmonised definition yields lower part-time incidence rates. Countries are ordered by ascending order of the incidence of part-time employment in 2014. OECD is the weighted average of the 29 countries shown.

Source: OECD calculations based on national labour force surveys.

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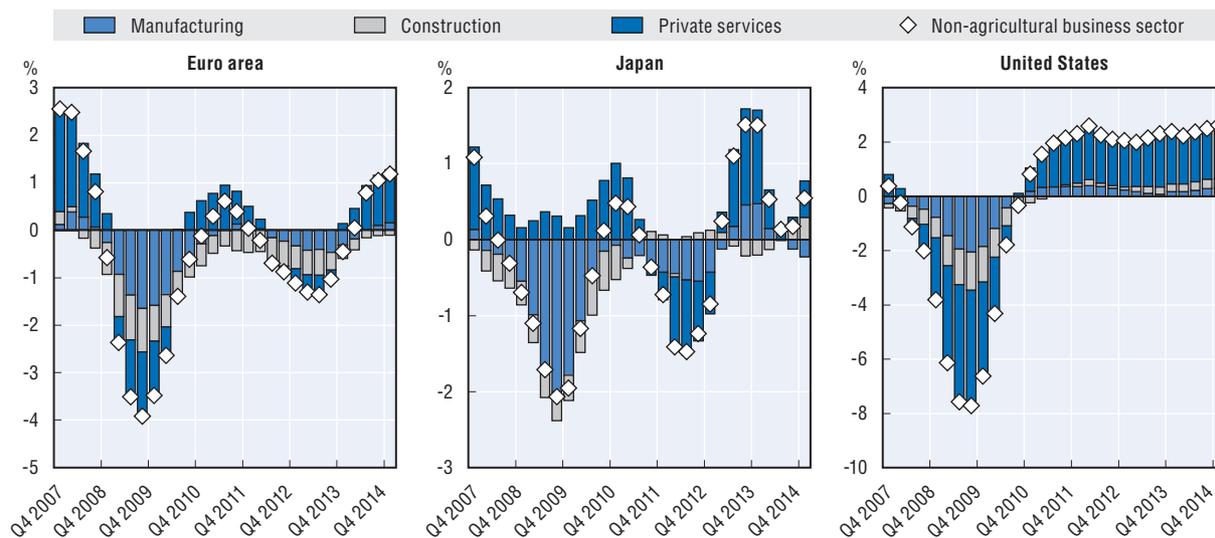
one in ten employees work part-time in the Central and Eastern European countries, as well as in Estonia, Greece, Portugal and Turkey.

- During the seven years since the start of the crisis, the incidence of part-time work has increased substantially in Ireland (more than 5 percentage points); but also in Austria, Italy and Spain (more than 4 percentage points); and in Greece, the Netherlands, the Slovak Republic and Switzerland (more than 3 percentage points). The incidence of part-time work declined in only a few countries and, where it did, the decline tended to be marginal. The main exception is Norway where it declined by 1.8 percentage points.
- In countries where part-time work is widespread working part time is most often a voluntary choice. Voluntary part-time work is particularly common for women since it can enable them to balance work and family life. By contrast, the share of part-time work that is involuntary is much higher in countries where the incidence of part-time has sharply increased since the crisis (e.g. Greece, Italy and Spain), exceeding three-fifths of all part-time workers.

Many of the production jobs lost during the recession may never be recovered

There are important differences in the *sectoral composition* of the jobs that are being created in the recovery and those that have been destroyed during the downturn (Figure 1.9). This can be seen most clearly in the case of the United States where the employment recovery has been underway for about four years. The contribution of manufacturing, mining, utilities and construction to the job losses that occurred during the downturn was much larger than it has been to job creation during the economy recovery. A somewhat similar pattern can be observed in Japan and the European Union. This suggests that a significant share of the construction and manufacturing jobs that were lost as a result of the global financial crisis are unlikely to come back, even once the labour market has fully

Figure 1.9. **Many of the jobs destroyed as a result of the crisis will not come back in the recovery**
Annual percentage change, employees in the non-agricultural business sector,^a Q4 2007-Q4 2014



a) Manufacturing refers to mining, manufacturing and utilities; and private services refer to trade, transport and communication, accommodation and food services, financial services, real estate and business services.

Source: OECD calculations based on the European quarterly national accounts, on the labour force survey for Japan and on the Current Employment Statistics Survey for the United States.

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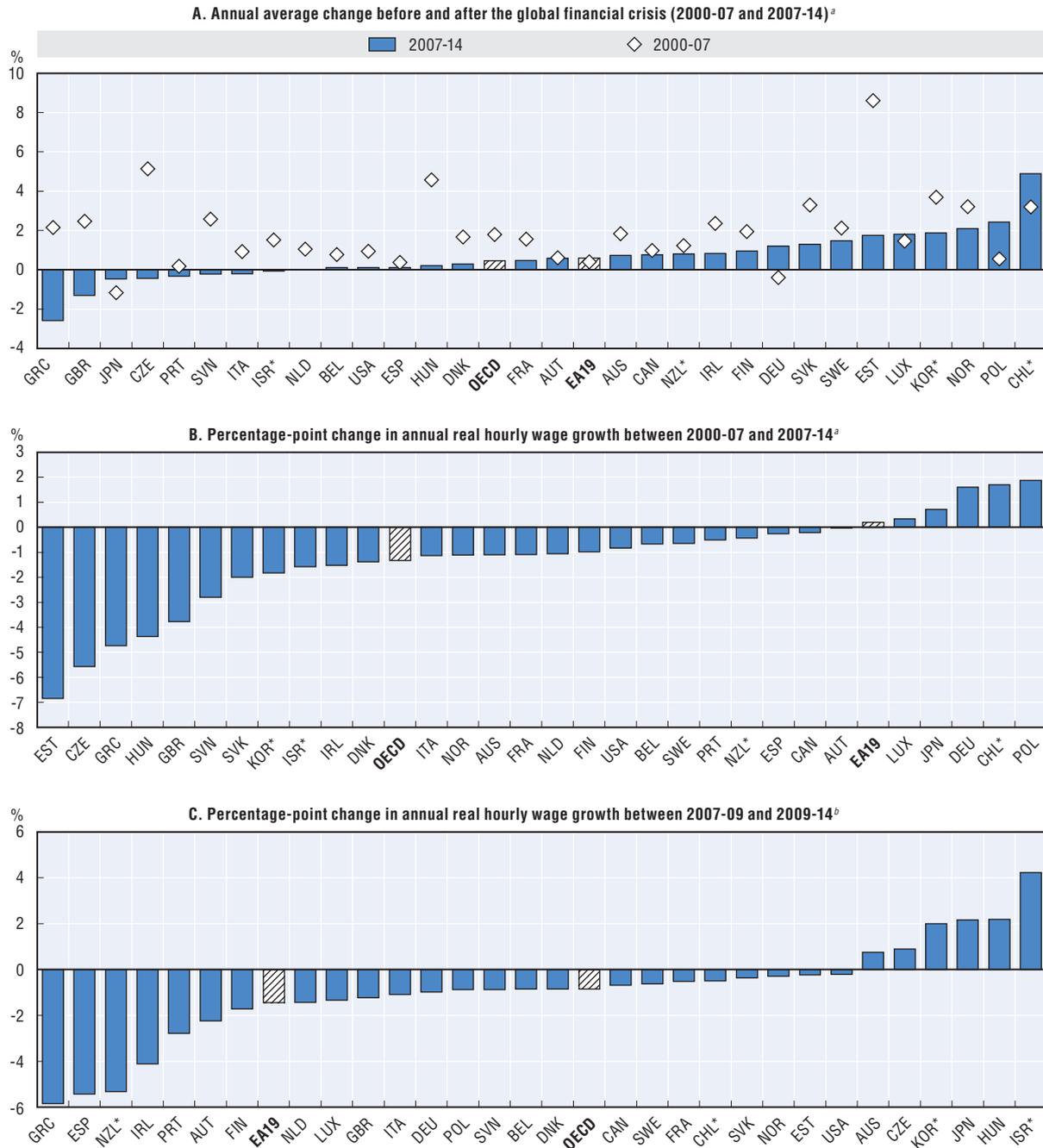
recovered. This highlights the importance of policies that can help unemployed persons, who have lost their jobs in manufacturing or construction, find new jobs elsewhere.

Most of the jobs created during the recovery are in the services sector. Although there is some variation across countries, employment growth in the services sector has tended to be concentrated in professional services, where skill requirements and wages are relatively high, and in several lower skilled and lower pay services, notably, trade, accommodation and food services (data not shown).

Wage growth has slowed raising concerns about the most vulnerable workers

Annual real wage growth has slowed in the OECD area since the onset of the crisis, declining from 1.8% during 2000-07 to 0.5% thereafter (Figure 1.10, Panels A and B). The slowdown was widespread affecting 25 out of the 30 countries for which data are available, with real wages actually declining in more than one third of countries. Estonia registered the largest slowdown in real wage growth in response to a dramatic fall in output and rise in unemployment during the financial crisis. While the wage response to job losses was very rapid in Estonia, in most countries the deceleration in wage growth occurred more gradually (Figure 1.10, Panel C). The 2014 edition of the *OECD Employment Outlook* (OECD, 2014a) argues that these wage adjustments played an important role in helping the labour market weather the economic and financial crisis, reducing job losses in the downturn and promoting employment growth in the recovery, but also that they created hardships for the affected workers.

Figure 1.10. **Real hourly wage growth in OECD countries**



Note: Total wages and salaries divided by total hours worked (by employees) and deflated using the consumer price index. OECD is the unweighted average of countries shown.

* Calculations based on Total compensation of employees.

a) 2000-07 refers to 2006-07 for Israel, 2004-07 for Korea, 2002-07 for Poland; and 2007-14 to 2007-13 for Canada, Chile, France, Israel, Japan, Korea, Luxembourg, Mexico, New Zealand and Poland.

b) 2009-14 refers to 2009-13 for Canada, Chile, France, Israel, Japan, Korea, Luxembourg, Mexico, New Zealand and Poland.

Source: OECD estimates based on national accounts.

2. Special section on the role of minimum wages after the crisis

Context: Strong interest in minimum wages after the crisis

The flip side of the slowdown in real wage growth during the crisis and recovery period, including actual declines in many instances, is that many households suffered a reduction in their incomes from work, further contributing to economic hardship, especially for those already on low incomes. On average, across a range of OECD countries, one in two workers saw the real value of their monthly earnings fall in 2010. In half of these cases, this was because earnings growth was outpaced by inflation; in the other half, it was because nominal earnings actually fell (Chapter 2 in OECD, 2014a).

Even prior to the crisis, however, there were long-standing concerns in many OECD countries about rising earnings and income inequality, as well as about low job quality. Today, the gap between rich and poor is at its highest level in most OECD countries in 30 years (OECD, 2015d): the richest 10% of the population in the OECD area have a disposable income 9.5 times that of the poorest 10% (compared to 7.0 times in the 1980s). Chapter 4 of the present *Employment Outlook* shows that earnings inequality persists even when measured over a long period of time and, thus, presents a major challenge from the perspective of the quality of working lives.

Both the recent crisis and longer-run increases in inequality have therefore added new momentum to minimum wage debates. Proponents of increases in minimum wages claim this will help ease economic hardship for low-income households and boost consumption and therefore growth. Opponents argue that an increase in the minimum wage will destroy jobs and that minimum wages are poorly targeted in terms of reaching low-income households, and thus will fail to have much of an impact on in-work poverty or on growth. As this section will show, the level of statutory minimum wages relative to median wages has risen substantially in some countries in recent years (e.g. Hungary, Japan, Poland and the United States), and some are introducing them (or thinking of introducing them).¹⁰ On the other hand, the value of the minimum wage has fallen relative to median wages in a number of other countries (Ireland, Spain and Turkey), sometimes as a result of cuts in its nominal value (Greece).

While the controversy about the impact of minimum wages on poverty, employment and growth will not be settled any time soon, a careful framing of the issues and attention to pertinent empirical evidence can contribute to a more productive debate. In this spirit, this section shows that: i) a more nuanced and pragmatic assessment is required of how effectively minimum wages serve their primary goal of improving the situation of workers with the least bargaining power in the labour market; and ii) minimum wage analysis should also take account of other social objectives that the minimum wage is sometimes intended to promote, such as providing an anchor for wage bargaining or improving tax compliance. In particular, such an assessment must encompass interactions between the minimum wage and other policies affecting the incomes of low-wage workers and the costs of employing them, particularly taxes and transfers. While on average across the OECD minimum wages are set at around 50% of the median wage, what defines a “reasonable” level of the minimum wage will inevitably be country-specific, and depend on the interactions of the minimum wage with other policies, as well as on the coverage of minimum-wage legislation, compliance, and macro-economic and labour market conditions.

Minimum wage systems in OECD countries and emerging economies

Most OECD countries have a statutory minimum wage

Currently, 26 out of 34 OECD countries have statutory minimum wages in place – as compared to 17 out of 30 in 1998 (OECD, 1998) – as do the OECD’s six enhanced engagement partners (Brazil, China, India, Indonesia, Russia and South Africa) and Colombia, Costa Rica, Latvia and Lithuania (countries that are seeking OECD membership). The most recent country to have introduced a legal floor for worker compensation is Germany in 2015 (see Box 1.1).

Box 1.1. The new minimum wage in Germany

Germany introduced a statutory minimum wage in January 2015. Until then, pay scales were determined through collective agreements and therefore only workers in companies bound by such agreements were effectively protected through a wage floor unless the government declared the agreement as generally binding for all firms in the sector. Between 1997 and 2014, 14 sector-specific minimum wages were implemented through this mechanism.

The combination of decreasing collective bargaining coverage and rising in-work poverty in recent decades raised increasing doubts about the effectiveness of the German collective bargaining system in establishing an effective wage floor for low-paid workers. Collective bargaining coverage decreased from 80% in the 1980s to 66% in 2000 and 57% in 2010 – weakening both unions and the collective bargaining process (particularly in East Germany). At the same time, in-work poverty increased from 4.8% in 2005 to 8.6% in 2013 (Eurostat). Concern about these trends led to the 2014 reform establishing a statutory minimum wage.

The new statutory (gross) minimum wage is set at EUR 8.50 for all employees from 1 January 2015. OECD estimates show that the net minimum wage for a full-time worker in a single-person household is around EUR 6.30 per hour after taking into account taxes and social contributions.

The new minimum wage applies in all regions and sectors. However, several exceptions are in place for a transitional period lasting until 31 December 2016. Gross hourly earnings of less than EUR 8.50 are permitted in: the agricultural sector; the meat-processing industry; hair-dressing services; temporary work (East Germany and Berlin); and building structure cleaning (East Germany).^a

Workers under the age of 18 and apprentices will be permanently exempted from minimum wage regulations. In addition, the minimum wage does not apply in the case of compulsory or voluntary internships with a duration of up to three months, provided they are carried out during education or training. An exemption will also be granted for the long-term unemployed during the first six months of their return to work.

OECD estimates show that, on average, 11.3% of workers in Germany were paid less than EUR 8.50 per hour in 2014 (see Table 1.1).^b Paying them at the new minimum wage rate would increase the total wage bill^c by an estimated 1.2%. There are significant differences across sectors, however. The number of workers paid below the new minimum wage rate was around one third in agriculture, and hotels and restaurants, which translates into increases of the wage bill of 10% and 5%, respectively. In East Germany, the share of workers paid less than EUR 8.50 per hour was double the share in West Germany, and is as high as two thirds in the hotels and restaurants sector. Smaller firms are also more affected by the new minimum wage, with more than one fifth of workers paid less than EUR 8.50 in several sectors in 2014.

Box 1.1. The new minimum wage in Germany (cont.)

Table 1.1. Proportion of employees in 2014 who were paid under the 2015 level of minimum wage in Germany, and increase of the wage bill implied by the new minimum, by industry, area and firm size

	All firms		Western Germany		Eastern Germany		Firms with <20 employees		Firms with 20 employees or more	
	% of workers <EUR 8.50/h	% increase in the wage bill	% of workers <EUR 8.50/h	% increase in the wage bill	% of workers <EUR 8.50/h	% increase in the wage bill	% of workers <EUR 8.50/h	% increase in the wage bill	% of workers <EUR 8.50/h	% increase in the wage bill
Agriculture	33.7	10.2	23.9	5.8	43.8	16.3	40.2	8.5	27.6	11.6
Manufacturing	6.2	0.6	4.2	0.3	17.3	2.4	13.8	2.0	4.7	0.4
Electricity, gas and water supply	2.6	0.3	0.0	0.0	8.8	1.2	0.0	0.0	2.7	0.3
Construction	8.4	0.8	5.0	0.5	18.7	2.0	7.4	0.7	9.4	0.8
Wholesale and retail trades	17.5	2.0	15.4	1.7	28.1	3.3	30.0	5.6	13.0	1.1
Hotels and restaurants	30.6	4.9	24.5	4.0	67.5	11.0	46.2	8.7	18.3	3.3
Transport and communication	10.3	1.2	7.8	0.6	18.0	3.7	25.6	7.2	8.6	0.7
Financial intermediation	4.5	0.2	4.3	0.2	5.8	0.8	19.3	0.9	3.5	0.2
Business activities	16.5	1.0	12.0	0.6	32.3	3.0	19.7	1.4	14.3	0.8
Public administration	3.6	0.4	3.2	0.3	4.7	0.5	2.1	0.5	3.4	0.4
Education	8.3	0.4	7.3	0.4	12.3	0.8	21.4	1.5	4.9	0.3
Health and social work	11.0	1.8	9.9	1.6	15.8	2.4	17.9	1.8	9.0	1.7
Other services	17.2	1.6	14.4	1.0	27.8	3.8	34.2	3.8	8.9	0.9
Total	11.4	1.2	9.3	0.9	20.1	2.6	22.3	3.0	8.3	0.9

Note: 2012 earnings data inflated to 2014 values using the Consumer Price Index.

Source: OECD calculations based on the German Socio-Economic Panel (GSOEP).

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- a) In practice, a certain number of firms take collectively bargained wages as guidance for setting their own wages, so there is indirect coverage even if firms are not formally bound by collective bargaining agreements.
- b) This estimate is conservative compared to those obtained by most German sources. Estimates using the German Socio-Economic Panel (GSOEP) range from 14% to 19% (Brenke and Müller, 2013; Kalina and Weinkopf, 2013; Heumer et al., 2013; Falck et al., 2013; Knabe et al., 2014). These estimates vary somewhat, partly because the GSOEP data are subject to measurement error, there is substantial year-to-year volatility and not all papers adjusted the data to 2014 values. However, some estimates using employer-based surveys yield significantly lower figures: 4.4% (Bellmann et al., 2015) and 9% (Falck et al., 2013).
- c) The wage bill was estimated as the sum over all individuals of the new minus the old wage. No knock-on/ripple effects on higher earners have been assumed – the estimates are therefore an underestimate of the possible effect on the wage bill.

In countries without statutory minimum wages (Austria, Denmark, Finland, Iceland, Italy, Norway, Sweden and Switzerland), a large part of the workforce is covered by wage floors specified in sector- or occupation-level collective agreements. Combined with high collective bargaining coverage, such sector/occupation-based minimum wages can be seen as a functional equivalent of a binding statutory minimum wage. But compared with statutory minima, such systems can provide more flexibility for differentiating wage floors by sector or worker characteristics, preserve the autonomy of the social partners, and tend to result in higher minima (Garnero et al., forthcoming). At the same time, their greater complexity (due to the large number of minimum wages) may reduce compliance and make them harder to enforce. In addition, the decline in collective bargaining coverage has reduced their effectiveness in a number of countries and has revived the debate around the

introduction of a statutory minimum wage (most notably in Germany which introduced it in 2015, but also in Italy and Switzerland).

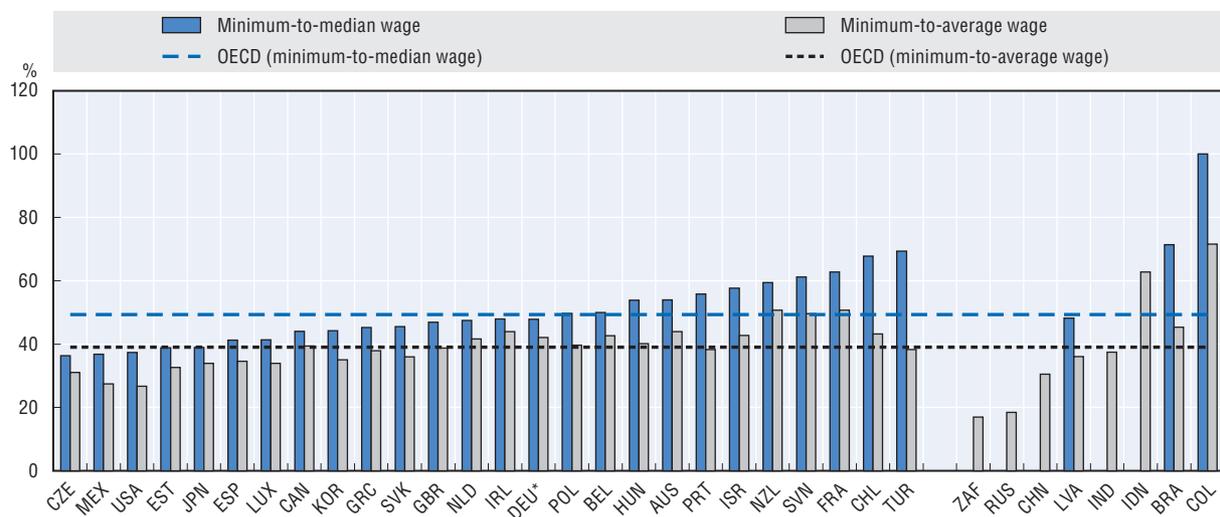
Even in countries that have a statutory minimum wage, collective bargaining can play a significant role in defining wage floors for specific industries, occupations or regions, and interactions with the legal minimum are complex, showing both tensions and complementarities (Grimshaw and Bosch, 2013). In some countries, minimum wages serve as an anchor for wage bargaining; in others, the level of the minimum wage is influenced by wage bargaining outcomes; and in others still the minimum wage has been argued to undermine the collective bargaining process.

Minimum wages vary markedly across countries relative to the prevailing wage level

Minimum wage levels (expressed as a share of median or average wages) vary significantly from country to country (Figure 1.11). In the OECD area, they range from below 40% of median wages in the Czech Republic, Mexico, the United States, Estonia and Japan, to 60% and over in Turkey, Chile, France and Slovenia. In emerging economies, the range appears to be even wider, with particularly low minimum wages in both South Africa and the Russian Federation, but a minimum-to-median-wage ratio of nearly 1 in Colombia.

Figure 1.11. **Minimum wages levels in OECD, key partner and accession countries, 2013**

Minimum wages as a percentage of median and average wages of full-time employees (in gross terms)



Note: Countries are ranked in ascending order of the minimum-to-median wage ratio where available and by minimum-to-average wage ratio otherwise. Data for China refer to 2012. For France, the Kaitz index is based on the annual equivalent of minimum wages and a historical series on gross annual earnings of full-time dependent employees in the non-farm sector. The latter series is derived from a historical series on net annual earnings provided by the French *Direction de l'Animation de la Recherche, des Études et des Statistiques* (DARES) of the Ministry of Labour. The minimum wage is set per hour with a monthly and annual equivalent. But the unavailability of a historical series on the distribution of gross hourly earnings does not allow the calculation of the Kaitz index for hourly minimum wage rates. For details on how the minimum-to-median/average wage ratio was calculated in emerging economies, see Broecke et al. (forthcoming).

* Germany: the minimum-wage level in 2015 is expressed as a proportion of the projected 2015 median and average wage. Projections are based on earnings data from the OECD Economic Outlook (database).

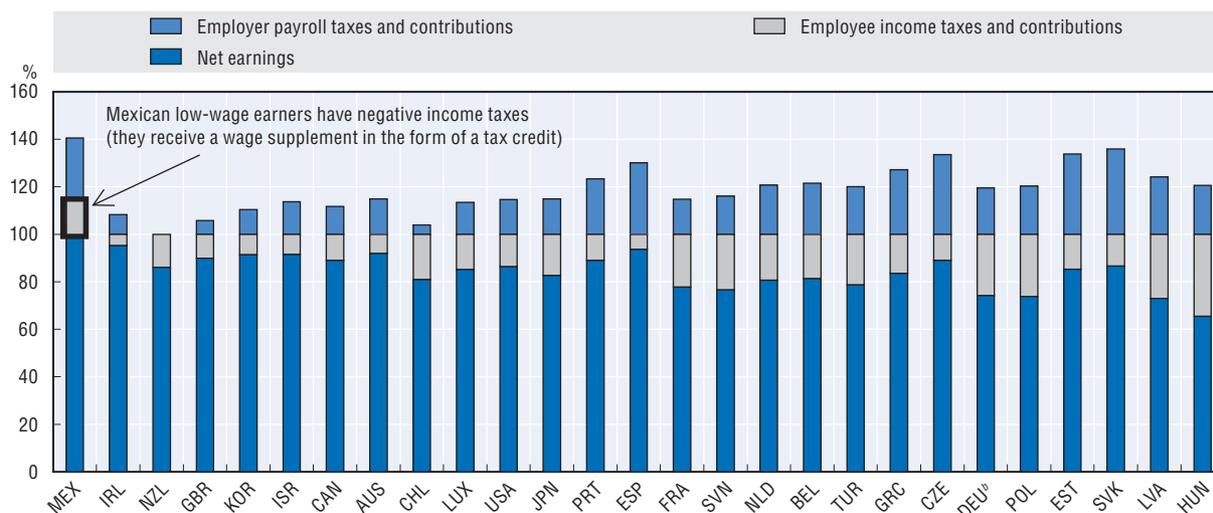
Source: OECD Minimum Wages Database (<http://dx.doi.org/10.1787/data-00313-en>) for OECD countries and Latvia; Broecke, S., A. Forti and M. Vandeweyer (forthcoming), "The Effects of Minimum Wages on Employment in Emerging Economies: A Literature Review", OECD Social, Employment and Migration Working Papers, for emerging economies; OECD (2015), *Accession Review of Colombia*, OECD Publishing, Paris, for Colombia.

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Tax and benefit provisions significantly alter the take-home pay of minimum-wage workers and employers' costs of employing them

While the minimum-wage levels shown in Figure 1.12 are commonly referred to in the policy debate, they neither give an accurate picture of workers' take-home pay after taxes and related mandatory wage deductions, nor of the costs of employing minimum-wage workers (the "minimum labour cost"). This is because tax and benefit provisions can drive a significant wedge between the minimum wage, on the one hand, and take-home pay and minimum labour costs, on the other. On average across the OECD, the total burden from income taxes and social contributions (the so-called "tax wedge") for minimum-wage workers amounts to one third of gross earnings (with approximately equal shares paid by employer and employee) – but this burden can be as high as 50% in some countries (Figure 1.12). Where tax burdens on minimum wages are highest (as in Hungary, Latvia, the Slovak Republic, Estonia and Poland), the stance of tax policy may be just as important a driver of net wages and labour costs as headline minimum wage levels.

Figure 1.12. **Employer and employee taxes on minimum wage earners, 2013**
Percentage of gross earnings^a



Note: countries are ranked in ascending order of the tax wedge.

a) Tax burdens are calculated for a full-time worker in a single-person household earning a minimum wage at the standard (adult) rate. Full-time refers to usual full-time hours in each country. Employer and employee social contributions also include any mandatory payments to private insurance for health, retirement pensions, etc.

b) Minimum wage levels refer to 2015 for Germany.

Source: OECD (2015), "Minimum Wages After the Crisis: Making them Pay", <http://www.oecd.org/social/Focus-on-Minimum-Wages-after-the-crisis-2015.pdf>.

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To lower employers' costs or to reduce the risk of employment losses following minimum-wage hikes, some countries have introduced sizeable payroll-tax rebates for firms employing minimum-wage workers. Where tax concessions for low-wage employees are in place, the ratio of minimum-to-median labour costs will be lower than the minimum-to-median wage ratios shown in Figure 1.11. A notable example is France, where employers of median-wage earners pay the highest social levies in the OECD, but a sizable reduction around the minimum wage reduces these non-wage labour costs to well below the OECD average for minimum-wage workers.¹¹ Hungary, the Netherlands and Belgium – three other countries with relatively high social levies or payroll taxes – also provide

targeted reductions for minimum-wage earners, as does the United Kingdom. By contrast, social levies or payroll-tax burdens for minimum-wage workers in the United States and, more strikingly, in Mexico are higher than for median-wage earners.¹² There are no mandatory social contributions in New Zealand.

Similarly, some countries use special tax concessions or “in-work benefits” to directly support the take-home pay of low-wage earners. For instance, income taxes are negative for Mexican low-wage earners (they receive a wage supplement in the form of a tax credit, Figure 1.12). Generous in-work benefits or reductions in social contributions for all or most low-wage earners are also in place in Belgium and the United Kingdom, for example, while several others rely on progressive income taxes to keep tax burdens of low-wage earners well below those applicable to median or higher wages.¹³

Coverage and compliance vary across countries

Minimum wage laws do not always cover the entire workforce. Self-employed workers are outside the scope of minimum wage provisions altogether, including the dependent self-employed who, similar to the situation of employees, work mainly or exclusively for one client firm with little autonomy, but whose contracts are not protected by the same safeguards and regulations. These groups vary in size across countries. Most countries also exclude certain other groups of employees from minimum wage provisions (Table 1.2).

Enforcement problems can also lead to workers being (illegally) paid below the minimum. Non-compliance is of particular concern in some emerging economies, where legal systems are weak and informality is widespread: compliance has been estimated to be lowest in Indonesia (49%), Turkey (50%) and South Africa (53%); and highest in Chile (85%), Mexico (91%), the Russian Federation (around 95%) and China (above 97%) (Broecke et al., forthcoming).¹⁴ While there are many reasons for non-compliance, high minimum-wage levels and complex legal provisions (i.e. complicated coverage rules or a large number of wage floors for different types of workers) are key explanatory factors (Rani et al., 2013).

The share of workers affected by the minimum wage therefore depends not only on the level at which it is set, but also on the degree of coverage and non-compliance, as well as on other wage-setting institutions. While comparable figures are not straightforward to obtain, Figure 1.13 shows that, on average across the countries with available data, 5.5% of workers earn at or below the minimum wage, but with considerable variation between them. For example, Japan and Korea, despite having similar minimum-to-median wage ratios, differ markedly in terms of the proportion of workers earning at or below the minimum wage. In Belgium, despite the fact that minimum-wage levels are relatively high, very few employees are actually paid the minimum, in part because of widespread use of collective agreements setting even higher wage floors. The effects of minimum wages on poverty or employment depend both on their levels, and on the shares of workers who are paid at or close to the minimum wage.

Most countries set more than one legal wage floor

In setting minimum wages, there is often a trade-off to be made between achieving simplicity and allowing minimum wages to vary by region (to reflect differences in economic conditions) and/or sub-group (to reflect differences in productivity). Around half of OECD countries with a statutory minimum set lower rates for youth (Table 1.2, Columns 3 and 4). Sub-minima for youth can be justified on the grounds that labour market entrants typically have lower productivity than workers with some work experience. Setting minima for

Table 1.2. **Statutory minimum wage systems in OECD, key partner and accession countries**

Country and year of introduction	Type of determination	Exemptions/variations		Uprating procedure/indexation
		Youth	Others	
Australia (1907, 1997 in current form)	The Fair Work Commission's Minimum Wage Panel decides the national minimum wage after consultation with industry, unions, individuals as well as the state and federal governments. The Wage Panel consists of 7 people: 4 are from FWC, the other 3 are experts from business, unions and academia.	15: 36% 16: 47% 17: 57% 18: 68% 19: 82% 20: 97%	There are currently three categories of minimum wage: 1) modern award minimum wages, which are occupation- and industry-specific; 2) the national minimum wage, which is used as a "safety net" and is of general application to all industries and occupations; 3) special national minimum wages, which apply to specified categories of vulnerable workers, like junior employees, trainees and employees with a disability.	Annual review by the Fair Work Commission.
Belgium (1975)	Minimum wages are determined by the National Labour Council, and laid down in collective agreements which are binding.	n/a	n/a	Automatic indexation (CPI) and periodic review by social partners (collective bargaining).
Canada (women, 1918-30; men, 1930s-1950s)	Minimum wages are set at the regional level by the provincial and territorial governments. In some provinces, there are labour boards that make recommendations for minimum wages. In others, these boards have the power to establish the minimum wage with approval from the Lieutenant-Governor in Council. In all cases, the government has the final say.	n/a	Varies by region (province and territory), by industry in certain provinces (e.g. Ontario, Québec) and by occupation (e.g. some occupations for which workers receive tips, like bartenders and waitresses).	Minimum wages are adjusted on an ad hoc basis by provincial and territorial governments. In one jurisdiction, annual increases in the minimum wage are pegged to the Consumer Price Index. A few provinces are bound by statute to review the minimum wage standard every year or two, but none is required to change it.
Chile (1934, 1973 in current form)	The minimum wage is government legislated, based on the recommendations by a Technical Committee formed by labour representatives, academics and governmental representatives.	15 – 17: 74%	Varies by age. Lower rates for older workers (>65): 75%.	No rule, but usually every year taking into account expected inflation for next 12 months, productivity and a cyclical adjustment factor depending upon conditions of unemployment.
Czech Republic (1991)	Set by the government following consultation of the social partners.	n/a	Varies by disability. Lower rates for people with disabilities (employees receiving invalidity pensions).	No rule, but usually once a year based on wage indexation and consumer price indexation.
Estonia (1991)	Set by the government following agreement between social partners.	n/a	n/a	No rule, but usually every year based on mean gross wages and the predicted rise of consumer prices and wages.
France (1950; 1970 in current form)	Consultation process. The Commission nationale de la négociation collective (CNNC) made up of government representatives, trade unions and employer organisations gathers annually to submit an opinion on determining the minimum wage. There is also a commission of independent experts with the remit to provide official advice to the government and to the Higher Commission for Collective Agreements.	<17: 80% 17-18: 90% + lower rates for young people employed in a training contract (Contrat de professionnalisation).	Lower rates for childcare assistants (assistants maternels), certain carers (assistants familiaux), apprentices and disabled workers.	The SMIC increases automatically on January 1st every year depending on inflation + half of the average salary of workers for the past year. An automatic increase occurs if inflation gets above 2% in the middle of the year. In addition, the government may decide to implement discretionary increases.
Germany (2015)	From January 2017 it will be set by a Commission composed of a president, three employer representatives, three employee representatives, as well as two experts (with no voting rights).	<18: no minimum wage	Exemptions for some branches allowed until 2017. Long-term unemployed exempted during the first six months of employment.	Every two years, the minimum wage commission will discuss the adjustment, with the previous two years' collective bargaining rates acting as a benchmark.

Table 1.2. **Statutory minimum wage systems in OECD, key partner and accession countries** (cont.)

Country and year of introduction	Type of determination	Exemptions/variations		Uprating procedure/indexation
		Youth	Others	
Greece (1953; 2012 in current form)	Set by government.	<25: 89%	Varies by occupation (higher rates for white collar workers).	The minimum wage is fixed until 2017. From 2017 onwards growth prospects, employment and unemployment trends will be considered when setting minimum wages.
Hungary (1977; 1991 in current form)	Set by the government following consensus between the social partners.	n/a	There are two types of minimum wage in Hungary – the Guaranteed Minimum Wage (for professional workers in professional occupations) and the National Level Minimum Wage.	Annual, based on (expected) level of wages and incomes in the country.
Ireland (2000)	Set by the government following agreement of social partners or recommendation from the Labour court.	<18: 70%	n/a	No rule – upon “national economic agreement”. Revision to take into account changes in the economic situation and exchange rates.
Israel (1987)	Government legislated.	16: 70% 17: 75% 18: 83%	n/a	Annual, in accordance with the rate of a cost-of-living allowance, a price increase compensation or a collectively agreed wage addition.
Japan (1959; 1968 in current form)	Set by government based on the opinion of the Central or Prefectural Minimum Wages Council for each region, which is composed of an equal number of members representing respectively workers, employers and the public interest (academic experts).	n/a	There are two different categories of minimum wages: 1) regional minimum wages, which are to be decided across the board for each region nationwide; and 2) special minimum wages, which may be set for specified businesses or occupations on the application of interested parties.	Annual, taking into account cost of living, comparable workers' wages and employers' capacity to pay.
Korea (1988; 1990 in current form)	The government sets the minimum wage, following a proposal by the tripartite Minimum Wage Council (representing workers, employers and the public interest).	n/a	Lower rate for apprentices who have been in the apprenticeship for less than 3 months: 90%.	Annual.
Luxembourg (1944; 1973 in current form)	Government legislated.	15-16: 75% 17: 80%	Varies by skill level (20% higher for those with a professional qualification).	The minimum wage rate is indexed to the consumer price index.
Mexico (1917; 1962 in current form)	Minimum wages are fixed by the National Commission on Minimum Wages, which is a tripartite institution made up of representatives from the government, employers and workers.	n/a	Varies by region and occupation. There are three different general minimum wages (that vary by region) and 86 different occupational minimum wages fixed by the National Commission on Minimum Wages.	Annual, taking into account the budget that a family may require to cover material needs, variations in the cost of living per family, the conditions of the labour market and wage levels, the country's overall economic situation, the conditions of life and work, and inflation.
Netherlands (1968)	Government legislated.	15: 30% 16: 34% 17: 39% 18: 45% 19: 52% 20: 61% 21: 72% 22: 85%	May vary by sector/firm. The government may decide to decrease the minimum wage for a certain enterprise or sector, in cases of severe adverse economic development.	Annual, based on the weighted development of collectively agreed wages in the private and public sector.
New Zealand (1945; 1983 in current form)	Government legislated.	<20: 80% For some workers with less than 6 months job tenure	Varies by contract type (apprentices) and disability.	Annual.
Poland (1990)	The level of minimum wage is adjusted (yearly) by the so-called Tripartite Commission for Socio-Economic issues.	n/a	n/a	Annual, based on government forecasts of inflation and following consultation with social partners.

Table 1.2. **Statutory minimum wage systems in OECD, key partner and accession countries** (cont.)

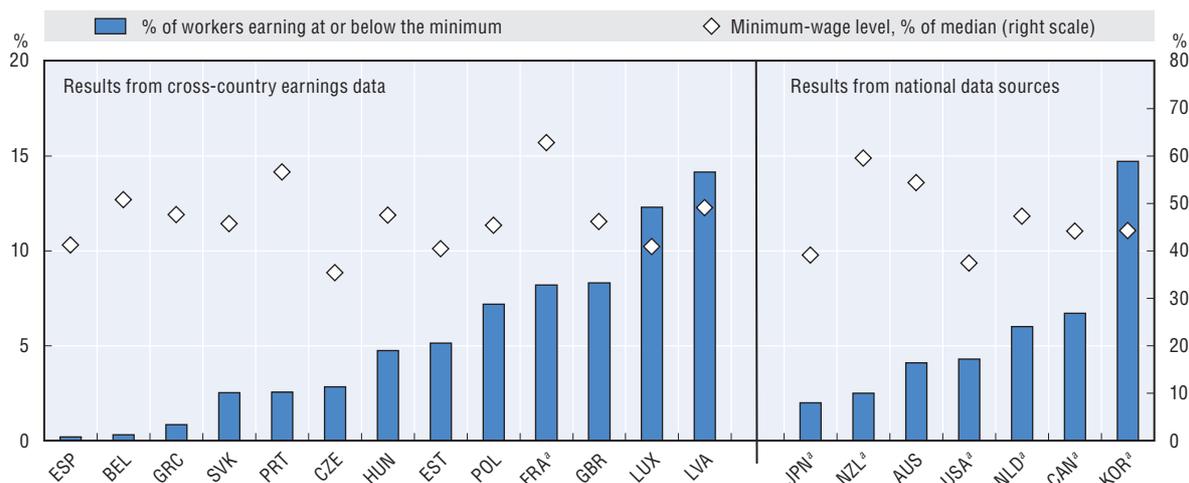
Country and year of introduction	Type of determination	Exemptions/variations		Uprating procedure/indexation
		Youth	Others	
Portugal (1974)	Set by the government, after consulting the Permanent Committee for Social Dialogue.	<18: 75%	Varies by region and contract type. Higher minimum wages for the Autonomous Region of Açores and for the Autonomous Region of Madeira. Lower rates (up to -20%) for apprentices and interns, as well as disabled employees for a period that cannot exceed 1 year.	Annual following consultation with social partners.
Slovak Republic (1991)	Set by the government following consultation of social partners.	<18: 80% 18-21: 90%	The legislation determines one statutory level of the minimum wage, which is multiplied by coefficients depending on the difficulty of position. Lower rates are applied for employees receiving a disability pension.	Annual.
Slovenia (1995)	Set by the government following consultation of social partners (Economic and Social Council).	n/a	n/a	Annual, taking into account inflation and (occasionally) other indicators (economic situation, economic growth, employment trends).
Spain (1963; 1976 in current form)	Set by the government following consultation of social partners.	n/a	n/a	Annual, based on forecast of inflation and after consultation with the social partners. It can be revised half-yearly if the consumer price index exceeds the forecast of the inflation rate.
Turkey (1969 for some provinces, 1974 for the whole country)	Set by the Minimum Wage Fixing Committee consisting of government, employee and employers' representatives.	n/a	n/a	At least every two years, but in practice adjustments are bi-annual.
United Kingdom (1999)	Set by the government following recommendations of the Low Pay Commission.	15-17: 59% 18-20: 80%	Varies by training contract. Lower rates for employees in recognised apprenticeship schemes.	Annual, following recommendations of the Low Pay Commission.
United States (1938)	Government legislated.	<20: 58% during their first 90 consecutive calendar days of employment with an employer.	Varies by region, disability, as well as student status. Most states have either the same or a higher rate than the federal rate. 5 states have no MW and 2 states have a lower MW and workers are entitled to the Federal rate). Partial exemptions for workers with disabilities, full-time students, and student-learners employed pursuant to sub-minimum wage certificates.	No rule at the federal level, but in several states the state minimum wage is indexed to rise in line with the cost of living.
Brazil (1984)	Government legislated.	n/a	State wage floors can be set above the national minimum wage. State wage floors also vary by occupation.	Annual adjustment, indexed to nominal GDP (real GDP + inflation).
China (1994, considerably revised in 2004)	Set by provincial, autonomous-regions and municipal governments, in consultation with the labour union and the league of enterprises (employers association).	n/a	Varies by region.	At least once every two years.

Table 1.2. **Statutory minimum wage systems in OECD, key partner and accession countries** (cont.)

Country and year of introduction	Type of determination	Exemptions/variatio		Uprating procedure/indexation
		Youth	Others	
Colombia (1955, unified in 1984)	Set by the Permanent Commission on the Harmonisation of Wage and Labour Policies through an Executive Decree. If the Commission cannot reach a consensus by the end of the year, the government fixes the minimum wage.	n/a	n/a	Annual, based on cost of living of each region, the contribution of wages to GDP, national productivity, the economic capacity of employers and inflation.
Costa Rica (1943)	A tripartite body (the National Wage Council) fixes minimum wages through executive decrees. The National Wage Council's proposal is sent to the Ministry of Labour for comments, but the final decision is made by the Council.	13-18: 1) 50% during the first year of employment; 2) 75% during the second year of employment; 3) 100% during the third year of employment.	Varies by sector, occupation and skill level.	Annual. In addition, minimum wages can be revised at any time during the year at the request of 5 employers or 15 workers in the same occupation.
India (1948)	Regional Committees consisting of an equal number of representatives of employers, employees and independent persons hold inquiries and advise the government regarding fixation and revision of minimum wages. Regional minimum wages are complemented by a non-binding national wage floor.	n/a	Varies by region, sector, occupation and skill level.	Regional minimum wages must be revised at intervals not exceeding five years, either following the advice of specific committees or by a government proposal discussed during at least two months with relevant committees and stakeholders. The level of the minimum wage should ensure the minimum human needs of an industrial worker. The national wage floor is revised at irregular intervals. It is determined based on changes in the Consumer Price Index.
Latvia (1991)	Set by the government following recommendations of social partners.	Higher hourly rates for <18 (114%)	Special hourly rates for youth and for those working under risky or dangerous circumstances who are allowed to work only 35 hours per week to reach the same weekly rate as normal workers.	Annual, following recommendations of social partners taking into account national economic trends.
Lithuania (1990)	The Tripartite Council of the Republic of Lithuania makes recommendations to the government on minimum wage rates. The government determines minimum wage levels in accordance with these recommendations.	n/a	Although the legislation specifies that specific wage rates may be set for different regions, sectors and categories of employees, only a uniform statutory minimum wage or national minimum wage is currently valid all over the country.	Annual. Collective agreements may stipulate minimum rates of pay, but only if they are higher than those set by the government.
Russian Federation (1976)	Government legislated (federal minimum wage); bargaining (regional).	n/a	Regional variation.	No rule. Indexation has been held on a discretionary basis with no regularity in the recommendations of the government.
South Africa (1999)	Government legislated (vulnerable sectors); bargaining (other sectors).	n/a	Varies by sector, occupation, region, experience, firm size and weekly hours worked.	No rule. Based on poverty rate, cost of living, wage differentials, inequality, the likely impact of the minimum wage on employment, the capacity of employers to pay, the possible impact on the operation of small-, medium- or microenterprises and new enterprises, and the possible impact on the health, safety and welfare of the employees.

Note: n/a = not applicable.

Source: OECD Minimum Wage Database, Eurostat, Wage Indicator Foundation; and ILO, Travail Legal Database.

Figure 1.13. **Proportion of workers earning at or below the minimum wage, 2010 (or as stated)**

Note: The number of minimum-wage earners cannot usually be established with certainty and can vary between data sources and studies. Counts of minimum-wage earners are commonly based on survey data, which are affected by measurement error, both in earnings and in working hours. It is therefore common to include those with wages below the minimum, or slightly above it. Data sources and approaches differ however. Results reported in the “cross-country” group are from the EU Structure of Earnings Survey (SES) and refer to those earning less than 105% of the legal minimum applicable to each worker’s age group. Importantly, SES data exclude workers in small firms with fewer than ten employees. As minimum-wage workers tend to be overrepresented in small firms, their share can be substantially higher than reported. “Country-specific” results are from a range of sources and generally include those employed in smaller firms but may not include workers earning less than the legal minimum (see OECD, 2015c for further details on data sources).

a) 2013.

Source: OECD (2015), “Minimum Wages After the Crisis: Making them Pay”, <http://www.oecd.org/social/Focus-on-Minimum-Wages-after-the-crisis-2015.pdf>.

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youth that are more in line with their initial productivity can then ease the school-to-work transition.¹⁵ Indeed, as discussed below, negative employment effects of minimum-wage increases, when they are observed, tend to be concentrated among (low-skilled) youth. Regional differentiation is very common in emerging economies, but only exists in a few OECD countries (Canada, Japan, Mexico and the United States). Such regional differentiation can be useful in large countries with significant regional differences in wages and economic conditions. A few countries also differentiate the minimum by sector/occupation (e.g. Japan and Mexico), and rates are sometimes lower for workers on training/apprenticeship contracts as well as for workers with disabilities.¹⁶

Approaches to setting and revising the minimum wage differ

The process of setting the minimum wage varies across countries. Boeri (2012) identified three main approaches to setting minimum wages: i) government-legislated (e.g. the Netherlands, the United States and the Russian Federation); ii) set by government following a formal (but non-binding) consultation process with the social partners (the majority of OECD countries, including France, Japan, Portugal, Spain and the United Kingdom); or iii) the outcome of a bargaining process between social partners, with or without the involvement of government (e.g. Belgium, Greece and Mexico) (see Table 1.2, Column 2). In some countries (e.g. Australia), the minimum wage is set by an independent body.

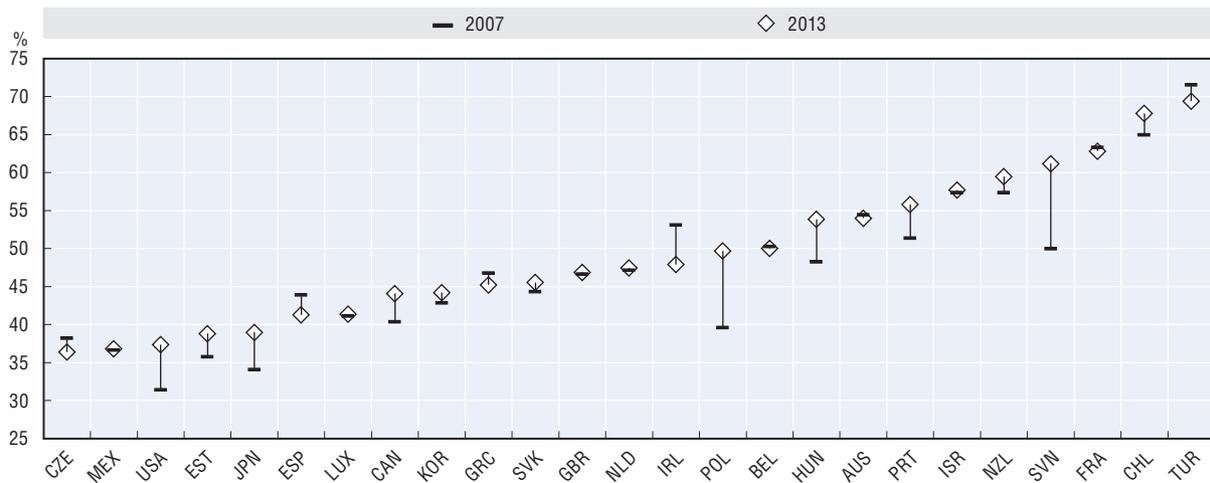
Table 1.2 (Column 5) shows that countries also differ in how frequently minimum wages are revised, whether these revisions are regulated by law, and in the factors that are considered when adjustments are made. Most OECD countries review and adjust minimum

wages every year (or almost every year). Not revising the minimum wage regularly can result in a significant erosion of its (real) value. This occurred in the United States, for example, where the federal minimum was unchanged between September 1997 and July 2007, while average wages rose by 80%.¹⁷ Irregular revisions may also heighten the risk of the minimum wage being adjusted for political reasons, with insufficient consideration of current and future labour market conditions. However, while regular revisions are advisable, these should not be done mechanically (e.g. by linking them to average wage growth) as this fails to account for the specific labour market situation of the intended beneficiaries. Independent expert commissions, which exist in different forms in several OECD countries (including Australia, France, the United Kingdom and several US states) are well placed to consider a wide range of economic and social factors. Public consultations and a requirement to publish recommendations promote minimum-wage adjustments that are transparent and predictable for both businesses and workers.

Minimum wages have evolved differently during and after the crisis

There have been important differences between countries in how the value of minimum wage has changed over the crisis and recovery period (Figure 1.14). The ratio between the minimum and the median wage has increased substantially between 2007 and 2013 in some countries. These increases have been largest in Poland (+25%), Slovenia (+22%), the United States (+19%), Japan (+14%) and Hungary (+12%). By contrast, the minimum-to-median ratio has fallen in some countries: Ireland (-10%), Spain (-6%), the Czech Republic (-5%), Greece and Turkey (both -3%). In most cases, this was achieved by freezing the nominal value of the minimum, or by keeping adjustments below inflation.¹⁸ In Ireland, for example, the nominal value of the minimum wage stayed constant from 2008 to 2013 – apart from a brief reduction in 2011.¹⁹ In Greece, however, the value of the minimum wage saw a 22% cut of its nominal value between 2011 and 2012.²⁰

Figure 1.14. Minimum wage levels pre- and post-crisis, OECD
Minimum wages as a percentage of median wages of full-time employees (in gross terms)



Note: Countries are ranked in ascending order of the MW/Median ratio in 2013. For France and Germany, see notes to Figure 1.12.

Source: OECD Minimum Wages Database, <http://dx.doi.org/10.1787/data-00313-en>.

StatLink  <http://dx.doi.org/10.1787/888933239613>

Minimum-wage debates should account for their broader objectives and for interactions with other policies

Minimum wages are the most direct policy lever governments have for influencing wage levels. Nevertheless, ever since they were first introduced, concerns have been voiced around: i) their possible negative impact on employment; and ii) whether they are an effective tool for addressing poverty.

Minimum wages and employment

A long-standing disagreement exists amongst economists around the impact of minimum wages on employment. Prior to the mid-1990s, most economists believed that minimum wages, because they artificially introduce a wage floor, would lead to job losses. However, since the work of Card and Krueger (1994), which found no negative employment effect of a minimum wage increase in New Jersey (United States), a growing number of economists have started to question the negative employment effects of increases in the minimum wage. When assessing the employment effects of minimum wages, it is important to stress first that the potential employment effect may well depend on the level and expected increase (i.e. how binding the minimum wage is and will be), and that the impact may not necessarily manifest itself in the form of existing workers being laid off, but can also take the form of slower hiring and employment growth (Gunderson, 2007).

While there are theoretical explanations for finding no (or even positive) effects of minimum wage increases on employment, such as firms having some monopsony power in setting wages or the cost of minimum wage increases only being modest as compared to other cost increases that business owners routinely face, the question is, ultimately, an empirical one. The empirical debate remains far from settled. The recent contributions in the United States by Dube et al. (2010), Allegretto et al. (2011), Allegretto et al. (2013), on the one hand, and Neumark et al. (2014), on the other, bear testimony to this fact.

A number of studies have attempted to summarise the findings using meta-analysis techniques. The findings, which are summarised in Table 1.3, show that, overall, the impact of minimum wage increases on employment tends to be small – although effects on more vulnerable groups (like youth) may be slightly larger. On this basis, moderate increases in minimum wages are unlikely to have significant negative employment effects overall and have somewhat more adverse effects on more vulnerable groups. However, this conclusion is conditional on the minimum wage having been set at reasonable level in the first place, as even in a monopsony model, setting a high minimum wage will result in negative employment effects. What is less clear is where this tipping point may be in each country. While on average across the OECD minimum wages are set at around 50% of the median wage, what defines a “reasonable” level of the minimum wage will inevitably be country-specific, and depend on the interactions of the minimum wage with other policies, as well as on the coverage of minimum-wage legislation, compliance, and macro-economic and labour market conditions.²¹

One reason why increases in the minimum wage may not have a discernible effect on overall employment is that employment changes are not the only adjustment channel for employers.²² Indeed, in response to minimum wage increases, employers may cut down on training and/or other overhead costs, as well as on non-wage benefits, rather than cut employment. Alternatively, they could reduce working hours or hire some workers on more precarious (and cheaper) contracts. Finally, employers may accept lower profits, increase

Table 1.3. **The effect of minimum wages on employment: What meta-analyses show**

Study	Number of studies covered	Country coverage	Impact on employment	Impact on youth employment
Doucoulagos and Stanley (2008)	64	United States	Little or no impact	Negative, but small
Boockmann (2010)	55	15 industrial countries	Negative, but varies across countries	
Nataraj et al. (2014)	17	15 low-income countries	Ambiguous	
Leonard, Stanley and Doucoulagos (2014)	16	United Kingdom	No impact	
Belman and Wolfson (2014)	23	Mostly United States	Small negative impact	
Chletsos and Giotis (2015)	77	18 developed and developing countries	No impact	More negative, but not always significant
Broecke, Forti and Vandeweyer (forthcoming)	74	Ten major emerging economies	Little or no impact	More negative, but still very small

StatLink  <http://dx.doi.org/10.1787/888933240155>

prices or take measures to increase efficiency/productivity. In some cases, employers may consider such channels of adjustment preferable if they want to avoid the potential negative effects that reductions in staffing might have on workforce morale and business operations. Compared to employment changes, alternative adjustment channels have been studied less, however, and the evidence is frequently inconclusive. On hours worked, for example, Neumark and Wascher's (2008) review of the evidence concluded that the question of how employers adjust average hours in response to a minimum wage increase is not yet resolved and similar conclusions are reached in relation to training. Even less evidence exists on the relationship between minimum wages and profits. Draca et al. (2011) found that the introduction of the minimum wage in the United Kingdom in 1999 significantly reduced firm profitability, especially in industries with relatively high market power (hence with higher margins). Recent evidence of productivity gains attributable to minimum-wage increases exists for the United Kingdom (Riley and Bondibene, 2015) and the United States (Hirsch et al., 2015).

The effect of minimum wage increases on employment also depends on the measurement period, as well on the timing of the minimum wage increase itself. While most research focuses on the contemporaneous (or short-run) impact of minimum wage increases on employment, longer-term effects can be analysed using longitudinal data on worker histories. Evidence from such research finds that the direction of employment changes is ambiguous (Boeri et al., 2015). The timing of minimum wage increases may also matter. Perhaps unsurprisingly, the negative employment effects of minimum wage increases tend to be stronger during recessions (Boeri et al., 2015). The importance of timing provides an additional argument for regular minimum-wage adjustments, for involving an independent expert commission in the process, and for avoiding situations in which minimum wage increases are strongly linked to political cycles.

Because the impact of minimum wages on employment might be expected to be different in settings where informality is widespread and the rule of law is weak, Box 1.2 provides further detail on the effect of minimum wages in emerging economies. It shows that, overall, minimum wage increases have been found to have very little, or no, effect on employment in emerging economies, and that the evidence around the impact of minimum wage increases on informality remains inconclusive.

Box 1.2. Minimum-wage increases and employment in emerging economies

While the effect of minimum wages on employment has been heavily researched in the developed world, much less is known about their impact in emerging economies. Yet, there are important reasons to believe that the impact of minimum wages might be different in such settings. On the one hand, larger effects might be expected due to the fact that minimum wages in emerging economies are often set at a very high level (Herr and Kazandziska, 2011; World Bank, 2008) or because a greater proportion of the workforce is unskilled and earning at or near the minimum wage (Cunningham, 2007). In addition, and particularly in Latin American and Caribbean (LAC) countries, minimum wages frequently have an impact higher up the income distribution because they have tended to be used as an index for wage adjustments more generally, with wages and benefits expressed in multiples of the minimum wage (Maloney and Mendez, 2004).

However, there are also reasons to expect that minimum wages have little impact on employment in emerging economies. One reason is that, in environments characterised by high levels of inflation, it may be very difficult to increase the real value of the minimum wage (Lustig and McLeod, 1997). Another, and possibly more important, reason is that the level of compliance with the minimum wage is frequently low in these countries (Bhorat and Stanwix, 2013). This may be because the minimum wage is either set too high or too low (Saget, 2008; Lee and Sobek, 2012; Rani et al., 2013), the system is too complex (Cunningham, 2007; Rani et al., 2013), there are no legislated fines/punishments for non-compliance, or the minimum wage is simply not enforced, possibly due to a lack of resources (Kristensen and Cunningham, 2006).

One reason why the minimum wage might be difficult to enforce in emerging economies is the existence of a large informal sector. In such contexts, increases in the minimum wage may have no effect on overall employment because a fall in formal sector employment may simply be compensated by a rise in informal sector employment as displaced workers migrate from one sector to the other. This generates a shift in the parameter of interest from the number of jobs that are available to the quality of jobs that people hold. That is, the research (and policy) question may not necessarily be what impact the minimum wage has on employment overall, but rather on the split between formal and informal employment (see Chapter 5 of this publication for an analysis of the nexus between informality and job quality in emerging economies).

That said, the effect of minimum wages in the informal sector may be hard to predict. In some countries, minimum wages are interpreted as a signal of what constitutes a fair wage and are complied with even in the informal sector. Cunningham (2007), for instance, shows that there is a significant spike in wages at or around the minimum wage level in a number of emerging economies, even in the informal sector. Some authors (Gramlich, 1976; Hamermesh, 1996; and Card and Krueger, 1995) have argued that the impact on informal sector wages depends on the price elasticity of demand for formal sector workers and that, under certain circumstances, an increase in formal sector wages could also drive up wages in the informal sector.

A number of papers have found a positive (negative) effect of minimum wages on formality (informality) (e.g. Foguel, 1998 for Brazil; Mora Rodriguez, 2007 for Colombia; Magruder, 2013 for Indonesia; Bhorat et al., 2014 for South Africa), and there are a number of ways in which one might be able to rationalise such a finding. One of these is a labour supply effect, with higher wages in the formal sector increasing the incentives for workers to look for a formal job (Fajnzylber, 2001). Another possibility is that income effects are at play, combined with intra-household substitution effects, so that when the minimum wage increases for household members employed in the formal sector, other household members can afford to reduce their labour supply in the informal sector (Fajnzylber, 2001). A third explanation is similar to the reason why positive employment effects of a minimum wage rise might be found in developed economies: i.e. increases in the minimum wage, through their effects on consumption and aggregate demand, raise the number of (formal) jobs in the economy (Magruder, 2013).

In the absence of a clear steer from the theory, empirical studies are required to identify the impact of minimum wages on employment outcomes in emerging economies. While the number of these studies has been growing rapidly, a systematic review of this evidence has been lacking. Broecke, Forti and Vandeweyer

Box 1.2. Minimum-wage increases and employment in emerging economies (cont.)

(forthcoming) attempt to fill this knowledge gap. Based on both a qualitative and quantitative (meta-analysis) review of the literature for ten key emerging economies (Brazil, Chile, China, Colombia, India, Indonesia, Mexico, the Russian Federation, South Africa and Turkey), the authors find that, overall, minimum wages have very little, or no, effect on overall employment in emerging economies. However, in some countries (e.g. Colombia), where minimum wages are set at a very high level, negative employment effects are more readily detected. While the review finds that more vulnerable groups (e.g. youth, the low-skilled, and low-wage workers) are more adversely affected by increases in the minimum wage, the size of the impact is very small. Similarly, increases in the minimum wage are found to be associated with increases (decreases) in formal (informal) employment, but again the effects are small. This corroborates the qualitative literature review, which finds that the effect of minimum wages on formality is empirically ambiguous.

Source: Broecke, S., A. Forti and M. Vandeweyer (forthcoming), "The Effects of Minimum Wages on Employment in Emerging Economies: A Literature Review", *OECD Social, Employment and Migration Working Papers*.

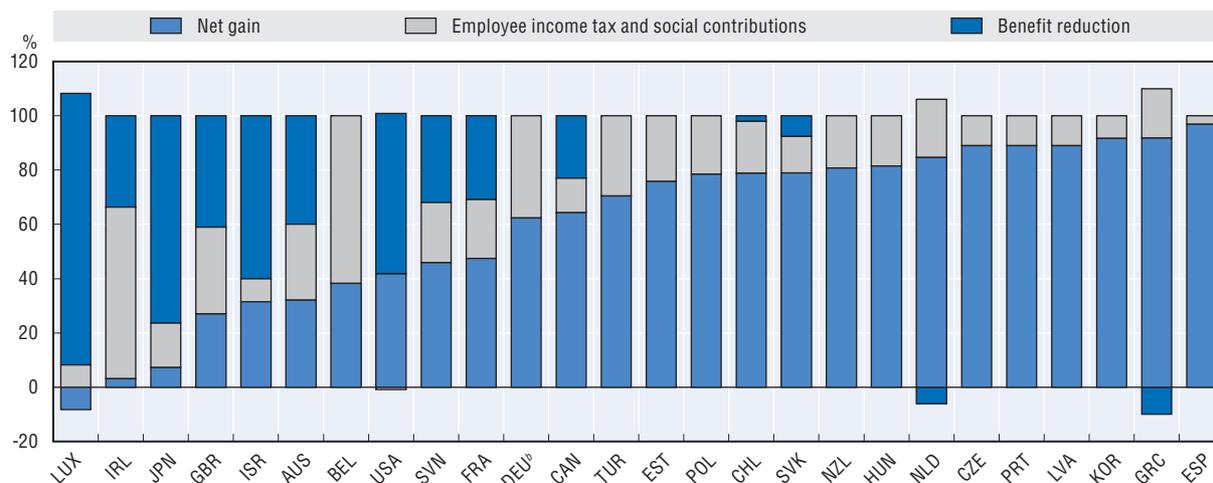
Minimum wages and the wage distribution

Higher minimum wages are associated with lower wage inequality, both within and across countries.²³ When inequality is assessed over the long-run, however, the equalising effects of minimum wages may be reduced by both wage and employment mobility (see Chapter 4 of this *Employment Outlook*). The effect of minimum wages on the wage distribution may also be reduced by so-called ripple/knock-on/spill-over effects – i.e. where increases in the minimum wage result in wage adjustments higher up the wage distribution (e.g., to maintain wage differentials between lower and higher-paid workers, particularly among those earning near the current minimum). In Latin American and Caribbean (LAC) countries, the evidence suggests that ripple effects can be significant (see Box 1.2), but evidence of impacts higher up the wage distribution have also been documented in a number of OECD countries, including France and the United States,²⁴ albeit limited to workers earning relatively close to the minimum wage. On the other hand, there is also the possibility that increases in the minimum wage reduce wage growth at the top of the distribution (because employers cannot afford equivalent increases for higher-paid workers), which would reduce wage inequality further (Hirsch et al., 2015).

Minimum wages and poverty

The focus on employment effects has somewhat eclipsed the key issue of whether minimum wages actually reduce poverty. While there is relatively less research on this topic, there is also comparatively more agreement on the fact that, both in advanced and developing/emerging economies, minimum wages on their own are a relatively blunt instrument for reducing poverty (Card and Krueger, 1995; Neumark and Wascher, 2008).²⁵ The limited impact reflects several factors, including that: i) many poor families have no one working; ii) many minimum wage workers live in households with above average incomes; and iii) in-work poverty is often the result of low working hours, rather than low wages (OECD, 2009). In addition, minimum wage levels may simply be too low to have a significant impact on poverty headcounts (for instance, the results in Figure 1.16 illustrate that family incomes of full-time minimum-wage workers can fall short of commonly used poverty thresholds). Finally, minimum-wage levels may be too high so that disemployment effects may reduce incomes of a number of poor households.

Figure 1.15. **Share of MW increase that is left after taxes and benefit reductions, lone-parent family, 2013^a**



- a) Calculations refer to a 5% minimum-wage increase and a single-adult household with two children. They assume that all tax and benefit provisions remain as they were before the increase, and account for minimum-income and other means-tested benefits that are primarily income related and are typically accessible for low-income families. For Japan, calculations reported in this figure use minimum wages for Tokyo and social assistance rates for Tokyo grade 1-1. Other than family type, further details are as in Figure 1.13.
- b) Minimum wage levels refer to 2015 for Germany.

Source: OECD (2015), "Minimum Wages After the Crisis: Making them Pay", <http://www.oecd.org/social/Focus-on-Minimum-Wages-after-the-crisis-2015.pdf>.

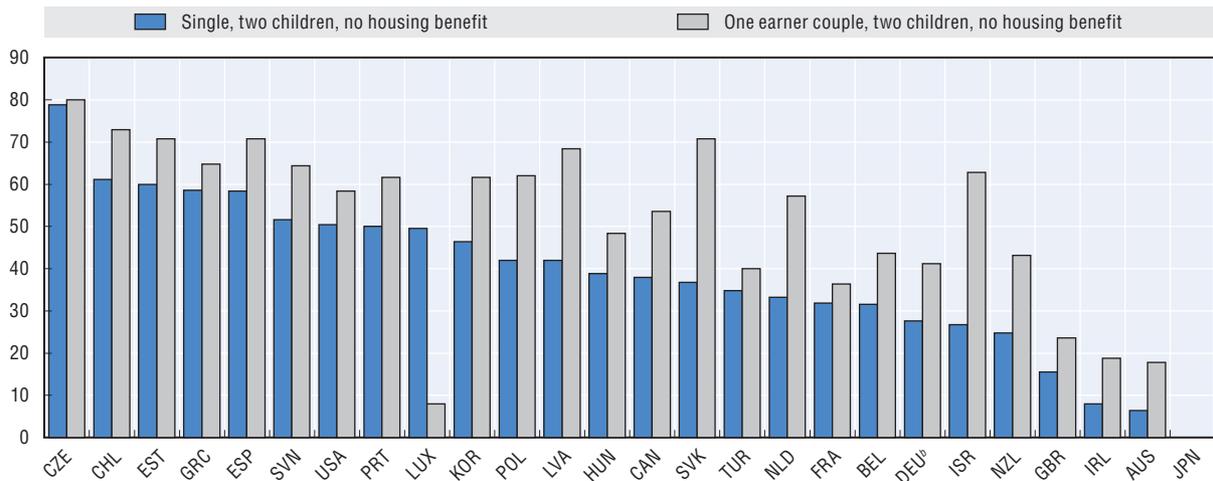
StatLink  <http://dx.doi.org/10.1787/888933239620>

Another issue is that tax and transfer policies can sometimes undermine the efficacy of the minimum wage in raising the living standards of low-wage workers. Unless minimum wage policy is closely co-ordinated with related fiscal and social policies, higher taxes and reduced benefit entitlements can consume large parts of any minimum wage, reducing the part that adds to net incomes of the intended beneficiaries. For example, in Ireland and Japan, without any accompanying measures such as raising means-tested benefits in line with the minimum wage, less than a tenth of a minimum wage increase would end up in the pockets of single-parent minimum wage earners (Figure 1.15). In Luxembourg, a minimum-wage increase could actually make a single parent worse off, as benefit reductions and higher social contributions can outweigh the wage increase.

In some countries with low minimum wages, even working very long hours may not enable families to escape income poverty as conventionally measured. A half-time minimum-wage job in Australia and the United Kingdom can be sufficient for taking a family with two children out of poverty, and out-of-work benefits in Japan provide income close to the poverty threshold even when no-one in a two-parent family works (Figure 1.16). However, in most countries, a single full-time minimum-wage job leaves two-parent families below the poverty line and employment of both parents is needed to ensure that children do not grow up in poverty. In the Czech Republic, Chile, Estonia, Greece and Spain, the working hours required to escape poverty on a minimum wage are unrealistic for lone parents in particular; they would need more generous income support, or wages significantly above the minimum wage to work their way out of poverty.

Complementing minimum wages with in-work benefits or tax credits can be a more effective way of addressing poverty than using minimum wages in isolation. The levels and characteristics of minimum wages therefore have implications for the effectiveness and

Figure 1.16. **Weekly working hours needed at minimum wage to move above a relative poverty line,^a 2013**



a) The poverty line is 50% of median net household income. Net incomes are calculated by subtracting income taxes and mandatory social or private contributions payable by workers, and adding family benefits, as well as minimum-income and other means-tested benefits that are primarily income related and are typically accessible for low-income families. For Japan, calculations reported in this figure use minimum wages for Tokyo and social assistance rates for Tokyo grade 1-1.

b) Minimum wage levels refer to 2015 for Germany.

Source: OECD (2015), "Minimum Wages After the Crisis: Making them Pay", <http://www.oecd.org/social/Focus-on-Minimum-Wages-after-the-crisis-2015.pdf>.

StatLink  <http://dx.doi.org/10.1787/888933239637>

the costs of social protection strategies more broadly. In particular, in-work benefits or tax credits are likely to be better targeted at reducing poverty than minimum wages because they are means-tested and frequently consider full-year incomes. That said, means-tested benefits and tax credits also face drawbacks. Since benefits are withdrawn as incomes go up, they may give rise to poverty traps. For the same reason, they may encourage wage under-reporting. They can also be very expensive for the government and, without a minimum wage in place, they may result in wage reductions for lower-paid workers. Minimum wages and in-work benefits are therefore likely to complement one another. In particular, a minimum wage can improve the targeting of in-work benefits and can help contain their cost by limiting the scope of any wage reductions that they may induce. For instance, one of the stated aims of introducing the UK National Minimum Wage was to ensure that in-work benefits would actually increase incomes of workers (rather than being "pocketed" by employers who might reduce wages by a similar amount). Studies in the United States also suggest that significant parts of any additional spending on the Earned Income Tax Credit would fail to reach low-paid workers, and that supporting the poor through the Earned Income Tax Credit can be more effective when an adequate minimum wage is in place (Rothstein, 2010; Lee and Saez, 2012). There may also be an argument for sharing the costs of redistribution between both the general tax payer (through in-work benefits and tax credits) and employers (through minimum wages), especially when government budgets are under pressure.

Policy makers face a potential dilemma, however. Tax concessions or benefits that are tightly targeted to low-wage earners (and are phased out when wages increase above the minimum), make it less attractive for workers to progress to higher-paid jobs. Weakly targeted benefits, that are available over a wider wage range, avoid these adverse

incentives. But because they are available to large numbers of workers, they can be very expensive for governments – and these costs will rise further when the minimum wage is increased. The difficulties of targeting are most pronounced when very large shares of workers are within or close to the targeted wage range. As a result, in-work benefits or targeted tax concessions generally work best when wage floors are set at moderate levels, when the share of minimum wage earners is relatively low, and when authorities have access to reliable information on wages and working time.

Minimum wages should be judged against a wider range of objectives

While reducing poverty is a key objective of minimum wages, it is not the only one. Minimum wages have also been introduced to serve other policy objectives, including their role as: i) a key labour standard for ensuring fair pay and preventing exploitation; ii) an instrument for making work pay; iii) a tool to boost tax revenue and/or tax enforcement by limiting the scope of wage under-reporting; and iv) an anchor for wage bargaining. In emerging economies, for example, minimum wages pose an additional constraint to reporting behaviour as firms and employees need to choose whether to report no earnings or to report at least minimum wage level earnings to tax authorities, and this could increase compliance (Tonin, 2011). In some countries, where workers' bargaining position is weak, minimum wages provide the only institutional framework available to increase the wage bargaining power of the most vulnerable workers; conversely, intensive use of the minimum wage by governments may reduce the role of collective wage bargaining (Eyraud and Saget, 2005).

Conclusions

Is an increase in the statutory minimum wage, or the introduction of one, an effective policy response to concerns about growing inequality in incomes and earnings and the lack of real wage growth in the recovery from the crisis? The results of the special section on minimum wages in this chapter suggest that minimum wages can have a strong impact on wages at the bottom of the distribution – which is why countries have heavily relied on them throughout the recession and the recovery, either to boost the wages of the (working) poor, or to cut labour costs as a crisis-related measure (depending on what was the most pressing issue). However, minimum wages can only make a limited contribution to tackling wider poverty (both in and out of work) or to increasing job quality, particularly when treated as a stand-alone policy (see Chapter 4). To be more effective, it is essential that minimum wage policy be co-ordinated with tax-benefit policies in order to ensure that increases in the headline value of the minimum wage translate into higher take-home pay while limiting the rise in labour costs for employers. Box 1.3 provides a summary of key policy principles to guide countries in setting their minimum wage policy.

Box 1.3. Minimum wages: Key policy principles

1. Improve coverage of and compliance with minimum wage legislation, especially in countries where collective bargaining is weak or declining.
2. Ensure that minimum wages are revised regularly, based on accurate, up-to-date and impartial information and advice that carefully considers current labour market conditions and the views of social partners.
3. Where necessary, allow minimum wages to vary by group (to reflect differences in productivity or employment barriers) and/or by region (to reflect differences in economic conditions) – bearing in mind that simple minimum wage systems are most likely to achieve high compliance.
4. Make minimum wages pay while avoiding that they price low-skilled workers out of jobs, by carefully considering their interactions with the tax-benefit system.
5. Use minimum wages as a tool to raise wages at the bottom of the wage ladder, but accompany them with other tax and benefit measures to effectively fight poverty in and out of work.

Notes

1. For illustrative purposes, Figure 1.1 displays data only for the euro area, Japan, the United States and the entire OECD. Separate data for all OECD countries are provided in Annex Tables 1.A1.1 and 1.A1.2.
2. The projections discussed here are from OECD (2015a) and reflect information available as of May 2015.
3. Factors other than the labour market impact of the financial and economic crisis could have caused the employment to population ratio to change since 2007 and the jobs gap ideally should be measured after taking account of those factors. However, that refinement is not pursued here.
4. The contrast between a strong increase in the employment rate in Germany and sharp falls in Greece and Spain illustrate how the crisis impact on labour markets varies greatly within the euro area, as well as between the euro area and the rest of the OECD.
5. The United States is an exception in that the majority of the post-crisis fall in the employment rate represents lower participation, rather than higher unemployment. It is unclear how much of the recent fall in the participation rate will reverse as the recovery continues and employment opportunities improve.
6. It is not easy to assess how much the re-employment perspectives of the long-term jobless have deteriorated and hence whether they should be considered as having become structurally unemployed. More aggregate analysis suggests that most of the excess in current unemployment by comparison to the pre-crisis period is cyclical rather than structural, despite the increasing share of unemployed who have been out of work for a year or longer (OECD, 2014a).
7. 65.5% of NEETs are classified as inactive on average for the OECD area (data not shown).
8. The data presented in Figure 1.8 make use of national definitions of part-time employment that vary from country to country. In most cases, national definitions imply a higher incidence of part-time employment than does the internationally harmonised definition of less than 30-usual-hours worked on the main job that is used in the *OECD Labour Force Statistics*. National definitions are used here because they are available with a shorter delay and on a quarterly basis.
9. During the 2008-09 recession, many countries experienced modest increases in part-time employment even as full-time employment was falling sharply. Much of the increase in part-time employment during this period probably reflected formerly full-time workers being put on reduced hours or workers who had lost full-time jobs being compelled to accept part-time jobs, because no full-time jobs were available.
10. In Italy, for example, there is an ongoing discussion around the possible introduction of a statutory national minimum wage and the Parliament in the so-called “Jobs Act” has mandated the

Government to introduce a hourly minimum wage in those sectors not covered by collective agreements following a consultation with the social partners.

11. Since 2013, the *Crédit d'impôt pour la compétitivité et l'emploi* (CICE) significantly reduced labour costs at the minimum wage level.
12. In the United States, the wage base for employers' contributions to unemployment insurance is capped and is therefore a higher share of gross earnings for low-wage earners. In Mexico, a large part of employers' contributions to sickness and maternity provisions is the same absolute amount at all wage levels and, hence, a higher share of gross earnings for minimum-wage workers.
13. Other countries also provide sizable in-work benefits, but some of them are limited to certain family situations or are much lower for some low-wage earners. For instance, the Earned Income Tax Credit in the United States is worth about ten times more for families with children than for childless medium-wage earners. See www.oecd.org/els/benefits-and-wages-policies.htm for country-by-country summaries.
14. These estimates are based on various sources, but generally reflect the share of covered workers earning less than the legal minimum wage.
15. Minimum wages may also affect schooling decisions, and therefore human capital accumulation and long-run productivity and growth outcomes. Young people face a choice to either study or work. Increases in the minimum wage may raise the benefit of work and, therefore, lead young people to drop out of school. This strengthens the argument for a sub-minimum wage for youth, in the sense that it reduces the attractiveness of work and therefore encourages further human capital accumulation.
16. In all calculations in this chapter, the standard adult rate is used.
17. Much of the reduction in the minimum wage relative to the average wage was reversed by the Fair Minimum Wage Act of 2007, which raised the Federal minimum in several steps. Since the last of those steps was implemented in July 2009, the relative value of the minimum wage has decreased again.
18. There is also a compositional effect at play. As job losses during the crisis were concentrated among the workers with the lowest pay, median wages rose mechanically, thereby eroding the value of minimum wages relative to the median. Such compositional effects were at play in Spain, for example.
19. In Ireland, there was a very short-lived cut in the nominal value of the minimum wage in 2011. The minimum wage was officially reduced to EUR 7.65 effective February 2011. The reduction was reversed in July 2011 and the minimum wage was restored to EUR 8.65.
20. The minimum wage for employees aged above 25 was cut by 22% between July 2011 and March 2012, while the minimum wage for those aged below 25 was lowered by 32%.
21. The conclusions reached here are therefore very much in line with those reached from a similar assessment carried out in the 1998 *OECD Employment Outlook* (OECD, 1998). This does not mean, however, that the relationship between minimum wages and employment can necessarily be taken to be stable. Indeed, given the significant changes in both labour and product market regulations in OECD countries in recent years, one may expect the effect of minimum wages on employment outcomes to have changed. Continued monitoring of this relationship is therefore recommended.
22. Another possible reason why minimum wages may not negatively affect employment (or, on the contrary, increase overall employment) is because of their effect on aggregate demand. Because low-income households have a higher propensity to consume, the minimum wage would increase consumption, which in turn would lead firms to produce more and, therefore, create more jobs. In recent years, this argument has commonly been advanced in the context of certain emerging economies (e.g. Brazil and Indonesia). However, a counter-argument to this is that, eventually, increases in the minimum wage will only translate into higher prices, with no overall impact on GDP.
23. In the United States, for example, a significant number of research papers have associated the rise in wage inequality to a fall in the real value of the minimum wage (e.g. DiNardo et al., 1996; Lee, 1999; Autor et al., 2015). DiNardo and Lemieux (1997) found that differences in wage inequality between the United States and Canada could be explained in part by differences in minimum wage values and Machin (1997) argued that declining Wages Council minimum wages in the United Kingdom between 1979 and 1992 played an important part in the rise in wage inequality over that period. Finally, Koeniger et al. (2007) look at wage inequality across 11 OECD countries and find that minimum wages tend to compress the wage distribution.
24. Evidence of ripple effects have been found in both France (Koubi and L'Hommeau, 2007) and in the United States (Card and Krueger, 1995; Lee, 1999; Neumark et al., 2004; Autor et al., 2015) though

not in the United Kingdom (Dickens and Manning, 2004; Stewart, 2012). More recent evidence for France also finds more modest ripple effects (Goarant and Muller, 2011).

25. Although a more recent paper has revived this debate somewhat by claiming that, under certain conditions, when labour demand is growing during expansions of the business cycle and minimum wage-induced employment effects are small, minimum wage increases can reduce poverty (Dube, 2013).

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ANNEX 1.A1

Country-level data from OECD economic projections

Table 1.A1.1. Recent and projected macroeconomic developments

	A. Real GDP growth										B. Employment growth									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
OECD	2.7	0.3	-3.4	3.0	1.9	1.3	1.4	1.8	1.9	2.5	1.5	0.6	-1.8	0.3	1.0	1.0	0.7	1.3	1.3	1.0
Euro area^a	3.0	0.4	-4.5	2.0	1.7	-0.8	-0.3	0.9	1.4	2.1	2.0	0.9	-1.9	-0.5	0.2	-0.6	-0.6	0.6	0.9	1.1
Australia	4.5	2.5	1.6	2.3	2.6	3.7	2.0	2.7	2.3	2.9	3.1	2.8	0.7	2.0	1.7	1.2	1.0	0.9	1.5	1.5
Austria	3.5	1.3	-3.7	1.8	3.2	1.0	0.1	0.4	0.6	1.7	2.5	1.8	-0.3	0.9	0.9	0.8	0.5	0.2	0.4	1.0
Belgium	3.0	1.0	-2.6	2.5	1.6	0.1	0.3	1.1	1.3	1.8	1.7	1.8	-0.2	0.7	1.4	0.3	-0.3	0.4	0.6	1.0
Canada	2.0	1.2	-2.7	3.4	3.0	1.9	2.0	2.4	1.5	2.3	2.3	1.4	-1.6	1.4	1.5	1.3	1.4	0.6	0.9	1.1
Chile	5.2	3.2	-1.0	5.7	5.8	5.5	4.3	1.8	2.9	3.7	2.8	2.9	-0.7	7.9	5.1	1.9	2.1	1.5	0.8	0.9
Czech Republic	5.5	2.5	-4.7	2.1	2.0	-0.7	-0.7	2.0	3.1	2.5	1.9	1.6	-1.3	-1.0	-0.2	0.3	1.0	0.7	1.1	0.5
Denmark	0.8	-0.7	-5.1	1.6	1.2	-0.7	-0.5	1.1	1.9	2.3	-0.1	1.7	-2.9	-2.3	-0.1	-0.5	0.0	1.0	1.4	1.4
Estonia	7.9	-5.3	-14.7	2.5	8.3	4.7	1.6	2.1	2.1	3.3	0.8	-0.3	-9.4	-4.4	6.3	1.9	1.0	0.6	0.5	0.1
Finland	5.2	0.7	-8.3	3.0	2.6	-1.4	-1.3	-0.1	0.4	1.3	2.0	1.6	-3.0	-0.4	1.1	0.4	-1.0	-0.4	0.1	0.2
France	2.3	0.1	-2.9	1.9	2.1	0.2	0.7	0.2	1.1	1.7	1.8	1.3	-1.0	0.2	0.2	0.0	0.0	0.1	0.2	0.6
Germany	3.4	0.8	-5.6	3.9	3.7	0.6	0.2	1.6	1.6	2.3	2.1	1.0	-0.3	0.8	2.5	1.0	0.9	0.9	0.9	0.7
Greece	3.4	-0.4	-4.4	-5.3	-8.9	-6.6	-4.0	0.7	0.1	2.3	0.8	1.0	-1.2	-3.6	-7.6	-8.9	-4.9	0.7	1.2	2.8
Hungary	0.5	0.7	-6.5	0.8	1.8	-1.8	1.7	3.6	3.0	2.2	-0.7	-1.4	-2.6	-0.4	0.7	1.8	1.7	5.4	2.3	0.9
Iceland	9.7	1.2	-5.1	-3.1	2.4	1.3	3.6	1.9	3.7	2.9	4.5	0.9	-6.2	-0.3	0.0	1.0	3.4	1.6	4.1	1.3
Ireland	4.9	-2.7	-6.4	-0.3	2.8	-0.3	0.2	4.8	3.5	3.3	4.7	-0.7	-7.7	-4.1	-1.8	-0.6	2.3	1.8	1.6	1.6
Israel	6.1	3.9	1.6	5.7	4.2	3.0	3.4	2.8	3.4	3.5	4.3	3.4	2.0	3.5	3.0	3.2	2.7	3.0	2.1	2.4
Italy	1.4	-1.1	-5.5	1.7	0.7	-2.8	-1.7	-0.4	0.6	1.5	0.8	0.8	-1.6	-0.7	0.2	-0.1	-1.5	0.3	0.5	1.0
Japan	2.2	-1.0	-5.5	4.7	-0.5	1.7	1.6	-0.1	0.7	1.4	0.6	-0.3	-1.5	-0.3	-0.1	-0.3	0.7	0.6	0.3	0.1
Korea	5.5	2.8	0.7	6.5	3.7	2.3	2.9	3.3	3.0	3.6	1.2	0.6	-0.3	1.4	1.7	1.8	1.6	2.1	1.8	1.5
Luxembourg	6.4	0.5	-5.4	5.1	2.6	-0.1	2.0	3.0	2.7	2.9	2.3	2.9	1.1	1.6	2.7	2.4	1.9	2.1	2.2	2.4
Mexico	3.1	1.2	-4.5	5.1	4.0	3.8	1.7	2.1	2.9	3.5	1.7	1.1	0.5	1.1	2.2	3.3	1.1	0.4	0.8	1.0
Netherlands	4.2	2.0	-3.3	1.0	1.7	-1.6	-0.7	0.9	2.0	2.2	2.9	2.3	0.0	-1.0	0.0	0.6	-0.8	-0.6	1.2	1.1
New Zealand	3.7	-0.8	0.5	2.0	1.4	2.9	2.5	3.1	3.4	3.0	1.7	0.7	-1.7	0.4	1.4	0.3	1.5	3.5	2.9	1.5
Norway	2.9	0.4	-1.6	0.6	1.0	2.7	0.7	2.2	1.2	1.5	3.4	3.3	-0.6	0.1	1.4	2.0	0.6	1.0	0.5	0.5
Poland	7.2	3.9	2.6	3.7	4.8	1.8	1.7	3.4	3.5	3.7	4.4	3.7	0.4	0.6	0.6	0.2	-0.1	1.9	1.4	0.8
Portugal	2.5	0.2	-3.0	1.9	-1.8	-4.0	-1.6	0.9	1.6	1.8	0.3	0.5	-2.9	-1.4	-3.2	-4.1	-2.6	1.6	0.5	0.7
Slovak Republic	10.7	5.4	-5.3	4.8	2.7	1.6	1.4	2.4	3.0	3.4	2.4	3.2	-2.7	-2.1	0.0	0.5	0.0	1.4	1.2	1.1
Slovenia	6.9	3.3	-7.8	1.2	0.6	-2.6	-1.0	2.6	2.1	1.9	2.5	1.1	-1.5	-1.5	-3.1	-1.3	-1.9	1.2	0.5	0.4
Spain	3.8	1.1	-3.6	0.0	-0.6	-2.1	-1.2	1.4	2.9	2.8	3.2	-0.5	-6.7	-2.0	-1.6	-4.3	-2.8	1.2	2.9	2.8
Sweden	3.5	-0.7	-5.1	5.7	2.7	0.0	1.3	2.3	2.8	3.0	2.6	1.1	-2.1	0.5	2.3	0.6	1.1	1.4	1.0	1.4
Switzerland	4.1	2.3	-2.1	3.0	1.8	1.1	1.9	2.0	0.8	1.7	2.3	2.3	0.4	0.4	2.2	1.2	1.1	1.5	1.4	1.2
Turkey	4.7	0.7	-4.8	9.2	8.8	2.1	4.2	2.9	3.1	3.9	1.5	1.7	0.3	6.0	6.1	3.1	2.9	5.1	2.6	2.2
United Kingdom	2.6	-0.3	-4.3	1.9	1.6	0.7	1.7	2.8	2.4	2.3	0.8	0.9	-1.6	0.2	0.5	1.1	1.2	2.3	1.7	1.1
United States	1.8	-0.3	-2.8	2.5	1.6	2.3	2.2	2.4	2.0	2.8	1.1	-0.5	-3.8	-0.6	0.6	1.8	1.0	1.6	1.9	1.0

a) Aggregate of 15 OECD countries of the euro area.

Source: OECD calculations based on OECD Economic Outlook (database), <http://dx.doi.org/10.1787/data-00688-en>.

StatLink  <http://dx.doi.org/10.1787/888933240163>

Table 1.A1.2. Recent and projected macroeconomic developments

	A. Employment rate – Percentage of population aged 15 and over										B. Unemployment rate – Percentage of total labour force									
	Q4 2007	Q4 2008	Q4 2009	Q4 2010	Q4 2011	Q4 2012	Q4 2013	Q4 2014	Q4 2015	Q4 2016	Q4 2007	Q4 2008	Q4 2009	Q4 2010	Q4 2011	Q4 2012	Q4 2013	Q4 2014	Q4 2015	Q4 2016
OECD	55.8	55.2	53.8	53.7	53.9	54.0	54.0	54.4	54.6	54.8	5.5	6.5	8.4	8.2	7.9	8.0	7.7	7.1	6.8	6.5
Euro area^a	52.1	51.8	50.5	50.3	50.1	49.6	49.3	49.5	49.8	50.3	7.3	7.9	9.8	9.9	10.5	11.7	11.8	11.4	10.8	10.3
Australia	61.1	61.2	60.4	61.0	60.8	60.8	60.5	60.6	60.7	61.1	4.4	4.5	5.6	5.1	5.2	5.3	5.8	6.2	6.0	5.7
Austria	56.4	56.7	56.4	56.7	56.6	56.9	56.8	56.7	56.4	56.7	4.5	4.4	5.5	4.5	4.9	5.0	5.5	5.7	5.9	5.5
Belgium	50.8	51.1	50.4	50.6	50.8	50.3	49.8	49.7	49.7	49.8	7.2	6.9	8.0	7.9	7.3	8.3	8.5	8.6	8.4	8.0
Canada	61.6	61.1	59.5	59.8	59.8	60.2	60.2	60.1	60.1	60.2	5.9	6.5	8.5	7.7	7.5	7.3	7.1	6.7	6.7	6.5
Chile	51.0	51.3	50.5	54.7	55.4	55.7	56.3	56.4	56.1	56.0	7.8	8.2	9.4	7.6	7.2	6.4	6.1	6.4	6.3	6.3
Czech Republic	56.1	56.5	55.2	54.9	54.5	54.9	55.3	56.0	56.3	56.7	4.9	4.4	7.3	7.0	6.5	7.2	6.7	5.8	5.7	5.4
Denmark	62.5	63.8	60.1	59.4	58.9	58.5	58.0	59.1	58.8	59.8	3.6	4.0	7.0	7.6	7.7	7.3	6.9	6.3	6.4	6.2
Estonia	57.4	57.2	50.9	52.1	54.3	54.9	55.2	56.8	57.0	57.4	4.0	7.8	15.7	13.9	11.2	9.3	8.7	6.6	6.3	5.9
Finland	57.1	57.5	54.9	54.9	55.3	54.8	54.0	53.5	53.5	53.3	6.6	6.5	8.9	8.1	7.5	7.6	8.4	9.1	8.7	8.8
France	49.6	49.6	48.6	48.6	48.4	48.2	48.0	47.7	47.7	47.8	7.1	7.4	9.1	8.8	8.9	9.7	9.6	10.0	10.1	10.0
Germany	53.9	54.3	54.1	54.5	55.9	56.2	56.3	56.7	56.9	57.3	8.2	7.1	7.6	6.6	5.6	5.3	5.1	4.9	4.6	4.4
Greece	48.4	48.6	47.6	45.2	41.0	37.9	37.0	37.6	38.2	39.4	8.1	7.9	10.3	14.2	20.7	26.0	27.5	25.8	25.4	24.2
Hungary	45.3	44.9	43.7	43.8	44.4	45.3	46.6	48.7	49.9	50.4	7.9	8.2	10.7	11.1	11.0	10.9	9.4	7.4	6.6	5.9
Iceland	74.0	72.4	67.7	66.3	65.3	65.6	67.8	67.7	69.2	69.4	2.5	4.7	7.4	8.1	6.7	5.4	5.2	4.8	3.9	4.1
Ireland	63.0	59.9	54.6	52.3	51.7	51.3	52.7	53.4	54.3	55.2	4.7	7.9	13.0	14.8	15.0	14.2	12.2	10.4	9.7	8.9
Israel	57.9	58.4	58.7	60.0	60.4	61.4	62.2	63.1	63.4	64.0	8.4	8.1	9.0	8.1	6.8	7.0	5.8	5.7	5.5	5.4
Italy	45.9	45.7	44.7	44.3	44.1	43.8	42.9	42.9	43.0	43.1	6.2	6.8	8.2	8.3	9.3	11.3	12.4	13.0	12.4	11.9
Japan	58.4	58.0	56.9	57.0	56.8	56.7	57.4	57.6	57.7	57.9	3.9	4.0	5.1	5.0	4.5	4.2	3.9	3.5	3.5	3.3
Korea	60.0	59.4	58.7	58.9	59.5	59.7	60.4	60.9	61.4	61.9	3.2	3.3	3.6	3.5	3.2	3.0	3.0	3.5	3.6	3.4
Luxembourg	53.1	53.4	52.8	52.5	52.8	52.8	52.2	52.1	52.0	52.0	4.1	4.4	5.8	5.9	5.8	6.3	7.1	7.1	7.1	7.0
Mexico	58.2	56.3	56.8	55.1	56.9	56.4	56.6	55.5	54.6	54.3	3.5	4.2	5.3	5.3	4.9	4.9	4.6	4.4	4.6	4.5
Netherlands	61.1	62.0	60.8	60.5	60.3	60.1	59.1	58.9	59.4	59.7	3.9	3.6	4.8	4.9	5.3	6.2	7.6	7.2	6.7	6.3
New Zealand	65.8	65.4	62.9	62.8	63.0	62.3	63.4	64.7	65.2	65.3	3.5	4.6	6.9	6.7	6.3	6.8	6.1	5.8	5.5	5.1
Norway	65.0	65.2	63.8	63.4	63.7	63.5	63.2	63.0	62.0	61.6	2.4	2.8	3.2	3.5	3.3	3.4	3.4	3.6	4.2	4.1
Poland	46.6	47.8	47.4	47.7	47.8	47.7	47.9	48.8	49.3	49.8	8.6	6.8	8.6	9.5	9.9	10.3	10.0	8.3	7.7	7.2
Portugal	57.5	57.2	55.3	54.5	51.8	49.6	50.4	50.7	51.3	51.9	7.8	7.8	10.1	11.1	13.7	16.8	15.3	13.5	13.0	12.3
Slovak Republic	52.9	54.2	51.1	51.2	50.7	50.5	50.7	52.1	52.2	53.0	10.6	8.7	13.9	13.9	13.9	14.4	14.2	12.6	12.3	11.0
Slovenia	56.9	57.6	56.2	55.0	53.1	52.4	51.7	52.0	52.7	52.6	4.7	4.3	6.4	7.7	8.7	9.6	9.7	9.6	9.1	8.9
Spain	54.0	51.7	48.3	47.4	45.9	43.8	43.2	44.4	45.7	47.1	8.6	13.8	18.8	20.2	22.6	25.8	25.8	23.7	21.5	19.7
Sweden	60.2	59.8	58.1	58.7	59.3	59.2	59.3	60.0	60.2	60.6	6.1	6.7	8.8	8.1	7.8	8.2	8.0	7.8	7.7	7.5
Switzerland	66.9	67.4	65.9	66.0	67.0	66.3	66.5	67.1	66.7	67.0	3.4	3.3	4.8	4.1	4.0	4.4	4.1	4.2	4.7	4.5
Turkey	39.7	39.9	40.4	41.8	43.2	44.2	44.0	45.8	46.1	46.7	9.4	11.4	12.2	10.3	8.5	8.7	9.2	10.5	10.3	9.9
United Kingdom	59.1	58.5	57.2	57.2	56.5	57.2	57.8	58.2	58.8	59.1	5.2	6.4	7.8	7.9	8.4	7.8	7.2	5.7	5.2	5.0
United States	60.1	58.6	55.7	55.4	55.5	56.0	55.8	56.5	57.0	56.9	4.8	6.9	9.9	9.5	8.7	7.8	7.0	5.7	5.4	5.1

a) Aggregate of 15 OECD countries of the euro area.

Source: OECD calculations based on OECD Economic Outlook (database), <http://dx.doi.org/10.1787/data-00688-en>.

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Chapter 2

Skills and wage inequality

Inequality has been rising in a large majority of OECD countries and efforts to halt or reverse this rise rank very high on the policy agenda. This chapter assesses the potential role of skills in reducing wage inequality, a key driver of changes in household income inequality. New data on the information-processing skills of the workforce from the Survey of Adult Skills (PIAAC) are used to analyse the role of skills in explaining cross-country differences in wage inequality. This analysis helps to inform policy choices by disentangling the contributions of average skill levels, how skills are distributed across the workforce, the extent to which skills are used on the job, and the return they command on the labour market.

Key findings

Inequality has been rising in a large majority of OECD countries and efforts to halt or reverse this rise rank very high on the policy agenda. This chapter assesses the potential role of skills in reducing wage inequality, a key driver of changes in household income inequality.

New data on the information-processing skills of the workforce from the *Survey of Adult Skills* (PIAAC) are used to analyse the role of skills in explaining cross-country differences in wage inequality. This analysis helps to inform policy choices by disentangling the contributions of average skill levels, how skills are distributed across the workforce, the extent to which skills are used on the job, and the return they command on the labour market.

Overall, the chapter finds that investing in skills matters for wage inequality – particularly if they are scarce in relation to demand – and that countries where skills are less equally distributed also have higher wage inequality. The chapter also shows that putting skills to better use can help reduce wage inequality, by strengthening the links between workers' skills, productivity and wages. These findings provide important insights into the role that skills policies can play within a comprehensive policy strategy to reduce wage inequality.

More specifically, the key findings of the chapter are the following:

- *Wage inequality is much higher in some countries than in others.* In the Scandinavian countries, but also in France and Belgium (Flanders), wages of workers at the 9th decile are less than three times as high as those of workers at the 1st decile (the so-called D9/D1 ratio). By contrast, the D9/D1 ratio is 4.7 in Estonia, 4.8 in the United States and 5.8 in Korea.
- *Wage inequality is lower in countries that are better at meeting the demand for skills.* The more abundant the supply of skills in relation to demand, the lower the skills premium and therefore wage inequality. This is particularly true at the top of the wage distribution: the net supply of high- versus medium-skilled workers can account for approximately one third of the differences across countries in the D9/D5 ratio. By contrast, skills supply and demand appear to be less important in explaining wage inequality at the bottom of the wage distribution (D5/D1) – which suggests that labour market institutions and policies may be more important than market forces in setting the wages of low-skilled workers. Overall, even when labour market institutions and practices are accounted for, the negative relationship between the net supply of skills and wage inequality remains.
- *Wage inequality is also lower in countries where skills are more equally distributed.* Skills inequality (i.e. the difference in skills between the most- and least-skilled) is lowest in the Slovak Republic and highest in the United States. Estimates presented in this chapter suggest that if skills in the United States were distributed as in the average PIAAC country, then wage inequality in the United States could be 4.0% lower than it currently is. Expressed differently, a 10% reduction in skills inequality in the United States would reduce wage inequality by 1.2%.
- *Countries that make better use of the skills of their workforce tend to have lower wage inequality.* In all countries, there are more jobs requiring a low use of skills than there are workers with low proficiency, resulting in many skills not being fully used at work. However,

some countries (e.g. Finland and the United States) are much better at using workers' skills than others (Italy, Spain, Belgium and the Netherlands). Boosting skills utilisation would lower wage inequality. For example, wage inequality in the Netherlands could be 7.9% lower if skills use in the country better reflected proficiency. That is, a 10% decline in the dispersion of skills use in the Netherlands would reduce wage inequality by 1.1%.

- *Countries where skills are highly rewarded tend to have higher wage inequality.* How skills are rewarded (or the “price” they command on the labour market) also varies significantly across countries. Skills are much more highly rewarded in the United States and England/Northern Ireland than they are in Sweden, Finland and Denmark. These differences in the returns to skills reflect a mixture of: i) market forces; and ii) wage setting mechanisms (e.g. minimum wages and collective bargaining) that set wages independently of market forces. Results in this chapter suggest that wage inequality in the United States could be 12.8% lower if skills were rewarded as in the average PIAAC country. By contrast, in Sweden, wage inequality is estimated to be 5.6% lower than in the average PIAAC country because the return to skills is much lower.
- *Skills also play a role in explaining wage gaps between socio-demographic groups.* Differences in skills account for 22% of the observed gender wage gap across PIAAC countries, on average, and this share is relatively constant across all 22 countries. Skills also account for over 70% of the wage gap between native and foreign-born workers and between individuals with different parental background, although, in this case, there are important differences between countries. Finally, younger workers would earn even less relative to older workers if they had the same (information-processing) skills as them. Even more striking, returns to skills rise so strongly with age that youth would earn more than older workers if rewards were equalised across age groups. While differences in competences other than information-processing skills may underlie some of these patterns, the results suggest that skills policies will be more effective in narrowing wage gaps between certain socio-demographic groups than others.

The findings of the chapter underscore the potential role for skills policies in reducing wage inequality, without losing sight of the fact that these policies also support other crucial objectives such as raising overall productivity and economic growth. To prevent rising wage inequality, investments in skills that are in high demand are particularly important. This finding underlines the importance for countries to assess current and future skills needs and to make sure that their education and training systems are responsive to changing skills needs. The chapter also highlights the need to make better use of skills at work, which takes the policy discussion to the heart of what goes on in the workplace: the role of leadership and management, how work is organised, job design, internal mobility, and personnel and recruitment policies more generally. Finally, in some countries, there will be gains to be made from making the skills distribution more equal and this will require additional investments to ensure that the least-skilled do not fall behind in a world where high-level skills are increasingly in demand. As this chapter shows, it is particularly important to invest in the skills of certain sub-groups, like migrants and their children, and those from lower socio-economic backgrounds.

Introduction

Income inequality has been rising in a large majority of OECD countries and, in most of them, is now at its highest level in 30 years. Today, the richest 10% of the population in the OECD area receive 9.5 times more income each year than the poorest 10% (OECD,

2015a). Arresting the trend rise in income inequality has become an increasingly pressing concern for policy makers, as the significant economic and social costs associated with it have become better understood. Inequality has been shown to reduce upward social and intergenerational mobility (Krueger, 2012) and to be associated with a wide range of health and social problems (Pickett and Wilkinson, 2011), lower social cohesion and trust (Brown and Uslaner, 2002), higher crime (Fajnzylber et al., 2002), and reduced economic growth through lower investments in human capital (Stiglitz, 2012; Cingano, 2014).¹

The causes of rising income inequality are diverse and range from globalisation and technological change, to changes in tax and transfer systems, labour market institutions and policies, and family formation patterns – among others. These have been analysed in detail in OECD (2011). This chapter extends that analysis by examining the role of skills in greater depth. In doing so, it focuses on wage inequality, rather than on earnings or income inequality, for two reasons. First, wage inequality is an important component of income inequality and, as estimated by OECD (2011), greater inequality in wages and salaries has been the single most important driver of increased income inequality across the OECD. The second reason for focusing on wages is that they allow us to measure more directly the prices of skills and how different returns across countries contribute to inequality.

The supply and demand of cognitive skills are likely to play an important role in explaining trends in income inequality because of the pressure they exert on market wages. However, little is known about their importance in determining the wage distribution, largely due to the lack of suitable data prior to the *Survey of Adult Skills* (PIAAC). Some previous research was conducted based on the International Adult Literacy Survey (IALS) – a predecessor of PIAAC – but the results obtained were contradictory: whereas Leuven, Oosterbeek and van Ophem (2004) concluded that skills play a crucial role in explaining cross-country differences in wage inequality, others argued that skills only play a minor role (Devroye and Freeman, 2001; Blau and Kahn, 2005).

The present chapter improves upon past studies by taking advantage of the data improvements brought about by PIAAC² and recent methodological developments to reassess the extent to which cross-country differences in cognitive skills explain differences in wage inequality. The analysis examines the impacts of differences in average skill levels, how skills are distributed, the extent to which they are used on the job, and the return they command on the labour market.

Besides this introduction, the chapter consists of five sections. Section 1 sets the scene by drawing a picture of wage and skills inequality across countries. Section 2 explores the importance of skills in explaining wage inequality across countries, while Section 3 discusses the extent to which skills can explain differences in wages between sub-groups in society (by gender, age, migration status and parental education). Section 4 tests whether the findings on skills are robust to the inclusion of institutions in the analysis. Last section draws policy conclusions.

1. Setting the scene

This chapter exploits data on proficiency in information-processing skills collected by PIAAC (Box 2.1). The analysis is developed based on numeracy skills but very similar results are obtained when using literacy skills – the second main domain assessed in PIAAC.³

Box 2.1. The Survey of Adult Skills (PIAAC)

The *Survey of Adult Skills* (PIAAC, 2012) is a rich database providing harmonised measures of the cognitive skills of the adult population in a wide range of OECD countries and sub-national regions, as well as some non-OECD countries. Its chief advantage for the analysis conducted in this chapter is that it provides a unique opportunity to gauge the impact of actual skills, rather than education or occupation proxies, on the wage distribution.

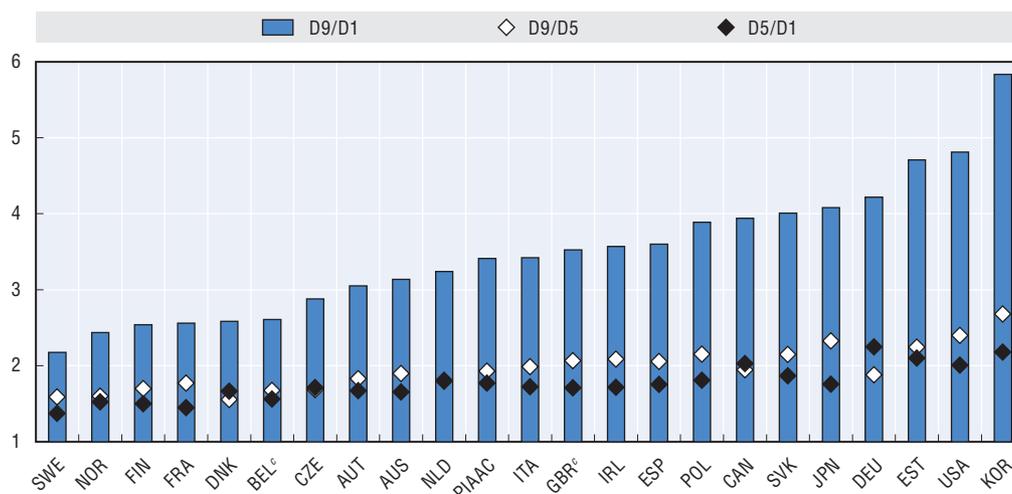
Contrary to other surveys, where respondents are asked about their education and training background, skills in PIAAC are measured directly through a test in literacy, numeracy and problem solving in technology-rich environments – three skills considered to provide a foundation for the development of other, higher-order cognitive skills and to be necessary in a broad range of contexts, including work. PIAAC also asks adults how intensively and how frequently they use these skills at work through an innovative “job-requirements approach”, which is useful to separate the impact on wage inequality of skills that individuals possess and those they actually use at work. Finally, the survey includes accurate information on wages, as well as a range of job characteristics, that can help isolate the impact of skills from that of other factors, such as labour market institutions and practices.

The analysis in this chapter covers the 22 countries and sub-national regions that participated in the first round of PIAAC and are members of the OECD. Data collection in these countries took place between August 2011 and March 2012.

Wage and skill inequality across countries

Figure 2.1 shows how wage inequality differs across the 22 OECD countries covered by the present chapter, using three inter-decile ratios to measure wage inequality: D9/D1, the ratio of the upper-bound value of the ninth decile (i.e. the threshold defining 10% of people

Figure 2.1. **Wage inequality in selected PIAAC countries and regions,^a 2012**
Inter-decile wage ratios^b



- a) Only the 22 PIAAC countries and regions that are members of the OECD are included in the analysis.
 b) Wage data are trimmed, by country, at the top and bottom percentiles. Wages include bonuses and are expressed in purchasing power parity corrected USD. See Annex 2.A1 for underlying data. Details on the calculation of the PIAAC average can be found in Annex 2.A2.
 c) The *Survey of Adult Skills* only covered Flanders (BEL) and England/Northern Ireland (GBR).
 Source: Survey of Adult Skills (PIAAC) 2012.

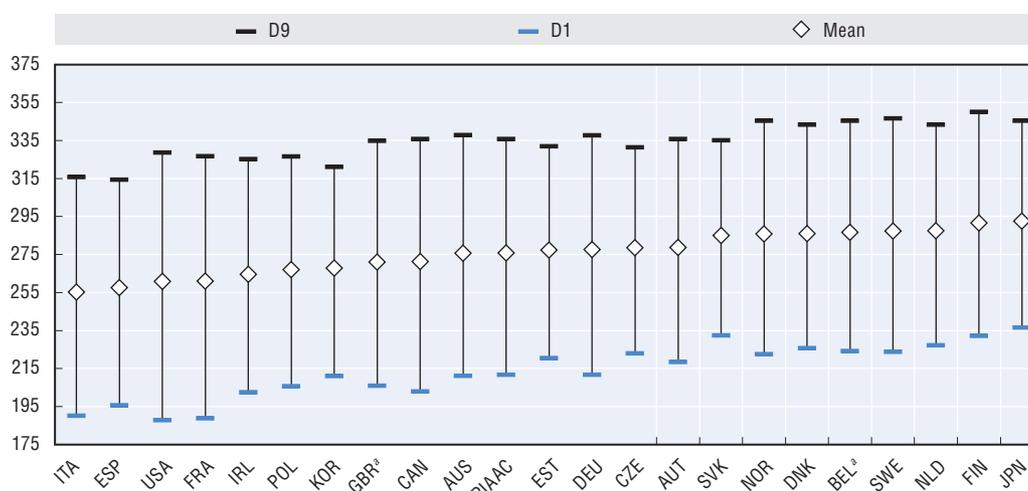
StatLink  <http://dx.doi.org/10.1787/888933239648>

with highest wages) to that of the first; D9/D5, the ratio of the upper-bound value of the ninth decile to the median; and D5/D1, the ratio of the median to the upper-bound value of the 1st decile (i.e. the threshold defining 10% of people with the lowest wages).⁴ As shown by the figure, overall wage inequality (D9/D1 ratio) is highest in Korea and the United States, while it tends to be lowest in the Scandinavian countries and France. The ranking of countries does not vary much when using the D9/D5 or D5/D1 ratios instead, but there are some exceptions. For instance, inequality in the top half of the wage distribution in Germany is below the PIAAC average while Germany ranks well above average based on the D9/D1 ratio and highest among all countries based on the D5/D1 ratio.

Countries also differ in terms of the skills of their workforce. There is a level aspect to this (i.e. how skilled people are on average), but also a dispersion one (i.e. the gap between the least and the most skilled). As Figure 2.2 shows, average skill levels are highest in Japan, Finland, the Netherlands, Sweden and Flanders, while they are lowest in Italy, Spain, the United States and France. The dispersion (or spread) in skills – as measured by the skills gap between the top (D9) and bottom (D1) deciles – is largest in the United States and France, while it is smallest in the Slovak Republic, the Czech Republic and Japan. Of course, while the D9/D1 ratio is a widely used measure of dispersion, it only captures one aspect of the distribution. Online Annex 2.A1 to the chapter (OECD, 2015b, www.oecd.org/employment/oecd-employment-outlook-19991266.htm) therefore provides the full skill distribution for each of the countries included in Figure 2.2. In some countries, (e.g. Australia, Austria and Germany) the distribution is very similar to the cross-country average. In others, the dispersion is similar, but the level is different (e.g. Spain and Ireland), while in others still the level is similar but the dispersion differs (e.g. the Czech Republic and the Slovak Republic). Overall, however, differences in average skills are relatively small and this may be one reason to expect these differences to explain only a minor part of the difference in wage inequality between countries.

Figure 2.2. **Skill levels and dispersion in selected PIAAC countries and regions, 2012**

Mean, 1st and 9th deciles of numeracy scores, all employees



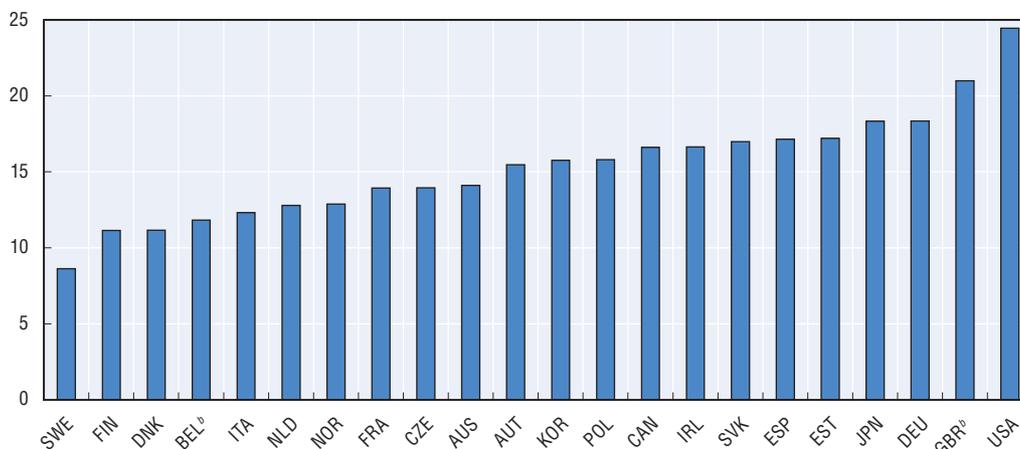
a) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).
Source: Survey of Adult Skills (PIAAC) 2012.

StatLink  <http://dx.doi.org/10.1787/888933239654>

Juxtaposing the above two charts indicates that there is not necessarily a simple relationship between wage and skills inequality. In some countries, both skills and wage inequality are high (e.g. the United States), while in others they are both low (e.g. the Czech Republic and the Slovak Republic). Some countries, however, combine high wage inequality with low skill inequality (e.g. Korea), while others show the opposite pattern (e.g. France). These descriptive statistics therefore suggest that the relationship between skills and wage inequality is likely to be complex, and that labour market institutions and practices may affect the way in which skills inequality translates into wage inequality.

One reason skills inequality does not map directly into wage inequality is that countries also differ in how skills are rewarded in the labour market. Figure 2.3 shows that (unadjusted) returns to skill are highest in the United States, England/Northern Ireland and Germany, while they are lowest in Sweden, Finland and Denmark. Figure 2.3 only shows average prices of skills. As shown by the figures included in online annex to this chapter (OECD, 2015b, www.oecd.org/employment/oecd-employment-outlook-19991266.htm), the relationship between skills and wages is marginally convex across countries on average (i.e. wages rise faster at higher levels of skills). In some countries, like the United States, this convexity is more pronounced. This non-linearity in the return to skills is an important aspect that will be taken into account in the analysis that follows. As will be argued on a number of occasions throughout this chapter, it is important to see the returns to skills, or the “price” attached to them, as reflecting a combination of: i) market forces in each country’s economy; and ii) the set of labour market institutions, policies and practices that affect the extent to which prices are set by free market forces.

Figure 2.3. **Returns to skills in selected PIAAC countries and regions, 2012**
Percent increase in hourly wages for a standard deviation increase in numeracy^a



a) The graph shows the coefficients on numeracy scores from country-specific regressions of log hourly wages (including bonuses) of wage and salary earners (in PPP adjusted USD) on proficiency scores standardised at the country level.

b) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).

Source: Survey of Adult Skills (PIAAC) 2012.

StatLink  <http://dx.doi.org/10.1787/888933239660>

2. Skills and wage inequality

This section uses PIAAC to shed new light on the importance of skills in explaining differences in wage inequality across countries. It starts with a discussion of the extent to which differences in wage inequality might be related to differences in: i) the way skills are

distributed (skills inequality); ii) skill levels (average skills proficiency); and iii) the way in which these skills are rewarded in the labour market (skill prices). It then goes on to ask whether a focus on skills use (rather than just proficiency) might be more appropriate, and assesses the importance of market forces in determining skill prices and, therefore, how skills inequality maps into wage inequality.

The role of skills inequality, levels and prices

In the small literature on cognitive skills and inequality, the contribution of skills to explaining international differences in wage inequality tends to be decomposed into two parts: i) the role played by differences in skills endowments (i.e. observable characteristics); and ii) the role played by the prices of these skills (i.e. how they are rewarded in the labour market). The consensus emerging from this literature is that skills prices are more important than skill endowments in explaining international differences in wage inequality (Devroye and Freeman, 2001; Blau and Kahn, 1996; Blau and Kahn, 2005).

In what follows, new evidence is presented on the relative importance of these factors using PIAAC and a technique which simulates alternative wage distributions (see Box 2.2 for

Box 2.2. Simulating alternative wage distributions by reweighting: Basic intuition

Reweighting methods to analyse the effect of policy variables on wage distributions were first proposed by DiNardo, Fortin and Lemieux (1996) and Lemieux (2002, 2010). While the technical details of the approach taken in this chapter can be found in Annex 2.A2, the intuition behind it is explained in this box. The basic idea is to give observations with certain characteristics in one country more or less weight depending on how common those characteristics are in the benchmark country that is used for comparison. So, for example, if the benchmark country has more skilled workers, then the reweighting method will give more weight to skilled workers, while reducing the weight given to less-skilled ones. Because the other characteristics of the individuals are left unchanged (including their wages), this results in an alternative wage distribution (see Figure 2.4 for an example based on the United States). These

Figure 2.4. Alternative wage distributions for the United States obtained by reweighting

Wage distributions obtained by applying the skills level, dispersion and price of the average PIAAC country to the United States



Source: Survey of Adult Skills (PIAAC) 2012.

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Box 2.2. Simulating alternative wage distributions by reweighting: Basic intuition (cont.)

alternative wage distributions can then be used to calculate standard measures of wage inequality that can be compared to those estimated on the original wage distribution. The difference between the two measures of wage inequality can be attributed to the policy intervention being modelled (e.g. increasing the average level of skill).

The strengths of this methodology include both its simplicity and the fact that it shows the direct impact of changes in workforce composition on the shape of the entire wage distribution. As with other methods, however, there are some downsides as well. The most important of these is that it does not provide a full analysis of how the exogenous change under consideration would affect labour market equilibrium. For example, increasing the skills of the workforce is likely to have an impact on the return to those skills, but such knock-on effects are not taken into account. As such, the simulation approach taken in much of the chapter should be seen as an “accounting exercise”, similar to those used in standard wage decomposition methods (like, for example, the Oaxaca-Blinder decomposition). Indeed, the original applications of the method by DiNardo, Fortin and Lemieux (1996) and Lemieux (2002, 2010) very much fit within this decomposition logic.

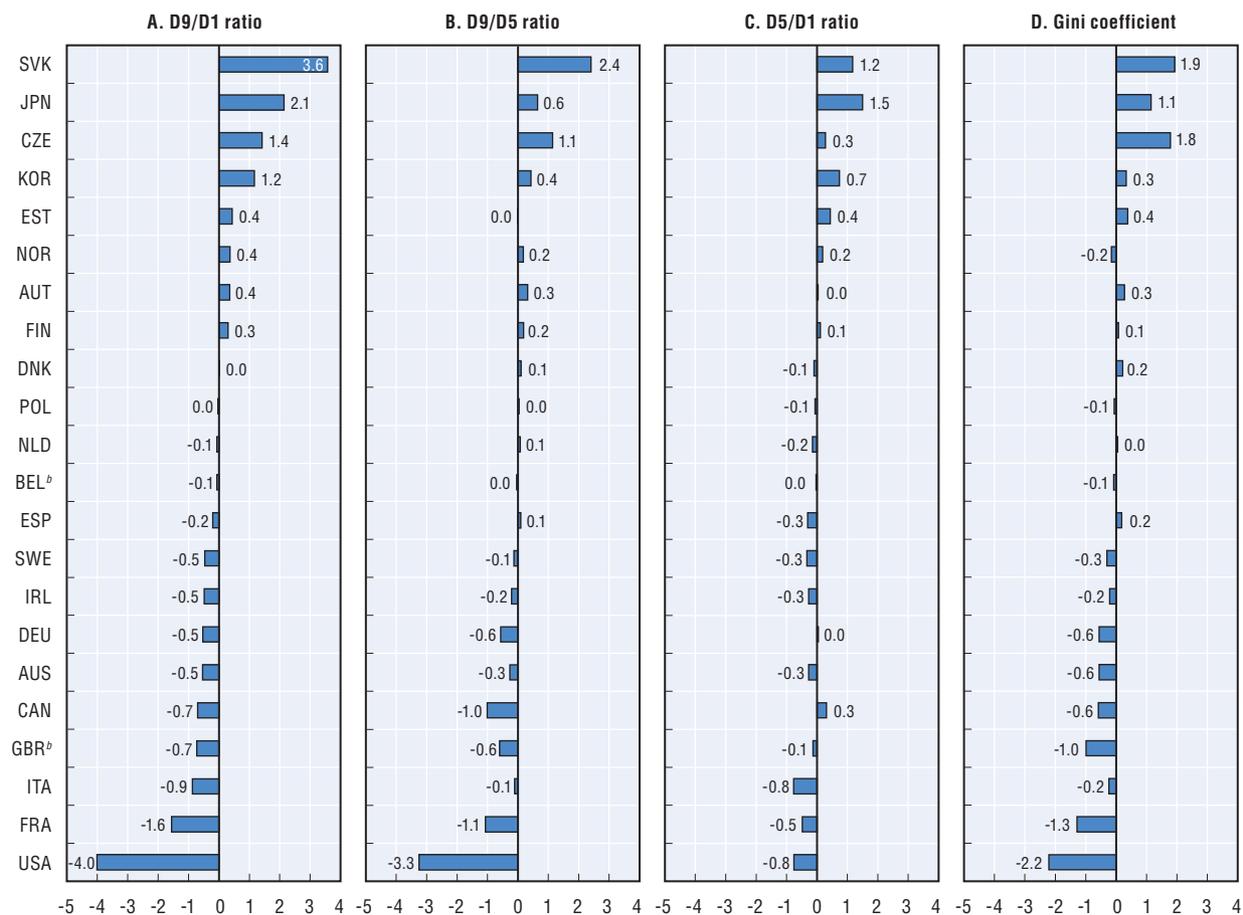
an intuitive discussion of the approach). The analysis also splits the skills effect on the wage distribution into two separate parts: i) the role played by skills inequality (i.e. the dispersion or “width/height” of the skills distribution); and ii) the role played by skills proficiency (i.e. the average level of skills). While there are technical reasons for making use of this decomposition, it is also interesting from a policy perspective. Indeed, reducing skills inequality will require a different set of interventions from raising overall skills proficiency.

Wage inequality and skills inequality

The first set of wage simulations seeks to assess the importance of skills inequality in explaining international differences in wage inequality. To do this, each country’s skill distribution is “reweighted” so that it has the same dispersion (i.e. width/height) as that of the average PIAAC country⁵ (or, put more simply, the same skills inequality), while leaving the average level of skills (skills proficiency) and the price of (return to) skills in that country unchanged. This then allows the calculation of wage inequality measures on the old and new distributions and thus the difference in wage inequality associated with the change in skill dispersion. For the interested reader, Annex 2.A2 offers further detail on the methodology employed.

The results from this analysis show that changing the skills inequality of countries to reflect that of the average PIAAC country would have only modest effects on wage inequality in most countries (Figure 2.5). The average (absolute) percentage change in wage inequality (D9/D1 ratio) is relatively small, at just 0.9%. However, skills inequality plays a more important role in some countries than in others. For instance, making the skills distribution more equal in the United States and France would reduce the D9/D1 ratio by 4.0% and 1.6% respectively (and similar, although slightly smaller, reductions in the Gini coefficient), while making the skills distribution less equal in the Slovak Republic, Japan, the Czech Republic and Korea would increase wage inequality (D9/D1 ratio) by 3.6%, 2.1%, 1.4% and 1.2% respectively. For all remaining countries, changing skill inequality would have only marginal effects on wage inequality. Overall, changes are marginally larger at the top (D9/D5 ratio) than at the bottom (D5/D1 ratio) of the wage distribution.

It is important to point out, however, that the effects on wage inequality of moving to the PIAAC average skills inequality are relatively modest because, as Figure 2.2 showed,

Figure 2.5. **The impact of skill inequality on wage inequality**Percentage change in wage inequality after imposing the skills dispersion of the average PIAAC country^a

a) Countries are ranked in decreasing order of impact on the D9/D1 ratio.

b) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).

Source: Survey of Adult Skills (PIAAC) 2012.

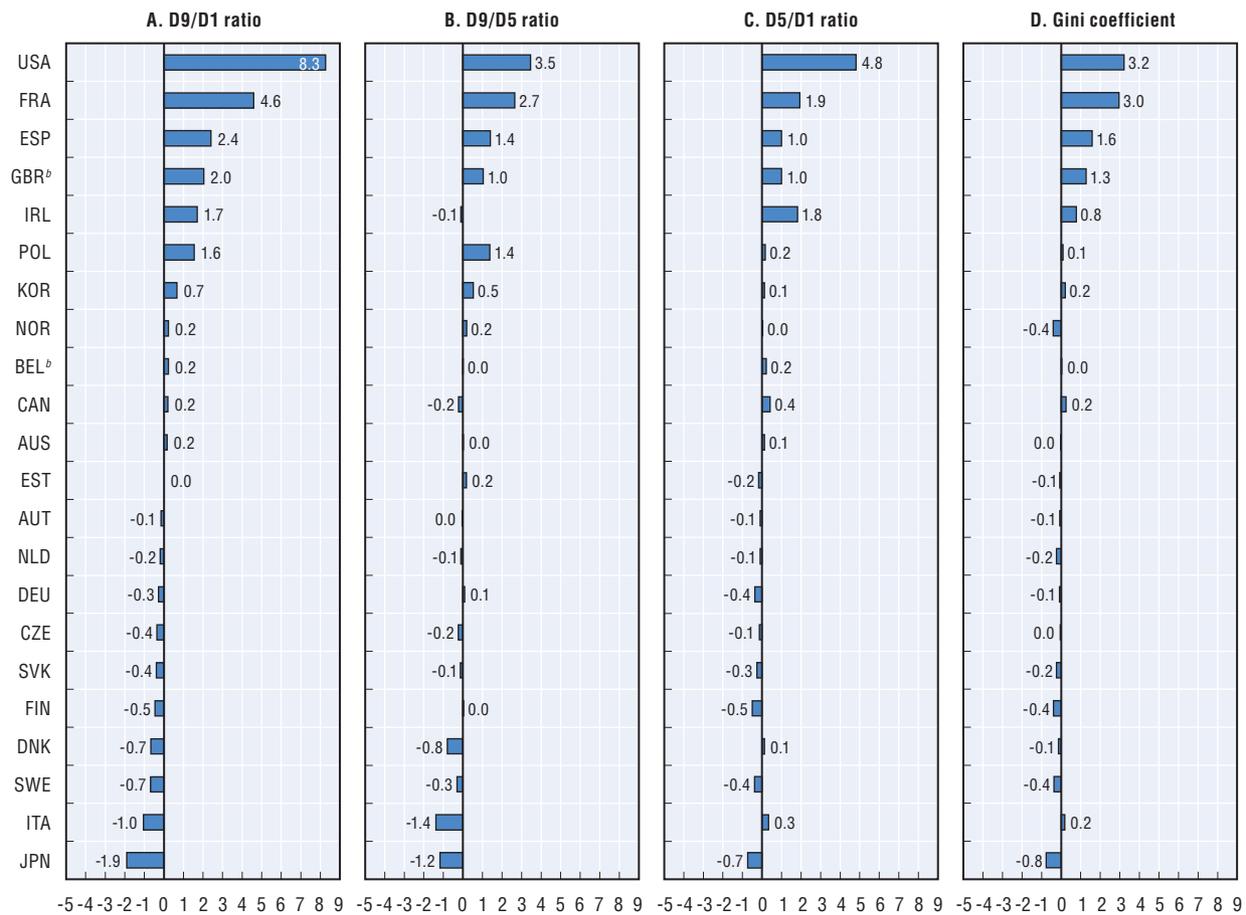
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countries do not actually differ so much in their skills dispersion. Later on in this chapter it will be shown that once the impacts of changes in skills inequality on wage inequality are expressed as elasticities, they indicate that these effects are potentially important.

Wage inequality and skill levels

In this section, the attention turns to the role of average skills proficiency in explaining cross-country differences in wage inequality. Accordingly, simulations are run that shift the skill distribution of each country, either to the left or to the right, while holding the dispersion of the distribution (and also skill prices) constant. The technical details of the method used can be found in Annex 2.A2.

The results from these wage simulations are presented in Figure 2.6. Overall, the size of the effects is (once again) relatively small. For example, the average (absolute) percentage change in wage inequality (D9/D1 ratio) is 1.3%. The effect does not vary significantly depending on which half of the wage distribution is considered. Once again,

Figure 2.6. The impact of skill proficiency on wage inequalityPercentage change in wage inequality after imposing the mean level of skills of the average PIAAC country^a

a) Countries are ranked in decreasing order of impact on the D9/D1 ratio.

b) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).

Source: Survey of Adult Skills (PIAAC) 2012.

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this is because the actual skills differences between countries (as shown in Figure 2.2) are relatively modest.

In most countries where skills proficiency is lower than in the average PIAAC country, raising skills would increase (not decrease) wage inequality. This is most apparent in the United States and in France, where increasing skills proficiency levels to the PIAAC average would increase wage inequality by 8.3% and 4.6%, respectively. Similarly, in most countries where skills proficiency is higher than in the average PIAAC country, lowering skills would decrease wage inequality. The explanation for these potentially counterintuitive findings is that the prices of skills are not allowed to vary. Increasing (decreasing) the supply of highly-skilled individuals, who also tend to earn more, would mechanically result in higher (lower) wage inequality because the relationship between skills and wages is convex. In reality, of course, the price of skill would be expected to adjust downward as the number of skilled workers increases. A full assessment of the relative importance of the supply of skills requires that a different method be used, as is done below.

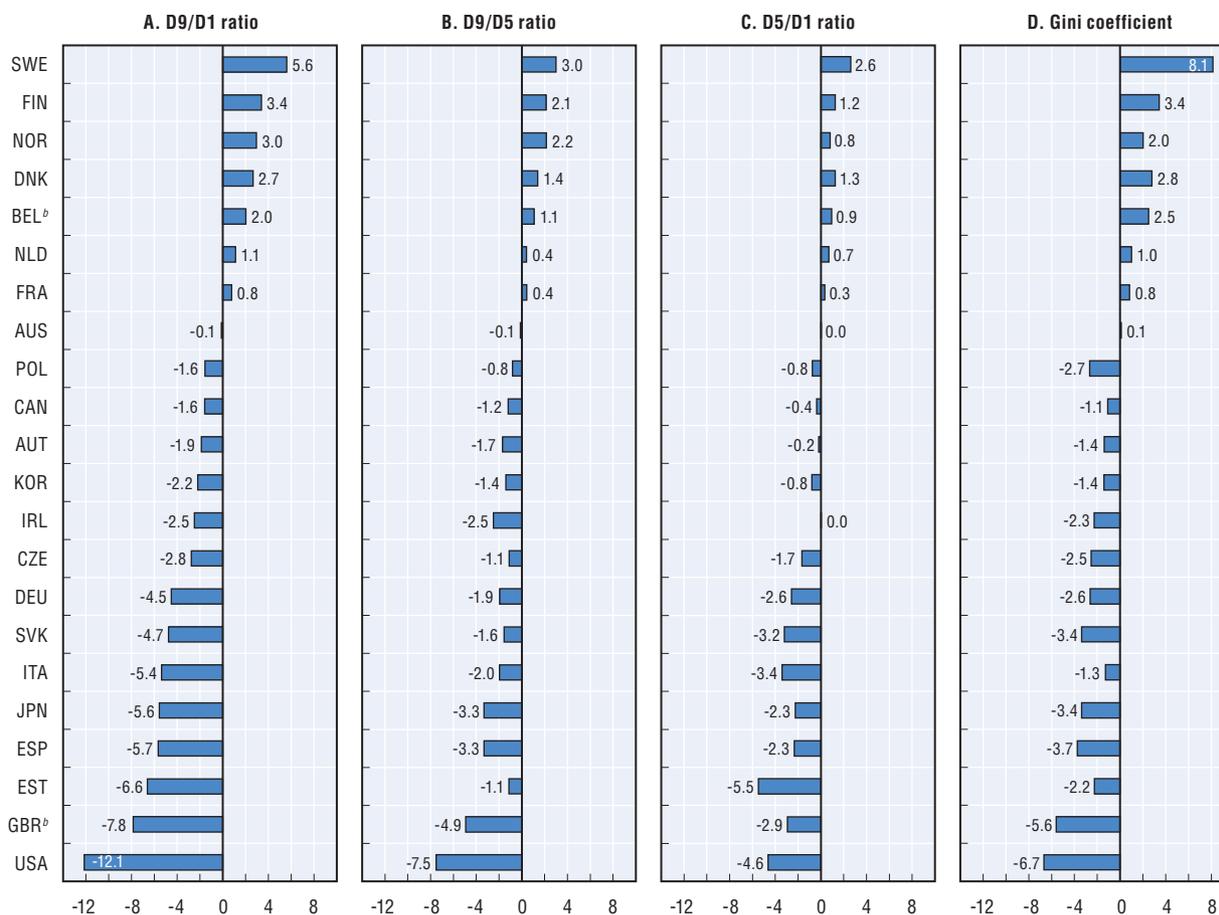
Wage inequality and the price of skills

As mentioned previously, differences in wage distributions across countries may result either from differences in the skills of the workforce or from differences in how those skills are rewarded (skill prices). In the analysis so far, the latter have not been allowed to vary. This section therefore provides an analysis of how the wage distribution in each country would change if skills were rewarded at the same rate as in the average PIAAC country. Inspired by a method proposed by Lemieux (2002, 2010), the “prices” of skills in every country are approximated using mean wages for pre-defined skill groups – see Annex 2.A2. Holding constant the skills distribution of each country, the price of skills in the average PIAAC country is applied to simulate an alternative wage distribution for each country which, once again, can be compared to the original distribution to estimate the effect of skill prices on wage inequality.

Figure 2.7 shows what the impact on wage inequality would be if every OECD country/region included in the OECD Survey of Adult Skills (PIAAC) faced the same skills price structure as the average PIAAC country. The percentage changes in the D9/D1 ratio are larger than those that were observed above when the skills distributions were altered.

Figure 2.7. **The impact of skill prices on wage inequality**

Percentage change in wage inequality after imposing the skills prices of the average PIAAC country^a



a) Countries are ranked in decreasing order of impact on the D9/D1 ratio.

b) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).

Source: Survey of Adult Skills (PIAAC) 2012.

StatLink  <http://dx.doi.org/10.1787/888933239708>

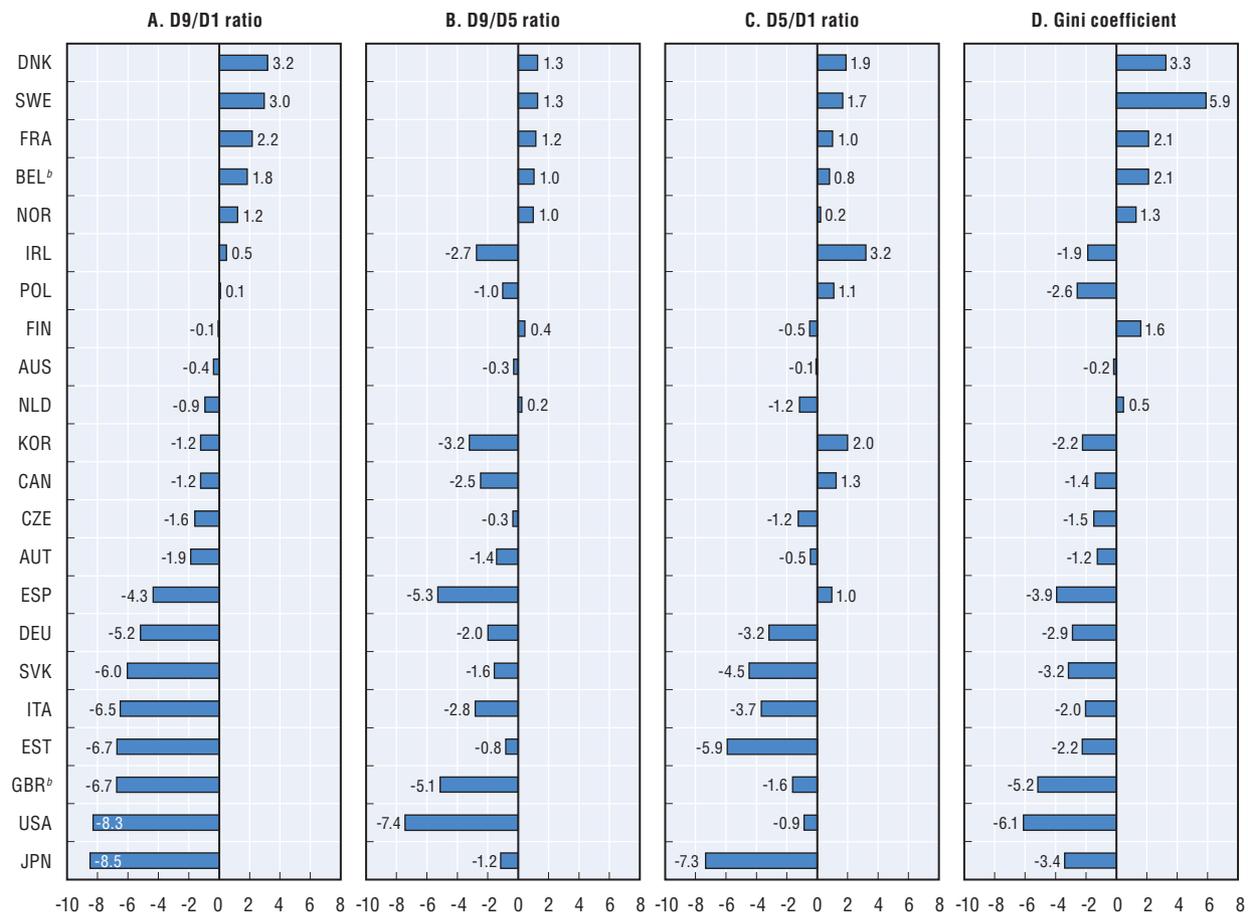
These estimated changes in wage inequality range from a fall of -12.1% in the United States to an increase of 5.6% in Sweden, while the average absolute change equals 3.8%. The countries with the highest skill prices in Figure 2.3 tend to see the greatest falls in inequality when the PIAAC wage structure is imposed, while the countries with the lowest skill returns see the greatest increase. The size of the changes is, on average, marginally bigger in the top half of the distribution (D9/D5 ratio) than in the bottom half of the distribution (D5/D1 ratio).

Wage inequality and the joint impact of skills inequality, proficiency and prices

Combining the factors considered above, Figure 2.8 illustrates the impact of imposing the full PIAAC skills distribution (level and dispersion) and the PIAAC average returns to skill simultaneously.⁶ The technical details of how this is done can be found in Annex 2.A2. In seven countries, the fall in inequality of moving to the PIAAC average would be greater than 5%, with the largest falls being in Japan (-8.5%) and the United States (-8.3%). Only in a handful of countries would there be an increase in inequality, and these increases would be largest in Denmark (+3.2%) and Sweden (+3.0%). The average absolute effect on wage inequality is 3.2%,

Figure 2.8. **The joint impact of skill inequality, proficiency and prices on wage inequality**

Percentage change in wage inequality after imposing the full skills distribution and prices of the average PIAAC country^a



a) Countries are ranked in decreasing order of impact on the D9/D1 ratio.

b) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).

Source: Survey of Adult Skills (PIAAC) 2012.

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and is of a similar magnitude at both the top and the bottom of the distribution. There are also important differences within countries at different parts of the distribution. For example, in the United States and England/Northern Ireland, the fall in wage inequality would occur primarily at the top of the wage distribution, while in Japan it would occur mostly in the bottom half of the distribution. In some countries (like Spain and Ireland), there would be a fall in top-half wage inequality, but a rise in bottom-half wage inequality.

The role of skill use

Many skills are not actually used at work – for example, this is the case for workers who are mismatched in their job – making skills use a potentially stronger determinant of wages and productivity than skills proficiency. Should this be the case, aligning skill requirements by firms to the proficiency of the workforce could have an important impact on wage inequality.

PIAAC includes information on how frequently numeracy skills are used at work – reflecting both the actual proficiency of workers and the extent to which their skills are needed in their jobs (Box 2.3).⁷ Country rankings based on the levels of numeracy proficiency differ markedly from those based on skills use. Some countries have a relatively low average proficiency score but existing skills are used very frequently at work. This is the case, for instance, in the United States. By contrast, other countries have a very proficient workforce but numeracy requirements at work are low (e.g. Japan). And some countries rank high or low on both indicators, like Finland and Italy, respectively (Figure 2.9).

Box 2.3. The use of skills at work measured in PIAAC

The *Survey of Adult Skills* (PIAAC) collects information on skills use at work following the job requirement approach. Based on this approach, workers are asked the frequency with which they carry out literacy- and numeracy-related tasks at work. This aims to ensuring that responses reflect skill requirements rather than just the proficiency of respondents. Quintini (2014) confirms that this is indeed the case and that job and firm characteristics are highly correlated with the skills use measures derived using the task approach.

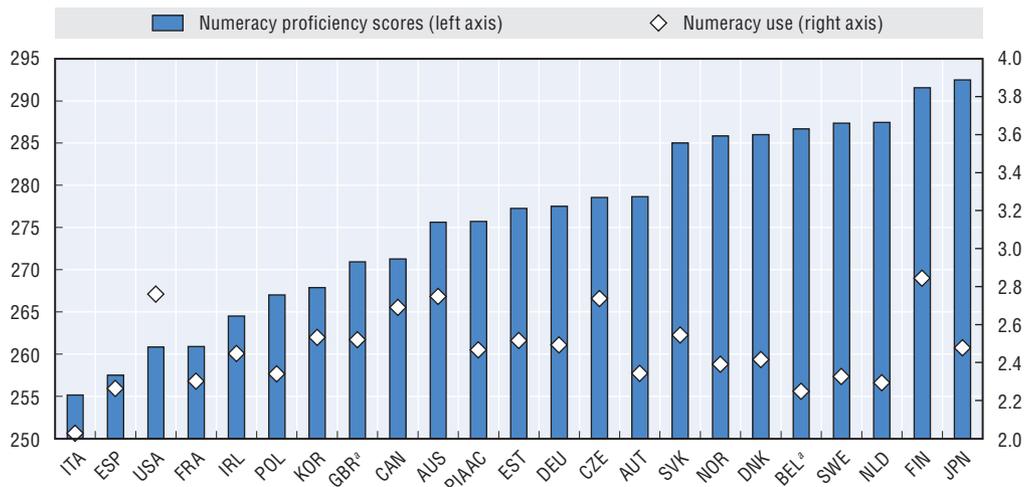
The table below details the tasks used to construct measures of literacy and numeracy use at work.

Literacy	Reading directions, instructions, letters, memos, e-mails, articles, books, manuals, diagrams and maps
Numeracy	Calculating prices, costs or budgets; use of fractions, decimals or percentages; use of calculators; preparing graphs or tables; use of algebra or formulas; use of advanced math or statistics (calculus, trigonometry, regressions)

For each task, a value of 1 indicates that the task is never carried out at work; a value of 2 indicates that it is carried out less than once a month; a value of 3 indicates that it is carried out less than once a week but at least once a month; a value of 4 indicates that it is carried out at least once a week but not every day; and a value of 5 indicates that it is carried out every day.

Cronbach's Alpha, a statistical technique, is used to test that the items used to derive each skills use variable are grouped appropriately. The resulting scale for these variables is a continuous variable that ranges from 1 to 5, as it is the case for the underlying items: a value close to 1 indicates that the person does not use that particular skill at work while a value close to 5 suggests that the person uses the skill every day.

Figure 2.9. **Numeracy use and proficiency**
Average numeracy scores and average skill use levels



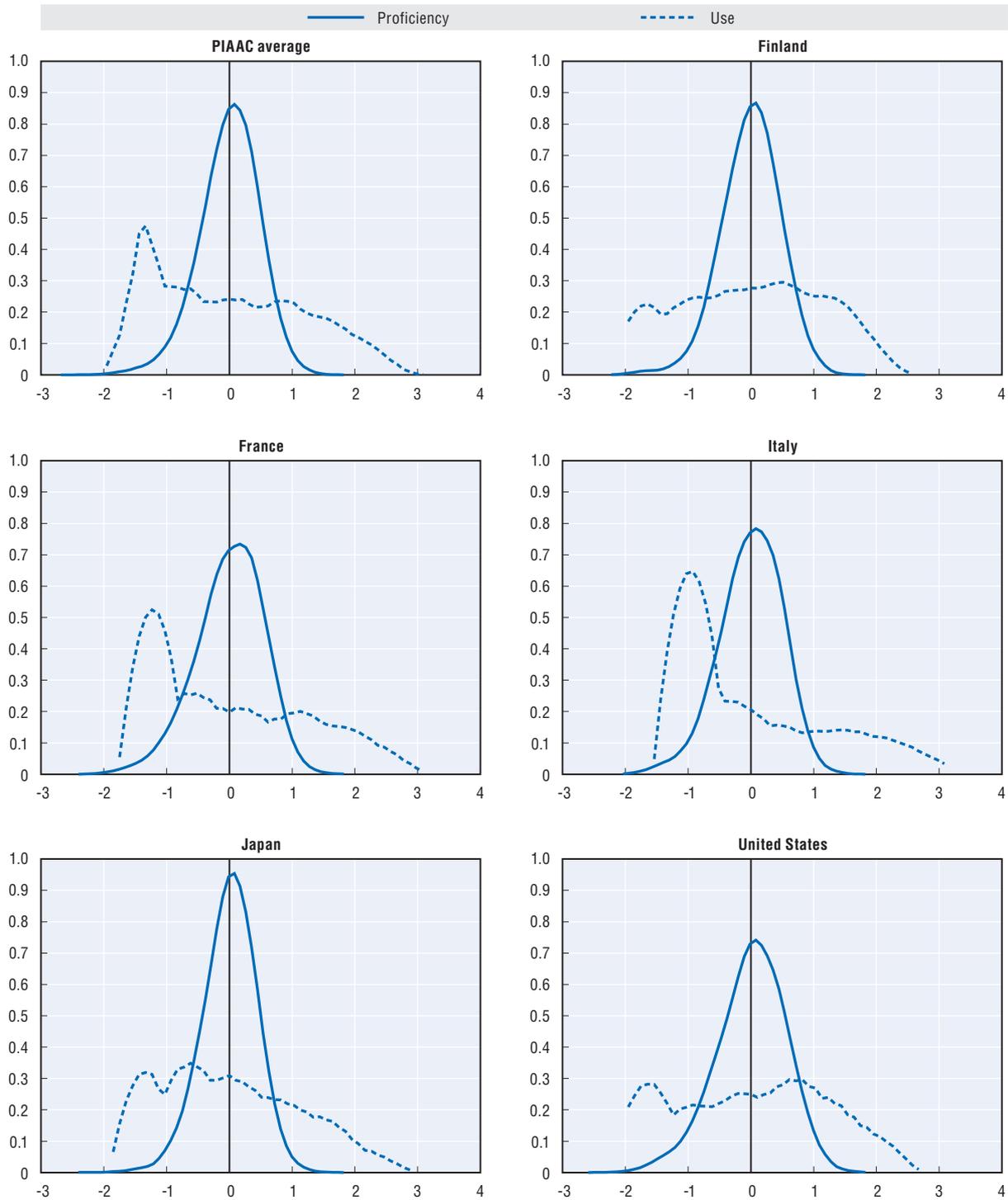
a) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).
Source: Survey of Adult Skills (PIAAC) 2012.

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The *distribution* of skills use may differ from the distribution of skills proficiency because use is driven in large part by the needs of employers. Hence a country could have a high share of highly proficient workers but little demand for highly-qualified workers, translating into a distribution of skills use with a negative skew (fatter on the left-hand side of the mean) compared to the proficiency distribution.⁸ This is shown in Figure 2.10 for selected countries. Overall, in most countries, it is high-end skills that are going unused – hence, presumably, unrewarded – while the opposite is true of low-end skills. In fact, in most countries, the share of individuals with high levels of numeracy proficiency is higher than the share of individuals with frequent use of numeracy skills at work, suggesting an underuse of numeracy skills in the middle and upper ranges of the proficiency distribution (Figure 2.11).⁹ In all countries, the use of numeracy at work is more unequal than actual numeracy proficiency,¹⁰ but countries with higher average skill use also tend to have more equal skill use.¹¹

These differences between the distributions of skills proficiency and use, suggest that better aligning skills use to workers' proficiency likely would have important implications for the wage distribution. This possibility is assessed using a similar reweighting methodology to that employed to produce Figures 2.5 to 2.8 (see Annex 2.A2 for technical details). This exercise examines what would happen to wage inequality if the distribution of skill use were the same as the (more equal) distribution of skill proficiency, a scenario that can be interpreted as raising skill requirements at work.¹² Overall, because inequality in numeracy use is higher than inequality in numeracy proficiency, this should translate into a more equitable skills use distribution and, therefore, lower wage inequality. Figure 2.12 summarises the changes in the Gini coefficient¹³ resulting from imposing the numeracy proficiency distribution (in levels, 0/1 to 5) onto the numeracy use distribution. In most of the countries included in PIAAC, wage inequality measured by the Gini coefficient would indeed decline if numeracy skills were better used in the labour market.

Figure 2.10. **Numeracy proficiency and use distributions, selected countries and PIAAC average**
 Distributions of numeracy proficiency and use, demeaned^a



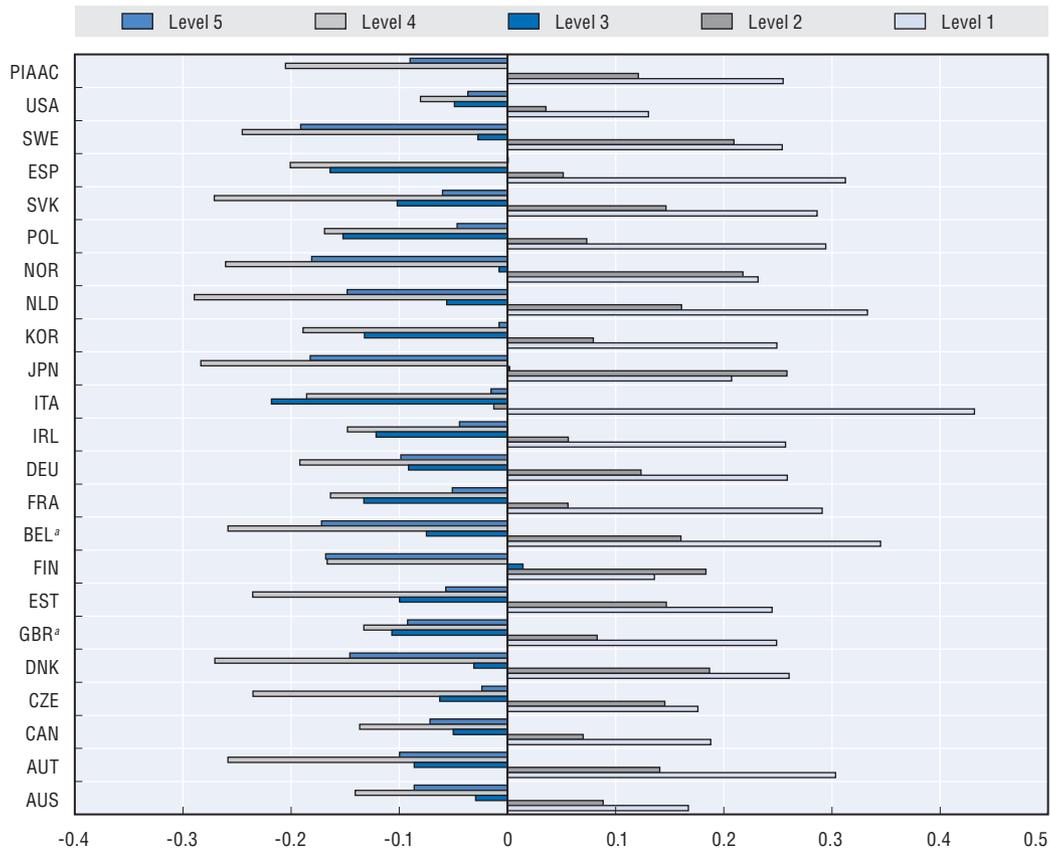
a) For each country, the mean of numeracy proficiency and numeracy use were subtracted to facilitate the comparison between the distributions.

Source: Survey of Adult Skills (PIAAC) 2012.

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Figure 2.11. **Differences in the distribution of skills use and proficiency, by level**

Percentage point difference between the share of workers at a given numeracy use level and the share of workers at the same numeracy proficiency level^a



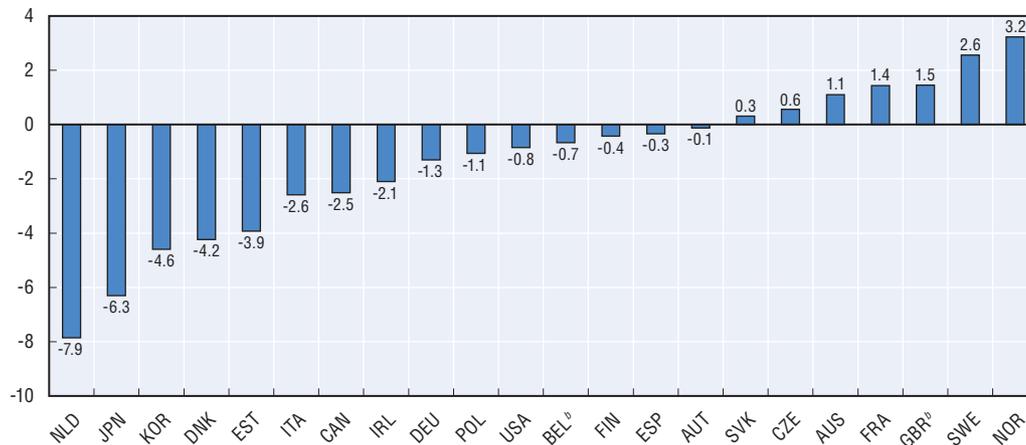
a) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).

Source: Survey of Adult Skills (PIAAC) 2012.

StatLink <http://dx.doi.org/10.1787/888933239749>

Figure 2.12. **The impact of skills use on wage inequality**

Percentage change in wage inequality (Gini) after imposing the distribution of numeracy proficiency^a onto that of numeracy use



a) Numeracy proficiency is measured in levels for the purpose of these calculations (levels 0 + 1 to level 5).

b) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).

Source: Survey of Adult Skills (PIAAC) 2012.

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The relative importance of the effects

One difficulty with assessing the relative importance of skills and their use based on the figures presented above is that the size of the effects shown depends on where countries stand relative to the PIAAC average. In particular, they may stand on different sides of the average and at different distances depending on the factor being considered. Elasticities – the percentage change in wage inequality in response to a percentage change in the policy variable of interest – may therefore facilitate such comparisons. The main limitations of elasticities are that: i) they can only be applied to one policy variable at a time, hence they are not suitable to assess the impact of changing skill prices and distributions simultaneously; and ii) like coefficients in a regression, a large elasticity does not necessarily imply that a particular policy change is the most cost-effective for the country. For example, changes in returns to skills may have a larger effect on wage inequality than changes in skills inequality (as measured by the respective elasticities), but may be more difficult to achieve in practice.

Table 2.1 summarises the elasticities of the Gini of the wage distribution to changes in: the dispersion of numeracy skills, the returns to numeracy skills, and the dispersion of numeracy use at work.¹⁴ In almost all countries, changes in the returns to skills have the

Table 2.1. Relative impact of skills on wage inequality
Percentage change in the Gini coefficient given a percentage change in each of the relevant factors

	Elasticity ^a of Gini coefficient of gross hourly wages to:			Percentage difference in Gini coefficient of gross hourly wages with respect to Sweden
	Skills inequality	Returns to skills	Skills use inequality	
Australia	0.11	0.01	-0.02	0.45
Austria	0.08	1.19	0.00	0.44
Belgium (Flanders)	-0.02	0.09	0.01	0.63
Canada	0.06	0.14	0.04	0.40
Czech Republic	0.13	-0.26	-0.01	0.18
Denmark	0.03	0.08	0.06	0.71
Estonia	0.04	0.20	0.06	0.86
Finland	0.01	0.09	0.01	0.17
France	0.08	0.08	-0.02	0.20
Germany	0.24	0.16	0.02	0.28
Ireland	0.04	0.28	0.03	0.68
Italy	0.02	-0.05	0.04	0.66
Japan	0.06	0.20	0.09	0.56
Korea	0.05	0.47	0.07	0.89
Netherlands	0.01	0.05	0.11	1.26
Norway	-0.18	0.11	-0.05	0.46
Poland	0.03	0.84	0.02	0.17
Slovak Republic	0.10	0.34	0.00	0.78
Spain	-0.04	0.35	0.01	0.85
Sweden	-0.11	0.11	-0.04	0.61
United Kingdom (England/Northern Ireland)	0.13	0.21	-0.02	0.00
United States	0.12	0.18	0.02	0.98

a) The elasticities are computed as the ratio of the percentage change in the Gini coefficient of gross hourly wages and: i) the percentage difference between the Gini coefficient of numeracy proficiency in the country and in the average PIAAC country (skills inequality); ii) the percentage difference in the average return to numeracy skills between the country and the average PIAAC country (skills level); the percentage difference between the Gini coefficient of numeracy proficiency and the Gini coefficient of numeracy use (skills use). See Annex 2.A2 for more methodological details.

Source: Survey of Adult Skills (PIAAC) 2012.

StatLink  <http://dx.doi.org/10.1787/888933240188>

most sizeable effect on wage inequality, with elasticities reaching 0.84 in Poland and exceeding 1 in Austria. It is important to keep in mind that this is a partial analysis that takes no account of the likelihood that the supply of numeracy skills would gradually adjust to changes in skill returns – notably, increase if returns rise – ultimately driving returns back down. In addition, returns are the mechanism through which a number of labour market institutions and policies – for instance, minimum wages and collective bargaining – would affect wage inequality.¹⁵ Table 2.1 also indicates that both skills inequality and skills use play a sizeable role in explaining wage inequality in a number of countries. For example, a 10% reduction in skills inequality in Germany could reduce wage inequality by 2.4%, and a 10% increase in skills use in the Netherlands could reduce wage inequality by 1.1%.

To help put these figures into context and frame the policy discussion, the last column of Table 2.1 shows the percentage difference in wage inequality between each country and Sweden – the country with the lowest wage inequality in the PIAAC survey. For instance, based on these elasticities, the most efficient skills-related strategy to bring wage inequality in Australia to the level of Sweden would be to reduce skills inequality by about 4%. The same outcome could be achieved in the Netherlands by reducing the dispersion of skills use by 4% and in the United States by acting on factors affecting returns to skills with an aim to reducing them by about 5%.

The role of demand and supply

The analysis so far has highlighted that the price of skills has a quantitatively more important effect on wage inequality than a country's skill level or the dispersion of those skills. This has led some analysts to suggest that skills matter little in comparison to labour market institutions (Devroye and Freeman, 2001; Blau and Kahn, 2005). However, the price of skills itself is not just a reflection of a country's labour market institutions. It is also partly an outcome of the balance between the supply of and the demand for skills (see Box 2.4).

Box 2.4. Wage inequality and skills supply and demand

Technological change and the demand for skills

The idea that returns to skills (and therefore inequality) depend on demand and supply factors was first introduced by Tinbergen (1975), who famously described inequality as a “race between education and technology”. Technological change increases the demand for more skilled workers and therefore their wage premium in the labour market – i.e. technological change is “skills-biased”. To keep inequality in check, the supply of skills needs to increase to meet that demand. The increase in inequality in the United States, for example, has been partly blamed on the fact that the supply of educated workers has not kept pace with the rise in demand (Juhn, 1999; Juhn et al., 1993; Goldin and Katz, 2008; Autor, 2014). Meanwhile, in European countries, skills supply has risen in line with or even outstripped demand, keeping returns to skills from rising (Crivellaro, 2014).

More recently, spurred by the observation that employment growth has been polarised into both high- and low-skilled jobs, with a hollowing out of the middle (Autor et al., 2003; Autor et al., 2006; Goos and Manning, 2007; Autor and Dorn, 2013; Goos et al., 2014) the skill-biased technological change (SBTC) hypothesis has been refined and turned into the routine-biased technological change (RBTC) hypothesis – i.e. the idea that the execution of routine tasks has been increasingly assumed by computers and robots, resulting in a declining share of routine occupations.

Box 2.4. Wage inequality and skills supply and demand (cont.)**Other explanations for changing skills demand**

While the predominant view among researchers is that changes in technology are the main driver of changes in the demand for skills, some alternative explanations have been put forward, including: the offshoring of certain tasks to countries with lower wages and other costs (Blinder, 2009); increased female labour force participation and an ageing population, which have led to a growth in demand for care work jobs (Dwyer, 2013); or organisational changes that have helped shape the demand for skills (Acemoglu, 1999; Bresnahan et al., 2002; Caroli and van Reenen, 2001, Antràs et al., 2006).

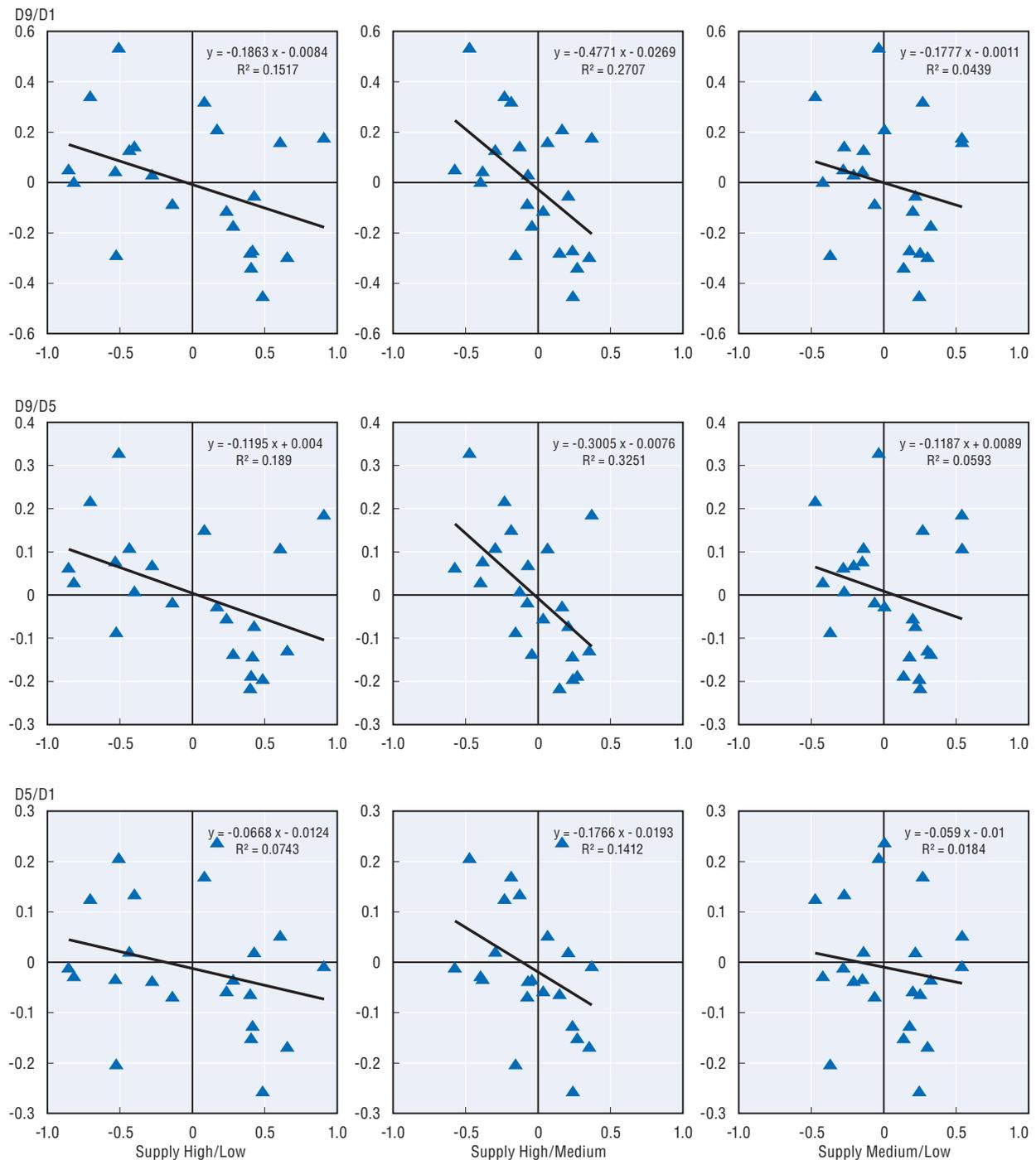
Cross-country comparisons and the importance of measuring skills correctly

Most of the above-mentioned studies look at the evolution of wage inequality within specific countries over time. Blau and Kahn (1996) was possibly one of the first papers to assess the importance of market forces in explaining differences in wage inequality between countries. Using the Katz and Murphy (1992) demand and supply model, they analysed the extent to which higher wage inequality in the United States as compared to nine other OECD countries* could be explained by differences in the relative supply of, and demand for, educated workers. They concluded that market forces have little explanatory power, strengthening their argument that institutions are the main driver of international differences in wage inequality. However, Blau and Kahn (1996) (and several earlier studies) use the number of years of schooling and work experience as their measure of workers' skill levels. Leuven et al. (2004), use the direct measures of skills contained in International Adult Literacy Survey (IALS – a precursor to PIAAC carried out between 1994 and 1998) and show that the Blau and Kahn (1996) results change substantially once direct measures of skill are used. Indeed, Leuven et al. (2004) find that about one third of the variation in relative wages between skill groups across countries is explained by differences in net supply of skill groups. They also conclude that the demand and supply framework does a particularly good job of explaining relative wages of low skilled workers: relative net supply explains nearly 60% of the variation in skill wage differential between the lower and middle thirds, as compared to 44% of the variation between the lower and upper thirds of the skill distribution. Nickell and Bell (1996) and Nickell and Layard (1999) had previously argued that the relative wages of low-skilled workers in the United States were lower than elsewhere as a result of an abundant net supply of low-skilled workers, but Leuven et al (2004) provided much more compelling evidence to support that conclusion.

* Australia, United Kingdom, Italy, Switzerland, Hungary, Germany, Austria, Sweden and Norway.

The accounting methodology used so far is not able to account for the impact of the balance between skills demand and supply on the return to skill. The approach calculates the impact of wage inequality of changing either skills quantity or price, while holding the other constant. The results presented above cannot, therefore, be interpreted as equilibrium effects.

To better understand how the supply of skills interacts with the demand for skills and what effect this has on wage inequality (including through its effect on the price of skills), this section applies the widely used methodology developed by Katz and Murphy (1992), which has already been used by a number of other researchers to investigate the relationship between the net supply of cognitive skills and wage differentials between skill groups (Blau and Kahn, 1996; Leuven et al., 2004). However, instead of looking at wage differentials, the analysis here focuses on the measures of wage inequality over the entire wage distribution, which are the focus of this chapter. Figure 2.13 uses the methodology of Blau and Kahn (1996) (itself based on Katz and Murphy, 1992) and plots the relationship between the net supply of

Figure 2.13. Net supply of skills and wage inequality^{a, b}

- a) High-, medium- and low-skilled workers are defined as the top-third, middle-third and bottom-third of the skills distribution in the average PIAAC country, respectively, where skills are measured using numeracy skills.
- b) Wage gaps and net supply are expressed relative to the PIAAC average (in log differences). For details of how relative wages and net supply are calculated, please refer to Annex 2.A3.

Source: Survey of Adult Skills (PIAAC) 2012.

StatLink  <http://dx.doi.org/10.1787/888933239760>

skills, on the one hand, and measures of wage inequality, on the other. Technical details about the methodology used and the construction of the variables can be found in Annex 2.A3.¹⁶ The scatter plots in the first column look at the relative net supply of high-

versus low-skilled workers, while those in the second and third columns do this for high-versus medium-, and medium- versus low-skilled workers, respectively. Each dot represents one of the 22 countries included in PIAAC. Intuitively, if higher skills were in short supply, then one would expect there to be a high wage premium associated with higher skills and therefore higher wage inequality. Conversely, if higher skills were abundant, then their relative wage premium would be low and so would wage inequality. More generally, one would expect to see a negative relationship between the net supply of skills and relative wages, and the dots should lie either in the north-west or south-east quadrants.

All fitted lines in Figure 2.13 are indeed downward-sloping, and most observations lie in the expected quadrants. The net supply of high- versus medium-skilled workers appears to have the strongest effect on wage inequality, explaining around one third of the cross-country variance in the D9/D5 ratio. In this case, a 1% increase in the net relative supply of high- versus medium-skilled workers would lower top-half wage inequality by 0.3%. By contrast, the relative net supply of medium- versus low-skilled workers has much less explanatory power for international differences in wage inequality (explaining only 1.8% of the cross-country variation in the D5/D1 ratio). The result of increasing the net relative supply of medium- to low-skilled workers by 1% would be a reduction in bottom-half wage inequality by 0.06% only. The less important role of market forces in the bottom half of the wage distribution is easily reconciled with an institutional explanation of relative wages. Indeed, one would expect labour market institutions like the minimum wage and collective bargaining to play a greater role in protecting wages at the bottom of the wage distribution than at the top.

To summarise, this analysis shows that the supply of skills does matter for wage inequality, but that it is critical to consider how the balance between demand and supply influences the price of skills. The results presented here also suggest that these market forces are particularly important in determining the return to skills in the upper half of the wage distribution.

3. Skills and wage gaps between groups

Up until now, the analysis has focused on overall wage inequality between countries and the extent to which these gaps could be explained by differences in skills. Nothing has been said so far about the role of skills in explaining differences in wages between workforce groups within countries, such as between: men and women; native- and foreign born; workers whose parents have tertiary qualifications and those whose parents have lower secondary education or below; and between older and younger workers. This will be the focus of this section.

Wage gaps between socio-demographic groups can be significant. Across the 22 countries covered in the present chapter, men's wages are 18.4% higher than women's, on average; those of native-born workers are 15.1% higher than those of foreign-born workers; workers whose parents have tertiary education earn 19.7% more than those whose parents have lower secondary or less; and older workers (aged 50-65) have wages 36.1% higher than younger workers (aged 16-29). This section will seek to understand to what extent these wage differences can be attributed to differences in the information processing skills measured in the PIAAC. The analysis should therefore shed light on the extent to which policy makers can rely on skill policies to address these wage gaps.

The analytical approach follows the simulations presented in previous sections. Alternative wage distributions are simulated, for example, for women: i) first assuming that they have the same skill distribution as men; and then ii) assuming their skills are

rewarded in the same way as those of men. The approach is essentially the same as in the standard Oaxaca-Blinder decomposition, except that the method used here accounts for the full distribution of wages, rather than focusing only on group differences in the mean.¹⁷ In this framework, differences in the prices of skill will reflect a mixture of uncontrolled-for factors that also affect productivity and wages (e.g. unobserved skills, innate ability, etc.), as well as any discrimination in pay levels.

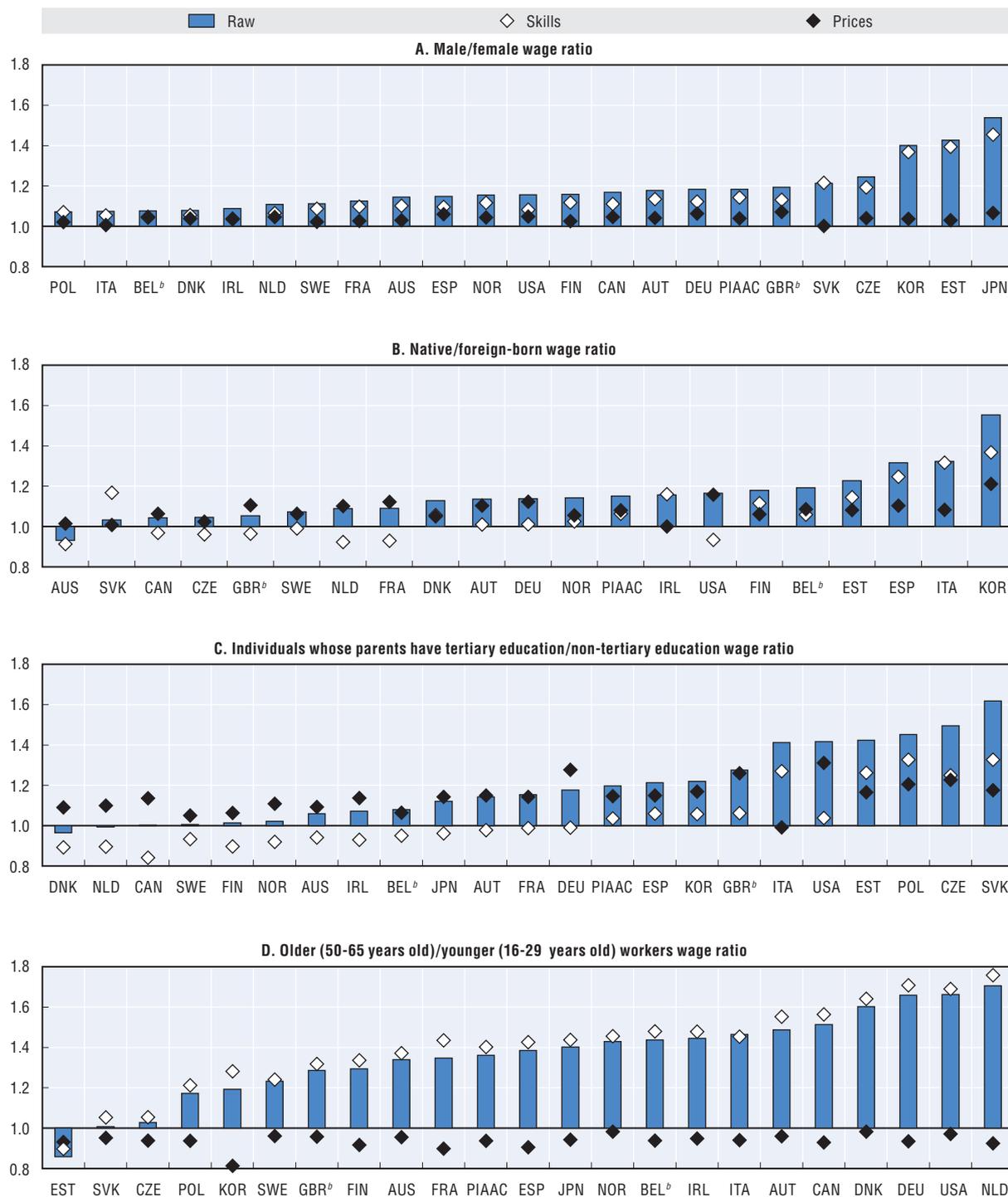
Figure 2.14 presents the results of this analysis. The bars represent the mean wage gaps between the various groups in each country. Gender wage gaps are particularly high in Japan, Estonia and Korea. Foreign-born workers fare most poorly (relative to native-born workers) in Korea, Italy and Spain. Wage gaps by parental education are largest in the Slovak Republic, the Czech Republic, Estonia and Poland. And older workers earn significantly more than the young in the Netherlands, the United States and Germany. The white diamonds indicate how much these wage gaps would be reduced if the skills distribution (both level and dispersion) of the comparison group is adopted, while the black diamonds show how the wage gap would change if skills were rewarded in the same way as for the comparison group.

It is clear from these graphs that the potential role of skills policies varies considerably depending on which of the wage gaps one would like to address. In the case of the gender wage gap (Panel A), for example, observed differences in skills account for 23% of the observed wage gap across PIAAC countries, on average, and this share is relatively consistent across all 22 countries. While skills policies could therefore play some role in reducing the difference in wages between men and women, other policy interventions will also be required. By contrast, in the case of native/foreign-born workers (Panel B), 72% of the wage gap can be explained by differences in skills, on average. However, there is considerable variation across the countries studied. In some countries, skills play no role in explaining the gap in wages (e.g. Italy and Ireland). In other countries, virtually the entire gap is explained by skills (Norway, Germany, Austria). Finally, the wage gap would even be reversed if foreign-born workers had the same skills as native-born workers in some countries (United States, France and the Netherlands). It is of course possible that differences in numeracy skills between foreign-born and natives, as measured in the PIAAC, pick up gaps in other skills – in particular, differences in the language skills needed to perform on the numeracy test. As a result, while Figure 2.14 suggests a sizeable role for skill policies in reducing the native/foreign-born wage gap, further analysis is needed to identify which skills would have to be strengthened.

Panel C shows the differences in wages between those who have at least one parent with tertiary education and those whose parents had at most a lower-secondary education. The fact that, on average, 83% of the wage gap can be accounted for by differences in skill suggests a close link between parents' and children's education and skills, and thus that skills policies might be critical in raising the wages of the least educated (and their offspring). There are, however, important differences between countries. While skills explain virtually the entire gap in wages between those with high and low parental education in the United States England/Northern Ireland, Germany and France, skills explain a much smaller part in Poland, Estonia and Italy.

Finally, Panel D shows that younger workers would earn even less relative to older workers if they had the same numeracy skills as them. This is because, in general, younger workers tend to have higher skills than older generations (OECD, 2013). Most striking,

Figure 2.14. **Wage ratios between groups and the role of skills**
 Wage ratio before and after controlling for skills distribution and price effects^a



a) OECD calculated as the simple, unweighted country average. Poland and Japan are not included in the native-foreign analysis, due to small samples of foreign-born workers. Wage gaps are expressed as the log of the D9/D1 ratio.
 b) The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).

Source: Survey of Adult Skills (PIAAC) 2012.

StatLink <http://dx.doi.org/10.1787/888933239773>

however, is the extremely large difference in how numeracy skills are rewarded between younger and older workers, and that the former would earn more than older workers if rewards were equalised across groups.¹⁸ As is the case for native-born workers, it is likely that older workers are being rewarded for other types of skills that are not captured by the PIAAC measure of numeracy skills. That said, practices that link wages to seniority are likely to worsen the link between skill and wages in some countries.

4. Robustness checks: The role of institutions

So far, the chapter has analysed the role of skills in explaining international differences in wage inequality in isolation from other labour market institutions and practices that may affect wage inequality. After briefly discussing the literature on institutions and wage inequality, this section assesses whether the effect of skills on wage inequality is robust to the inclusion of these additional elements through some simple regression analysis.

The role of institutions

What the literature shows

A rather rich literature explores the relationship between labour market institutions and wage inequality, mostly in the context of explaining trends in inequality over time.

A large part of this literature has focused on wage-setting features – such as collective bargaining coverage, the unionisation rate and the presence of statutory or bargained minimum wages. A number of studies have concluded that the decline in the real value of the minimum wage in the United States has been responsible for part of the rise in inequality (DiNardo et al., 1996; Lee, 1999; Wolff, 2008; Autor et al., 2014). Falling industry-based minimum wages have also been shown to have played a role in raising inequality in the United Kingdom in the late 1980s and early 1990s (Machin, 1997; Dickens et al., 1999) and Mexico (Bosch and Manacorda, 2010). Comparative studies of different countries also show that minimum wages are associated with lower wage inequality (Koeniger et al., 2007; Crivellaro, 2014).

The decline in the share of workers who are members of trade unions is another factor which has been associated with rising wage inequality, particularly in English-speaking countries and Japan (Braconier and Ruiz-Valenzuela, 2014). The evidence of the effect of declining union membership is particularly strong for the United States (Blau and Kahn, 1996; DiNardo et al., 2007; Wolff, 2008; Firpo et al., 2011). Interestingly, the decline in unionisation itself may be caused by technological change (Dinlersoz and Greenwood, 2013), so that the latter is still (albeit indirectly) the underlying cause of rising inequality.¹⁹ Focusing on bargaining coverage rather than union membership, Garnero, Kampelmann and Rycx (forthcoming) suggest that sectoral minimum wages associated with high collective bargaining coverage are a functional equivalent of a binding statutory minimum wage in terms of their (negative) impact on wage inequality.

In addition to the wage setting framework, labour market regulatory reforms aimed at increasing flexibility (in particular the relaxation of rules on employment protection legislation for fixed-term and temporary agency work contracts) have been argued to have contributed to the rise in inequality in OECD countries through the expansion of non-standard employment that they have encouraged. OECD (2015a) shows that in the fifteen years to 2010 most OECD countries have seen a shift in employment from regular/open

ended to atypical/non-standard contracts, including self-employed own-account workers. Since in most countries, a large share of the growth in non-standard employment has been in low-skilled jobs in the bottom part of the wage distribution, temporary jobs have contributed to the increase in wage inequality, at least in an accounting sense.

Another labour market practice found to affect wage inequality is the use of performance pay in the economy. Some authors have concluded that wages are less equally distributed in performance-pay jobs than in other jobs because the return to productive characteristics – such as skills – is larger in performance-pay jobs (Lemieux et al., 2007). In addition, performance-pay workers are less likely to be paid around the minimum wage or work in highly unionised sectors. As a result, just as minimum wages and collective bargaining may affect inequality by protecting the wages of workers at the bottom of the skill distribution, performance pay may affect it by influencing wages at the high-end of the wage distribution. While PIAAC do not include information on performance pay, it asks respondents whether they received bonus payments – not necessarily related to performance – and how much they amounted to.

Finally, a number of less looked-at features of the labour market are also likely to affect wage inequality. For instance, the size of the public sector may affect the degree of wage inequality if wages in the public sector are more compressed and less driven by performance than in the private sector. The generosity of unemployment benefit systems may also affect wage inequality by affecting the reservation wages and/or worker bargaining power.

What PIAAC shows

PIAAC contains information on job characteristics which can be exploited to analyse the impact of labour market institutions and practices on wage inequality. In particular, the data indicate whether individuals' jobs are temporary and/or part-time, and whether workers receive bonus payments. Unfortunately, the PIAAC data do not contain information on workers' union membership.

Table 2.2 shows wage inequality before and after the inclusion of temporary jobs and part-time jobs. The D9/D1 ratio increases in most countries when temporary jobs are added to the calculations. In Italy and the Netherlands, adding temporary work increases the D9/D1 ratio by 8.9% and 8.7%, respectively. At the other extreme, wage inequality remains unchanged in Australia and Ireland and falls in the Czech Republic (-0.7%), England/Northern Ireland (-1.2%), Japan (-2.5%) and the United States (-7.3%).²⁰ A similar pattern is observed when part-time jobs are included alongside full-time ones, generating increases in inequality that range from less than 1% in Estonia to 14% or more in Denmark and Korea.

The picture is more mixed for bonus payments, probably reflecting the different relationship of bonuses to performance across countries. Table 2.3 shows that bonuses – both in absolute and relative terms – are much larger in the highest-paid decile of the wage distribution than in the lowest-paid decile. Despite the concentration of bonus pay at the top of the wage distribution, 13th-month payments are the main component of bonus pay captured in PIAAC in most countries, with Australia, Austria, Japan, Korea, Spain, Sweden and the United States being the exceptions.²¹ In about half of the PIAAC countries, the baseline wages of individuals receiving bonuses are distributed more unequally than the wages of individuals without bonuses and the bonus itself tends to make inequality

Table 2.2. Impact on inequality of including temporary and part-time jobs
Effect on the inequality of gross hourly wages of including temporary and part-time jobs

	D9/D1 ratio					
	Permanent jobs only	All ^a	% change	Full-time jobs only	All ^a	% change
Australia	3.03	3.03	0.0%	2.98	3.14	4.8
Austria	2.86	2.95	3.0%	3.07	3.05	-0.6
Belgium (Flanders)	2.52	2.59	2.6%	2.47	2.61	5.5
Canada	3.67	3.93	6.7%	3.53	3.94	10.5
Czech Republic	2.85	2.83	-0.7%	2.75	2.84	3.1
Denmark	2.31	2.41	4.2%	2.22	2.58	14.3
Estonia	4.52	4.71	4.1%	4.71	4.71	0.0
Finland	2.46	2.55	3.6%	2.46	2.54	3.2
France	2.46	2.51	1.8%	2.42	2.56	5.3
Germany	3.58	3.69	3.1%	4.04	4.22	4.3
Ireland	3.51	3.52	0.3%	3.43	3.57	3.8
Italy	2.98	3.27	8.9%	3.15	3.42	7.9
Japan	4.20	4.10	-2.5%	4.01	4.08	1.9
Korea	5.28	5.47	3.5%	4.89	5.82	16.0
Netherlands	2.84	3.12	8.7%	2.99	3.24	7.8
Norway	2.40	2.42	0.8%	2.31	2.44	5.1
Poland	3.78	3.868	2.3%	3.62	3.89	6.8
Slovak Republic	3.89	4.01	3.0%	3.87	4.01	3.6
Spain	3.35	3.53	5.1%	3.56	3.60	1.1
Sweden	2.08	2.11	1.2%	2.10	2.17	3.1
United Kingdom (England/Northern Ireland)	3.54	3.50	-1.2%	3.46	3.52	2.0
United States	5.13	4.78	-7.3%	4.56	4.83	5.4

a) The difference for the total inequality here compared to Figure 2.1 and Annex 2.A1 is the result of excluding apprentices and individuals with no contracts for type of contract, and missing information for type of contract and hours worked.

Source: Survey of Adult Skills (PIAAC) 2012.

StatLink  <http://dx.doi.org/10.1787/888933240196>

among bonus earners even higher. In the other half of PIAAC countries, however, the opposite is true: the wage distribution of bonus earners is less unequal than the wage distribution of those not earning a bonus.²² Overall, while bonuses reported in PIAAC appear to be quite different from the concept of performance-related pay discussed in Lemieux, McLeod and Parent (2007), they are not necessarily distributed equally among workers. In about half the countries, they actually contribute to increasing wage inequality.

The role of skills when institutions are accounted for

This final section assesses whether the estimated impact of skills on wage inequality, as analysed earlier in this chapter, is robust to the inclusion of controls for labour market institutions. This question is analysed using the demand and supply framework previously introduced. To be more specific, a regression framework is used to estimate the impact of the data on the net supply of skills from Figure 2.13 on wage inequality, where alternative specifications are estimated that do and do not contain additional controls for labour market institutions.

Column (i) of Table 2.4 shows the impact on the D9/D1 wage ratio of the net supply of high- versus low-skilled workers on its own and then controlling, in turn, for key labour market institutions and practices. The coefficient in the first row is identical to the one reported in Figure 2.13 and is reproduced here for reference. It is negative and statistically

Table 2.3. Incidence, distribution and size of bonuses, by country

	Incidence of individuals with bonuses (%)		Individuals without bonuses		Individuals with bonuses		Change in inequality when adding individuals with bonuses (%)	Average size of bonuses (US\$)				Average size of bonus relative to baseline wages (%)			
	with bonuses (%)	D9/D1 ratio	D9/D1 ratio	Individuals with bonuses		1st decile		5th decile	10th decile	1st decile	5th decile	10th decile	1st decile	5th decile	10th decile
				Wages with bonuses	D9/D1 ratio		Baseline wages								
Australia	17.2	2.96	3.35	3.33	6.07	0.25	0.70	4.55	1.55	4.25	24.01				
Czech Republic	39.1	2.69	2.85	2.73	6.94	0.02	0.35	5.01	0.37	4.04	33.78				
Estonia	25.4	4.54	4.55	4.37	3.57	0.04	0.34	3.84	0.75	4.98	31.55				
Ireland	27.2	3.54	3.61	3.49	0.89	0.07	0.87	10.80	0.58	5.77	59.46				
Norway	17.6	2.29	2.55	2.38	6.43	0.01	1.01	11.96	0.05	4.18	40.05				
Poland	45.7	3.49	3.61	3.50	11.28	0.07	0.46	3.10	1.12	5.89	26.63				
Slovak Republic	35.3	3.29	4.08	3.51	21.75	0.06	0.41	8.60	1.08	5.46	94.26				
Sweden	29.9	2.02	2.18	2.09	7.53	0.07	0.91	7.39	0.43	5.03	35.57				
United Kingdom (England/Northern Ireland)	24.9	3.21	3.76	3.65	9.96	0.06	0.71	11.80	0.50	4.71	55.03				
United States	41.3	4.33	4.76	4.39	11.21	0.04	0.50	12.16	0.30	2.94	38.58				
Austria	96.5	3.90	2.97	2.85	-21.73	1.18	2.48	9.44	16.48	17.24	40.40				
Belgium (Flanders)	90.7	2.72	2.49	2.44	-4.09	0.50	2.06	9.31	3.39	11.66	42.75				
Canada	34.4	3.90	3.82	3.71	0.95	0.04	0.72	9.17	0.37	4.48	48.47				
Denmark	53.2	2.60	2.48	2.44	-0.66	0.12	0.72	5.80	0.73	3.8	21.45				
Finland	67.4	2.44	2.39	2.43	4.09	0.23	0.96	4.83	1.76	5.23	28.51				
France	49.3	2.67	2.32	2.28	-4.15	0.17	1.13	5.27	1.39	8.13	29.36				
Germany	59.6	4.47	3.16	3.12	-5.58	0.12	0.98	6.52	1.24	5.86	33.15				
Italy	72.6	3.49	2.78	2.52	-1.94	0.34	1.19	11.28	3.82	8.97	73.05				
Japan	36.5	4.04	3.84	3.53	1.07	0.04	0.89	8.75	0.39	8.26	41.82				
Korea	53.9	6.17	5.28	5.00	-5.48	0.07	0.98	11.49	1.00	7.99	71.51				
Netherlands	85.4	4.76	2.98	2.86	-31.97	0.33	1.52	7.05	3.11	8.47	87.11				
Spain	52.2	3.61	3.23	3.21	-0.33	0.38	1.75	9.20	4.78	14.6	64.57				

Source: Survey of Adult Skills (PIAAC) 2012.

StatLink  <http://dx.doi.org/10.1787/888933240204>

Table 2.4. The impact of skills on wage inequality, controlling for institutional factors: Evidence from regression analysis

	D9/D1	D9/D5	D5/D1
	(i)	(ii)	(iii)
Net supply of skills (high/low) estimated coefficient	-0.186* (0.104)	-0.300** (0.117)	-0.059 (0.083)
Net supply of skills (high/low) estimated coefficient, controlled by:			
Minimum wage dummy ^a and minimum wage value ^b	-0.165** (0.071)	-0.210* (0.107)	-0.105 (0.063)
Employment protection legislation ^c	-0.146 (0.098)	-0.267** (0.111)	-0.024 (0.080)
Union coverage	-0.103** (0.046)	-0.167*** (0.050)	-0.035 (0.061)
Share of public sector employment ^d	-0.148** (0.060)	-0.215*** (0.072)	-0.069 (0.079)
Generosity unemployment benefits ^e	-0.177** (0.080)	-0.276** (0.099)	-0.061 (0.075)
Share of temporary jobs	-0.047 (0.072)	-0.133 (0.119)	0.012 (0.068)
Share of part-time jobs	-0.194* (0.108)	-0.295** (0.119)	-0.078 (0.091)
Share of jobs including bonus pay	-0.186 (0.108)	-0.298** (0.122)	-0.059 (0.087)
All controls above	-0.184* (0.099)	-0.287** (0.111)	-0.062 (0.086)

Robust standard errors are in brackets. ***, **, *: statistically significant at 1%, 5% and 10% levels, respectively. All variables are relative to the OECD (and in logs).

- a) Dummy variable indicating countries that have a minimum wage. Countries that do not have a minimum wage are: Finland, Sweden Norway, Denmark, Germany, Austria and Italy.
- b) Minimum wage relative to average wage of full-time workers.
- c) Strictness of employment protection legislation – individual and collective dismissal (regular contracts).
- d) Employment in general government as a percentage of the labour force.
- e) Net replacement ratio (NRR), which is defined as the average of the net unemployment benefit (including SA and cash housing assistance) replacement rates for two earnings levels, three family situations and 60 months of unemployment.

Source: Survey of Adult Skills (PIAAC) 2012, for wage inequality, net supply of skills, share of permanent and part-time jobs and share of jobs including bonus pay; OECD Statistics for EPL and Minimum Wage (2012); ICTWSS version 4 for union coverage (latest available); OECD Government at a Glance, 2013 (2011, 2010 for Germany, Ireland, Norway, Sweden, and the United Kingdom); OECD Tax-Benefit Model for unemployment benefits (2012).

StatLink  <http://dx.doi.org/10.1787/888933240211>

significant indicating that the larger the net supply of high-skilled workers the lower wage inequality. The following rows report the coefficient on the net supply of high-skilled workers when institutional controls are included in the model, first one by one and then all at once. Finally, the other two columns of Table 2.4 repeat the analysis with the D9/D5 and D5/D1 wage ratios as dependent variables, and with the net supply of high- versus medium-skills and medium- versus low-skills as the key explanatory variables, respectively.

The most important finding to emerge from Table 2.4 is that the net supply of skills appears to matter at the top of the wage distribution even once institutions are controlled for. Indeed, the effect of the net supply of high- versus medium-skilled workers on the D9/D5 ratio remains negative and significant in the presence of institutional controls in all but one of the regressions.²³ The table also confirms that the net supply of medium- versus low-skilled workers does not have a significant effect on the D5/D1 ratio. This finding is consistent with the idea that labour market institutions and policies tend to mute market forces at the bottom

of the wage distribution in order to provide a “safety net” and protect the low-skilled from low wages, while at the top of the distribution demand and supply have greater scope to determine relative wages between skill groups. Although the analysis is cross-sectional, the findings are also consistent with the idea that demand for high-level, abstract skills is high and that their relative scarcity results in high returns and therefore inequality.

Conclusions

This chapter has analysed the contribution of skills to explaining differences in wage inequality across 22 OECD countries. The findings demonstrate that investing in skills matters even after labour market institutions, policies and practices that affect wage inequality are taken into account. The impact of skills investments on wage inequality is shown to be especially large when skills are scarce in relation to demand. The results also show that reducing inequalities in how skills are distributed within countries can have a significant impact on wage inequality. Finally, the chapter has shown that putting skills to better use can further help in reducing wage inequality, by strengthening the link between skills, productivity and wages.

The findings of this chapter have important policy implications, although the areas where the largest gains are to be made and the optimal combination of policies will depend on each country’s specific circumstances, as well as on its population’s preferences regarding the “ideal” or “acceptable” level of wage inequality. For instance, based on the elasticities derived from the analysis in the chapter, the most efficient skills-related strategy to bring wage inequality in Australia to the level of Sweden would be to reduce skills inequality by about 4%. The same outcome would be best achieved in the Netherlands by reducing the dispersion of skills use by 4%. In the United States, the best strategy – at least in the short-run – would be to act on factors affecting returns to skills with an aim to reducing them reducing them by about 5%. A fuller assessment would, of course be required to assess the costs and benefits of such policies, but the analysis presented here suggests that skills policies should be designed, in part, to limit wage inequality.

The chapter has shown that discrepancies between skills supply and demand are likely to result in increased wage inequality. Such discrepancies are most likely to arise if skill development policies do not keep up with changing skills demand (due to technological change, off-shoring, ageing population, etc.), a situation that is also likely to reduce potential growth. These findings highlight the need for countries to assess current and future skills requirements. Skills assessment and anticipation exercises are critical in this respect, as is the ability to effectively translate the information from such tools into policy action. The OECD has launched a new project, the aim of which is to identify both barriers to, and good practice in, effective skills governance. A comparative report will be published in 2015, and individual country reviews will get underway at around the same time.

Assuming that skills needs can be reliably assessed and anticipated, and that effective mechanisms exist for translating such information into policy action, a variety of interventions can be envisaged to make the education and training systems more responsive to changing skills needs. These include strengthening careers guidance, working more closely with employers, expanding traineeship and apprenticeship programmes, and reforming funding structures that distort the mix of vocational education and training that is offered. Migration policies can also be designed so as to better help employers fill shortage occupations – but these policies need to be finely attuned to domestic education and training policies.

The chapter has also highlighted the need to make better use of skills at work, and other OECD work has shown that this may be of particular concern for certain socio-demographic groups (OECD, 2013). In many countries, governments support local economies or sectors to move production up the value-added chain and raise skill requirements. However, the issue of skills use takes the policy discussion to the heart of what goes on within the workplace: the role of leadership and management, how work is organised, job design, internal mobility, and personnel and recruitment policies more generally. While robust evidence on what works in this area is harder to obtain (let alone on which types of public policies best promote better use of skills at work), evidence suggests that larger firms may have an advantage in getting the most out of people. This may be because it is easier for large firms to screen candidates at hiring, to move staff internally and/or adjust their tasks (Quintini, 2014). The OECD is currently engaged in a new research project that intends to use the *Survey of Adult Skills* (PIAAC) to shed further light on the determinants of skills use at work, as well as on the consequences of poor skills use.

Finally, in some countries, there may be gains to be made from making the skills distribution more equitable, and this will require additional investments to ensure that the least-skilled do not fall behind in a world where high-level skills are increasingly in demand. As this chapter has shown, investing in the skills of certain sub-groups, like migrants and their children, and those from lower socio-economic backgrounds could make an important contribution to lowering wage inequality. Policies that promote equity in education include: providing quality and affordable early childhood education and care, postponing early tracking and offering extra support for youth at risk of dropping out and second-chance programmes for those who have already dropped out. In addition, policies will need to be put in place to up-skill those already in work, those whose skills risk becoming obsolete as a result of technological change, and those who have already been displaced. Information, advice and guidance will be critical here, as will measures to promote and strengthen on-the-job training, lifelong learning, and active labour market policies. Finally, to address differences in the way skills are being rewarded between different socio-economic groups, policies will be required to fight discrimination in the labour market.

Notes

1. It has also been argued to have been one of the causes of the 2008 financial crisis. According to Rajan (2010) and Kumhof and Rancière (2011), for instance, rising inequality led to a credit boom which eventually culminated in the financial crisis.
2. PIAAC has greater country coverage than the previous skills surveys. In addition, the PIAAC data used in this chapter contain detailed information on wages, measured in a continuous format – something which was not the case in the aforementioned studies.
3. Problem solving in technology-rich environment – the third main domain assessed by the survey – is not suitable for this type of analysis because data are missing for a significant part of the sample which varies across countries/regions.
4. Annex 2.A1 presents the data behind Figure 2.1. Overall, the picture of wage inequality emerging from PIAAC matches quite closely that derived from the *OECD Earnings Distribution Database* and reported in Statistical Annex Table O. Differences are to be expected, even beyond sampling variation, because the latter only includes full-time employees and is calculated based on grouped data. Nonetheless, the overall patterns are reassuringly similar.
5. In this chapter, the terms “PIAAC average” and “average PIAAC country” refer to the average across the OECD countries and regions covered by the first round of the *Survey of Adult Skills* (PIAAC).
6. It is important to stress that, while price and quantity effects are introduced simultaneously, they are not allowed to interact and, therefore, the result should not be interpreted as a new equilibrium.

7. While frequency of use could be criticised as an indicator of the level (or complexity) of the numeracy skills required by a job it is certainly a good proxy of importance. In addition, Quintini (2013) confirms that there is a statistically significant positive correlation between numeracy use at work and numeracy proficiency at the individual level.
8. This could be a temporary phenomenon while labour market demand adapts to the availability of highly-qualified human capital by upgrading production processes.
9. In other words, in many countries numeracy requirements at work are low relative to the proficiency in numeracy of the workforce.
10. The Gini of numeracy use is higher than the Gini of numeracy proficiency, irrespective of whether proficiency is measured in scores or levels. This is in line with the idea that the demand for skills is polarising towards high and low-skilled jobs – i.e. jobs with high and low skill requirements/use, with a hollowing out in the middle.
11. The correlation between the average level of skills use and the Gini coefficient of skills use is -0.82.
12. More specifically, in most countries, the reweighting would increase the share of job with mid-level skill requirements compared to the baseline distribution of skills use.
13. Because skills use and skills proficiency levels are used in this calculation, it is preferable to use the Gini coefficient as a measure of inequality than the inter-decile ratios.
14. It is important to note that these elasticities are only approximations of the change in the Gini coefficient of the wage distribution to the changes in skills dispersion, skills use dispersion and returns to skills. In fact, the simulations carried out in this chapter, based on which the numerator of the elasticities is calculated, take account of the entire skills and skills use distributions. On the other hand, the denominator of the elasticities reported in Table 2.1 is based on summary measures of skills and skills use inequality (the Gini coefficients of these two distributions) and on average returns to skills. The latter is particularly important because, as mentioned above, the relationship between skills and wages is non-linear.
15. A similar reasoning applies to skill levels but the adjustment of returns to the supply of skills is potentially much faster, making this static analysis less useful. For this reason, elasticities to changes in skill levels are excluded from this table.
16. While the methodology followed to derive the measure of net supply follows the standard approach used in the literature, it is important to acknowledge that, in reality, the demand and supply indices may not be separated as easily as they are here. This is the case in particular if it is true that firms will open jobs for certain skills if these happen to be available (Acemoglu and Shimer, 2000).
17. The method is in essence a generalisation of the Oaxaca-Blinder decomposition of means to the full distributional case (Lemieux, 2002).
18. Note that these results do not depend on the definition of the age groups. In particular, one might be concerned that the younger age group (16-29) may include many individuals who have not yet completed education. Yet repeating the exercise for 25-29 year-olds only does not alter the conclusions reached in the chapter.
19. Dinlersoz and Greenwood (2013) argue that unskilled labour is more homogenous and easier to unionise. Skills-biased technological change leads to a fall in the demand for unskilled labour and therefore a fall in unionisation. An alternative argument was made by Acikgoz and Kaymak (2011), who maintain that skills-biased technological change raises the demand for skill and therefore the skill premium. As a result, skilled workers face reduced incentives to join a union.
20. In the United States – the country experiencing the most substantial fall in wage inequality when temporary work is added to permanent work – this may be due to the fact that most jobs are subject to the “employment at will principle” by which an employee can be dismissed by an employer for any reason (that is, without having to establish “just cause” for termination), and without warning. This blurs the distinction between temporary and permanent work in the country. Similarly, some casual workers in Australia may report themselves as “temporary” in the survey while not sharing many of the features of temporary or fixed-term workers in European countries. For instance, casual jobs are usually temporary, have irregular hours and are not guaranteed to be ongoing. Casual workers are entitled to some, but not all, of the benefits given to permanent workers: they are not entitled to holiday leave or sick leave; but they are entitled to a higher rate of pay (casual loading) and parental leave; and, under the new Fair Work laws, casual workers are protected from being dismissed unfairly.
21. In these countries, 13th-month payments are not mentioned in the question asked.

22. In this group of countries, bonuses are still larger among high- than low-earners, hence bonuses *per se* would tend to increase inequality. However, the way bonuses are distributed among workers – not their size but who they are paid to – translates in to a distribution of wages that is more equal than that of workers not earning bonuses.
23. This finding is robust to the inclusion of all institutional variables simultaneously.

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ANNEX 2.A1

Wage inequality in the PIAAC countries

Table 2.A1.1. Wage inequality in the PIAAC countries
Inter-decile wage ratios (selected deciles), and Gini coefficient^a

	D9/D1 ratio	D9/D5 ratio	D5/D1 ratio	Gini coefficient
Australia	3.14	1.90	1.65	0.25
Austria	3.05	1.83	1.67	0.25
Belgium (Flanders)	2.61	1.67	1.56	0.21
Canada	3.94	1.94	2.03	0.28
Czech Republic	2.88	1.68	1.71	0.24
Denmark	2.58	1.55	1.66	0.20
Estonia	4.71	2.24	2.10	0.32
Finland	2.54	1.70	1.50	0.20
France	2.56	1.77	1.45	0.22
Germany	4.22	1.88	2.25	0.29
Ireland	3.57	2.08	1.71	0.29
Italy	3.42	1.99	1.72	0.27
Japan	4.08	2.32	1.76	0.33
Korea	5.83	2.68	2.18	0.39
Netherlands	3.24	1.79	1.81	0.25
Norway	2.44	1.60	1.52	0.20
Poland	3.89	2.15	1.81	0.31
Slovak Republic	4.01	2.15	1.87	0.32
Spain	3.60	2.05	1.75	0.28
Sweden	2.18	1.59	1.37	0.17
United Kingdom (England/Northern Ireland)	3.52	2.07	1.71	0.30
United States	4.81	2.40	2.01	0.34
PIAAC average	3.41	1.93	1.77	0.27

a) Wage data are trimmed, by country, at the top and bottom percentiles. Wages include bonuses and are expressed in purchasing power parity corrected USD. Details on the calculation of the PIAAC average can be found in Annex 2.A2. Source: Survey of Adult Skills (PIAAC) 2012.

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ANNEX 2.A2

Methodology for the wage simulations

Estimating the impact of skill inequality on wage inequality

Throughout this chapter, reweighting methods are used to simulate alternative wage distributions. The basic intuition behind the approach is to make the distribution of observable characteristics of one country's population resemble that of a benchmark country. This is done by giving more/less weight to certain observations in the first country depending upon how common they are in the benchmark country. More formally, if one is interested in comparing country x to, say, the average PIAAC country, then the original sample weights $\omega_{i,x}$ for individual i in country x are replaced with a counterfactual weight $\omega'_{i,x} = \omega_{i,x}\psi_i$, where ψ_i represents the reweighting factor.

The advantages of the reweighting method include: i) its simplicity and ii) that it allows one to look at the entire wage distribution, rather than at just a few moments of the distribution. While the inspiration for this method comes from DiNardo, Fortin and Lemieux (1996) and Lemieux (2002, 2010), its exact implementation in the context of this chapter differs somewhat. In particular, the approach taken in the literature is to simulate the entire wage distribution in one go, while attempts are made here to separate out the dispersion and level aspects of a country's skill distribution.

The calculation of the reweighting factor ψ_i depends on the particular scenario one is interested in simulating. The present section focuses on how to simulate alternative skill dispersions, while the sections below will discuss the derivation of the re-weighting factor in cases where one wishes to simulate alternative skill levels or entire skill distributions (level and dispersion), respectively. For the purpose of assessing the impact of skill inequality on wage inequality, the steps taken to calculate the reweighting factor are as follows:

- Demeaned numeracy scores $\tilde{s}_{i,x}$ and $\tilde{s}_{i,PIAAC}$ are obtained for each individual in country x and the average PIAAC country, respectively, by subtracting the country average score \bar{s} from each individual's numeracy score s_i ($\tilde{s}_{i,x} = s_{i,x} - \bar{s}_x$ and $\tilde{s}_{i,PIAAC} = s_{i,PIAAC} - \bar{s}_{PIAAC}$). Demeaning removes the level aspect and expresses everything in terms of deviations from the mean (i.e. it shifts the focus from the level onto the dispersion of skills).
- The data for country x and the average PIAAC country are divided into cells/intervals, \tilde{S} , of five demeaned numeracy points each.
- The shares $\theta_{\tilde{S},x}$ and $\theta_{\tilde{S},PIAAC}$ of total employment in each of these demeaned skills cells/intervals are calculated.

- The reweighting factor is calculated as the ratio of these two shares: $\Psi_i = \frac{\theta_{\bar{s}, PIAAC}}{\theta_{\bar{s}, x}}$.

Counterfactual wage distributions can then be simulated by re-weighting the data for country x so that its deviations from the skill mean resemble those observed in the average PIAAC country. Since skill prices are assumed to remain the same, the reweighting results in an alternative wage distribution for country x which allows the calculation of standard wage dispersion and inequality measures. These can then be compared to the statistics calculated using the original wage distribution to estimate the proportion explained by the difference in skills dispersion.

Calculation of the PIAAC “average country”

The PIAAC “average country” is simply the total of all observations in the *Survey of Adult Skills*. However, because countries with larger populations would have a greater weight and, therefore, a disproportionate influence on the distribution, the survey weights are rescaled so that the sum of each country’s weights is equal to one (i.e. each country has equal weight). In addition, because wage levels differ significantly across countries they need to be adjusted before being combined into one PIAAC distribution (which would otherwise be too wide). Wages are therefore de-measured by country, and all the analysis is carried out on these country-specific deviations from the mean.

Estimating the impact of skill proficiency on wage inequality

The previous section outlined a method for calculating the reweighting factor ψ_i for the case in which one is interested in approximating a benchmark country’s skills dispersion/inequality, but leaving the average level of skills unaffected. In this section, a method is discussed for estimating a reweighting factor that achieves the opposite: it shifts a country’s skill distribution to the left or to the right, but leaves the dispersion of skills unaffected. The steps taken to derive the reweighting factor in this case are:

- For each individual i in country x a counterfactual skill level is estimated $s'_{i,x} = s_{i,x} \frac{\bar{s}_{PIAAC}}{\bar{s}_x}$, where \bar{s}_{PIAAC} and \bar{s}_x are the average skill levels in the average PIAAC country and country x , respectively.
- Using $s_{i,x}$ the data for country x is divided up into intervals, S , of 5 numeracy points each.
- Using $s'_{i,x}$ the data for country x is divided up into intervals, S , of 5 numeracy points each.
- The number of observations N_s and N'_s in each interval S are calculated.
- The reweighting factor is calculated as the ratio of these two numbers: $\Psi_i = \frac{N'_s}{N_s}$.

Estimating the impact of skill prices on wage inequality

To simulate alternative skill prices and analyse their impact on wage inequality, the method developed by Lemieux (2002, 2010) is used. Assuming once again that the data can be divided up into a finite number of cells (intervals S of 5 numeracy points each), then changes in prices can be simulated by replacing the conditional mean of wages of skill group S in country x , $y_{S,x}$, with the conditional mean wages in skill group S in the average PIAAC country, $y_{S,PIAAC}$.¹ Each individual i ’s new wage ($y'_{i,x}$) can then be calculated by adding the difference between the PIAAC average wage for skills group S and the country’s

average wage for skill group S:²

$$y'_{i,x} = y_{i,x} + (y_{S,PIAAC} - y_{S,x})$$

The average PIAAC country and prices are constructed as described above.

Estimating the joint impact of skill inequality, proficiency and price on wage inequality

This section discusses the methodology for combining all three simulations discussed so far (skills dispersion, skills level and skills price) into one single wage simulation. The price effect is estimated using the same approach as above. However, the full skills distribution analysis follows a different, more standard methodology: the approach proposed by Lemieux (2002, 2010). Instead of disentangling the level and distribution effects, these are modelled simultaneously using the actual skills distribution, rather than the demeaned skills distribution. The derivation of the reweighting factor in this case is derived as follows:

- The data for country x and the PIAAC average are divided into skill cells/intervals S of five points each.
- The shares of the total workforce employed in each cell, $\theta_{S,x}$ and $\theta_{S,PIAAC}$, are calculated.
- The reweighting factor is calculated as the ratio of these two shares: $\Psi_i = \frac{\theta_{S,PIAAC}}{\theta_{S,x}}$.

The price effect is computed before the quantity effect, however this makes no difference to the results since both are calculated within the same skill cell/interval.

Estimating the impact of skill use on wage inequality

To simulate the effect on wage inequality of applying the distribution of skill proficiency on skill use, data on skill use and skill proficiency are divided into five groups for each country. For numeracy use this is done by rounding each level to the nearest integer $c \in \{1, 2, 3, 4, 5\}$. For proficiency the six official PIAAC proficiency levels are first reduced to five (with levels 0 and 1 – the lowest – merged into a single category)³ and are then rounded to the nearest $\tilde{c} \in \{150, 200, 250, 300, 350\}$. The shares of the total workforce employed in each skill use group C, $\theta_{C,x}$, and in each skill proficiency group \tilde{C} , $\theta_{\tilde{C},x}$, are calculated for each country x. The reweighting factor is then calculated as the ratio of these shares: $\Psi_C = \frac{\theta_{\tilde{C},x}}{\theta_{C,x}}$.

Notes

1. In practice, the analysis is carried out on the demeaned wages. This is important in order to avoid a situation where all high-skill cells of the average PIAAC country are assigned the prices of the most skilled countries, which also tend to be the countries with the highest average wages (e.g. the Scandinavian countries) – and vice versa. Indeed, not de-meaning the data would result in an over-estimation of the return to skill in the average PIAAC country and, therefore, of the skill price effect.
2. All wage variables are in log form.
3. See OECD (2014) for more details of how the levels are constructed and how they relate to proficiency scores.

ANNEX 2.A3

A simple supply and demand framework to analyse differences in wage inequality

Source: Blau and Kahn (1996); Leuven, Oosterbeek and van Ophem (2004)

Katz and Murphy (1992) developed a simple supply and demand framework for analysing differences in wage structure across time or between countries, which has since been adapted by Blau and Kahn (1996) and Leuven et al. (2004) to relate international differences in skill wage differentials to differences in the demand and supply of skill.

To implement the approach, the workforce of the average PIAAC country (see Annex 2.A2) is divided into three groups of equal size based on the following percentiles of skill: 0-33; 33-67; 67-100. The cut-off points defined by these groups are then applied to each one of the other countries (creating groups of different sizes, depending on the relative supply of skilled labour). Table 2.A3.1 shows the proportions in each of these skills group by country.

Table 2.A3.1. **Proportions (%) high-, medium- and low-skilled,^a by country**

	Low-skilled	Medium-skilled	High-skilled
Australia	34.4	32.6	33.1
Austria	27.1	36.0	36.9
Belgium (Flanders)	25.5	31.5	43.0
Canada	36.8	31.4	31.8
Czech Republic	26.2	38.7	35.1
Denmark	26.8	32.6	40.6
Estonia	28.3	38.6	33.1
Finland	24.9	30.8	44.3
France	44.4	30.5	25.1
Germany	31.7	31.3	36.9
Ireland	42.7	34.9	22.5
Italy	52.0	31.2	16.8
Japan	17.7	34.1	48.2
Korea	35.8	39.5	24.7
Netherlands	24.1	31.8	44.1
Norway	25.9	31.4	42.7
Poland	40.2	35.0	24.8
Slovak Republic	25.8	36.1	38.0
Spain	50.8	33.0	16.1
Sweden	25.6	31.8	42.5
United Kingdom (England/Northern Ireland)	40.0	31.0	29.0
United States	46.3	29.1	24.6
PIAAC average	33.3	33.3	33.3

a) Skill is measured using proficiency in numeracy.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) 2012.

StatLink  <http://dx.doi.org/10.1787/888933240236>

The next step is to construct demand and supply indices by skill group for each country relative to the average PIAAC country. The supply index $Supply_{s,x}$ measures the relative importance of skill group s in country x 's labour force with the share of that skill group in the average PIAAC country:

$$Supply_{s,x} = \ln\left(\frac{\varepsilon_{s,x}}{\varepsilon_{s,PIAAC}}\right)$$

where $\varepsilon_{s,x}$ and $\varepsilon_{s,PIAAC}$ are the shares of the labour force accounted for by skill group s in country x and the average PIAAC country, respectively (as reported in Table 2.A3.1). The demand index $Demand_{s,x}$ measures the degree to which the occupation structure favours skill group s in country x in comparison to the average PIAAC country:

$$Demand_{s,x} = \ln\left(1 + \sum_o \frac{\theta_{s,o,PIAAC}}{\varepsilon_{s,PIAAC}} (\theta_{o,x} - \theta_{o,PIAAC})\right)$$

where $\theta_{o,x}$ and $\theta_{o,PIAAC}$ are the total shares of employment in occupation cell o in country x and in PIAAC on average, respectively; $\theta_{o,PIAAC}$ is skill group s 's share of employment in occupation cell o in the average PIAAC country; and $\varepsilon_{o,PIAAC}$ is the share of skill group s in the total workforce of the average PIAAC country (which equals 1/3 by construction). In essence, this index captures: i) the relative importance of occupation o in country x ; and ii) the average demand for skill group s in occupation o in the average PIAAC country. Combining these two factors therefore results in a measure of the relative demand for skill group s in country x .

Net supply $\overline{Supply}_{s,x}$ is then calculated by subtracting the demand index from the supply index:

$$\overline{Supply}_{s,x} = Supply_{s,x} - Demand_{s,x}$$

If the demand/supply model can account for differences in wage structure, then differences across countries in net supply should be negatively related to differences in relative wages of skill groups s and $\left(y_{s,x}^s - y_{s,PIAAC}^s\right)$. Because the focus of this chapter is on wage inequality, the analysis presented here relates the relative net supply to the standard measures of wage inequality rather than to the relative wages of different skill groups. While the two concepts are not identical, one would still expect higher skill premia to result in higher wage inequality. The analysis indeed confirms this.

Chapter 3

Activation policies for more inclusive labour markets

In this chapter, a new framework is put forward for the design of effective activation policies to connect people with jobs and foster more inclusive labour markets. While activation policies draw on many tools that can be assembled in different ways, the overall package needs to maintain the motivation of jobseekers to actively pursue employment while also improving their employability and expanding their opportunities to be placed and retained in appropriate jobs. The implementation of these three elements – motivation, employability and opportunity – has to be managed by effective and efficient labour market institutions and policies, which are the keystone of any successful activation strategy. These principles are illustrated in the chapter through a review of a wide range of policy experiences and evaluation evidence.

Key findings

Giving people the help, support and encouragement to move into rewarding and productive jobs is essential to foster more inclusive and resilient labour markets. This chapter presents a new framework for guiding the development of activation strategies to connect people with jobs. This framework consists of three building blocks – motivation, employability and opportunities – which need to build on a solid foundation of well-functioning labour market institutions.

People need to be *motivated* to work. Most jobless people are keen – some are desperate – to find work, but some may become disillusioned with the prospect of finding an appropriate job, especially after an extended period of fruitless searching. Keeping motivation high also means making sure that work pays and tackling disincentives to work that may arise in unemployment and related benefits by making these benefits, where feasible, conditional on availability for work. Where a rapid return to work is unlikely, additional support (e.g. counselling or training) is needed to increase *employability*. Bringing people into employment also means expanding the set of available employment *opportunities*. This involves addressing demand-side barriers through actively engaging and assisting employers in hiring and retaining workers as well as lifting the barriers to participation by improving childcare arrangements and tackling health and other social problems. Delivery of these three key elements – motivation, employability and opportunities – has to be managed by effective and efficient labour market institutions and policies which are the keystone of any activation strategy. The institution with the central role in connecting people with jobs is the public employment service (PES).¹

The national authorities can reasonably aim, through an activation strategy, to raise the overall employment rate.² A high employment rate promotes a more inclusive society, but it is only possible if people who are unemployed (including groups at the margins of the labour market such as older people, people with disabilities, migrants) are helped back into employment as quickly as possible. Many PES activities contribute to effective implementation of this goal, but some principles are:

- *Job-search monitoring and verification can have a considerable impact on re-employment rates.* Most OECD countries now have explicit job-search reporting procedures, with only a few countries not verifying job search. At the same time, the matching and referral of jobseekers to vacancies often proves effective in increasing the rate of re-employment, especially for jobseekers who are hard to place or remain unemployed after some period of independent job search.
- *Job-search assistance through intensive counselling interviews needs to be of high quality.* Mandatory interviews may have positive employment impacts through a threat effect – i.e. deterring jobseekers from continued benefit claims – and tailored assistance and guidance in job search. However, for the successful delivery of counselling services, the quality and individualisation of content is key. While early and frequent meetings with jobseekers have been identified as an efficient way of assisting jobseekers, a growing

body of evidence also addresses the question of what counselling strategies are the most successful, emphasising the need for personalised services, a work-first approach but with a preference for stable jobs where possible, and selective referrals to full-time (e.g. training, or job-creation) programmes.

- *Strong PES services for employers are important.* A central role of the PES is to match jobseekers and employers, helping jobseekers to obtain jobs and employers to fill their vacancies. Across the OECD, the PES aims to have a strong market position as a job broker, by offering vacancy databases, referrals of appropriate candidates and other more specialised services to employers.
- *Digitisation and new technologies are transforming the way the PES operates.* Technology is changing the way people interact with each other and the world around them and the PES is no exception to this. Across the OECD, the PES is investing in user-friendly digital services aiming to increase service availability and accessibility, and to increase performance whilst keeping costs down. Most PES are only at the start of this process and important questions remain, such as: i) the willingness and capability of PES clients in switching to digital services; ii) the type of services which should be digitised; and iii) how to ensure successful digitisation emerges.
- *Active Labour Market Programmes (ALMPs) that involve people in full-time activities play a constructive role when used judiciously.* Careful evaluations of ALMPs indicate a mixed record, but also that well designed and targeted measures can increase the employability of jobseekers and their employment opportunities in a cost-effective manner. Some countries achieve low unemployment with relatively low expenditure on ALMPs, however, in other cases higher expenditure on ALMPs seems to contribute to low unemployment. In situations where unemployment is high, it is particularly important to maintain some options for the unemployed in the form of ALMP places. Broadly-targeted programmes can implement an offer of a place to all long-term unemployed, which can promote *motivation and opportunity*. Work experience and labour market training improve *employability*. Evaluations have increasingly tracked employment outcomes for five years or more after entry to training programmes, finding evidence that they have a long-term positive impact on participants' employment and earnings. Ideally programmes are focused on identified employer needs, but there is also some evidence in favour of classroom and preparatory programmes. An appropriate mix of ALMPs, allowing sequencing or combination of the motivation, opportunity and employability objectives, and adaptation to the situations of individual clients, is as important as the size of the total ALMP spending effort.
- *The effectiveness of employment services can be improved through performance management and evaluations should be used to determine the cost-effectiveness of ALMP interventions.* Across the OECD, countries spend 0.02% to 0.4% of GDP on PES and administration and another 0.1% to 1.7% of GDP on other ALMPs. Ideally, evaluations cover various aspects of the implementation of new policies and programmes and help to understand what effects the policies and programmes had, for whom and why. Performance management and programme evaluations allow the continuous improvement of policies and programmes, or the termination of unsuccessful ones, demonstrate accountability and justify government expenditure on PES and ALMPs. This also requires a strategic view, giving due weight to qualitative outcomes and broader and longer-term considerations.

Some policies are designed to help people not just find a job, but also to subsequently progress in their careers. In-work progression measures illustrate the scope for alternative service delivery strategies. Career advice, the traditional in-work progression measure, probably helps many participants but not mainly from disadvantaged groups. At the same time, a number of experiments have tested “employment retention and advancement” strategies, which target enhanced services on welfare leavers or other disadvantaged groups. Many of the experimental implementations had little impact – largely because participation by welfare leavers is voluntary, so it is difficult to keep them engaged employment services – but some had a significant impact, and the lessons from this evidence-based approach provide a road map for further developments.

With some exceptions, PES services focus on recipients of unemployment and other income-replacement benefits, with more intensive support being targeted at the hard-to-place and long-term unemployed. Against this background, there is no easy way for the PES to deliver services to disadvantaged groups, additional to those already delivered to the hard-to-place unemployed. One possibility for benefits where immediate availability for work is not required is a rehabilitation status, where participation in work-preparation measures is nevertheless required. The standard offer of job-search and related services available on a voluntary basis can be enhanced, e.g. with a more-generous education and training offer for disadvantaged groups that are out of the labour force or in employment: in the latter case, the services promote “in-work progression”. For some groups, such as youths not in employment, education or training (NEETs), inactive spouses and early retirees, there may be scope to better identify individuals in the group (e.g. by matching public datasets) for a targeted offer of services. Increased integration of PES services with those of other public actors such as health, childcare, or social services and education institutions, can enhance the service offer. Policies outside the direct remit of employment and related services – such as employment protection or tax legislation – also need to be addressed, although this chapter does not analyse them.

Introduction

During the past three decades, many OECD countries have sought to transform their welfare states by linking benefit systems with services to promote employment. Prior to the recent crisis, this led to significant increases in labour force participation rates and relatively low unemployment rates. However, the global financial crisis led to major hikes in unemployment in many OECD countries and the recovery has been uneven so that the scars are still evident in the form of still high unemployment and under-employment. By contrast, participation generally has remained strong and is now at record levels in many countries. Even in countries that weathered the crisis better, policies are needed to mobilise important groups that are still on the margins of the labour market. Across the OECD, increasing labour market participation is a necessary part of strategies that seek to make labour markets more inclusive and strengthen overall economic growth, especially in the context of ageing populations. This chapter therefore provides a new framework for the analysis of existing and the development of new activation strategies.

The core objective of activation policies is to foster more inclusive and resilient labour markets. This requires:

- Ensuring that jobseekers have the *motivation* to rapidly choose a new job themselves. Benefits may reduce motivation, unless they are conditional on active job search and availability for suitable jobs.
- However, even motivated jobseekers may struggle to find work without help in navigating the jobs market. Jobseekers who are less employable require intensive case management, placement services and participation in measures to increase their *employability*.
- Bringing more people into employment also involves addressing demand-side barriers and expanding the set of earnings *opportunities* that are accessible to jobseekers, for example by increasing the range (both number and the variety) of job vacancies registered with the PES.

The implementation of these three key elements – motivation, employability and opportunities – has to be managed by effective and efficient labour market *institutions and policies* which are the keystone of any successful activation strategy.³

Figure 3.1. **Key elements for successful activation strategies**



These three key elements of activation strategies closely interact with one another and can be mutually reinforcing. For example, if there are more job opportunities, it is easier to motivate people to look for jobs or to work on their skills; when jobseekers are motivated,

employers will be keener to register their vacancies with the PES.⁴ Thus, motivation promotes opportunities and vice-versa. Specific PES techniques and interventions usually incorporate two or three of the elements, albeit with varying weights. A direct job creation programme can affect motivation through a “threat” effect, increasing job-finding rates before participation in it has started; it can enhance employability, providing work experience to disadvantaged groups that had limited previous contact with a work environment; and it can offer opportunities, as participants have direct contact with potential employers, and can cite skills acquired on the job when they next apply for a job. Similarly, PES referrals of jobseekers to vacancies act partly as a motivating factor, intensifying independent job search aimed at finding a preferred job, and partly as an opportunity.

The scope of this chapter is mainly limited to labour market policy interventions in the sense of the *OECD/EC Labour Market Programme Database*: job-search related services (regardless of target group), and interventions that are targeted on groups identified in some way as disadvantaged in the labour market.⁵ In the latter case, the main target groups are registered jobseekers or registered unemployed. Recipients of other benefits (e.g. disability benefits or lone-parent benefits) are often not obliged to participate in employment services, and have relatively low rates of participation in them. Where the benefits are made conditional on availability for work, they become unemployment benefits (e.g. a lone-parent benefit that is conditional on availability for work is also an unemployment benefit).⁶ As a result, in countries with high benefit coverage, LMP interventions targeted on the unemployed represent the great majority of LMP interventions targeted on disadvantaged groups. Conversely, the hard-to-place and long-term unemployed typically have at least one barrier to employability, or are in at least one disadvantaged group, and possibly several.⁷ At the same time, the limits of the strategy of activating disadvantaged groups by making their benefit conditional on availability for work must be kept in mind. A strategy in which expensive services are delivered to groups with very low employability and have near-zero impact will fail to effectively maximise the employment rate or promote labour market inclusion.

Additional to interventions targeted on the registered unemployed, an activation strategy for more inclusive labour markets can include work-preparation measures for people on rehabilitation benefits (i.e. benefits not conditional on immediate availability for work); job-search and related services for voluntary users (i.e. people who are unemployed but not registered, or registered as unemployed but without an entitlement to benefit, people not in the labour force, and job changers) and employment services to promote progression in work. In some countries, ALMPs engage many individuals from disadvantaged groups such as youths, immigrants and the long-term unemployed on a voluntary basis.⁸ Some active measures pay a cash benefit to participants, which can further attract participation.⁹ Section 1 mentions some further groups that are usually not identified in PES registers or obliged to participate in its interventions, but might be targeted by different policy instruments. Against this background, this chapter describes a range of techniques, interventions and background factors in the activation policies of OECD countries.

The remainder of the chapter is structured as follows: Section 1 discusses the role of activation policies in promoting more inclusive labour markets and provides an overview of labour market programme spending patterns across the OECD. The next three sections then address the three pillars of activation policy represented in Figure 3.1. Section 2 describes how eligibility criteria for unemployment benefits, including requirements on the unemployed to search for jobs and be available for work, monitoring of these efforts

and the application of benefit sanctions can counteract the negative effects of unemployment benefits on work incentives and motivate jobseekers to independently look for employment. Section 3 provides an overview of employment services and programmes that improve the employability of jobseekers, including in-work progression measures as an example of service extension to the non-unemployed. Section 4 describes services and programmes that enable matching of jobseekers to available vacancies and expanding the set of available earnings opportunities. The key element in Figure 3.1 – policies and institutions – is covered in Section 5. The section focusses on organisational aspects of labour market programmes and employment and related services, which are the foundation of any successful activation strategy. In the concluding section, some general lessons for successful activation policies are put forward.

1. What role do activation policies play for more inclusive labour markets?

Activation policies can help countries deal with the long-lasting impact of the economic and financial crisis on their labour markets, especially in countries where there has been a sizeable increase in long-term unemployment. However, activation policies also play an important role even when business cycle conditions are more favourable. In particular, effective activation policies can foster the productive potential of each country's population in the long run, thereby contributing to economic growth and the sustainability of its social protection system.

Responding to short-run challenges

Labour market recovery in the OECD area remains uneven seven years after the onset of the global financial crisis (see Chapter 1 of this publication for a more in-depth discussion). The OECD average employment rate (employment aged 15+ as a ratio to population aged 15-74) remains 1.4 percentage points below its pre-crisis peak of 2007. Since labour force participation rates have often increased, the OECD average unemployment rate remains considerably above its pre-crisis level. Although unemployment has fallen in the vast majority of countries over the past year, the incidence of long-term unemployment has hardly changed and in the OECD as a whole, still more than a third of the unemployed had been out of work for 12 months or more in the fourth quarter of 2014. Long periods of unemployment are associated with discouragement and the loss of human capital, making reintegration efforts more difficult. The benefits of an active labour market policy stance throughout the economic cycle – ensuring efficient matching of the newly unemployed to vacancies, and prioritising reintegration measures for the long-term unemployed who are at risk of dropping out of the labour force – are discussed in Box 3.1.

Box 3.1. Is activation effective when unemployment is high?

Expenditure on ALMPs is less cyclical than expenditure on unemployment benefits, but this may be justified to some extent. Commitments to scheduled interventions (e.g. monthly interviews and referrals of jobseekers to an ALMP after six months or a year of unemployment) imply that in a recession, certain types of ALMP expenditure should increase in line with registered unemployment, but some delays may be tolerated. Other types of expenditures naturally dip early in a recession. For example, employer take-up of hiring subsidies tends to fall. Finally, there are limits to how rapidly ALMPs can be up-scaled when unemployment rises in a recession. The public employment service (PES) and

Box 3.1. Is activation effective when unemployment is high? (cont.)

high-quality training and job creation measures depend on skilled professionals and infrastructure such as buildings, equipment and IT systems, where rapid change has an up-front organisational cost. On the other hand, short-time work schemes, which help firms to adjust their work requirements to temporary demand shortfalls without layoffs, can be rapidly expanded in a recession when their impact in terms of preventing future unemployment is relatively high.

It is often suggested that in a recession active measures have little net impact because the economy is demand-constrained and “there are no jobs”. However, recent evaluations report a large impact from reemployment services in Nevada in 2009, at a time when the unemployment rate was at a 25-year high of 14% (Michaelides, 2013) and from a large activation programme in Portugal in 2012 when the unemployment rate was at a post-war high of 16% (Martins and Pessoa e Costa, 2014). In Nevada, the intervention was estimated to reduce unemployment insurance (UI) payments by more than four times its cost and increased employment and earnings. In Portugal, the intervention doubled the monthly probability of reemployment and its delivery to about a fifth of all unemployed in 2012 is estimated to have reduced UI expenditure by nearly 0.2% of GDP. There is also microeconomic evidence for the effectiveness of activation measures launched at times of peak unemployment in countries such as the United Kingdom (Restart, from 1986) and Denmark (the 1994 labour market reform), and this evidence supported the case for further measures.

In the recent recession, countries with a strong activation approach, such as Australia, Austria, Norway, Switzerland and the United Kingdom, did not generally allow unemployment spells to become passive and experienced mainly modest increases in unemployment. Denmark and New Zealand, where registered unemployment rates were below 3% by 2007, suffered a sharp rebound, which perhaps illustrates the risk that a large shock does reduce the intensity of interventions and allow unemployment to settle at a higher level, although these countries’ unemployment rates did stay below former peaks.

Lechner and Wunsch (2009) report that a training programme in Germany had a clearly more positive impact on long-run outcomes for people who entered them when the unemployment rate was high, mainly because the impact of the lock-in effect (the reduction in rates of entry to work during participation in the programme) was smaller. For Sweden, a study concluded that the impact of training programmes and employment programmes was mainly positive regardless of the state of the labour market, but in downturns labour market training programmes had a “bridging” effect (investing in participants’ human capital until they could again be productively employed), and the impact of employment programmes was less favorable (Nordlund, 2009).

Many studies have examined whether ALMPs have lesser impact where the local unemployment rate is relatively high. Bloom, Hill and Riccio (2001), in a meta-analysis of the findings from US welfare-to-work experiments conducted at 59 offices, estimated that the average experimental programme increased participant earnings over the following two years by USD 879 on average, but a one percentage point increase in the local unemployment rate (an increase of about 14%) reduced the impact by USD 94 on average (about 11%). McVicar and Podivinsky (2010) report a more negative correlation between the impact of the UK New Deal for Young People on job-entry rates, and the local travel-to-work area unemployment rate: in areas with an unemployment rate of 2%, the programme increased job-entry rates by about 70% or 40% (depending on the estimation model used) and in areas with an unemployment rate of 6% it increased them only by about 40% or 30%. The authors also estimate some nonlinear models and in this case find evidence of an

Box 3.1. Is activation effective when unemployment is high? (cont.)

inverse-U relationship, where the impact was greatest in an average labour market. In Australia, the impact of a requirement to maintain a Job Seeker Diary in high (top quartile) unemployment labour force regions was estimated to be less than half its impact in low-unemployment regions (Borland and Tseng, 2007). In contrast, other studies find that impacts are similar or greater where unemployment is higher. Another Australian study reporting impact estimates for 12 different intervention regimes and labour market programmes in poor, average and good local labour market conditions found little sign of systematic variation, suggesting that the programmes contribute to the achievement of additional outcomes during periods of both economic growth and slowdown (DEEWR, 2010). Lechner et al. (2011) for Germany report a slight tendency for long-term impacts on employment rates, eight years after starting in several types of ALMPs, to be greater in regions with an unemployment rate of 8% or more. Kluve (2010), analysing the findings from 137 evaluations of several types of ALMPs, found that a higher unemployment rate in the labour market at the time of participation in a programme was associated with a significantly higher probability of a positive estimated impact.

In the context of an improving labour market situation, activation strategies should ensure that new entrants to unemployment, who are relatively “employable”, choose a new job themselves and usually escape unemployment within less than six months, perhaps with the help of public labour market information services. Strategies such as increasing jobseeker obligations with the duration of unemployment may be successful. At the same time, persistent long-term unemployment needs to be addressed by assistance with tackling barriers, more-direct case management and placement efforts, and additional investment in services and programmes. In most countries, levels of labour turnover and long-term and repeat unemployment remain significant in both good and bad times, so radical breaks in the pattern of spending over the cycle are probably not justified, but some shifts can be appropriate.

Strengthening labour market participation in the long-run

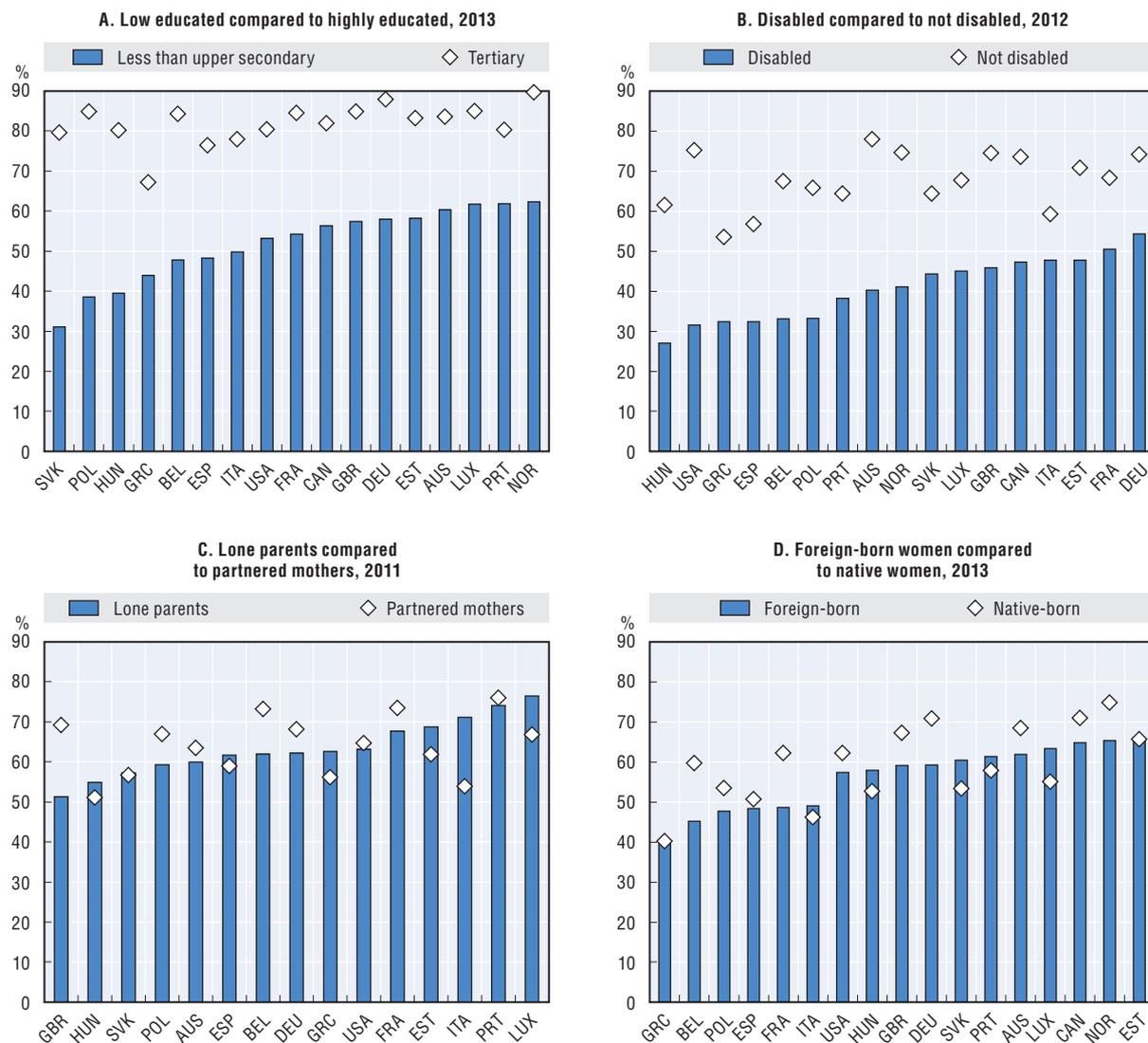
In the longer term, increasing labour market participation by working-age individuals is a necessary part of strategies to increase labour market inclusiveness and make social protection systems fiscally and socially sustainable. This section identifies groups in the working-age population that continue to experience low employment rates, or are disadvantaged in terms of the quality of jobs they hold, as one basis for assessing how activation policies might be extended.

In striking contrast to previous recessions, older workers tended to stay in the workforce during the recent economic crisis, and employment rates for those aged 55 have increased in many OECD countries. Nonetheless, cross-country differences in the employment rates of older workers remain large, indicating underutilised labour potential (see Statistical Annex, Table B). Contrasting with favourable developments for older workers, youth unemployment and underemployment increased sharply during the crisis. Long-standing structural obstacles prevent many young people in both OECD and emerging economies from making a successful transition from school to work: better use of the productive potential of younger generations can strengthen growth and reduce poverty.

Across all age-groups, educational attainment and skills have a large impact on the likelihood of being employed. Employment rates are low for people with less than upper secondary education, but with large variations across countries (Figure 3.2, Panel A).

Figure 3.2. **Some groups are significantly under-represented in employment, selected OECD countries**

Employment-to-population ratio (in percentage)



Note: Data refer to persons aged 25 to 64 in Panel A; data refer to persons aged 15 to 64 in Panels B, C and D.

Source: **Panel A:** OECD (2014), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, DOI: <http://dx.doi.org/10.1787/eag-2014-en>.

Panel B: EU-SILC 2012, except: Australia: *Survey of Disability and Carers 2012*, Australian Bureau of Statistics, 4430.0 – Disability, Ageing and Carers; Australia: *Summary of Findings, 2012*; Canada: *Canadian Survey on Disability, 2012*, Statistics Canada, Table 115-0005 – Labour force status for adults with and without disabilities, by sex and age group, Canada provinces and territories; Norway: LFS 2012 Q2, www.ssb.no/en/arbeid-og-lonn/statistikker/akutu; United Kingdom: LFS 2012, 2007; United States: *Survey of Income and Program Participation, SIPP 2008 Panel, wave 13, September 2012 to December 2012*, www.census.gov/programs-surveys/sipp/data/2008-panel.html. **Panel C:** OECD (2014), *OECD Family Database*, OECD, Paris, www.oecd.org/social/family/database.htm. **Panel D:** OECD (2014), *International Migration Outlook 2014*, OECD Publishing, Paris, DOI: http://dx.doi.org/10.1787/migr_outlook-2014-en.

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Employment rates for people who report a disability are significantly lower than for the non-disabled. For the 16 OECD countries depicted in Figure 3.2, Panel B, their employment rates were 12 to 44 percentage points below those of people not reporting a

disability. Their employment rates vary from 54% in Germany to a low of 27% in Hungary. Recent OECD reviews on mental health and work have shown that workers with even moderate mental health problems have far higher non-employment rates than people without mental health problems. If they drop out of the labour market, people with mental ill-health often rely on out-of-work benefits for prolonged periods of time, which is associated with further worsening of health conditions and deterioration of skills (see also Section 4 of this chapter).

Across the OECD, women's participation in the labour force has increased in recent decades, helping to narrow the employment gender gap. Nevertheless, compared with men, women are less likely to work full-time in paid employment, more likely to be employed in lower-paid occupations, and less likely to progress in their careers. As Figure 3.2 shows, employment gaps may be especially large for certain groups of women. In many OECD countries, lone mothers have much lower employment rates than partnered mothers, but in some countries the opposite is true, possibly related to less-generous benefits or more-successful activation measures (Figure 3.2, Panel C). The employment rates of foreign-born women are higher than those of native-born women in Hungary, Italy, Luxembourg, Portugal, and the Slovak Republic, but in most countries they are lower (see Figure 3.2, Panel D).

Although the groups in Figure 3.2 are defined in terms of one personal characteristic associated with labour market disadvantage, it should be borne in mind that there is often considerable overlap: many individuals not in employment face multiple barriers to participating in the labour market.

Beyond increasing labour force participation for underrepresented groups at a point in time, policy makers are concerned about the sustainability of employment and the quality of the jobs people hold, including how it evolves over their working lives (see Chapter 4 of the *OECD Employment Outlook*). While activation policies have traditionally concentrated on transitions from unemployment or inactivity to employment, there is a case for extending this role to support for stable working careers and minimisation of the risk of job loss. The PES traditionally provides labour market information services and vacancy notification services for employed registered jobseekers, and further in-work support measures are discussed in Section 3.

Which are the main target groups?

PES strategies often focus on the recipients of income-replacement benefits, to whom it is possible to apply the principle of mutual obligation, while groups not entitled to benefits (e.g. due to contribution conditions or means tests) are entitled to basic services but not necessarily more expensive programmes. In the 1980s and 1990s, policy reforms were largely focused on recipients of unemployment benefits. In some countries the traditional model, where the labour exchange held lists of local vacant jobs and sent unemployed people to apply for them, was no longer operating effectively, and reforms introduced a new emphasis on independent job search. In other cases, ALMPs had already been expanded and diversified in response to higher unemployment, but reforms put less emphasis on the volume of places created and more on the obligations for the long-term unemployed to participate in specific programmes. Activating reforms from 1986 onwards in the United Kingdom, in the 1990s in Denmark and the Netherlands, and from the mid-1990s in Australia and the early 2000s in New Zealand and in Germany, led to reduced unemployment and increased employment in subsequent years.

Activation strategies, implemented by employment and related services, are not targeted on the groups identified in the previous section based on survey information (cf. Figure 3.2). The operational concept of disability is different from the self-reported disability status that is identified in survey statistics. Low-educated youth are sometimes an operational target group: the referral of adults to remedial education or foundation training programmes is typically based on a PES assessment of the individual's current capabilities rather than certified educational attainment, although Sweden's Adult Education Initiative (see Box 3.7 below) mainly targeted the unemployed without three years of upper secondary schooling. The PES does not usually target foreign-born or migrant status, but Denmark has an obligatory integration programme for recent migrants receiving social benefits (Jorgensen, 2014), and Norway treats unemployed youths, immigrants and long-term unemployed as target groups irrespective of benefit status. Where labour market programme expenditure is relatively low, there may be only some active measures linked to specific benefits and some services addressing special needs, perhaps with limited geographical coverage.

The Netherlands in the 1970s and many other OECD countries subsequently have experienced sharp rises in the caseloads of (potentially) inactive benefits, such as early retirement, disability, lone-parent and other non-categorised social assistance benefits. The rise of inactive-benefit caseloads often was driven by a number of "push" and "pull" factors. Push factors included the relative laxity of medical and eligibility tests for disability and health-related benefits and the strictness of activation regimes for the unemployed. Pull factors included the relative generosity of early retirement, invalidity, disability and lone-parent benefits and exemptions from job-search obligations for recipients of these benefits, and some groups on regular unemployment benefits. Particularly from the early 2000s, these exemptions were partly reversed for employable working-age recipients, in order to bring them back into the labour force. Such reforms are also a response to the challenge of aging population and reducing poverty and social exclusion whilst containing the costs of social protection systems.

For older workers, increases in employment rates have often corresponded closely to restrictions on benefits, such as the abolition of early retirement benefits, the reduction or removal of extensions to unemployment insurance benefits, and the abolition of exemptions to job-search and related requirements. In many countries, there is still some remaining scope for such policies, encouraged by evidence of the impact of implemented reforms in a number of OECD countries (see e.g. OECD, 2006; 2013a, Chapter 3). For lone parents, the employment situation is often shaped by their treatment within the benefit system. Until recently, in Australia, Ireland, New Zealand and the United Kingdom, lone-parent employment rates were depressed by benefit systems that provided income support for prolonged periods with very few work conditions. However, over the past decade these countries have decreased the age of the youngest child at which parents are entitled to income support without being available for work or training. Lone parents with older children are now treated as regular recipients of unemployment benefits, or have similar work-search requirements. In the United States in the mid- and late 1990s, the decline in the adult caseload on lone-parent benefits from about three million to one million coincided with a sharp increase in the incidence of both full-time work and average hourly wages among single mothers (Hardy et al., 2015). This outcome illustrates the potential for activation measures to improve both public finances and job quality, although the very strong labour market during this period also played a role in improving labour market

outcomes for single mothers. However, as experience from the United Kingdom shows, progression into higher-quality jobs may not always be incentivised, as lone parents often remain in part-time, low-wage jobs (OECD, 2014a).¹⁰ For disability benefits, the application or re-application of job-search and related requirements is more complex. Reforms have included revised or new assessment procedures for disability and health-related benefits, specialised employment services and programmes, and ongoing support or permanent wage subsidies for disabled people in employment.

A wide range of measures may to some extent bring inactive individuals claiming no benefits such as inactive spouses, youths at home who are NEETs, and self-financed early retirees into the active workforce. These include new benefit entitlements (e.g. assistance benefits for youths living with their parents); attractive service offers (e.g. free education, health care, or employment services); individualised taxation (or individualised benefit entitlements) which tends to bring both members of a couple into employment; and the matching of different public datasets to identify individuals (e.g. NEETs) for a targeted offer of services. Such measures are already offered by employment and related services in some countries (see, e.g. Boxes 3.5, 3.6 and 3.10), although those involving broad tax or health policy lie outside the usual remit of the PES.

Patterns of spending on labour market programmes

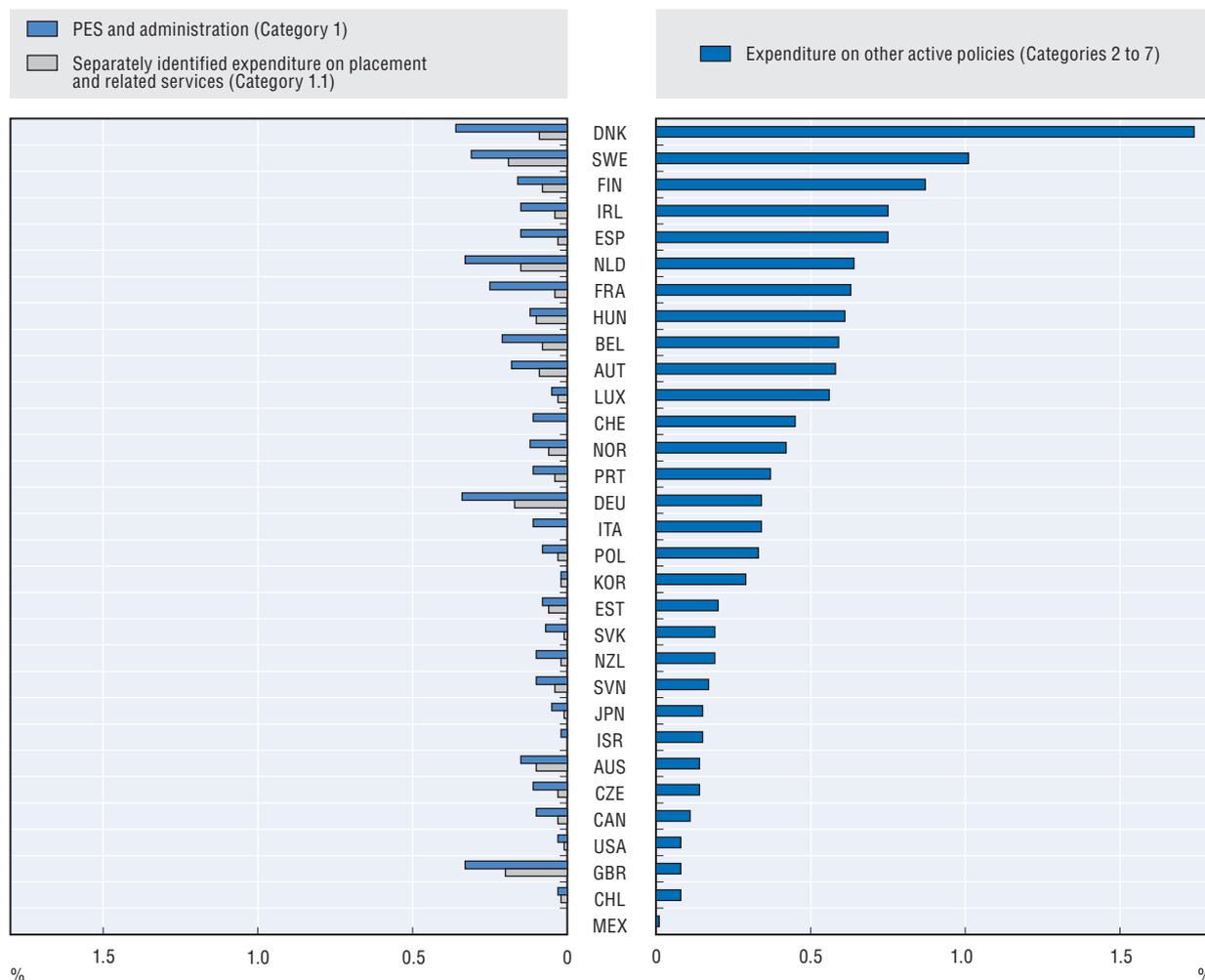
As shown in Figure 3.3, public expenditure on ALMPs varies a lot across OECD countries. All the highest-spending countries are European.¹¹ Denmark, Sweden, Germany, the Netherlands and the United Kingdom, followed by France, Belgium and Austria, stand out with relatively high levels of expenditure on the PES and Administration function. Expenditure on this function is lower in Norway and Switzerland, countries with well-developed activation strategies but also low unemployment rates (about 3% in Norway and 4% in Switzerland), as well as Ireland and Spain, countries that have a high level of registered unemployment but have not traditionally intervened intensively in the unemployment spell. Among non-European countries, Australia reports the highest level of expenditure on this function, which accords with the impression that its quasi-market arrangements implement intensive interventions in the unemployment spell. In Figure 3.3, often about half of the expenditure on PES and administration is not separately identified as expenditure on placement and related services. This may concern benefit administration, as well as central services administering ALMPs and buildings, maintenance, IT systems, and regular employment counselling when these contribute to both benefit administration and placement objectives.

Expenditure on other ALMPs is at least partly driven by high caseloads, as in Ireland and Spain. The exceptional level of expenditure in Denmark reflects the importance of “flex-jobs” for the partially disabled and “job training”, which are both forms of subsidised employment. High expenditure on ALMPs is not just about activation and the reduction of unemployment rates – some countries achieve this with lower expenditure – but also, when combined with high levels of benefits, is intended to promote greater income equality, by improving the employability and skills of workers near the bottom of earnings distribution.

2. Motivation: Making the most of existing employment opportunities

Unemployment and related benefits protect workers against the loss of income from work, thus enabling them to smooth consumption as they engage in job search. However, benefits can also create disincentives for employed workers to retain their jobs and reduce

Figure 3.3. **Expenditure on active labour market programmes in OECD countries, 2012**
Public expenditure, percentage of GDP



Note: Data refer to fiscal years 2012/13 for Australia, Canada, Japan, New Zealand and the United States. Data refer to 2010 for the United Kingdom and to 2011 for Ireland, Israel, Luxembourg, Poland and Spain.

Source: OECD/EC Labour Market Programme Database, *Labour market programmes: Expenditure and participants (database)*, <http://dx.doi.org/10.1787/data-00312-en>.

StatLink  <http://dx.doi.org/10.1787/888933239796>

the motivation of those receiving benefits to take up existing earnings opportunities. Unemployment benefit eligibility criteria are meant to counteract disincentive effects. In particular, the lesser availability of benefits on a passive basis tends to reduce unemployment benefit inflows, while the requirements for remaining eligible for unemployment benefits – notably mandatory participation in PES activities and ALMPs – tend to increase outflows. Moreover, where eligibility criteria are effectively implemented, unemployment benefits act as a positive incentive for participation in the labour market and in assisted job search. Employment rates in a system with generous benefits can be higher than they would be with only limited or no benefits, and this system can have a positive impact on public finances, since the cost of providing universal public services to labour market non-participants is substantial, and only employed people pay taxes and social insurance contributions. At the same time, disadvantaged and long-term

unemployed people are often demotivated by factors such as the experience of repeated failure to find a job, a sentiment of loss of control, and rules and bureaucratic barriers that apparently block off some options. Intensive case management often starts by understanding the individual's situation, aspirations and barriers, and creating an action plan with steps that the client sees as feasible, perhaps bringing in additional services: counsellors tell success stories where this approach restored motivation and achieved a return to work even after years of unemployment.

Eligibility criteria include waiting periods during which jobseekers do not receive benefits, the definition of availability for work, active job search, and suitable work, and financial sanctions for non-compliance with these requirements. Activation strategies for recipients of inactive benefits often involve making a particular target group subject to these criteria, or in some cases require participation in work-preparation measures without the requirement to be immediately available for work or accept referrals to suitable jobs.

In the International Labour Organisation (ILO) definition of unemployment, a person is considered unemployed if they are without paid work, currently available for work, and seeking work.¹² National administrative definitions of these criteria may be significantly different from the concepts used in labour force surveys (LFS). Box 3.2 provides an overview for the availability-for-work criterion. The remainder of this section discusses, in turn, PES registration procedures, job-search requirements and their monitoring, and sanctions for non-compliance with these rules.

Box 3.2. **What does it mean to be available for work?**

The administrative definition of availability for work frequently refers to the delay before starting work (i.e. the jobseeker's earliest possible start date), and in some cases refers to contactability (i.e. requirements to respond to communications from the PES). Most countries require jobseekers to be available to start work immediately, but a number of countries allow for some delay. For example, jobseekers are allowed three working days before starting in the Slovak Republic, and 30 days in Hungary. Such availability rules are important for PES counsellors when referring jobseekers to vacant jobs which employers wish to fill immediately. Jobseekers are at risk of a benefit sanction if they are not available, although countries may have exceptions to these rules under certain circumstances such as health problems or caring responsibilities. Similar to availability for work, contactability rules may be useful for the PES, as they implicitly also serve as a work-test. The majority of countries do not have explicit rules regarding contactability or time to respond to communications from the PES, but a number of countries state that requirements may be individually agreed between PES counsellors and jobseekers and are included in individual action plans.

Source: Langenbucher, K. (2015), "How Demanding are Eligibility Criteria for Unemployment Benefits? Quantitative Indicators for OECD and EU Countries", *OECD Social, Employment and Migration Working Papers*, No. 166, OECD Publishing, Paris, www.oecd.org/els/listofsocialemploymentandmigrationworkingpapers.htm.

Activation from the first day of unemployment

OECD countries follow different practices as regards the sequencing of registration for benefits and placement. A majority of OECD countries state that both occur simultaneously or are part of the same procedure. Finland, France, Hungary, Israel, Japan, Korea, Luxembourg, Norway, Poland, Portugal, and Turkey require registration for placement before unemployment benefits can be paid. By contrast, in Belgium, Canada,

Chile, the Czech Republic, the Netherlands and New Zealand, benefit entitlement starts before registration for placement (see Annex 3.A1).

The majority of countries require claimants to apply in person for benefits and placement services. A number of countries have for many years allowed different application routes including phone, fax, or post, and an increasing number of countries are also offering email- or web-based application procedures (see also Section 5). While processing of benefit applications without the benefit claimant being present in person may be less resource-intensive for the PES, availability for work can usually only be established through personal attendance. Such initial eligibility checks may deter individuals who can expect to be immediately referred to a job, or do not wish to actively search for work. Most countries with separate application routes require jobseekers to visit the PES in person after a period of three days, ranging up to one to three months. A number of countries may not enforce a maximum delay, or may not require personal attendance at the PES for certain jobseekers (see Annex 3.A1).

Benefit entitlement usually begins on the day of benefit application. A number of countries, including Ireland, Luxembourg, Netherlands, Slovak Republic, Slovenia, Spain, Sweden, and Turkey, also offer retrospective payment from the day of lay-off from the previous job. Around half of countries then apply a waiting period of three days up to a fortnight from the date of entitlement (see Annex 3.A1).

How demanding are the eligibility criteria?

In most OECD countries, the benefit systems have rules defining the suitability of job offers, requirements to report on the outcomes of independent job-search efforts, the obligation to participate in ALMPs and sanctions for non-compliance with these rules. Such rules help to ensure that new entrants to unemployment who are relatively employable choose a new job themselves, and a meta-evaluation by Kluge (2010) found that programmes described as “Services and Sanctions” are particularly effective in yielding positive employment effects.

How demanding are job-search and availability requirements?

Jobseekers will usually have a preference for particular occupations, localities, and wage levels. As these preferences may impact on the likelihood of finding employment, unemployment benefit legislation in the majority of OECD countries defines criteria for what constitutes a “suitable job”. Langenbucher (2015) presents the suitable-work criteria in the OECD countries in three categories: i) required occupational mobility; ii) required geographic mobility; and iii) other valid reasons for refusing job offers.

In order to keep an active stance at all times, it may also be advisable to require continued availability for work during participation in ALMPs, since the take-up of market-sector jobs should have priority over participation in publicly-subsidised employment programmes. ALMPs by definition must involve at least substantive part-time participation, but many are not completely full-time activities, and then it may be appropriate to require continuing job search and verification during ALMP participation. Whereas a clear majority of countries requires continued availability for work during ALMP participation for most or all of their programmes, only Australia, Denmark, Estonia, Germany, the Netherlands, New Zealand, Sweden, Switzerland, and the United Kingdom require active job search during participation (see Annex 3.A1).

How are the independent job-search efforts of jobseekers monitored?

While self-motivated jobseekers will often look for jobs effectively, other unemployed may require job-search assistance (see Section 3) and regular monitoring of their independent job-search efforts to ensure that they search actively for work. A clear majority of countries have explicit regulations for job-search reporting and monitoring and many countries require reporting at least on a quarterly basis, with reporting being as often as fortnightly or weekly in Australia, Portugal, and the United Kingdom (see Annex 3.A1). By contrast, Chile, the Czech Republic, Greece, Hungary, Israel, Italy, Poland, Spain,¹³ and Turkey do not check jobseekers' independent job-search efforts. In addition to the frequency of reporting, countries may have adopted specific rules on how benefit recipients need to document their independent job-search efforts. The documentation requirements make the jobseekers' efforts verifiable, and based upon feedback about the outcomes of job applications the PES may offer advice to improve job-search techniques. Several studies have shown job-search monitoring can have a considerable impact on re-employment rates (see e.g. Borland and Tseng, 2007; Klepinger et al., 2002; and McVicar, 2008), although Van den Berg and Van der Klaauw (2006) find that for relatively well-qualified jobseekers, monitoring may merely cause an inefficient shift from informal to formal job-search methods. Nevertheless, and perhaps especially for individuals with poor prospects, monitoring may lead to an increase in the exit rate to work.

In some countries, checks of independent job-search efforts only occur during intensive interviews. In other countries with high frequency of checks such as the United Kingdom, the interventions may involve a tick-box check of reported search efforts and a quick orientation towards possible job vacancies (OECD, 2014a). Few countries have a general requirement for all jobseekers to report a minimum number of job-search actions during the monitoring checks. In Estonia, Finland, Portugal, Sweden, and Switzerland such requirements may be included in an individual action plan or set by a placement officer on the basis of client characteristics and the local labour market. Only Australia, Iceland, Japan, Netherlands, Belgium, and the United States require that beneficiaries report a minimum number of job-search actions per month, ranging from at least one per month in Iceland up to 20 actions per month in Australia and the United States. While the potential benefit of such requirements is clear, there is a risk that too-rigid requirements, with high minimum frequency of job applications required, may generate employer complaints about too many solicitations. Some countries recognise the validity of other types of job-search actions, which eases this problem. The United Kingdom has taken a different approach. While not necessarily specifying the number of job-search actions, the individual action plan resembles an employment contract and details work preparation and job-search activities covering the same amount of time as agreed hours for prospective work (OECD, 2014a). In Canada, under the recent "Connecting Canadians with Available Jobs" initiative, benefit claimants are categorised as a "long-tenured worker", "occasional claimant" or "frequent claimant", with claimants in the last category required to include in their search any work that they are qualified to perform with a wage from 70% of their previous wage, subject to the minimum wage, from week seven of their claim (Service Canada, 2012). However, here follow-up interviews to review individual compliance are conducted by the national benefit administration rather than provincial employment services, and remain fairly infrequent.¹⁴

What sanctions apply for non-compliance?

In most countries, legislation for unemployment benefits includes the possibility of sanctions – i.e. a reduction or interruption of benefit payments for a fixed term, or a termination of unemployment benefits with the remaining benefit entitlement being lost – when claimants do not comply with eligibility criteria.¹⁵ A number of recent studies of the impact of warnings about a possible sanction or the imposition of sanctions on unemployment insurance or social assistance recipients show that sanctions can substantially shorten benefit claim durations and increase employment take-up by the sanctioned individuals (e.g. Abbring et al., 2005; Boockmann et al., 2014b; Lalive et al., 2005; and Van den Berg et al., 2004). There are, however, also studies suggesting that the positive impact on exit rates and employment may come at the cost of lower quality of post-unemployment outcomes with respect to job duration and earnings (Arni et al., 2013) and occupational level and a higher incidence of part-time jobs (Van den Berg and Vikström, 2014). Some studies also explore the wider consequences of sanctions and provide evidence that there may be adverse consequences for child welfare, family welfare, and health outcomes (see e.g. Griggs and Evans, 2010 for an overview). When sanctions are imposed for assistance benefits, some countries therefore have safeguards in the system to prevent families with children or other vulnerable claimants falling below a certain subsistence level.

The strictness of sanctions differs considerably across countries and types of offence. A comparison of the strictness of sanctions for different situations, including sanctions for voluntarily quitting the last job, sanctions for refused job offers and sanctions for refusal or failure to participate in ALMPs and PES interventions can be found in Langenbucher (2015). Some countries do not impose sanctions for a first offence, but instead issue a warning only with sanctions applying to subsequent offences. In some situations, such as voluntarily quitting a job, a large number of OECD countries impose an extended waiting period before benefits can start, or in some cases complete disqualification from the benefit. In countries with unlimited duration of benefit entitlements, a termination of entitlement may not be possible, but in the United Kingdom a loss of benefit for up three years may apply for repeat offences (OECD, 2014a).

3. Employability: Employment services and programmes enhancing the employability of jobseekers

The PES may schedule its delivery of interventions in the unemployment spell approximately as follows:

- Jobseekers participate in a first intensive interview at or close to the time of their initial registration (OECD, 2007, Chapter 5). Such interviews are used to deliver information about jobseeker obligations, define an individual action plan, and obtain detailed information on jobseeker characteristics, history and aspirations to improve advice and matching of jobseekers to vacancies.
- Most new jobseekers are assumed to be relatively employable, and initially need access to good labour market information services: in a number of countries, the PES job vacancy website has a high market share. Jobseekers participate in more or less frequent additional counselling interviews, where job search is reviewed and related assistance is offered. There is some expectation that additional requirements will apply if skilled and employable jobseekers do not fairly quickly find work by their own efforts.

- For jobseekers with employability barriers identified at the start of the unemployment spell, early referral to training, work experience or special support for health problems or disabilities is available.
- If the unemployment spell passes a certain duration threshold, the individual action plan is updated. At different points, jobseekers may be required to expand their field of job search, may be directly referred to job vacancies, and may be referred to longer-term training or job-creation measures, and a subsidy may be offered to employers who hire them.

However, in many countries the PES formally schedules its interventions along the lines above only to a limited extent. Areas managed differently by a number of countries include:

- In countries with a well-resourced PES and where benefit payments are linked to former earnings, counsellors have detailed knowledge of specific sectors and aim to match all jobseekers rapidly and accurately to the best available vacancies, thereby improving the general functioning of the labour market.
- The use of a particular type of intervention at a particular time is largely discretionary, often determined by an individual case manager.
- In countries where benefit entitlements are limited, interventions are not necessarily intensified with the duration of the unemployment spell.
- ALMPs, particularly training programmes, can be separately managed and operate their own referral processes and target group criteria.

This section first discusses how profiling procedures can assist the PES with an efficient allocation of scarce resources, then describes the mainstream services available to jobseekers, and finally a range of more-targeted services to enhance employability.

Who to help? Allocating scarce resources

The interventions that activate disadvantaged groups are primarily those that activate the hard-to-place and long-term unemployed. At the same time, many individuals with specific identifiers of disadvantage, such as lone parenthood, find work without intensive assistance. The PES needs to concentrate its scarce resources on jobseekers who have become long-term unemployed, or ideally on those most at risk of becoming long-term unemployed. Many types of information can contribute to the assessment of this risk. Box 3.3 reviews experiences with profiling tools that are used to allocate jobseekers to

Box 3.3. Profiling tools

Jobseeker profiling procedures allocate jobseekers across a small number of categories, in order to manage scarce resources and deliver services that are appropriate for the needs of each group. Procedures are often based in part on regressions of claimants' probability of becoming long-term unemployed on their characteristics. Often profiling is implemented at the start of the unemployment spell, and identifies some claimants for additional support while claimants at low risk may, for example, initially only sign a jobseeker commitment and attend group sessions. Profiling procedures and information may also provide a framework for caseworkers to create an individual action plan (IAP) and personalise assistance for new clients at an early stage. Some examples of national procedures are:

- In Australia, the Job Seeker Classification Instrument (JSCI) is scored for 18 factors with the maximum points ranging from one or two for variables such as access to transport,

Box 3.3. Profiling tools (cont.)

and up to 14 or 16 for the broad areas of age/gender and income support history. Over half the possible points are allocated based on administrative records and routine information such as the jobseeker's home address and phone contactability. Other points are allocated based on a questionnaire addressed to all jobseekers when they first register for payment. When disability/medical conditions and psychological, behavioural and domestic issues are reported, specialist assessments are undertaken to supplement the jobseeker answers. Based on their JSCI score, jobseekers are allocated to one of four Streams with different intervention regimes and schedules of payments to providers for their services and outcomes. If private providers note evidence that scores are too low, they may readminister the JSCI questionnaire and enter revised points in the shared IT system. Importantly, this procedure generates a national database of JSCI scores which, together with administrative records and further data, is used to control for characteristics of the caseload when rating the performance of individual providers in terms of their impacts on clients' employment outcomes, and estimating the impact of different active labour market programmes (ALMPs).

- In Austria, without using a formal profiling procedure, the PES applies a three-zone concept, with an info-zone just for information, a service zone for registration and basic services, and a counselling zone where clients who are still unemployed after three months receive intensive case-management services. The customer flow is routed based first on the individual customer's request and verification of placement opportunities with an "instant matching" (Reality Check) which achieves "rough profiling". A more precise action plan is developed with a decision on zone classification and the intensity of service by the placement agent. Client groups deemed to need more support, such as young persons or persons with a lack of qualification, can be directly transferred to the counselling zone.
- In Denmark, unemployment insurance and social assistance recipients are assessed according to the same principles, and a "match model" distinguishes broadly between unemployed individuals ready to take on a job, people able to take part in active employment measures and those temporarily on passive measures. These forward-looking criteria are primarily assessed by caseworkers, who use duration on assistance as a "benchmark" but not the decisive consideration. Most other countries have separate procedures for temporary exemptions from job-search requirements.
- In Germany, clients are segmented into six different profiles using a software-guided assessment of their "distance to the labour market". Each profile is in principle linked to a specific service strategy to be followed by the caseworker, although qualitative research has found that direct links between profiling results and goals set in the action plans are rather weak.

Other examples of profiling procedures are the US Worker Profiling and Reemployment Services (WPRS) introduced in 1993, Ireland's profiling of clients with the introduction of its unified employment service Intreo in 2012, and the Dutch "work explorer" profiling tool filled in electronically by the jobseeker, introduced around 2013 (see Box 3.14). Information technology has probably facilitated the use of some form of profiling, but approaches remain very varied. The need for formal categorisation of clients is greatest where the PES caseload is particularly varied, where the PES systematically refers clients on to distinct services or private service providers, or where – as in the United States and more recently in Ireland – counselling resources are limited and access needs to be rationed in some way. For clients who regularly see an individual case manager, formal allocation to categories may add little value.

Box 3.3. Profiling tools (cont.)

Unemployment duration captures the impact of disadvantage factors that are difficult to document or to incorporate directly in a statistical profiling model. Most countries bring in different, often more-intensive, services as the duration of unemployment increases, and some countries rely mainly on this scheduling approach. It should be kept in mind that targeting on unemployment duration has specific incentive effects, e.g. employment services have a perverse incentive to delay placements, if the outcome payments or performance points awarded increase with unemployment duration.

Source: AMS (2011), "Employability Profiling System – The Danish Experience", Presentation at an European Commission PES to PES Dialogue Meeting on Profiling Systems for Effective Labour Market Integration; Konle-Seidl, R. (2012), "Monitoring and Follow-up of IAPs and their Outcomes in Selected EU Countries", Presentation at European Commission PES to PES Dialogue Meeting on Activation and Integration: Working with Individual Action Plans; Rudolph, H. and R. Konle-Seidl (2005), "Profiling for Better Services", Report on the European Profiling Seminar, Nuremberg; 12-14 January; OECD (2012), *Activating Jobseekers: How Australia Does It*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264185920-en>.

more- or less-intensive service streams, often based on the risk of becoming long-term unemployed. Repeat unemployment, which is equally problematic in some countries, is to some extent treated as equivalent to long-term unemployment, depending on detailed rules about whether the count of unemployment duration resumes or is set to zero after a short period in employment.

Support through mainstream tools and services

Counselling is usually one of the main services delivered by the PES and jobseekers may be able to receive such counselling on a voluntary basis or they may be mandated to attend meetings. Although counselling is usually targeted at people out of work and on benefits, the PES in some OECD countries also offer counselling or more-detailed career advice to all jobseekers, including people who are in work but are considering a change of job.

Job-search assistance through intensive counselling interviews

Following initial registration interviews, intensive counselling interviews later in the unemployment spell are often used to detect opportunities to increase or update jobseekers' skills, review CVs, provide advice on job-search strategies or interview techniques, refer jobseekers to open vacancies, discuss referrals to ALMP programmes and update and modify individual action plans. This sub-section shows that while scheduling mandatory interviews may already generate positive employment impacts through a threat effect, such services are particularly effective if they are of high quality.

The intensity and frequency of meetings with counsellors varies considerably across countries and may vary depending on the customer group (OECD, 2007, Chapter 5). While a high frequency of interviews may be desirable, it is often constrained by staff caseloads – the ratio of clients to employment counselling staff. As for initial eligibility reviews, counselling services may be more effective through the threat effect (i.e. causing flows off benefit prior to the actual interview) than through the actual delivery of the service (Graversen and van Ours, 2008; and Hägglund, 2011). A recent study for the United States shows that claimants who exited benefit before a scheduled job-search assistance programme had improved job prospects in the longer run compared with those who participated (Cebi et al., 2013).¹⁶ On the other hand, in Denmark much of the impact on

employment arises from vacancy referrals received during the interviews, with also some evidence for longer-run effects associated with more effective job search throughout the unemployment spell (Van den Berg et al., 2012). In Finland, in 2014 a policy change sharply increased the rate of vacancy filling by direct referrals. Following the principle that the jobseekers referred should be those who best meet employer needs, the increase in job offers particularly concerned the short-term unemployed, ALMP participants and job changers, with many offers of vacancies to jobseekers in a different municipality or registered for a different occupation. This helped employers to fill their vacancies rapidly, and shortened the duration of unemployment spells for young people, but not for those aged over 50, perhaps because this group already has good knowledge of the jobs available (Räisänen and Järvelä, 2014).

Where employment service counsellors have interviews with jobseekers the quality and individualisation of the content is key. Low-intensity counselling interventions may have no impact on movements into employment, as evidence from the Netherlands suggests (Van den Berg and Van der Klaauw, 2006). By contrast, in an experiment in Denmark, early and frequent meetings with unemployed workers increased employment over the next two years by up to five weeks (Pedersen et al., 2012). Positive impacts on exits to employment have also been found for France, suggesting in particular that intensive counselling can improve the quality of job matches, thereby reducing unemployment recurrence (Crépon et al., 2005). A recent trial from Nevada in the United States shows that already a first meeting of jobseekers with counsellors expedited reemployment and helped participants to get relatively higher paying jobs: although some of the impact occurred prior to the first meeting and is described as a “threat” effect, the greater part of impact arose subsequent to the meeting and is described as a “reemployment services effect”. Among the services offered were a review of skills and experience and advice on how to sell those in the labour market, the development of an individual work-search plan, provision of information on local labour market conditions and referrals to employers with job openings matching the jobseekers’ skills and experience (Michaelides, 2013). In addition to individual job-search assistance, some countries require participation in job-search training courses. In Austria, a mandatory job-search training programme was estimated to reduce the remaining duration of the unemployment spell by about one third, for those who participated in the first 240 days of their unemployment spell (Weber and Hofer, 2004).

Positive employment impacts may be achieved through a reduction of client-staff ratios, resulting in more personalised services. In a recent German experiment, 14 local PES offices hired additional caseworkers to lower the staff/client ratios to an average of 1:70 (from the usual 1:80 to 1:250) to improve the quality of placement services. Evaluations of the experiment showed that with lower caseloads PES offices could intensify counselling, monitoring and sanction efforts as well as contacts with local firms, resulting in shorter benefit durations in the participating PES offices. The costs of hiring additional caseworkers were offset by decreased benefit expenditure after a period of about ten months (Hainmueller et al., 2011; and Hofmann et al., 2012). While there is a large body of research studying the impact of job-search assistance and counselling programmes on employment outcomes,¹⁷ there is also a growing body of more recent evidence addressing the question which counselling strategies are the most successful (see Box 3.4).

With potentially large movements off benefits to be made through the provision of individualised counselling services, a number of countries have contracted out some of their counselling services to profit and non-profit contractors, with the aim of especially helping

Box 3.4. Which are the most successful counselling strategies?

Competent and motivated employment counsellors are the centrepiece of the public employment service's (PES) role in activating jobseekers and facilitating transitions to employment. Counsellors need a broad range of competencies combining “hard” skills (e.g. performing administrative tasks and using IT systems) with “soft” skills such as job broking, counselling and social work to improve outcomes for the unemployed. A number of recent studies therefore focussed on which counselling strategies and caseworker characteristics are associated with positive impacts on employment. In Switzerland, periodic evaluations are required under the 1996 unemployment insurance legislation: Aeberhardt (2014) summarises a number of recent studies focusing on jobseeker expectations, search resources and methods, and measures aimed at enhancing them and the management of counselling services.

Work-first strategies

A number of European studies have shown that so-called “work-first” strategies, where caseworkers concentrate on supporting and guiding clients in their search for work and rapid job placement rather than placement into training measures, improve employment outcomes (Boockmann et al., 2014a; Egger and Lenz, 2006; Frölich et al., 2007; Lagerström, 2011). However, targeted training within a “mixed” strategy is often effective (see Box 3.7) and there is a case for some increase in the use of training in a recession (see Box 3.1). One study for Denmark estimated that when a series of meetings were held, the later meetings (typically after six or more months of unemployment) had a greater proportional impact on the rate of exit to employment (Van den Berg et al., 2012).

Caseworker characteristics and attitudes

A Swiss study found that a similar social background between caseworkers and jobseekers – as measured by nationality, gender, educational level and a similar age – can have positive impacts on employment and job stability, possibly through channels such as motivation, trust or more effective communication strategies. Similarity in only one or two personal characteristics did not lead to detectable effects on employment (Behncke et al., 2010a). This may imply the need for a diverse PES workforce, to facilitate the allocation of jobseekers to caseworkers with a similar social background. Another Swiss study found that good staff/client ratios and the recruitment of motivated and highly trained personnel were factors that reduce the average duration of unemployment spells and the percentage of jobseekers entering long-term unemployment (Egger and Lenz, 2006). Caseworker attitudes toward their clients may also play an important role. Several studies from Switzerland and Germany found that caseworkers who apply tough rather than softer, more co-operative attitudes towards their clients may be more successful (Behncke et al., 2010b; Frölich et al., 2007; and Boockmann et al., 2014a; the latter find positive impacts for flows off benefit but not for flows into employment).

Employer contacts

Egger and Lenz (2006) identify contacts with employers by all job counsellors as a major success factor and Frölich et al. (2007) find a positive impacts on employment rates in PES offices where the staff have good relationships with employers and, in particular, know employer needs, rapidly react to vacancies and make targeted use of direct referrals after a careful pre-selection of candidates. The authors also find a clear positive correlation between jobseeker outcomes and PES office co-operation with private placement agencies, which may be complementary to direct employer contacts.

Box 3.4. Which are the most successful counselling strategies? (cont.)**Case management to tackle exclusion**

Multi-disciplinary team-working is a recommended response to social exclusion, when individuals and families need assistance in several areas of life. Health specialists, psychologists, social insurance case-workers and other professionals may similarly co-ordinate their responses to individual sickness absence. Watt (1998) lists good practices in employment counselling and guidance with a focus on networking between local actors and outreach to different unemployed client groups. As the full co-ordination or integration of diverse interventions is difficult and potentially costly, these approaches have sometimes been experimental, and often dependent on project funding, but in a number of countries national programmes have also partly integrated the delivery of employment and social services (Taylor, 2009). In Norway, the new national service NAV (see Box 3.12) in 2007 introduced the Qualification Programme, which offers selected hard-to-employ people (on social assistance, and at risk of permanent exclusion) a standardised payment which is not means-tested, typically increasing their net income by about 50%, in return for full engagement in an individualised qualification and activation plan. Markussen and Roed (2014) suggest that this programme associates activation with generosity to a unique extent. They estimate that it raises the employment rate of its participants by about 18 percentage points. The jobs are often part-time or poorly paid, but if the employment impacts are maintained for five years or more this programme's benefits are likely to exceed its costs.

more disadvantaged jobseekers who are at the risk of becoming long-term unemployed. Two recent studies for France and Germany, however, show that such private provision may not result in more favourable outcomes than public provision through the PES (Behaghel et al., 2014; Krug and Stephan, 2013), while another recent study for the United States shows that job-placement firms tend to fulfil their obligations by means of temporary-help jobs, which leads to significantly lower labour market integration (Autor and Houseman, 2010). While the results should not be used to imply a preference of public over private provision, they highlight a need for designing contracts that incentivise the desired behaviour by providers and the importance of managing providers' performance (see Box 3.11).

Career advice and employment retention and advancement (ERA)

As discussed in the introduction, interventions to activate disadvantaged groups are in practice mainly interventions targeted on the hard-to-place unemployed: it is not usually possible to target people with disadvantage indicators where the requirement to be available for work is absent. At the same time, to ensure that its interventions are inclusive and seen to be so, the PES should where possible target non-unemployed groups and adapt service strategies to their needs. This section discusses the scope for employment services targeted on people who are already employed, and that aim to promote in-work progression.

In some countries, career advice services are part of the main PES organisation, and in others publicly-funded career advice is separate from the main PES organisation, often acting as a gateway to publicly funded vocational training with the registered unemployed being able to apply for training courses. Participants in longer-term training are often moved onto a training allowance and no longer treated as registered unemployed. Career advice for youths is often broadly targeted on school attenders, but referrals may also be

received from counsellors who are working with unemployed and NEET youth. Adult participation in career advice services is usually voluntary, mainly helping workers who are already fairly well motivated, employable and able to complete further vocational qualifications if necessary (Box 3.5).

Box 3.5. Career advice

Career and vocational guidance services for adults promote progression and advancement in work. However, public funding for these services is often not solely or not primarily the responsibility of the main PES organisation.

In some European countries, specialist career guidance staff work in local PES offices. In 2005, a survey of European countries found that, within the PES, only Finland and Switzerland have specially trained vocational guidance staff who are all graduate psychologists; in Finland, about 10% of front-line staff were psychologists. Distinct career guidance services were also located within the PES in Belgium (Wallonia), Estonia, Germany, Lithuania, Luxembourg, Poland, the Slovak Republic and Slovenia. Currently, Denmark reports a vocational guidance counsellor role; the Federal Employment Agency in Germany is the most important institution for vocational guidance; and Information and Career Planning Centres are located within Voivodeship Labour Offices in Poland. In France, although there is not a specialist vocational guidance counsellor role, the PES frequently refers clients who aim to change occupation or advance within their enterprise (not only those seeking work) to a skills assessment (*bilan de compétence*) with a specialist consultant, who provides suggestions for career development.

However, it is also common for adult career and vocational guidance services to be mainly associated with adult training services, and then they may be managed by other ministries than the labour ministry. In England, for example, guidance for adults is provided under the Department for Business, Industry and Skills: the National Careers Service website invites visitors to first undertake a Skills Health Check by completing a range of online questions to generate a report, and then talk with an adviser.

There are significant tensions between career guidance and other objectives of PES work: career guidance addresses longer-term goals linked to lifelong learning and sustained employability, whereas employment advisers often aim to get unemployed individuals into employment (and therefore off benefit) as quickly as possible. For Germany, where career guidance has a relatively large role, an observer nevertheless remarked that the principle of social insurance is to minimise the risk of claims and the extent of claims, and it is not easy for career guidance to find its place within this “insurance logic”. The PES has “gatekeeping” and policing functions in relation to public resources, and career advice identifying a change of career that involves training could be problematic for the unemployed person and the PES, because as a rule the short-term unemployed are not allowed retain unemployment benefits during participation in longer-term vocational training.

In some countries, the PES allows the short-term unemployed to take-up a range of short-term training opportunities while retaining unemployment benefits or an equivalent training allowance. If the PES takes decisions in relation to longer-term training, they are generally discretionary. Often allowances are granted by a national or local training agency with a limited budget open to people in work as well as the unemployed, and the applicant’s capacity to benefit is a key consideration.

Box 3.5. Career advice (cont.)

Reflecting these tensions, participation in guidance services is usually voluntary, with a risk that the rates of participation by disadvantaged groups will be low. Measures that might counter this tendency include enhancing the offer of lower-level training courses and adult apprenticeships, enhancing the offer of in-work progression services targeted on recently-unemployed and low-income workers, and increasing the focus on job stability in the PES placement process. Such measures need to be tested for effectiveness, as discussed in Box 3.6.

Source: <http://euroguidance.eu/guidance-systems/>; Sultana, R. and G. Watts (2006), "Career Guidance in Public Employment Services Across Europe", *International Journal for Educational and Vocational Guidance*, Vol. 6, pp. 29-46.

In the context of welfare-to-work reforms some experiments have implemented Employment Retention and Advancement (ERA) services targeted directly on ex-welfare and low-income groups in work. These experiments offered a broader range of services, often including some career advice. Most of the initiatives that were targeted on employed people no longer receiving any benefits did not have an impact, largely due to difficulties in maintaining contact with these clients. However, employment services targeted on people in work but still entitled to a partial benefit payment, employment services delivered before entry to work but encouraging jobseekers to apply for stable jobs, and employment services with voluntary participation but in association with financial work initiatives, all had a positive impact in at least one experiment.

These findings, summarised in Box 3.6, suggest that a variety of factors can motivate increased participation in employment services, which then can increase the total earnings of a target group by up to 10% for some years afterwards, perhaps with a significant lag before the net impact appears.¹⁸ The successful designs, with participation in employment services linked in some way to a benefit payment or a financial incentive, were variations on conventional strategies more than radically new strategies. This suggests that the job-stability focus could usefully be increased within conventional employment services, not only in special or outreach services.

Box 3.6. Employment retention and advancement services

Activation measures and public employment services can improve employment outcomes by matching jobseekers to the most appropriate job vacancies, with a preference for stable jobs, enforcing benefit sanctions when jobseekers leave a job voluntarily and promoting rapid return to work when clients reregister as unemployed. Some initiatives have also delivered in-work services to improve retention and encourage advancement to a better job, or participation in education and training.

In the United States, from 2000 to 2003, innovative Employment Retention and Advancement (ERA) programmes were evaluated, with participant outcomes tracked for three to four years following random assignment. For low-income single parents, 9 of 12 programmes evaluated did not appear to be effective. This was often related to difficulties in maintaining contact with clients when they were no longer claiming benefits. Of the three successful programmes, one offered an in-work benefit to those working 30 hours per week or more, and another was mandatory for people who were already working but also receiving some welfare payments. A third programme, which

Box 3.6. Employment retention and advancement services (cont.)

delivered employment assistance mainly through community-based organisations with voluntary participation, increased total earnings by about 10% over the four-year follow-up period. It shortened unemployment spells, increased the length of employment spells, and promoted entry into jobs with unemployment insurance coverage, although it had little impact on other measures of job quality. However, improvements in employment retention in the successful programmes were associated with rapid placement back into work following job loss, more than reductions in the rate of job loss.

From 2003 to 2007, the United Kingdom implemented an experimental ERA programme which combined job coaching and advisory services with financial incentives for sustained full-time work and for the completion of training or education.

- For lone parents, the financial incentive did not in any year increase average months worked, but it encouraged some lone parents who were initially working part-time to move to full-time work, which qualified them for the incentive payment. The positive impact on hours to some extent continued after termination of the incentive payments. However, there was a positive impact on total earnings only in the first year, and usually no impact on hourly wages or job-quality indicators. The programme increased participation in training by those with lower educational qualifications, but the additional training did not necessarily result in short-term economic advancement.
- For the long-term unemployed, ERA caseworkers provided a range of retention and advancement assistance, and encouraged clients to take into account the likely longevity of employment and prospects for advancement in their job search. After the first year, the programme increased employment rates by about 10% (2-2.5 percentage points on the control group rates of about 20-25%). The early positive impacts resulted from higher job-entry rates, but from the fourth year, when the financial incentive had stopped, there was also a positive impact on job-retention rates. For this programme, unusually, increases in earnings exceeded the programme operating costs and the cost of in-work benefit payments.

In the more-successful experimental programmes, employment services, both voluntary and mandatory, often had positive effects that were maintained or still increasing after three years. This was also a key finding from Canada's Self-Sufficiency Project Plus, which offered employment services with a time-limited in-work benefit.

With the introduction of Universal Credit (UC), over a million UK workers will be subject to "in-work conditionality", an obligation to seek higher-paid work. A randomised control trial in 2015 and 2016, with over 10 000 participants and about 5 000 in the control group, will evaluate a range of in-work progression strategies.

Source: Dorsett, R. (2013), "The Effect of Temporary In-Work Support on Employment Retention: Evidence from a Field Experiment", *NIESR Discussion Paper*, No. 411; Greenberg, D., J. Walter and G. Knight (2013), "A Cost-Benefit Analysis of the Random Assignment UK Employment Retention and Advancement Demonstration", *Applied Economics*, Vol. 45, No. 31, pp. 4335-4354; Hendra, R. et al. (2010), "How Effective Are Different Approaches Aiming to Increase Employment Retention and Advancement? Final Impacts for Twelve Models", MDRC; Hendra, R. et al. (2011), "Employment Retention and Advancement (ERA) Demonstration: Delivery, Take-Up and Outcomes of In-Work Training Support for Lone Parents", *DWP Research Report*, No. 726; Hendra, R. et al. (2011), "Breaking the Low-Pay, No-Pay Cycle: Final Evidence from the UK Employment Retention and Advancement (ERA) Demonstration", *DWP Research Report*, No 765; McVey, E. (2015), "House of Commons Written Answers and Statements, 22nd January".

Targeted programmes and services

A range of services, including ALMPs that help jobseekers acquire relevant skills, gain work experience and work motivation may be needed to address specific employment barriers and promote more stable employment trajectories. Training programmes are discussed in this sub-section, while employment incentives and direct job creation programmes are covered in Section 4.

The employment rates of workers with below upper secondary education are much lower than those with tertiary education (see Figure 3.2). While this partly reflects their withdrawal from the labour market, workers with less than upper secondary education usually also have higher unemployment rates than workers with upper secondary or tertiary education (see Statistical Annex Table G). Training programmes may improve the skills of those with lower educational attainment, and reverse human capital depreciation that results from longer unemployment spells.

Early evaluations of training programmes often found a negative impact or only a small positive impact on net employment outcomes in the short run. Negative short-term impacts reflect so-called “lock-in” effects; participants and training providers often expect courses to be completed, and participants in any case have less free time for job search, so job-entry rates tend to fall whilst on the programme. Some countries, however, retain job-search requirements during participation in non-vocational courses (Annex 3.A1). In the United Kingdom, fees for training providers consist of an 80% service component and a 20% result-based component, with the latter being paid only if the jobseeker finds employment whilst on training or thereafter (OECD, 2014a): this arrangement might reduce the lock-in effect, although it mainly rewards the final employment impact.

As reported in the meta-evaluation by Card et al. (2010), in the medium term beyond two years after entry to training programmes, their impact is often estimated to be quite strongly positive. Most estimates use non-experimental methods, and the accuracy of impact estimates is not guaranteed. Good outcomes are reported for some job-search oriented shorter programmes, but also for vocational training targeted on sectors in demand, longer vocational training, and training in workplaces. At the same time, there are signs that significant investment in general and classroom training pays off further into the long term, perhaps after ten years (see Box 3.7).

Box 3.7. Training programmes: What works for whom?

Training vs. employment-focused programmes. An analysis of the findings from a large number of US (and one Canadian) Welfare to Work experiments conducted in the 1980s and 1990s, with tracking of participant and control group outcomes for three or more years, concluded that employment-focused programmes (which prioritised job-search assistance and training, and sometimes work experience) that also allowed some welfare recipients to enroll in short-term education or training (“mixed” programmes) had the most consistent impact. “Education-focused mixed-activity” programmes, which stressed education activities for the most-disadvantaged groups, tended to have the smallest effects for these groups (Michalopoulos, 2004). Further tracking of the outcomes for one of the successful “mixed” programmes has suggested that, from about the fifth year onwards, the impact became relatively positive for those who participated in the education or training elements, although this estimate remains subject to possible selection effects (Hotz et al., 2006).

Box 3.7. Training programmes: What works for whom? (cont.)

Specific skills vs. general training. Studies often find that the impact of training on employment and earnings is relatively large for specific skills training (e.g. O’Connell, 2002, in Ireland). Low-income disadvantaged workers who participated in training for sectors with relatively high earnings and strong labour demand had earnings nearly 30% higher than non-participants between 13 and 24 months after random assignment (Maguire et al., 2009, in the United States). Along the same lines, for displaced workers, an academic year of community-college training was associated with a long-term earnings gain of about 10% in the case of quantitative and technically-oriented vocational courses but about 3%-5% for other courses (Jacobson et al., 2005). However, Korpi et al. (2003), using life history data from Great Britain, the Netherlands and Sweden found that vocational training for young people reduced precariousness during the transition from school to work, but was not associated with better outcomes than general education in later years, and possibly had a less-favourable impact for those who became unemployed. Stenberg and Westerlund (2014) found evidence of a relatively long-term impact from Sweden’s Adult Education Initiative (AEI), which allowed 25-55 year-olds on unemployment benefits to attend a year of full-time schooling at the upper secondary level, and for some years in the late 1990s was Sweden’s largest labour market programme. Among individuals who received unemployment benefits in 1997, the AEI participants at first had lower annual earnings than matched participants in labour market training (LMT), but subsequently the earnings gap closed. For women who had not completed secondary education, by 2010 AEI participation was associated with earnings about 10% higher. The authors suggest that general training enhances the ability to adapt to changes in the demand for skills.

Long-term follow-up. Hollenbeck and Huang (2006) estimated the impact for 11 different workforce development programmes in Washington State and concluded that only one of them generated a net saving for public authorities in the first 2½ years. But after completion of training, most programmes increased the earnings of participants by about 20% and eight of them generated a net saving for public authorities in the long run. Heinrich, Mueser and Troske (2008) estimate, for US Workforce Investment Act (WIA) training, that the earnings of adult participants catch up with those of non-participants within ten quarters and they go on to register marginal benefits from training that may exceed USD 400 in earnings per quarter. Estimated earnings gains were larger for women, but were relatively small for dislocated workers (those who were in a long-term stable job before becoming unemployed). German studies identify that, after a negative (lock-in) effect on employment rates during the training period and slightly beyond, specific skills training increases employment rates by about 10 percentage points (Fitzenberger and Volter, 2007; Fitzenberger and Speckesser, 2009). Lechner, Miquel and Wunsch (2011) estimate, for 1992-93 entrants to several training programmes in West Germany, that a positive impact on employment rates of 10 to 20 percentage points emerges, and this impact declines only slightly within an 8-year observation period. Retraining (2-3 year courses for adults), despite a long lock-in period, has the largest positive impact by the eighth year, but short-term training (which can consist primarily of assessment, profiling and job-search training) also has a large impact and, since it is much cheaper, is more cost-effective. “Practice firm” training tends to be effective for those unemployed for more than six months. In remarkable contrast, Wunsch and Lechner (2008) estimate, for 2002-03 entrants to seven types of training in West Germany, that all programmes fail to improve their participants’ chances of finding regular employment within 2.5 years, with no evidence that positive employment effects could be expected for later periods. They conclude that the impact of training programmes was genuinely lower in the 2000s than it was in the 1990s, due to a change in the quality of programmes, the participants, the assignment

Box 3.7. Training programmes: What works for whom? (cont.)

process or certain characteristics of the labour market. Rinne, Schneider and Uhlendorff (2011) report that medium-term programmes have a positive impact on employment probabilities and earnings for almost all skill and age sub-groups. Biewen et al. (2014) find a positive impact of training for people who have been unemployed for some time, and for women.

Estimation biases. Recent studies of the US Workforce Investment Act (WIA), as well as most European studies, use non-experimental data, comparing outcomes for participants with outcomes for matched non-participants, but there is a well-known risk of bias in the impact estimates, associated with selection into participation. Heinrich, Mueser and Troske (2008) carefully consider possible selection effects, and judge that selection on stable individual characteristics is not generating spurious positive estimates of impact, but some estimated differences are undoubtedly due to selection effects, and incentives related to unemployment insurance (UI) benefits may be temporarily depressing employment rates for part of the comparison group used. OECD (2012a) notes that in Australia a significant proportion of benefit recipients are temporarily exempt from job-search requirements due to short-term illness and other factors, and suggests that the comparison group of non-participants used for estimating net impacts is more likely to be in this situation. Lechner and Wiehler (2011) document that many studies internationally have estimated more positive impacts for women than for men, but they also present evidence for Austria that controlling for pregnancy and parental leave status (which has rarely been done in other studies) is very important for reducing selection bias, and brings the impact estimates for younger women close to those for men. Lechner and Wunsch (2013), using an unusually rich data set, find that a wide range of control variables, which are not often available for this type of study, affect impact estimates. Biewen et al. (2014) also explore several alternative definitions of the comparison group, and Stephan (2008) reports specifically that when the comparison group for labour market programme participants consists of people who not have yet participated in a programme (an increasingly popular approach), impact estimates are much more positive than they are when the comparison group is restricted to people who did not participate in a programme at any time during a 3½ year follow-up period. She also warns that estimated positive impacts for short-term training within firms may partly reflect the selection of participants by firms.

The variable nature of training expenditure. The Training category in the OECD/EC Labour Market Programme Database can include longer-term job-search training, work experience with some training elements, classroom training, training within firms, and pre-apprenticeship programmes and special support for young apprentices. Programmes involve widely varying durations of participation. The content includes basic education (foundation, remedial, literacy/numeracy training), skills training with or without certification, and in a few cases training for a professional qualification. Participation in training is often mainly voluntary, but in some cases it is partly or primarily obligatory. In some countries, candidates receive training vouchers and can then choose their training provider, but with some guidance for the users and some regulation of the training market. Local employers may or may not be closely involved in the management of training organisations. All these factors could influence the quality of training courses and their effectiveness. A further complication is that evaluations typically assess the impact of training in terms of transitions from unemployment to employment, but it may be more cost-effective to target much of the training on already-employed disadvantaged workers, so as to link it more closely with the work environment. In Denmark, the central recommendation of a recent expert committee is to cut funding for general counselling and skills enhancement programmes, while introducing new incentives for training in a company, and increasing mentoring and bridge-building measures that support people into and during training and work (Ekspertgruppen, 2014).

4. Opportunities: Expanding available and accessible earnings opportunities

The previous sections focused on supply-side factors, which are important to bring more people into the active workforce and into employment. However, this is only part of the story. What happens to unemployed workers and other population groups with labour market barriers not only depends on their motivation to look for work and the qualifications and skills they possess, it also depends on the demand that exists for those skills and qualifications. Employment opportunities for unemployed workers, in particular, depend to a considerable extent on the health of the economy. Even though the PES can only to a limited extent influence short-term macroeconomic conditions, it has a crucial role in ensuring that users of its services have access to a wide range of employment opportunities regardless of the state of the business cycle, and in promoting the effective functioning of the labour market, especially the parts of it where jobseeker behaviour is influenced by benefits. The central function of the PES is to act as a job broker matching jobseekers and employers.¹⁹ Different ALMPs, including programmes to finance business start-ups, targeted wage subsidies and direct job creation programmes, also aim at directly increasing job opportunities for the unemployed. For certain groups, activation policies need to be combined with childcare, adaptation of the workplace, or health measures to expand the set of available employment opportunities. The remainder of this section focuses first on the job-brokerage function of employment services, then discusses labour market programmes which are aimed at the demand-side for labour and concludes with further policies to address employment barriers facing specific groups in the labour market.

The job-brokerage function of employment services

Job brokerage is the process of matching jobseekers with employers who are seeking to fill vacancies. The matching process is efficient if individuals move relatively quickly into jobs which maximise their wage and their productive contribution, thus making an economy overall more productive. Information is crucial if labour market matching is to work efficiently. Jobseekers need to be well-informed about available jobs and job requirements, and employers need information about jobseeker skills and willingness to take the jobs they can offer; otherwise inefficient job matching may cause (prolonged) unemployment and poor matches. Although the central function of the PES is to match jobseekers and employers, it operates in an environment where many vacancies are filled through other recruitment channels. It aims to strengthen its role as a job broker by offering vacancy databases and other more specialised services to employers.

PES vacancy databases: the best reference for matching labour supply and demand?

Gaining the trust of employers is a precondition for the PES to function as a competent job broker. However, this is not easy because employers often have negative perceptions of the PES. Employers may perceive jobseekers referred by the PES as less motivated and trustworthy than other jobseekers and suspect that the PES hides important information in attempting to reintegrate an individual (Larsen and Vesan, 2012). Job-search reporting requirements could exaggerate this problem, as they increase the risk that hard-to-place clients apply for good PES job vacancies, which in turn may reduce the willingness of employers to notify vacancies. Some countries require employers to notify their vacancies to the PES, but enforcement is limited. The PES in many countries takes a different approach these days, by running vacancy databases which are open to the wider public and promoted as an alternative to vacancy databases run by the private sector. Increasingly, the

databases are not only used to advertise vacancies, but also jobseekers are able to upload their CVs to the databases to market themselves to employers.

In a number of OECD countries, the PES online vacancy databases have established strong positions and now are the single most used vacancy platforms, as measured by the proportion of all vacancies in the economy being notified to the PES database. For example, in Sweden the ratio of vacancies notified to the PES database to total new hires in the labour market was 44% in 2013, and in Germany around 50% of all vacancies are reported to the PES (Arbetsförmedlingen, 2014; and Bundesagentur für Arbeit, 2015).²⁰ Jobseekers in Europe also have the option of seeking jobs through the EURES network (<https://ec.europa.eu/eures/page/index>), which combines vacancy information from the PES of all EU member states, Norway, Iceland, Liechtenstein and Switzerland. A comparison of the number of EURES vacancies registered per country shows that PES vacancy databases are less well established in a number of European countries. The relative strength of the PES in acting as a job broker is also reflected in the proportion of unemployed who contact the PES as part of their job-search methods and the proportion of recent job matches (including both transitions from out of work into work and job-to-job transitions) realised through the PES (see Box 3.8).

Box 3.8. How important is the role of the PES as a job broker

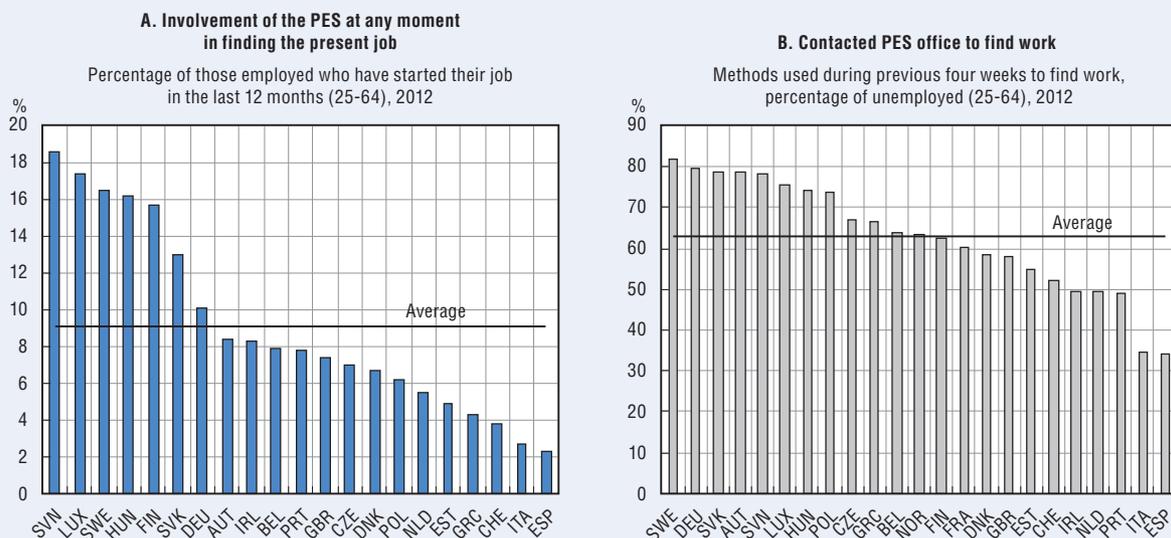
Public employment services across Europe are structured quite differently in their institutional set-up (see Box 3.12), but a primary aim of all is matching jobseekers with employers posting vacancies. The relative importance of the PES as a job broker and hence its “market share” is of relevance to policy makers, especially in the context of unemployment levels still exceeding their pre-recession values. International comparisons of market shares in job broking are difficult to conduct as there are no standardised concepts for defining, collecting and processing information. Some indicators are, however, available from the *European Union Labour Force Survey* (EU-LFS). The EU-LFS queries respondents who have started their current job within the last twelve months on the involvement of the PES at any moment in finding their present job. Furthermore, individuals currently seeking a new job – whether currently unemployed or looking to change jobs – are asked about the job-search methods they apply, including a question on whether they contacted the PES to find work.

The market share of the PES in recently realised job matches seems low. In the 21 countries for which data are available, on average only 9% of individuals who have recently started their new job indicate an involvement of the PES (see Figure 3.4, Panel A). The PES involvement exceeds 15% in Slovenia, Luxembourg, Sweden, Hungary, and Finland, while it is less than 5% in Estonia, Greece, Switzerland, Italy, and Spain. The low proportion of PES involvement may partly be explained by the fact that individuals moving from out of work into employment, as well as those changing jobs, are included. Employed people seeking new jobs are much less likely to approach the PES as part of their job search than the unemployed (see Annex 3.A2). Nevertheless, the marked differences across countries can be taken as a rough indicator of the varying importance of the PES as a job broker across Europe.

A different picture is seen when considering the proportion of unemployed who contacted the PES during the last four weeks to find work. Almost two in three of the unemployed used this job-search method (see Figure 3.4, Panel B). Contact with the PES could involve initial registration with the PES, enquiring about job vacancies, direct referrals to vacancies through the PES, or consulting the PES website to find a job. Again, the variation between countries is large. Whereas more than three in four of the unemployed in Sweden, Germany, the Slovak Republic, Austria, Slovenia and Luxembourg contacted the PES, only around a third of the unemployed did so in Spain and Italy. Some of the variation may reflect differences in PES registration requirements, regular monitoring of job-search efforts through the PES and unemployment benefit duration. But some variation may also reflect differences in the inclination of the unemployed to proactively

Box 3.8. How important is the role of the PES as a job broker (cont.)

Figure 3.4. PES involvement in job broking



Note: Unweighted averages. In Panel A, France and Norway are excluded due to high incidence of non-response in data (more than 30%); data for Germany and Norway have 18% and 7% missing values, respectively, and data refer to 2010 for Portugal.

Source: OECD calculations based on European Union Labour Force Survey.

StatLink <http://dx.doi.org/10.1787/888933239805>

contact the PES for its offer of services such as counselling, local labour market information or further details about vacancies.

While contact with the PES to find a job is a widely used job-search method, it ranks as the most important method among the unemployed only in Belgium, Germany, Norway, the Slovak Republic and Sweden. In other countries, searching for vacancy advertisements in print or online media or contacting friends, relatives, trade unions, etc., are the most popular job-search methods. Other important job-search methods among the unemployed include applying directly to employers, placing or responding to job advertisements, and contacting private employment agencies. A comparison between unemployed individuals searching for jobs and employed people looking for jobs shows that the relative importance of the various job-search methods differs, with searching for vacancies in print or online media and contacting friends etc. being the most important search methods for employed jobseekers in all countries. Other job-search methods are relatively less important for employed jobseekers and are usually used by less than half of employed jobseekers (see Annex 3.A2). Information on job-search methods is also available from the *Japanese Labour Force Survey*. However, respondents are asked to identify their “primary” job-search method only. On average over 2003-13, 57% cited use of placement services provided by the PES as their primary job-search method (OECD, 2015a).

What services to offer to employers?

PES business models for organising their employer outreach services generally follow two different concepts. In Finland, France, Poland, Sweden, Hungary and Spain, PES counsellors may provide assistance both to jobseekers and employers and there is no specialisation of staff between jobseekers’ services and employers’ services (EC, 2013). A risk of this model is that counsellors’ attention is drawn away from employers to jobseekers, who often require more time-consuming services. Evidence from Switzerland,

however, suggests that contacts with employers by all counsellors have been a major success factor in reducing unemployment duration (see Box 3.4). In other countries, including Austria, Belgium, Estonia, Germany, Japan, Netherlands, Portugal, Slovenia and the United Kingdom, the PES has dedicated employer relationship staff (Duell et al., 2010; and EC, 2013). Regardless of the chosen business model, the tasks of PES staff dealing with employers include vacancy intake and registration, informing employers about available ALMPs (e.g. pre-employment training, wage subsidies, additional support to integrate disabled jobseekers), pre-selecting jobseekers for interviews with employers, offering legal advice (e.g. advice on contracts) and organising information sessions or job fairs where jobseekers and employers can meet.

Instead of only passively registering vacancies, PES staff may actively solicit employers for new job offers or even apply reverse-marketing techniques, similarly to providers of contracted out employment services (OECD, 2012b; and OECD, 2014a). Reverse marketing refers to a situation where an individual jobseeker is actively marketed to a targeted employer who has not created a formal vacancy, but may be willing to hire under the right conditions. In Australia, contracted employment service providers use this technique for hard-to-place jobseekers who are job ready or close to job readiness. An evaluation found that reverse marketing is more likely to be used by high-performing providers (DEEWR, 2010). Jobseekers who are reverse marketed are more likely to be referred to a job and more likely to achieve a job placement, even though this type of referral has a slightly lower rate of conversion of referrals to placements. Although reverse marketing can be an effective tool, the “cold calling” of employers without a specific reverse marketing strategy or for a particular job may dilute the value of this type of intervention, and it is in principle not funded by the purchaser of employment services.

Small- and medium-sized enterprises (SMEs) usually lack human resource departments. The British PES therefore runs a Small Business Recruitment Service to serve the needs of small businesses with fewer than 50 employees, which encompasses a specialist employer helpline, advice on the local labour market, additional support in advertising vacancies (e.g. wording and design), and post-recruitment support (OECD, 2014a). Outreach to SMEs could also be achieved through collaboration with small business federations, chambers of commerce or trade associations. Another option is to hold job fairs on PES premises, where jobseekers can meet prospective employers. In Japan, such offers are targeted in particular at jobseekers who experience difficulties in finding a job independently and need more support (Duell et al., 2010). Recruitment meetings in Swedish local PES offices function like “speed dating” events for employers and jobseekers – essentially three to four minute interviews to facilitate the matching process.

For larger employers, the PES may use account managers who specialise in their specific recruitment needs and assist them with ongoing recruitment needs and in large-scale recruitment exercises (e.g. when a retail chain opens up a new outlet). Austria and the United Kingdom have dedicated account managers at the regional or national level, and the French PES has formal agreements with large company networks and industry sectors concerning recruitment support (EC, 2012). More generally, monitoring labour demand with respect to skill requirements of job vacancies is essential for the PES to ensure efficient matching of jobseekers to prospective employers. In most OECD countries, there are national systems and tools in place for assessing and anticipating skills needs. The PES is one of a number of stakeholders – including ministries, education and training institutions, employer organisations, and unions – which may be involved in their

development. The results of skills assessment and anticipation exercises are important to provide the PES with information on projecting employment trends of different occupations. In addition, the PES in a number of countries – including Austria, Belgium (both Flanders and Wallonia), Estonia, Japan and Turkey – uses the information for the purposes of policy planning and ALMP design, especially pre-employment and on-the-job training programmes.²¹

Beyond job broking: Targeted programmes and services

While job broking is crucial for matching jobseekers and employers, some groups of jobseekers may need additional support to ensure that job opportunities are available to them. This may include programmes such as finance for business start-ups, targeted wage subsidies and direct job creation programmes, which aim at directly increasing job opportunities for the unemployed. For certain groups, activation policies need to be combined with childcare, adaptation of the workplace, or health measures to expand the set of available employment opportunities.

Increasing opportunities through employment incentives and direct job creation

The OECD/EC database distinguishes between employment incentives, supported employment and direct job creation measures based primarily on size of the subsidy, its duration and whether it compensates for reduced work capacity, and the nature of the job.²² Many studies have concluded that hiring subsidies paid to the employer – which is the most common type of employment incentive²³ – have a relatively strong positive impact on future employment outcomes for their participants.²⁴ However, caveats apply to this positive assessment:

- Selection effects are likely to account for the positive outcomes for individual participants. In this case, outcomes for those who actually participate in an employment subsidy programme – i.e. those who were hired with a subsidy – are relatively positive, but the availability of the hiring subsidy to a population of potential participants (some but not all of whom are actually hired with the subsidy) has no impact on average outcomes for this population.²⁵
- The net impact of an employment subsidy is reduced by deadweight effects (when hiring with a wage subsidy would have occurred without the wage subsidy), substitution effects (when hirings with a wage subsidy reduce unsubsidised hirings by the same employer) and displacement effects (when employers who do not use the subsidy reduce employment, as they lose business to firms that avail of the subsidy).

Permanent in-work benefits that are phased out in line with earnings, and therefore are paid mainly to people in part-time work, are part of the tax-benefit schedule, which is not analysed here.²⁶ As set out in Box 3.9, the impact of employment incentives is complex, since they not only promote individual jobseeker entry to employment, but also affect employer behaviour and thus, the labour market for other jobseekers.

Employment opportunities for all: Support for specific groups

This section provides examples of additional services for parents, youth, older workers and those with mental health problems. It may again be noted that policies outside the remit of employment and related services – such as employment protection or tax legislation – should also contribute to reducing labour market barriers and increasing earning opportunities, for these and other groups.

Box 3.9. **Employment incentives and job creation: What works for whom (and why)?**

The following short descriptions illustrate the variety of ways that these measures influence labour market outcomes:

- An incentive programme with weak targeting, where participating employers can choose candidates and make successive placements in the same work position, may achieve few hirings from disadvantaged groups, and displace stable jobs in competing enterprises. A large-scale subsidy programme targeted on the long-term unemployed is likely to actually increase unemployment, because employers reduce hires of the short-term unemployed and many unemployed do not receive a job offer until they have become long-term unemployed.
- Active management, for example monitoring employers who regularly use incentives to ensure that the employment has value as work experience and/or some participants are retained beyond the subsidy period, helps to limit potential negative effects. Recruitment incentives can be an effective tool for caseworkers to promote trial hires of jobseekers with significant employability barriers, which in some cases lead to permanent employment.
- Employment incentives and direct job creation measures have a relatively positive impact for some disadvantaged groups, such as low-education single parents and migrants with poor language skills, probably because these groups benefit from work experience and/or contact with employers.
- In countries with a high minimum wage or rigid labour markets, internship schemes with wage-cost subsidies may be necessary to provide youths initial work experience, especially in areas related to their education and training.
- It is not necessarily practical to incorporate training elements into work-experience schemes – often the participation is scattered across many small projects at different locations, for example. However, some employers agree to host short pre-employment training sessions, which are effective because they reduce recruitment costs and allow candidates and employers to meet.
- Incentive payments to unemployed individuals who take up work, which may be restricted to full-time work, have a significant positive impact, but the impact fades rapidly when the subsidy stops. Several studies suggest that long-term impacts are significantly better when financial incentives are combined with employment service assistance with job finding, job retention and access to training.
- Compulsory referrals of the long-term unemployed to direct job creation measures are often more feasible than compulsory referrals to a training or employment incentive programme, and they have a threat effect, increasing rates of job finding in the months before participation starts. The scheduling of participation in job-creation measures several months ahead, with intensive counselling to promote market work and alternative programmes such as training, helps to maximise the threat effect and minimise programme costs. This argues for the use of job-creation measures as one element in a mixed programme strategy.

Given the importance of various types of impact and selection into programmes, it is not surprising that findings of statistical impact and process evaluations remain uncertain.

A key barrier to employment for lone parents and partnered parents with young children is suitable, accessible and affordable childcare. In more than a third of OECD countries, lone parents with low incomes spend a greater proportion of their family

budget on childcare than those earning average wages. The picture improves once children are in school, but in some OECD countries incentives to increase earnings remain weak also when children are in primary or secondary school, partly because support targeted at low-income families is withdrawn as earnings increase (OECD, 2011). The PES role is to help their parental clientele to access and make the best use of the existing services.

For NEET youth, a key challenge is to ensure that they are connected with employment and related services. One way to achieve this goal is illustrated by the EU Youth Guarantee, a recent EU-wide initiative to tackle youth unemployment by ensuring that all young people receive a good quality job offer, continued education, an apprenticeship or a traineeship with four months of leaving formal education or becoming unemployed (EC, 2014d). For many young people, PES interventions may not need to differ from those for prime-age adults. For the least-employable young people, training programmes taught outside traditional schools, combined with regular exposure to work experience, could open up new opportunities. Good practices are based on second-chance education opportunities delivering a mix of adult mentoring, work experience and remedial education (OECD, 2010a).

PES interventions for older workers need not differ from those for other jobseekers, with requirements to actively seek work being backed up by access to adequate counselling, career advice and re-employment incentives. The PES can encourage employers to hire and retain older workers. For example, in Norway, specialised units, called Working Life Centres, serve firms with an inclusive workplace agreement²⁷ to facilitate the exchange of information and sharing of effective practices (OECD, 2013b). Older workers, but also parents or those with health problems, often require more flexible workplace practices (e.g. part-time work, flexible start and finishing times, teleworking, etc.) in order to remain in employment or take up new employment opportunities. There may be a “business case” for offering more flexible workplace measures as these can contribute to the quality of the enterprise workforce by reducing employee turnover and absenteeism and increase retention rates (OECD, 2011). However, there is some risk that these measures mainly benefit employees with skills that are sought after.

Across the OECD, mental ill-health has become the main driver of new disability benefit claims and mental ill-health is also prevalent among unemployment benefit recipients and beneficiaries of other types of income-replacement benefits (OECD, 2010b; OECD, 2012b). To improve the labour market inclusion of people who suffer from mental ill-health, one of the most important issues is to keep existing employment opportunities open or enable a fast transition to new employment opportunities. Although most people with mild-to-moderate mental disorders are in work, their employment rates are about 10-15 percentage points lower than for people with no mental disorder, and their unemployment rates are twice as high (OECD, 2012b).²⁸ The causality runs in both directions: people with mental ill-health are at a higher risk of job loss and inactivity, while unemployment and (involuntary) non-employment themselves worsen people’s mental health. The first step for the PES is therefore to identify mental health problems as a barrier to employment and subsequently provide adequate employment services (see Box 3.10).

Box 3.10. Identifying jobseekers with mental health problems and providing adequate employment services

Employment and related services should play a major role in ensuring that people on benefits with a mental health condition return to work fast and durably, as the longer people are away from their job and from work in general, the less likely they are ever to return (OECD, 2010b). Adequate tools to identify jobseekers' mental health problems and the resulting labour market barriers are key to ensuring early intervention. The profiling procedures currently in place across the OECD do not systematically identify mental ill-health (OECD, 2015b). In a good-practice example from the public employment service (PES) of Flanders in Belgium, caseworkers screen jobseekers systematically for reintegration barriers, including mental health issues, albeit not necessarily at the start of the claim. They can request a referral to a PES in-house psychologist or an external centre specialised in multidisciplinary screening (OECD, 2013c). Caseworkers have training to identify mental ill-health and guidelines for what to do when mental health problems surface, which may include referral to specialised interventions such as cognitive behavioural therapy.

As some support measures for people with mental health problems go beyond the core competencies of the PES, initiatives are being undertaken to integrate employment services with mental health services. Arends et al. (2014) provide examples of innovative policies in the health, employment and education sectors in ten OECD countries. For example, in Austria, the PES and the Pensions Insurance Institute (responsible for supporting disabled people) co-ordinate services through purchasing each other's services to better support their clients as part of the Health Road (*Gesundheitsstraße*) initiative. The PES pays the Pensions Insurance Institute for a work-capacity assessment when unsure whether a client has the ability to move into employment quickly. Similarly, the Pensions Insurance Institute pays the PES to provide vocational rehabilitation services for their clients who were assessed as having rehabilitation potential. In Sweden, DELTA is an association which receives funds from the national employment service, the regional health authority, the municipal social service and the national social insurance administration to provide different rehabilitation services with the objective of early and co-ordinated rehabilitation. According to several evaluations, the DELTA programme has led to improvements in finding employment.

5. Institutions at the centre of successful activation strategies

While countries often define interventions in the unemployment spell and benefit eligibility criteria at the national level, implementation at ground level depends on the institutional framework. For this reason, activation strategies, in the sense of reforms that have achieved good results historically and those which might achieve a good result in the future, focus particularly on institutions and their management. OECD (2013a, Chapter 3) documents the structure of the PES and contracted-out employment services and the institutional incentives resulting from financing arrangements, the management of each organisation, and the barriers to co-operation between institutions in seven OECD countries. One lesson for policy drawn from this review is the importance of institutional reforms as a critical component of activation strategies. Successful reforms included organisational mergers or co-location of services that combine employment assistance with benefit administration, partnership approaches between organisations and agencies to improve the co-ordination of service delivery, and the alignment of institutional incentives through sharing the cost of benefit payments and responsibility for active measures between

national and sub-national actors. A second lesson from the reviews included the importance of accurate and objective rating of the performance of local PES offices or that of private providers to improve the effectiveness of employment services.

The remainder of this section adds to these findings by addressing a number of challenges for institutional frameworks and effective management and continuous improvement of institutions. The section first provides an overview of conditions which can make the outsourcing of employment and related services effective. A second sub-section addresses challenges and opportunities of decentralised management of unemployment and related benefits. The third and fourth subsections discuss the importance of actively managing the performance of public and private employment services and how this can be supported through evaluation and continuous improvement to ensure an effective and efficient spending of public resources. The final sub-section considers how employment and related services increasingly provide digital services to their customers and how this may change the PES in the future.

As noted in Sections 3 and 4, many in-work services such as employment-based training, childcare, adaptation of the workplace, and health measures can promote employability and expand the set of available employment opportunities, so it should not be forgotten that these services – which are often institutionally independent from the main PES organisation, although architectures vary – also need to be managed effectively.

Contracting out

In principle, a quasi-market for employment services, with providers paid on the basis of the employment outcomes they achieve, will maximise employment outcomes in a cost-effective way. In practice, it can be difficult to create incentives that achieve this outcome, and the transactions costs of contracting out can be considerable. Based on experience in Australia, Box 3.11 discusses lessons learned to date on what makes for good contracting out.

Box 3.11. Conditions for effective outsourcing

Australia's model for the outsourcing of employment services to private providers appears to be highly effective. The framework was introduced in 1998, many inefficient providers had their contracts terminated in 2000, and the contracting model was significantly revised in 2003, with further changes in 2009 and 2015. The long-term unemployed are engaged in training and work-experience measures organised by their employment service provider, and providers actively engage with local employers and refer clients to vacancies. In the 2000s, the unemployment rate fell sharply at a time when also early retirement benefits for older male workers and passive benefits for many older partners, single parents and partially disabled workers were being phased out, and Australia's employment rate increased to one of the highest levels in the OECD. This contrasts with mixed experiences with outsourcing of the core employment service and counselling functions in European countries. This box focuses on identifying a number of features that are plausibly important for success in this area.

The desired outcomes need to be measured accurately. Gross client outcomes can be measured to a fair approximation in terms of 6-month or longer off-benefit and employment outcomes, and depending on the availability of accurate and comparable data, some weight can be put on additional indicators. Australia does not track longer-term client outcomes using administrative data, but in some other countries this would be possible and it would be useful to do so.

Box 3.11. **Conditions for effective outsourcing** (cont.)

Relative provider performance needs to be measured accurately. Estimation of the “benchmark” level of outcomes that would be achieved on average by alternative providers, in the same labour market with the same client group, is essential. Australia achieves this through the system of Star Ratings, which is based on a regression of client outcomes on client characteristics, local labour market data and provider identifiers. The accuracy of Star Ratings is enhanced by the fact that about five providers on average compete within the same local Employment Services Area (ESA), usually with relatively similar caseloads characteristics, so that comparative gross outcomes within a given ESA reflect comparative provider performance. This reduces the sensitivity of Star Ratings to any detailed modelling issues, and helps to ensure that the ratings are seen as reasonable by providers themselves.

The market should be managed to ensure that the least-effective providers lose business. In Australia, the first two contracts were for two or three years, and the second two contract periods were for six years with a mid-term reallocation of business. There is an expectation, although not a rule, that new contracts will be awarded to providers with a good performance record. Contract decisions are taken at the ESA level, and thus primarily reflect management performance at a fairly local (commuting-area) level. Large national employment service organisations normally experience shifts in market share, rather than sudden death. Many other countries attempt to “pay for results”, but this approach suffers from the fact that around two-thirds of employment outcomes are “deadweight”. An underperforming provider can stay profitably in business by reducing expenditure on services, and this problem is even worsened if payments are more-highly leveraged on outcomes. The system of payment by results should leave even underperforming providers with capacity for service delivery but then it cannot, by itself, play the central role in terminating some of the contracts.

Because it is not practical to exactly pay for results, and around two-thirds of employment outcomes are “deadweight”, but with wide variation across client groups, *fee structures need to be varied by client group.* Client characteristics should be documented as accurately as possible to support better client segmentation and better measurement of the relative performance of providers with different caseloads. The allocation of clients to specific providers should be tightly managed by the purchaser so as to minimise, if not eliminate, the scope for providers to “cherry pick” clients with better prospects.

Employment services and activation strategies are a complex area of policy, where the client group should not be defined too rigidly, there should not be an exclusive focus on either the short term or the long term, certain types of provider behaviour can have positive or negative externalities for the system as a whole, etc. In Australia, although private providers compete, their detailed contracts are partly prescriptive; one component in the payment to providers is a service fee that depends on completing interviews with clients on a defined schedule, and one component is a type of subsidy for services that address jobseeker barriers with a fairly detailed specification of eligible services, including a rule that “cold calling” of employers who have not advertised a vacancy is not funded. Providers in Australia complain that regulations and the associated auditing measures are costly in terms of “red tape”, although efforts are made to minimise this.

Source: OECD (2012), *Activating Jobseekers: How Australia Does It*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264185920-en>.

Decentralisation and other institutional incentives

In a number of OECD countries, unemployment insurance and other working-age benefits are financed and managed at national level, but social assistance benefits are

financed and managed by regional and/or municipal governments. Local politicians tend to administer benefits strictly, but decentralisation can result in great variability of employment policies and their outcomes, and areas with small populations have limited resources for research and evaluation or for the development of complex IT systems. A few OECD countries have national funding of unemployment insurance (UI) benefits and regional government responsibility for the management of employment services. In this case, the regional governments have no direct incentive to control eligibility for UI benefits, but several other factors influence their management objectives (Box 3.12).

Box 3.12. Balanced vs. unbalanced decentralisation of employment services

In the United States, regular unemployment insurance (UI) benefits are both funded and managed at the state level, although there are some elements of federal funding, and federal constraints on the structure of state UI systems. However, in other OECD countries, UI benefits are managed and funded at the national level. By contrast, social assistance benefits in many countries, including some European countries with comprehensive and generous benefit systems, are funded by regional and/or municipal governments. In this situation, commonly the national employment service mainly manages UI beneficiaries and local social welfare offices mainly manage social assistance beneficiaries. In countries such as Norway, Sweden and Switzerland, where the central government does not share the cost of social assistance benefit payments, local government management of social assistance is usually strict and only a fairly small proportion of the unemployed are on social assistance. Welfare reforms in 1996 in Canada and the United States, which reduced the federal share in funding welfare payments at the margin from 50% to zero, favoured a work-first approach to placement and falls in caseloads. In the early 2000s, the Netherlands reduced the rate of central government subsidisation of social assistance benefits from 90% to 50% and then to zero, and this also promoted a work-first approach by municipal administrations.

A number of countries in this situation have sought to integrate the employment services for UI and social assistance recipients. Germany, in the Hartz IV reform of 2005, replaced its municipal social assistance benefit for persons judged to be employable (as well as its former national unemployment assistance benefit) with a nationally-funded unemployment assistance benefit, and a mixed national/local framework for the related employment services. Norway in 2006, without changing the funding arrangements for social assistance, created a national employment service, NAV, covering UI beneficiaries, rehabilitation benefit recipients and social assistance recipients.

Employment services offices that serve UI recipients are managed by provinces in Canada and by cantons in Switzerland. This facilitates the integration of employment services for UI recipients and social assistance recipients, but it means that UI benefits are funded at national level while employment services are managed at regional or local level. Belgium in the 1980s and Italy and Spain in the 1990s also transferred responsibility for the management of employment services to regional governments, mainly in response to pressures for political decentralisation. In such cases, there is a risk that regional and local employment services may decide not to participate in the enforcement of benefit conditionality, as happened in the Walloon region of Belgium in the 1990s, and has tended to happen since the late 1990s as Italy attempts to introduce benefit conditionality. However, in Switzerland, the cantons generally implement benefit conditionality strictly, with skilled employment counsellors aiming to achieve rapid and stable returns to work. Here, one factor that promotes national co-ordination is the framework of national legislation introduced in 1996, with a national IT and data reporting system which has supported comparative benchmarking of local employment office

Box 3.12. Balanced vs. unbalanced decentralisation of employment services (cont.)

performance. Also, unless UI recipients are placed rapidly into jobs, some of them will claim social assistance benefits, which are funded by the canton (or in some cases, municipalities). In Denmark, since 2009, employment services offices are also managed by municipalities, but here a large element of national management remains as the national authorities define key procedures (such as the referral of jobseekers to an ALMP after six months of unemployment) and use a funding formula that gives municipal offices incentives for particular processes and outcomes. In Canada and Spain, national funding is less prescriptive, and the regionally-managed employment service offer is voluntary for UI recipients.

In countries where assistance benefits for the unemployed are national, the problems of integrating employment services across levels of government do not arise. However, with national funding there may be weaker political support for the strict implementation of benefit conditionality – Ireland and the Slovak Republic are examples of countries with large assistance benefit caseloads and, until recently, few obligations for beneficiaries to participate in employment services. And when the management of a national employment service aims to implement activation measures, it may still find this difficult due to management autonomy or inertia at local levels of the organisation, or a lack of interest at the local level in achieving benefit savings for the national budget.

Source: Duell, N., S. Singh and P. Tergeist (2009), “Activation Policies in Norway”, *OECD Social, Employment and Migration Working Papers*, No. 78; Duell, N. and P. Tergeist (2010), “Activation Policies in Switzerland”, *OECD Social, Employment and Migration Working Papers*, No. 112; Grubb, D, S. Singh and P. Tergeist (2009), “Activation Policies in Ireland”, *OECD Social, Employment and Migration Working Papers*, No. 75; OECD (1997), *The Public Employment Service: Belgium*; OECD (2012), *OECD Economic Surveys: Slovak Republic*; Sacchi, S. and P. Vesan (2011), “Interpreting Employment Policy Change in Italy since the 1990s: Nature and Dynamics”, *Collegio Carlo Alberti Working Paper*, No. 228.

Performance management, evaluation and continuous improvement**Performance management of (public) employment services**

Ideally, performance indicators will be available for inputs and final outcomes, and show the relationships between them. This is necessary to give policy makers and senior managers insight into the relative performance of different parts of the organisation and what appears to be working. While most European countries measure inputs and outputs at the local level (EC, 2013), a comparison of the relative performance of local PES offices requires detailed information on jobseeker characteristics and local labour markets. Few countries achieve this in their performance measurement systems with the notable exceptions of Australia, Germany and Switzerland. In Germany, local offices are clustered according to their labour market conditions and local office performance is then benchmarked within those clusters (Blien et al., 2010). Australia and Switzerland use a rich set of jobseeker characteristics and survey information on local labour market performance to compare local office performance on a regression-adjusted basis (OECD, 2013, Chapter 3).

Evaluation, continuous improvement and learning

Across the OECD, PES and ALMPs represent a substantial expenditure for government budgets, with active expenditure ranging from 0.01% to 2.1% of GDP in 2012. Evaluation is crucial to ensure effective and efficient spending of public resources. Evaluations cover various aspects of the implementation of new policies and programmes and give insights into what effects the policies and programmes had, for whom and why. Instead of creating large-scale programmes which may not correspond to labour market needs, it is also

advisable to test new programmes locally and evaluate them, before implementing them on a larger scale. More generally, evaluations allow for a continuous improvement of policies and programmes or the termination of unsuccessful ones, and thereby demonstrate accountability and justify government expenditure on PES and ALMPs. Documentation is important for a cost-benefit analysis, since this involves decisions about which benefits and costs to take into account, and the projection or estimation of benefit and cost components that are not precisely recorded (see Box 3.13). Whereas quantitative or impact evaluations help to answer the question of whether programmes should be continued or expanded, qualitative evaluations help to answer the question of how programmes can be improved.

Box 3.13. Conducting a full cost-benefit analysis

Random-assignment evaluation studies have often found that ALMPs have small or even negative impacts, or positive impacts only for certain groups, and there is a risk that relatively negative findings discourage rather than encourage efforts to improve effectiveness. However, some studies identify positive and fairly large impacts. An increasing number of studies report findings from longer-term follow-up of participant outcomes, often using administrative data for five or more years, and these seem to quite often identify positive impacts from job-search and training programmes.

The usual approach to cost-benefit analysis, pioneered in American studies, lists benefits and costs incurred by participants and by government. The main benefit of a programme is its impact on participants' future earnings and the main cost is government expenditure on programme implementation and administration.

In the calculation of participants' earnings, employer pension and social insurance contributions are added to gross earnings and the direct costs of working, such as child care and commuting costs borne by the employee are subtracted. Income taxes, payroll taxes, indirect taxes, reduced benefit payments, incentive payments or reimbursements of work expenses are all treated as transfers, with a positive or negative financial benefit to the participant being matched by a positive or negative financial cost for government finances so that there is no impact on reported net benefits for society as a whole.

Within this framework, the time profile of programme impact beyond the end of the period for which outcomes were recorded is difficult to take into account. In some cases, the estimated impact is zero or declining towards the end of a five-year follow-up period. However, there are also cases where the impact increases in the last two or three years, and then a large proportion of the total impact of a programme might arise after more than five years, but projections are largely guesswork. Another risk is that there is a systematic tendency for both public and private sector project appraisers to be overly optimistic (e.g. the decision for the wider roll-out of a programme is based on the findings of a well-resourced pilot, which cannot be mirrored on a larger scale due to budgetary constraints or unanticipated negative side-effects).

It also has to be kept in mind that many potential costs and benefits are typically not taken into account because they are hard to quantify or cannot simply be inferred from market prices:

- The calculation of net benefits for society does not include the disutility of work, except for identifiable costs such as commuting costs. This contrasts with economic theory for a labour market in equilibrium, in which the social value of additional work at the margin is zero, because additional output of value to other members of society is offset by the loss of leisure of value to the worker.

Box 3.13. Conducting a full cost-benefit analysis (cont.)

- Studies often find, perhaps contrary to the principle of the disutility of work, that unemployment has a negative impact on life satisfaction and employment has a positive impact on health, suggesting that involuntary unemployment has a high net cost. Some benefits of improved health are accounted for in wage outcomes of employment programme participants, but other benefits, such as a reduction in private or public healthcare expenditure and intangible benefits from improved physical and mental wellbeing, are not.
- Indirect effects may be important, including negative externalities (e.g. increased unemployment for the target group of a programme may reduce employment for other groups) and positive social interaction effects (e.g. higher employment among programme participants has a positive spill-over effect on the likelihood of peers finding work) or positive impacts on family and community stability.
- Programme participants may have positive or negative effects on individual welfare during participation in them. For example, participant surveys may report satisfaction with services that appear to have no impact on employment outcomes. Alternatively, there may be a negative impact on life satisfaction for people who do not find work as a result of an intervention that encourages job search.

Fujiwara (2010) discusses the incorporation in cost-benefit analysis of several types of “wider social impact” considerations, including work costs and leisure time, externalities and multiplier effects, and health and crime impacts.

Source: Fujiwara, D. (2010), “The Department for Work and Pensions Social Cost-Benefit Analysis Framework: Methodologies for Estimating and Incorporating the Wider Social and Economic Impacts of Work in Cost-Benefit Analysis of Employment Programmes”, *DWP Working Paper*, No. 86; Greenberg, D., J. Walter and G. Knight (2013), “A Cost-Benefit Analysis of the Random Assignment UK Employment Retention and Advancement Demonstration”, *Applied Economics*, Vol. 45, No. 31, pp. 4335-4354; Hendra, R. et al. (2011b), “Breaking the Low-Pay, No-Pay Cycle: Final Evidence from the UK Employment Retention and Advancement (ERA) Demonstration”, *DWP Research Report*, No. 765; Her Majesty’s Treasury (2011), “The Green Book: Appraisal and Evaluation in Central Government”, www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government.

The public employment service goes digital

Technology is changing the way people interact with each other and the world around them. People expect to be able to access services online at a time which suits them with the expectation that online services offer additional benefits and are easier to use than non-digital equivalents. Government services – including employment and related services – are no exception and investments in user-friendly digital services should aim to increase service availability and accessibility. In addition to responding to user needs, technology also transforms the way the PES operates, helping to increase performance whilst keeping costs down. New technologies will have a huge impact on PES business models in many OECD countries, reorganising the PES around digital customer journeys, which may require fewer personal interactions. IT systems will continuously improve, allowing routine tasks to be automated. This will allow the PES to concentrate on front-line services helping people into and remaining in employment. This may allow shifting additional resources towards the most disadvantaged clients, although it may also allow a reduction in expenditure on the PES.

A far-reaching example is the recent transition to e-services by the Dutch PES, which now provides the majority of its services through e-channels and halved the number of its staff (see Box 3.14). This example raises a number of important questions: i) Are PES clients willing to use digital services and do they have the necessary capabilities?; ii) Which services can be offered online, which ones will still have to be delivered face-to-face?; and iii) Does digitisation help to get jobseekers rapidly back into sustainable jobs?

Box 3.14. The Dutch PES transition to e-services

In the Netherlands in 2010, an ambitious policy to restore sound public finance via fiscal consolidation was initiated in the context of an unemployment rate that was still below 5%. As part of this initiative, the Dutch PES was instructed to rethink its entire service concept in order to implement significant budgetary cuts, which implied halving the PES budget between 2011 and 2015. The PES redesigned its service concept to provide a completely new customer journey, with the aim of interacting with jobseekers only via digital services during the first three months of unemployment. Personal face-to-face or telephone interviews take place in the 4th, 7th and 10th month of unemployment, but only the 10% most disadvantaged jobseekers are entitled to receive more intensive support through individual or group coaching from month four onwards. Other jobseekers have access to e-coaching and other general e-services. Customers who cannot use online services (not even with help) get services in local offices. These changes were accompanied by halving the number of PES staff by 2015 and reducing the number of local offices by almost two-thirds.

A range of new digital services assist Dutch PES staff in their work:

- *Profiling procedure*: The new profiling tool, called “work explorer” determines the probability that a jobseeker will resume work within a year. Each jobseeker fills in the questionnaire electronically before three months of unemployment. The outcome of the questionnaire determines whether or not the jobseeker is entitled to intensive support, as well as the kind of support that is necessary to increase the chances of finding a job.
- *E-coaching*: Following registration, jobseekers manage all their activities through an online account and automatically receive action plans and matched vacancies, which they are expected to respond to. All activities are monitored automatically and reminders and direction are given as necessary. If there is no activity recorded in their online accounts or required tasks not fulfilled (e.g. applying for a job vacancy), personal interviews are used to follow-up with jobseekers.
- *Technologies supporting counselling*: PES staff can access clients’ online accounts to review their job-search activities and CVs. A “CV quality card” helps staff to improve the quality of a jobseeker’s CV and thus their chance of returning to work. The quality card is an automated report using data-mining and compares CVs and job-search activities of other jobseekers with similar characteristics. PES staff use this information during personal counselling interviews to advise jobseekers on job search (e.g. occupations, geographical area) and how to present their work experience in their CV.
- *Sanctions*: Through the IT system PES staff can monitor the intensity of job-search activities and, when job search is not intensive enough, staff can at first create automatic reminders. Continued non-compliance may lead to sanctions. Sanctions are not automated and are always reviewed by PES staff, who use a client’s digital history to gather evidence and to support their sanction decision.

Source: European Commission (2014), “Blended Service Delivery for Jobseekers, Peer Review Host Country Paper”, Brussels, Author: U.W.V. Werkbedrijf, <http://ec.europa.eu/social/main.jsp?catId=964>; and OECD (2014), *Mental Health and Work: Netherlands*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264223301-en>.

What do digital services mean for PES clients?

Despite rapid adoption of digital technologies across the OECD over the past decade, take-up uptake and ability to use digital services vary widely (OECD, 2013d).²⁹ When introducing online services, the PES is therefore confronted with the question to what extent clients demand online services and to what extent they could potentially be pushed in this direction. In the Netherlands, currently 95% of unemployment benefit recipients use

online registration services and 85% use ongoing e-services such as managing their benefit claim and automatic matching to vacancies (EC, 2014b). Online applications for unemployment benefits are also possible in a number of other OECD countries including Australia, Austria, Canada, Estonia, Finland, Hungary, Iceland, New Zealand, Norway, Poland, Portugal, Slovenia, Spain, Turkey, the United Kingdom, and the United States. The take-up of online benefit applications, however, varies across countries: In Spain merely 1-2% of claimants make use of this route, 30% of claimants choose the online route in New Zealand, 58% in the United States and 88% in the United Kingdom. In Iceland and Italy, all benefit claims are made online, but claimants have the opportunity to get assistance with filing their claims (see Annex 3.A1). Some countries (e.g. Estonia, Spain, Finland, Portugal, Slovenia and Poland) currently leave the choice of application route with the customer (EC, 2014c). In contrast, the United Kingdom follows a strategy to push for a higher proportion of online applications and the British PES tested different approaches to help drive up the take-up of the online route.³⁰

Which services can be offered online?

Digitisation is much easier for some PES services than for others. Online benefit application has been mentioned, and vacancy registration is nowadays usually only possible online. However, services such as counselling, training or pre-selecting jobseekers for interviews may be more complicated to digitise. Some examples for the Netherlands are reported in Box 3.14. Increasingly, other PES across the OECD use digital channels for more complex services or are in the process of testing or developing those. For instance, the PES in the Flemish-speaking part of Belgium uses a mixture of online training modules and live classroom training for some of its training programmes, while the Estonian PES allows customers to contact it using Skype (EC, 2014c). In 2015, the Swedish PES plans to launch an online version of its “speed dating” meetings between jobseekers and employers, which are currently held at local PES premises (see above). This has the potential to cut costs (travel costs, premises) for all parties involved and may be more appealing to some client groups (EC, 2014a).

How to measure success of digital services?

A major concern with introducing new digital services is whether they support the major function of the PES in getting jobseekers back into sustainable jobs as soon as possible and reducing the cost of benefits for society. While still complex, the evaluation of client satisfaction with new services may be the easier aspect. For example, the British Department for Work and Pensions uses a range of tools to measure customer satisfaction (through an in-house claimant survey), online service usage rates (through web-analytics tools) and digital penetration (through national surveys and also the OECD’s PIAAC survey).³¹ The evaluation of impacts on benefit durations and benefit costs may be more complex and involve the use of pilots or trials. In the United Kingdom, fortnightly in-person job-search review meetings are seen as an important tool in reducing average benefit durations, and past trials allowing these meetings to be conducted via telephone resulted in prolonged benefit claims (OECD, 2014a).³² A recent pilot from Germany, allowing for more intensive face-to-face counselling, resulted in positive impacts in terms of benefit off-flows and was associated with a net saving for the public purse (Hainmueller et al., 2011).

Following the major transformation of the Dutch PES (see Box 3.14), in which interaction with jobseekers during the first three months of unemployment is almost

exclusively through online channels, the new e-services at first met with reduced customer satisfaction, and the Dutch Ministry of Social Affairs and Employment from 2014 funded additional 150 PES staff for a nation-wide randomised control trial of increased activation and eligibility review during the first three months of unemployment (Grimberg and Seppenwoolde, 2014; EC, 2014b).

Conclusions

Historically, modern activation policies were developed as a response to high levels of benefit dependency, requiring active job search and participation in employment services that foster reintegration into employment. Activation policies are generally implemented by the broadly-defined public employment service (PES), and targeted on the unemployed. The rising policy priority placed on labour market inclusion suggests that activation policies should play a broader role in the labour market and a number of policy features of this nature are documented in this chapter. For example, availability-for-work requirements are sometimes extended to groups formerly on other benefits, and employment services also help employed workers and other groups not on a benefit. This chapter has also explored examples of individualised interventions for groups that have specific needs, or are not unemployed, and interventions that give particular attention to objectives such as stability and progression in employment. An even broader concept of labour market activation would include health, education and training services as well as tax policies that help to increase participation in the labour market and effective matching. That extension is left for future work, but this chapter's analysis already identifies several key challenges that need to be addressed as the ambition for activation policies rises, including issues of resource adequacy, the tailoring of services to a more heterogeneous client pool and the increased complexity of co-ordinating a broader array of services for that expanded pool of clients.

The PES is resourced to cover a full range of services and target groups in only a few countries. It is noticeable that in Ireland and the United States, two countries with relatively low PES funding, jobseeker profiling has to be used largely in order to ration the delivery of partly-personalised services to a sub-group of clients that is considered most in need. Among non-European countries, Australia intervenes relatively intensively in the unemployment spell, but this is only possible because funding of the PES is high for a non-European country. In many countries, funding significantly constrains expenditure on outreach services, and a major expansion of the PES role without adequate resources could dilute its focus on traditional objectives, such as a rapid return to work by the registered unemployed.

Services are targeted on particular client groups in several ways. The service offer is often linked to benefit entitlement. Where groups are ineligible for benefit this can sharpen work incentives, but it can also prevent effective delivery of services to those who most need assistance. The PES can profile jobseekers to adapt its service offer. Individual active labour market programmes (ALMPs) apply their own selection criteria, and some often address particular barriers such as language proficiency. Targeting mechanisms need to identify groups that are able to enter the labour market and able to benefit from particular services. Impact evaluation is important to ensure that resources are used effectively. Where clients are handled by both national and local organisations, for some target groups services need to be co-ordination with appropriate institutional incentives, but other groups may suffer from gaps in provision that need to be filled.

An effective activation strategy must incorporate and keep in balance different elements. This chapter highlights the key functional requirements of a successful strategy within a new framework consisting of three pillars – motivation, employability, opportunities – and, as the keystone, the institutional setup required to co-ordinate delivery of a complex array of services. A number of tools need to be mobilised towards this end. Eligibility criteria should in principle ensure that recipients of unemployment benefits are available for work, e.g. are contactable and ready to accept suitable jobs. Jobseeker counselling, combining elements of eligibility and job-search review, action planning with matching and referral of jobseekers to vacancies, is central in promoting returns to work through a range of channels. Jobseeker matching and referral must be services for employers, as much as for jobseekers. Many tools and techniques such as PES information systems, e-service delivery, the statistical profiling of jobseekers, or the targeting and scheduling of referrals to labour market programmes, are important. Jobseeker aspirations and barriers to employment vary, and often the PES should be offering a range of assistance measures, while also insisting that inactivity is not an option. Performance measurement and evaluation play an essential role in system management, but an overall activation strategy should also take into account inputs and outcomes that are not so easily measured. For example, the limited statistical evidence available is consistent with the idea that employment services and training can enhance job stability and earnings considerable years ahead, but such measures are not available as an operational tool. Activation, like education, is among other things a social investment.

Notes

1. The public employment service (PES) here refers in principle to all institutions delivering employment services and the administration of other labour market programmes. Often there is one main institution with broad responsibilities, but the concept encompasses separate or partly separate services, e.g. for unemployment benefit administration; for target groups such as partly disabled jobseekers, lone parents, and recipients of municipal social assistance; or for career and training advice.
2. Although the strategic aim is to raise the overall employment rate, formal PES targets would typically be narrower than this, e.g. operational variables such as total placements and the share of disadvantaged groups within them.
3. The framework builds on an earlier framework first presented in Immervoll and Scarpetta (2012) and adds institutions as the foundation to this framework.
4. A Google search easily identifies statements that employers want “motivated” candidates, and that commercial employment agencies aim to provide them.
5. This chapter does not address detailed benefit-system issues, except for the work-related eligibility conditions.
6. For example, in this chapter unemployment benefits include social assistance benefits in cases where these are conditional on availability for work: at the national level, the recipients would in some countries more than others be described as unemployed.
7. This chapter does not aim to discuss services that enhance employability by addressing specific barriers, e.g. childcare or health condition management, focusing instead on themes common to different groups.
8. In the United States, there is no particular targeting of labour market training on unemployment insurance recipients. The 1998 Workforce Investment Act in the United States targets, for intensive services, groups that are economically disadvantaged, dislocated, or have specific hard-to-serve characteristics or barriers to employment, with priority for benefit recipients and low-income groups in areas where funds are limited (www.doleta.gov/usworkforce/wia/Runningtext.cfm). In Japan in 2010, unemployment benefit recipients were expected to report monthly, but staff resources allowed general jobseekers to have a longer counselling session occasionally on a

voluntary basis, with more-intensive action-plan procedures involving regular contact for up to three months available for some particular target groups (Duell et al., 2010).

9. The “employment line” in Nordic labour market policy involves paying unemployment benefits for, in principle, only relatively brief periods, while offering places in programmes that pay a low wage or a training allowance. In Norway, from 2010 to 2012, about 50% of the registered unemployed were on unemployment insurance benefits and slightly less than 10% on social assistance as their main source of income, but about 27% were on none of the main public benefits: at the same time, about half the participants in ALMPs were not previously benefit recipients but do receive programme allowances (Furuberg, 2014, and advice from national authorities). Participation in the Qualification Programme also significantly increases cash benefits (see Box 3.4).
10. In the United Kingdom, parents with a youngest child under 13 years can restrict their available working hours to normal school hours. Furthermore, as lone parents become eligible for Working Tax Credit, which is an in-work means-tested benefit to top up the earnings of people on low incomes, once they work 16 hours, they have a reduced incentive to look for full-time work. In Japan, financial incentives are strong and a relatively high proportion of single mothers work full-time, but their net incomes are still relatively low (Duell et al., 2010).
11. It should be kept in mind that LMP expenditure data are subject to comparability problems, and even when these have been resolved to the extent possible, the content of expenditure within a particular database category is variable. For example, ALMP expenditure is high in European countries due partly to the systematic inclusion of training allowances or unemployment benefits paid to programme participants in the statistics; in non-European countries, similar payments are not necessarily available for participants, or they may not so often be identified and reported.
12. LFS concepts implemented in most OECD or EU countries use a recent past week (i.e. a fixed week each month or the week preceding the survey week) as the reference period for an assessment of “without work” status. In some cases, the reference period for assessment of “currently available” status is the reference week used for “without work”, but in EU countries it is a two-week (forward-looking) period after that reference week. The reference period for “seeking work” status is the previous four weeks (including the survey reference week).
13. Since July 2012, recipients of unemployment benefits in Spain must prove to the PES that they are actively looking for employment. However, there is no legislation about the frequency of reporting: the PES in the autonomous regions must set up these conditions (Langenbucher, 2015).
14. Canada’s unemployed are being more frequently informed of their search obligations through a requirement to attend collective Claimant Information sessions, but in 2013/14 there were still only about 10 000 individual follow-up reviews of job search for more than a million new claims annually (advice from national authorities).
15. Sanctions in principle extend past the time when the infraction occurred. In other cases, e.g. if a jobseeker is not available for work due to travel, eligibility may be suspended temporarily or permanently, but this is not a sanction.
16. For the Washington Alternative Work Search experiment, Cebi et al. (2013) find that unemployment insurance claimants who participated in a job-search assistance programme had longer benefit spells and received more benefits during the year of the experiment and were less likely to return to their former employer than comparable non-participants. This is likely to reflect selection effects, because only 18% of the claimants assigned to job-search assistance participated in it and participants will have been a sub-group with relatively low employability. The authors however argue that the job-search assistance programme may have had a lock-in effect, similar to training programmes.
17. Although job-search assistance programmes are often estimated to have a large positive impact, especially relative to their low cost, experimental implementations may divert scarce resources such as PES job vacancies away from the control group, resulting in overstatement of the impact. Crépon et al. (2013), using data from a clustered randomisation strategy, estimate a negative impact on some control groups and attribute this to displacement effects in local labour markets, but there was not a positive impact on the treatment group, and the negative impact might well be due to other factors. UK studies report little evidence that activation measures targeted on one group have a displacement effect for other client groups at the same local employment office (White and Riley, 2002; Hasluck et al., 2003; Adam et al., 2008). Also, some studies identify positive impacts in situations where all the clients at some local offices are treated, with non-treated local offices as the control group (e.g. McVicar, 2010; Hainmueller, 2010; Hofmann et al., 2012). But clearly, research in this field should keep close track of possible externality effects, either within the local office administration and experimental implementation processes, or in the external labour market.

18. A lag of two or more years between employment service delivery and its apparent impact may arise because employment services lead to entry to longer-term training by a limited proportion of the participants. In the short term, a lock-in effect for those who enter training might approximately cancel out a positive impact for those who do not enter training.
19. Job brokerage is easier during an economic expansion, when there are relatively more vacancies per unemployed job seeker. But it is also possible during recessions, since a considerable number of job vacancies continue to be opened by employers even when business conditions are generally bad.
20. Other countries claim even higher market shares of up to 60%. Such statistics are, however, difficult to compare due to different national concepts of collecting and processing information (Fuller et al., 2011; Manoudi et al., 2014).
21. The information in this sub-section is based on a questionnaire sent by the OECD to member countries during the course of 2014 to identify effective strategies among countries for improving skills governance and turning qualitative and quantitative information on skills needs into relevant action for policy. The questionnaire was developed in co-operation with the European Centre for the Development of Vocational Training (CEDEFOP), the European Training Foundation (ETF) and the International Labour Organisation (ILO). The questionnaire was distributed to governments (Ministry of Labour and Ministry of Education) as well as to social partners (employer organisations and trade union confederations). The OECD received replies from 27 OECD countries. OECD (2015c) describes the survey and the survey results in much greater detail.
22. *Employment incentives* cover usually no more than 50% of total labour costs, for regular labour market jobs, and for a limited time, although the jobs themselves may be permanent. Measures that cover a limited proportion of total labour costs, but for an indefinite period and to compensate for reduced capacity to work, in a regular working environment (i.e. not an enterprise established specifically for the employment of people with disabilities), are classified as supported employment. Direct job creation measures are temporary, additional to normal labour demand, and usually the jobs are of community benefit or socially useful and the subsidy covers more than 50% of the labour cost (Eurostat, 2013).
23. The employment incentives category also includes incentive payments to the recently-hired individual (though not continuing part-payment of unemployment benefits, or permanent in-work benefits).
24. In his meta-analysis of 137 evaluations from 19 countries, Kluge (2010) find that private sector incentive schemes (along with a category of “services and sanctions”) are significantly more likely to have a reported positive impact on individual employment probability (and less likely to have a reported negative impact) than training, direct employment and youth programmes.
25. This is emphasised by OECD (2005). Schünemann et al. (2013) report, for a wage subsidy targeted at long-term unemployed workers in Germany that using matching techniques, with treated individuals defined as those who actually received a wage subsidy, the treatment increased rates of unsubsidised employment by more than 20 percentage points in the two years after the subsidy had ended. At the same, they estimate that across the whole group that became eligible for the subsidy (including those who were not hired), the subsidy had no significant impact on exit rates to unsubsidised employment or job stability.
26. Permanent payments are often lacking in active character, and only those that compensate for partial (or complete, but potentially temporary) loss of work capacity are counted as active programmes in the *OECD/EC Labour Market Programme Database* (Eurostat, 2013). However, permanent in-work benefits that are phased out in line with earnings can have a large impact on the labour market: see Immervoll and Pearson (2009) and the discussion of UK tax credits and Universal Credit in OECD (2014a).
27. The Norwegian inclusive workplace agreements date back to 2001 and are a central framework for tripartite co-operation between the government and employer and employee organisations. The aim of the agreements is to prevent and reduce absence due to illness; to help bring employees back to work; to improve the working environment; and to prevent exit from working life. About 60% of employees work in firms with an inclusive workplace agreement (OECD, 2013b).
28. The employment gap between those with a severe mental disorder and those without mental health issues is 25-30 percentage points and jobless rates for people with severe disorders are, in many countries, four or five times higher than for those with no mental health issues (OECD, 2012b).
29. Results from the OECD’s *Survey of Adult Skills* (OECD, 2013d) show that across participating countries 9.3% of adults have no computer experience and 4.9% of adults failed the information and communications technology (ICT) core test, which assesses basic ICT skills. Proficiency in

problem solving in technology-rich environments varies widely across socio-economic groups and is driven by individual characteristics such as age, gender, education and socio-economic background (as measured through parental education).

30. In 2012 and 2013, the British PES tested a number of methods to encourage claimants to claim online instead of via telephone. The methods included i) call-centre staff re-directing and persuading callers to claim online; ii) prolonged waiting times for telephony-based applications; iii) a promise to prioritise online claims when processing benefit claims; and iv) removing the option to make a telephony based claims for claimants with internet access (DWP, 2013a and 2013b).
31. Based on interviews with officials at the British Department for Work and Pensions.
32. In 2005, the British PES ran a number of randomised control trials to test different approaches to the fortnightly job-search review meetings. The control group continued to be subject to fortnightly review meetings. The treatment groups had i) an excusal for review meetings for a certain period with a random call into the PES; ii) fortnightly review meetings via telephone with a random call into the PES; iii) fortnightly, but shortened in-person review meetings; or iv) fortnightly review meetings in groups. The excusal for signing and telephone signing resulted an increased benefit duration. Middlemas (2006) therefore notes that it is the frequency of interventions rather than the quality of the intervention which has an effect on maintaining off-flows from benefit. The negative effect of telephone signing suggests that the intervention does need to be in person to be fully effective.

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ANNEX 3.A1

Unemployment benefit registration procedures, job-search requirements and participation in active labour market programmes (ALMPs)

Table 3.A1.1. **Unemployment benefit registration procedures and application routes**

	Benefit entitlement starts before (B), simultaneously with (S) or after (A) registration for placement; R = benefit pay retroactive back to date of loss of work	Length of waiting period (for which benefit is not payable at the start of unemployment), if any	Possible application routes, P (in person), T (telephone), F (Fax), W (post), E (email), O (online interface)	Proportion of claimants using online channels	Delay until first contact with placement services
Australia	S	-	P, W, T, O	..	Usually 2 days (max. 14 days)
Austria	S	-	T, F, W, O	About 5%	Max. 10 days
Belgium	B	-	P ^a	x	No enforced maximum delay
Canada	B	14 days	O, W	98%	In-person visits are not required for all claimants
Chile	B	-	P	x	1 month
Czech Republic	B, R (only for the first 3 days of unemployment)	-	P	x	
Denmark	S	-	P, W, O	..	With 1 to 3 months ^b
Estonia	S	7 days	P, O	..	30 days
Finland	A	5 days	W, O ^c	..	In-person visits are not required for all claimants
France	A	7 days	..	..	..
Germany	S	-	P	x	x
Greece	S	6 days	P	x	x
Hungary	A	-	P, O	About 20%	15 days
Iceland	B, R	-	O	100% ^d	..
Ireland	S, R	3 days	P	x	x
Israel	A	5 days	P, F, W	x	60 days
Italy	S	8 days	O	100% ^d	No enforced maximum delay
Japan	A	7 days	P	x	x
Korea	A	7 days	P	x	1-4 weeks
Luxembourg	A, R	-	P	x	2 weeks
Netherlands	B, R	-	P, O	95%	No enforced maximum delay
New Zealand	B	0-14 days	P, T, O	30%	No enforced maximum delay
Norway	A	3 days	P, W, O	..	Within 3 months
Poland	A	-	P, O	..	Max. 7 days

Table 3.A1.1. **Unemployment benefit registration procedures and application routes (cont.)**

	Benefit entitlement starts before (B), simultaneously with (S) or after (A) registration for placement; R = benefit pay retroactive back to date of loss of work	Length of waiting period (for which benefit is not payable at the start of unemployment), if any	Possible application routes, P (in person), T (telephone), F (Fax), W (post), E (email), O (online interface)	Proportion of claimants using online channels	Delay until first contact with placement services
Portugal	A	-	P, O	..	Usually 3 days ^e
Slovak Republic	S, R	-	P	x	x
Slovenia	S, R	-	P, W, O	..	Usually within 14 days
Spain	S, R	-	P, T, W, O	1-2%	All PES registration must be made in person
Sweden	S, R	7 days	P, T, O ^f	..	5 working days
Switzerland	S or A	5 days ^g	P, W	x	x
Turkey	A, R	-	P, O	26%	No need to visit PES in person
United Kingdom	S	7 days	P, T, W, O	88%	Usually within 3 days (max. 1 month)
United States	B or S	7 days (most states)	P, T, W, O ^h	58%	No maximum delay in federal law

Note: .. Not available; x not applicable; – absolute zero.

- a) In Belgium, applications for benefit must be made in person; PES registration is possible in person, by telephone or online.
- b) In Denmark, claimants under 30 years of age will have the first personal visit to the PES within one month. Claimants over 30 years of age will have the first personal visit within 3 months. However, the first personal visit in the unemployment insurance fund will be within three weeks. The meeting ensures that the claimant has a valid CV, which has to be approved by the unemployment fund. The unemployment fund also informs claimants of their rights and duties (availability for work and active job search).
- c) PES applications can be made in person or online in Finland.
- d) In Iceland and Italy, all benefit applications are made online. In Iceland applicants can receive assistance at the office of the Directorate of Labour along with the access to computers. In Italy, claimants may receive assistance with filing their claims in local centres run by unions and employee organisations.
- e) In Portugal, following an online application, the validation process has to be completed in person within three working days. If the jobseekers has at least 12 years of schooling and an adjusted market profile with a low risk of becoming long-term unemployed, the validation does not require a face-to-face meeting.
- f) The Swedish PES also offers the option of PES registrations in unmanned PES offices via video link.
- g) In Switzerland, no waiting period applies to unemployment benefit claimants with an insured income less than CHF 36 001 per year and to insured persons whose insured income is between CHF 36 001 and CHF 60 000 per year and who care for a child under the age of 25. For persons who do not have a maintenance obligation towards children under 25 years, the waiting time may increase to 10 up to 20 days, if the guaranteed insurance sum exceeds CHF 60 001.
- h) In the United States, a small number of claimants (less than 1%) may also apply for unemployment benefits through their employer.
- Source: Compendium of national replies to the OECD Secretariat questionnaire on “Eligibility criteria for unemployment benefits and interventions in the unemployment spell”.

StatLink  <http://dx.doi.org/10.1787/>

Table 3.A1.2. **Job-search requirements and participation in active labour market programmes (ALMPs)**

	Frequency at which the unemployed have to report their job-search activities	Number of actions to be reported	Continued availability for work (A) and job-search (JS) requirements during ALMP participation
Australia	Every two weeks	8 to 20 per month	A, JS ^a
Austria	Once a month	Not specified	A
Belgium	Interview after 9/12 months of unemployment; earlier and more frequent interventions may apply to younger jobseekers	On average 5 per month	A and JS (only for short-term or part-time programmes)
Canada	Every two weeks	Not specified	No
Chile	Attendance once a month, but no reporting requirements	Not specified	A
Czech Republic	Varying local practices	Not specified	A
Denmark	Every three months	Not specified	A, JS ^b
Estonia	Once a month	Variable requirement (depending on IAP)	A, JS
Finland	Variable requirements	Variable requirement (depending on IAP)	A for some ALMPs

Table 3.A1.2. Job-search requirements and participation in active labour market programmes (ALMPs) (cont.)

	Frequency at which the unemployed have to report their job-search activities	Number of actions to be reported	Continued availability for work (A) and job-search (JS) requirements during ALMP participation
France	Once a month (from the fourth month of unemployment)	Not specified	A
Germany	Variable requirements	Not specified	A, JS
Greece	No requirements	Not specified	A for training programmes
Hungary	No requirements	Not specified	No
Iceland	Once a month	At least 1 per month	No
Ireland	Variable requirements	Not specified	A and JS only for part-time courses
Israel	Attendance once a week, but no reporting requirements	Not specified	No
Italy	No requirements	Not specified	A
Japan	Every four weeks	2 per month	A
Korea	Every four weeks	Not specified	No
Luxembourg	Once a month	Not specified	A
Netherlands	Every four weeks	4 per month	A, JS
New Zealand	Variable requirements	Not specified	A, JS
Norway	Variable requirements	Not specified	A
Poland	No requirements	Not specified	A
Portugal	Twice a month	Variable requirement (depending on IAP)	No
Slovak Republic	Variable requirements	Not specified	A for most ALMPs
Slovenia	Variable requirements	Not specified	A for most ALMPs
Spain	Variable requirements	Not specified	No
Sweden	Once a month	Variable requirement (depending on IAP)	A, JS
Switzerland	Once a month	Variable requirement (depending on IAP)	A, JS ^c
Turkey	No requirements	Not specified	A
United Kingdom	Every two weeks	Variable requirement (depending on IAP)	A, JS ^d
United States	Variable requirements	4 to 20 per month	a for most ALMPs

- a) In Australia, there are some limited instances where jobseekers undertaking specified hours of certain approved activities are not required to undertake additional job search (e.g. those in a short full-time course), but they must attend appointments with their provider and accept suitable paid work that fits around their study commitments. Some groups (e.g. those with a partial capacity to work who are meeting their requirements through paid work, study or a combination of the two) are not required to remain connected to their employment services provider or accept any offers of suitable paid work.
- b) If participation in or completion of a specific employability enhancement measure will most likely result in ordinary work, Danish local job centres can decide that the unemployed person has to be available for that specific measure only.
- c) In Switzerland, recipients of unemployment benefits cease to be available for recruitment for the duration of a course, if required by the course. Exemptions to active job-search requirements may apply in some circumstances, e.g. for pregnant women, unemployed in the six months preceding retirement age, unemployed with a suitable job starting next month, or for unemployed participating in a motivation course to help them chose a training programme.
- d) In the United Kingdom, availability for work and job-search requirements may be suspended when benefit recipients participate in work-related activity (including training) of 16 or more hours per week. At any one time, these exceptions affect a small minority of recipients.

Source: Langenbucher, K. (2015), "How Demanding Are Eligibility Criteria for Unemployment Benefits? Quantitative Indicators for OECD and EU Countries", *OECD Social, Employment and Migration Working Papers*, No. 166, OECD Publishing, Paris, www.oecd.org/els/listofsocialemploymentandmigrationworkingpapers.htm.

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ANNEX 3.A2

*Supplementary material on job-search methods*Table 3.A2.1. **Methods used during previous four weeks to find work**

Percentages, persons aged 25-64, 2012

	A. Contacted public employment office to find work	B. Contacted private employment agency to find work	C. Applied to employers directly	D. Asked friends, relatives, trade unions, etc.	E. Inserted or answered advertisements in newspapers or journals	F. Studied advertisements in newspapers or journals
Unemployed						
Austria	78.7	18.7	77.9	77.1	53.1	88.5
Belgium	63.7	40.0	30.0	34.6	18.1	59.7
Czech Republic	67.0	17.5	63.1	93.4	31.3	61.5
Denmark	58.5	3.6	83.1	76.5	77.6	93.3
Estonia	54.7	10.2	32.1	67.1	33.7	74.8
Finland	62.6	17.6	44.2	38.1	43.0	89.6
France	60.5	26.1	54.1	55.7	49.3	78.4
Germany	79.7	13.0	22.2	39.3	56.0	57.6
Greece	66.7	8.4	89.8	93.6	42.2	79.7
Hungary	74.4	34.9	78.0	90.8	55.1	90.3
Ireland	49.5	33.8	75.6	88.8	30.5	92.5
Italy	34.5	19.9	66.5	82.4	33.2	68.6
Luxembourg	75.7	35.5	70.4	64.8	59.0	84.8
Netherlands	49.2	46.3	68.7	61.6	36.7	63.0
Norway	63.4	14.3	36.4	17.5	46.3	62.6
Poland	73.5	9.5	60.8	79.6	40.0	76.3
Portugal	49.0	42.8	73.8	79.9	52.7	73.4
Slovak Republic	78.9	10.4	39.3	77.9	34.0	68.9
Slovenia	78.3	28.5	83.8	91.9	76.0	87.6
Spain	34.2	32.9	80.7	89.9	41.8	71.3
Sweden	81.8	11.5	43.4	26.2	20.6	55.7
Switzerland	52.2	31.5	32.8	22.2	27.7	69.5
United Kingdom	57.9	24.2	44.0	43.5	57.3	80.8
European Union	62.8	23.1	58.7	64.9	44.1	75.1
Employed looking for work						
Austria	25.0	13.8	67.9	72.1	41.9	87.6
Belgium	28.4	22.5	25.4	29.9	15.0	60.8
Czech Republic	15.3	13.0	48.8	66.5	24.8	60.8
Denmark	13.1	2.2	54.4	52.1	66.8	85.2
Estonia	5.9	11.2	25.9	59.5	34.8	76.5
Finland	14.1	6.3	41.2	27.9	41.1	87.9
France	32.6	17.7	59.3	60.1	49.7	75.1
Germany	39.3	9.3	22.0	41.2	52.1	61.7
Greece	23.1	5.6	84.6	93.1	30.4	70.5
Hungary	29.3	21.2	59.2	85.1	44.2	88.6

Table 3.A2.1. **Methods used during previous four weeks to find work** (cont.)

Percentages, persons aged 25-64, 2012

	A. Contacted public employment office to find work	B. Contacted private employment agency to find work	C. Applied to employers directly	D. Asked friends, relatives, trade unions, etc.	E. Inserted or answered advertisements in newspapers or journals	F. Studied advertisements in newspapers or journals
Employed looking for work						
Ireland	21.6	42.6	73.1	72.2	32.2	91.4
Italy	14.6	16.1	55.2	67.4	24.1	60.5
Luxembourg	35.4	27.3	64.4	52.3	51.0	79.7
Netherlands	14.3	21.9	55.5	57.0	21.4	51.6
Norway	11.9	3.3	19.0	9.8	25.8	54.2
Poland	20.7	7.6	45.5	75.1	40.4	77.0
Portugal	21.7	33.2	64.1	76.8	50.0	69.2
Slovak Republic	42.5	5.8	35.8	77.6	30.2	72.6
Slovenia	12.2	20.1	65.1	82.5	67.1	84.5
Spain	15.6	28.2	73.5	83.5	43.8	68.6
Sweden	46.3	7.6	43.8	20.3	19.8	47.7
Switzerland	13.1	8.1	18.0	30.8	19.5	75.3
United Kingdom	13.6	17.5	29.7	31.4	45.2	74.8
European Union	22.2	15.7	49.2	57.6	37.9	72.2

Note: EU unweighted average for the countries shown. More job-search methods are reported in the survey, but only the six most prominent methods are shown.

Source: OECD calculations based on *European Union Labour Force Survey*.

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Chapter 4

The quality of working lives: Earnings mobility, labour market risk and long-term inequality

This chapter analyses how earnings mobility – defined as moving up or down the earnings ladder and in and out of work – affects labour market risk and long-term inequality. To this end, it employs a simulation methodology to analyse workers’ careers using short panel data for 24 OECD countries. On average, three quarters of inequality in a given year is shown to be permanent in nature, while the remainder evens out over the life cycle as a result of mobility. Mobility does not appear to be higher in countries with more inequality. Chronic unemployment, weak cognitive skills, atypical work arrangements and poor productivity in firms are major determinants of low long-term earnings. Unemployment insurance plays a major role in securing worker careers by mitigating income risks due to unemployment. Minimum wages reduce the risk of extreme low pay, but their impact is muted in the long-term due to the equalising effect of mobility and potential adverse employment effects.

Key findings

People spend a considerable part of their time at work, but also work for a considerable part of their lives. Therefore, it is important to measure not only the quality of employment at one point in time, but also, and perhaps even more so, the quality of the entire working life. This chapter proposes a dynamic framework for measuring and assessing the quality of working lives by focusing on the employment and earnings trajectories of workers over the long-term.

Going beyond a static assessment of the employment and earnings status of workers allows to take account of the impact of earnings mobility, encompassing both movements between employment and unemployment (employment mobility) and movements up and down the earnings distribution (wage mobility). Earnings mobility matters from the perspective of individual workers because it offers opportunities for career advancement, but it can also be a source of earnings insecurity justifying policy intervention. Mobility matters for society at large because it can smooth out earnings differences between workers over time, possibly rendering earnings inequality at a point in time more socially acceptable.

Documenting and analysing the employment and earnings trajectories of workers in the long term is far from obvious in practice due to data limitations. Data are needed that allow individuals to be followed over a substantial part of their working lives. Unfortunately, such data are only available for a limited set of countries and tend to be difficult to compare internationally. In order to overcome these data limitations, this chapter makes use of simulation techniques to generate individual earnings and employment trajectories over the longer term. A validation exercise using social security data for Italy shows that this approach captures the observed evolution of earnings and, particularly, the degree of mobility rather well.

The *first contribution* of the chapter is to provide a statistical portrait of earnings mobility and the distribution of long-term earnings – defined in terms of the cumulative sum of monthly earnings over ten or twenty years after taking account of the evolution of hourly wages, working time, unemployment and unemployment benefits – across 24 OECD countries and socio-economic groups. The simulated work histories suggest that:

- Among the countries analysed, long-term earnings inequality among men is lowest in Belgium, Switzerland and Slovak Republic and highest in Estonia, Greece and the United States, while for women it is lowest in Denmark, Finland and Slovak Republic and highest in Austria, Japan and the United States. The country ranking is broadly similar to that of inequality at a point in time.
- On average across the countries analysed, mobility reduces inequality by about a quarter over the working life. That is, approximately three quarters of inequality within a year is permanent. Long-term inequality reflects structural differences in earnings which are determined by the structure of labour demand and supply, and the nature of policies and institutions.

- The cross-country correlation between mobility and inequality at a point in time tends to be weak and depends on the measure of inequality used. This means that mobility and inequality do not have to go hand in hand and that policies and institutions can give rise to different combinations of mobility and inequality.
- Life-time earnings differentials are largely determined in the first ten years of workers' careers. Earnings mobility is more than 50% higher for young people than for prime-age and older workers. Mobility is also higher for low-skilled workers. This is due to their higher risk of becoming unemployed, rather than a high rate of wage mobility in employment.
- Mobility has remained largely stable in recent decades. This means that life-time inequalities have tended to increase in tandem with inequalities within a given year.

The *second contribution* of the chapter is to shed light on the determinants of poor careers. Focusing on the terciles of the distribution of long-term earnings among labour force participants, the following patterns emerge:

- The risk of unemployment is highly concentrated and chronic unemployment is a key determinant of low long-term earnings. On average across countries, workers in the bottom tercile of long-term earnings spend, over a span of ten years, more than one year in unemployment compared with just one month for those in the top tercile.
- Poor cognitive skills are major determinants of low long-term earnings. This reflects their importance for the risk of unemployment, the risk of low pay and having a low earnings potential more generally. If anything, taking a long-term perspective reinforces the link between skills and earnings due to the equalising impact of mobility on temporary earnings differences.
- Low long-term earnings are closely associated with part-time work. While in most OECD countries the majority of people choose part-time work for personal reasons, in a number of countries – such as Greece, Italy and Spain – involuntary part-time work for economic reasons is widespread.
- Temporary work is associated with lower long-term earnings in most countries, but not all. It is strongly linked with low long-term earnings in Greece, Italy, Slovak Republic and Turkey, but not at all in Belgium, Germany, Switzerland and the United Kingdom. The concentration of temporary work in the bottom of the distribution of long-term earnings is likely to reflect a dual labour market where employment protection provisions diverge strongly across contract types.
- Who you work for is also a key determinant of long-term outcomes since there is a tendency for people with low long-term earnings to spend much of their careers in low-wage firms. While this sorting of workers across firms may reflect matching efficiency, it also reinforces existing labour market inequalities.

The *third contribution* of the chapter is to use the simulation methodology to assess the role of unemployment insurance and minimum wages in promoting rewarding and secure careers.

- Unemployment benefits play a major role in mitigating income risks due to joblessness in many OECD countries, but also reduce overall earnings inequality in the long-term. A promising way of increasing labour market security further is to expand benefit coverage, particularly in countries where both benefit coverage and generosity are relatively low.
- The minimum wage plays a useful role in reducing the incidence of low long-term earnings, but has a negligible impact on long-term inequality overall. This is due to the

equalising role of mobility and the possible presence of adverse effects of the minimum wage in raising the risk of unemployment.

Introduction¹

People spend a considerable part of their time at work, but also work for a considerable part of their lives. Therefore, it is important to measure not only the quality of employment at one point in time, but also, and perhaps even more so, the quality of the entire working life. This chapter proposes a framework for measuring and assessing the quality of working lives by focusing on the employment and earnings trajectories of workers in the long-term. The concept of the quality of working lives that is presented and applied in this chapter captures elements of both job quality (earnings and labour market security) and job quantity (unemployment and working time). This approach, therefore, offers a comprehensive and dynamic framework for assessing labour market performance in terms of both the quantity and the quality of jobs, complementing the static framework on job quality that was proposed in OECD (2014, Chapter 3).

Taking a dynamic perspective on job quality by focusing on workers' careers is important for the assessment of both individual and overall societal well-being. For *individual* well-being, this implies that seemingly similar jobs may be valued differently by workers depending on the degree of labour market security they offer and the prospects they provide for career progression. The classic example is that of a temporary job which may, in some cases, act as a stepping stone to stable and rewarding work, but in other cases represents a job of last resort which offers little prospect of moving into a good-quality job.² For the assessment of *societal* well-being, taking a dynamic perspective also matters because of the role of mobility in determining the depth and persistence of economic and social inequalities (Friedman, 1962). Modern labour markets are characterised by high levels of turnover between jobs, resulting in substantial fluctuations in labour earnings and high flows in and out of unemployment. This means that, in general, inequality in terms of life-time earnings will be smaller for a given cohort than inequality measured in any given year.³ A dynamic perspective that accounts for the degree of persistence in worker careers may thus have important implications for the assessment of policies and institutions.

Documenting and analysing the employment and earnings trajectories of workers is far from obvious in practice due to data limitations. Longitudinal data are needed that allow individuals to be followed over a substantial part of their working lives. Unfortunately, such data are only available for a limited set of countries and are not fully comparable. This chapter makes use of simulation techniques to generate individual earnings and employment trajectories over the longer term, in an attempt to overcome these data limitations. A validation exercise using social security data for Italy shows that the simulations capture the actual evolution of earnings and, particularly, the degree of earnings mobility, rather well. Full details on the approach and data sources used in the chapter, and the robustness of the results that are reported can be found in a background paper (Garnero, Hijzen and Martin, 2015).

The chapter is structured as follows. Section 1 provides a statistical portrait of the incidence of low long-term earnings and long-term earnings inequality across countries and socio-economic groups. It places particular emphasis on the role of earnings mobility in reducing long-term inequality relative to the level of inequality at any point in time. Section 2 sheds light on careers characterised by low long-term earnings. As such, it takes account of the equalising effect of mobility, as in the previous section, but also of more

structural factors that affect inequality in the long term, including worker competences, atypical work arrangements and firm quality. It also provides some discussion of the role of experience and job mobility in promoting better careers. Section 3 presents a number of counterfactual simulations that shed light on how unemployment insurance and the minimum wage affect labour market risk and long-term inequalities. Finally, the last section draws out the main policy lessons of the chapter.

1. A statistical portrait of mobility and inequality across countries and socio-economic groups

This section provides a statistical portrait of the quality of working lives based on the concept of long-term earnings. For the present purposes, this is defined as the cumulative sum of monthly earnings and any unemployment benefits over ten years (unless otherwise stated).⁴ Long-term earnings capture earnings while in-work (hourly wages and working time) as well as the risk of unemployment and the mitigating effect of unemployment insurance. It does not take account of the non-material aspects of working lives as embodied in the quality of the work environment.⁵

The main value of taking a long-term perspective is that it takes account of earnings mobility. Earnings mobility in this chapter is defined in terms of earnings changes that result either from movements between employment and unemployment, after taking account of unemployment benefits, (employment mobility) or from movements between different segments of the earnings distribution among the employed (wage mobility). Earnings mobility is defined in relative terms based on positional movements in the distribution of earnings (“positional mobility”). No account is taken of earnings changes that affect the overall level and distribution of earnings without changing the position of individual persons in the distribution (“structural mobility”).⁶ Positional mobility is a doubled-edged sword for workers as it provides opportunities for moving up in the distribution but also carries the risk of falling down. Earnings mobility also has a tendency to even out earnings differences between individuals in the longer term. Thus, mobility, defined in terms of fluctuations in relative earnings, has a tendency to increase risk, but also to reduce long-term inequality and, hence, has important implications for the assessment of both individual and societal well-being. The role of mobility for overall well-being depends on the relative importance of risk and inequality aversion and, therefore, is *a priori* ambiguous (Atkinson and Bourguignon, 1982).

Since mobility is particularly relevant for the distribution of earnings this will be the main focus of the analysis. Of course, the level of life-time earnings is also a key determinant of the quality of working lives. However, average earnings differences between countries and socio-economic groups are not much affected by taking a life-time perspective and have been documented in OECD (2014, Chapter 3).⁷ Three different measures of long-term earnings inequality will be considered: the incidence of low long-term pay, defined as the incidence of workers receiving less than two-thirds of the median hourly wage in the reference year; the Gini of long-term earnings among the continuously employed; and the Gini of long-term earnings among those continuously active (see the glossary in Box 4.1 for detailed definitions). The third of these measures also takes account of unemployment benefits when unemployed. Consistent with the approach taken in OECD (2014, Chapter 3), unemployment insurance is measured in effective terms taking account of both the coverage and generosity of unemployment insurance and assistance. But rather than making use of average measures of coverage and generosity at the country

Box 4.1. Glossary

Earnings concepts

Hourly wage: Monthly earnings divided by usual weekly working hours (times 12/52).

Monthly earnings: Gross annual earnings (i.e. before taxes and transfers) divided by the number of months worked during the corresponding year. Gross annual earnings include basic, overtime and performance pay, bonuses and social security contributions. Since monthly earnings are measured at an annual frequency intra-annual movements in earnings or in and out of work are ignored.

Replacement income when unemployed: The gross replacement rate times monthly earnings in the last job before becoming unemployed if covered and zero otherwise. Coverage is assigned randomly conditional on the individual's predicted probability of being covered. The probability of being covered is estimated country-by-country using a probit model and is assumed to be a function of gender, education, potential experience and unemployment duration. The gross replacement rate takes account of an individual's last gross monthly earnings before becoming unemployed and the time spent in unemployment. Unemployment benefits include both unemployment insurance and unemployment assistance benefits. Social assistance is not taken into account.

Inequality and mobility concepts

Labour market risk: The volatility of earnings over time as measured by the average of the coefficient of variation of individual earnings over ten years.

Short-term (or annual) inequality: Earnings inequality across individuals within years averaged over ten (or twenty) years.

Long-term inequality: Earnings inequality across individuals in terms of their average earnings over ten (or twenty) years.

Mobility (Shorrocks index): Percentage reduction in average annual inequality as a result of mobility (formally, one minus the ratio of long-term to short-term inequality, see Shorrocks, 1978). Long-term inequality is less than short-term inequality because temporary earnings fluctuations are smoothed out and do not contribute to inequality. Shorrocks' mobility index is zero if there is no mobility and one if there is full mobility. The reduction in short-term inequality among continuously employed persons is referred to as "wage mobility", while the reduction in inequality due to movements between employment and unemployment is referred to as "employment mobility". The combination of wage and employment mobility is referred to as "earnings mobility".

Inequality indices

Gini coefficient: The extent to which earnings deviate from a perfectly equal distribution (formally, it represents half the expected absolute difference in earnings between any two randomly selected persons in the distribution). A Gini index of zero represents perfect equality with earnings evenly shared across all workers, while an index of one represents perfect inequality with all earnings concentrated in the hands of a single person. The Gini coefficient of employed persons captures inequalities in both hourly wages and working time. It is also referred to as "wage inequality". The Gini coefficient of active persons captures earnings for persons in work and replacement income when unemployed (see definition above). The Gini coefficient of active persons is also referred to as "earnings inequality". This measure privileges the centre of the distribution.

Incidence of low pay: The incidence of persons earning less than two-thirds of the median hourly wage in the base year among continuously employed persons. The base year is used since the level and distribution of earnings is assumed to remain constant in the simulations apart from any changes that result from the ageing of the sample. This measure emphasises the bottom of the distribution.

level, both are allowed to vary across individuals according to their specific characteristics and the nature of the benefit system in the country [see Garnero, Hijzen and Martin (2015), for full details].⁸ The analysis does not take account of labour force participation decisions; nor does it consider the implications of worker outcomes for household income.^{9, 10}

Measuring the distribution of individual earnings within countries in the long-term is far from obvious in practice due to data limitations. Doing so requires data that allow individuals to be followed over a substantial part of their working lives. The source of these data can be administrative records [for an example, see Box 4.2 for Italy; and Garnero, Hijzen and Martin (2015)] or cohort surveys that are specifically designed to follow individuals over long periods of time (for an example, see Box 4.3 for the United States). Unfortunately, such data are only available for a limited set of countries and tend to be difficult to compare internationally. While in most OECD countries high-quality household or labour force panel datasets exist, these typically do not allow individuals to be followed for more than a few years. This is because they either have a rotating panel design or suffer from substantial attrition as it tends to be difficult to keep subjects in panel surveys for extended periods of time.

Box 4.2. **Measuring the distribution of long-term earnings and the role of mobility using simulation techniques**

The simulation methodology

The simulation of individual long-term earnings and employment trajectories proceeds in three steps [full details are provided in Garnero, Hijzen and Martin (2015)]:

- *Adjusting the data for structural mobility.* The first step requires abstracting from changes in the average level of earnings and its distribution over time which are the result of business-cycle effects or structural change (including policy reforms). This is done in order to isolate positional mobility within a stable distribution of earnings. In practice, structural mobility is removed by keeping the level of earnings and its distribution across education groups constant with respect to the reference year. The reference year used for the simulations is 2010. This is not ideal given the particular macroeconomic context in the aftermath of the global financial crisis, but as discussed in Garnero, Hijzen and Martin (2015), changing the reference year does not much change the results in general. To the extent possible, the analysis abstracts from temporary changes in unemployment benefit systems in response to the crisis (e.g. the extension of the maximum duration of unemployment benefits in the United States).
- *Estimating the simulation parameters.* This second step involves estimating a standard earnings equation that allows for flexible earnings-experience profiles by sex and education. These profiles capture between-group mobility. Since this component of mobility does not entail any uncertainty, it does not contribute to risk but reduces long-term inequalities when expected earnings-experience profiles differ across socio-economic groups. Using the residuals from the earnings regressions, within-group mobility is modelled in terms of the transition probabilities across deciles of the residual earnings distribution, as well as between employment and unemployment. These probabilities are estimated using a multinomial logit model that controls for gender, potential experience and education, for each initial employment state and earnings decile. Within-group mobility is largely unpredictable and, hence, matters both for risk and long-term inequality. Three slightly different procedures are used. A baseline procedure (referred to as OLS), a variation that controls for unobserved fixed effects in the earnings equation (FE) and a second variation that controls for the employment state and earnings decile in the previous year in the multinomial logit model (DYN). The latter is the preferred model used in the chapter because it closely replicates actual earnings mobility in Italian social security data. The estimations are conducted

Box 4.2. Measuring the distribution of long-term earnings and the role of mobility using simulation techniques (cont.)

using data for the period 2004 to 2011. This means that the simulations reflect the average degree of mobility as implied by the actual data during the period 2004-11.

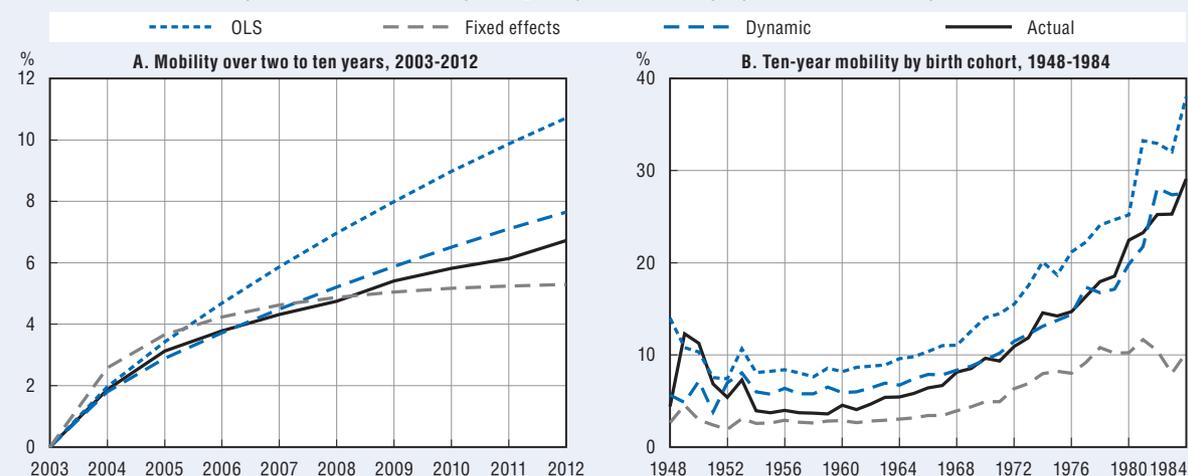
- *Simulating earnings and employment trajectories.* Using the estimated parameters from the previous step, employment and earnings trajectories are simulated for all active individuals aged 15 to 54 in the base year. This involves constructing individual predictions for earnings and transition probabilities for moving in and out of employment and across deciles of the residual earnings distribution. The exact position of individuals within earnings deciles is determined by preserving as much as possible their previous rank in the distribution (as opposed to random assignment).

This procedure can be implemented on a large number of country-specific datasets as it requires just two or three observations per individual, depending on the specification used. The simulation methodology is very flexible in the sense that it does not impose any assumptions on the structure of earnings mobility across the distribution and over the life course. This is important as it is shown in Garnero, Hijzen and Martin (2015) that earnings mobility is far from uniform in practice.

Validating the simulation approach using social security data for Italy

Data from Italy's National Social Security Institute (*Istituto Nazionale della Previdenza Sociale – INPS*) was used to carry out a validation exercise of the simulation technique used in the chapter. The data represent a random sample of individuals working in the private sector during the period 1985 to 2012 (corresponding to 6-7% of the workforce). For the purposes of the validation exercise, the analysis focuses on individuals who are continuously employed during the period 2003 to 2012. It does not take account of employment mobility (movements between employment and unemployment) since the data do not include information on unemployment. The validation exercise involves comparing the degree of earnings mobility in the simulated data over the period 2003 to 2012 with the degree of mobility observed in the actual data during the same period. It focuses on the degree of earnings mobility since this is the main challenge that one has to overcome when modelling earnings trajectories over the life course (reproducing the mean and distribution of earnings over time is by comparison a trivial exercise). To allow for consistent comparisons between the actual and simulated data, the former are adjusted for changes in the level and education structure of earnings since 2002, in the same way as in the simulated data.

Figure 4.1. **Shorrocks' mobility index in the actual and simulated data for Italy**
Percentage reduction in earnings inequality when averaging individual earnings over time



Source: OECD estimates based on Italian Istituto Nazionale della Previdenza Sociale data for 2003-12.

StatLink  <http://dx.doi.org/10.1787/888933239814>

Box 4.2. Measuring the distribution of long-term earnings and the role of mobility using simulation techniques (cont.)

Figure 4.1 shows the Shorrocks mobility index which measures the percentage reduction in earnings inequality, in terms of the Gini index, when individual earnings are averaged over time. Panel A shows that mobility reduces earnings inequality by 7% over the ten years from 2003 to 2012 in the actual data. Panel B shows that the effects of earnings mobility over ten years vary considerably across birth cohorts, with mobility reducing within-cohort inequality by almost 30% among young cohorts born after 1980 but by only around 5% for older cohorts born before 1960. In both cases, the simulated data based on the OLS model overestimate mobility, while the model based on fixed-effects underestimates mobility. By contrast, the model where transitions are estimated using a dynamic multinomial logit matches the actual degree of mobility rather well. This is the case over time as well as across cohorts.

Overall, the comparison of earnings mobility in the simulated and the actual data shows that the procedure adopted in this chapter is able to predict the main features of positional mobility over up to ten years reasonably well. Since the dynamic specification performs best overall this will be the focus of the chapter, while the results based on the other specifications are reported in Garnero, Hijzen and Martin (2015).

In order to overcome these data limitations, this chapter makes use of simulation techniques to generate individual earnings and employment trajectories over the longer term, building on previous work by Bowlus and Robin (2004, 2012) [see Box 4.2 and Garnero, Hijzen and Martin (2015) for further details].¹¹ The main advantages of simulation are that: i) it can be conducted for a large number of OECD countries; ii) it abstracts from changes in macroeconomic conditions; and iii) it provides a framework for assessing the impact of changes in the institutional environment on labour market risk and long-term inequality. The main disadvantage is that the simulations rely upon a number of assumptions about the way careers unfold. In order to avoid imposing unrealistic or otherwise controversial assumptions, the modelling approach adopted here is largely descriptive in nature and the core analysis abstains from imposing any theory-driven restrictions on the behaviour of agents.¹² Moreover, it is shown using social security data for Italy that the statistical model of long-term earnings captures the actual evolution of earnings, particularly the degree of earnings mobility, rather well [see Box 4.2 and Garnero, Hijzen and Martin (2015)]. As both the value of adding an additional year and the fit of the model decline as the time horizon is extended, the chapter focuses on long-term earnings (defined over ten or twenty years), rather than earnings over entire working careers as was the case in Bowlus and Robin (2004, 2012).

Mobility has an important equalising effect on inequality in the longer-term, but does not have major implications for cross-country comparisons of inequality

Existing studies that have analysed long-term earnings inequality tend to suggest that the bulk of earnings differences at a point in time is permanent, but that earnings mobility also plays a significant role in smoothing out temporary fluctuations in earnings. Studies using administrative records include Aaberge and Mogstad (2012) for Norway, Björklund (1993) for Sweden, Bönke et al. (2015) for Germany, Kopczuk et al. (2010) for the United States and Waaijers and Lever (2013) for the Netherlands. While these studies tend to differ in their set-up and the concept of inequality used, they imply an equalising effect of mobility in the range of 10-30% over the life course.

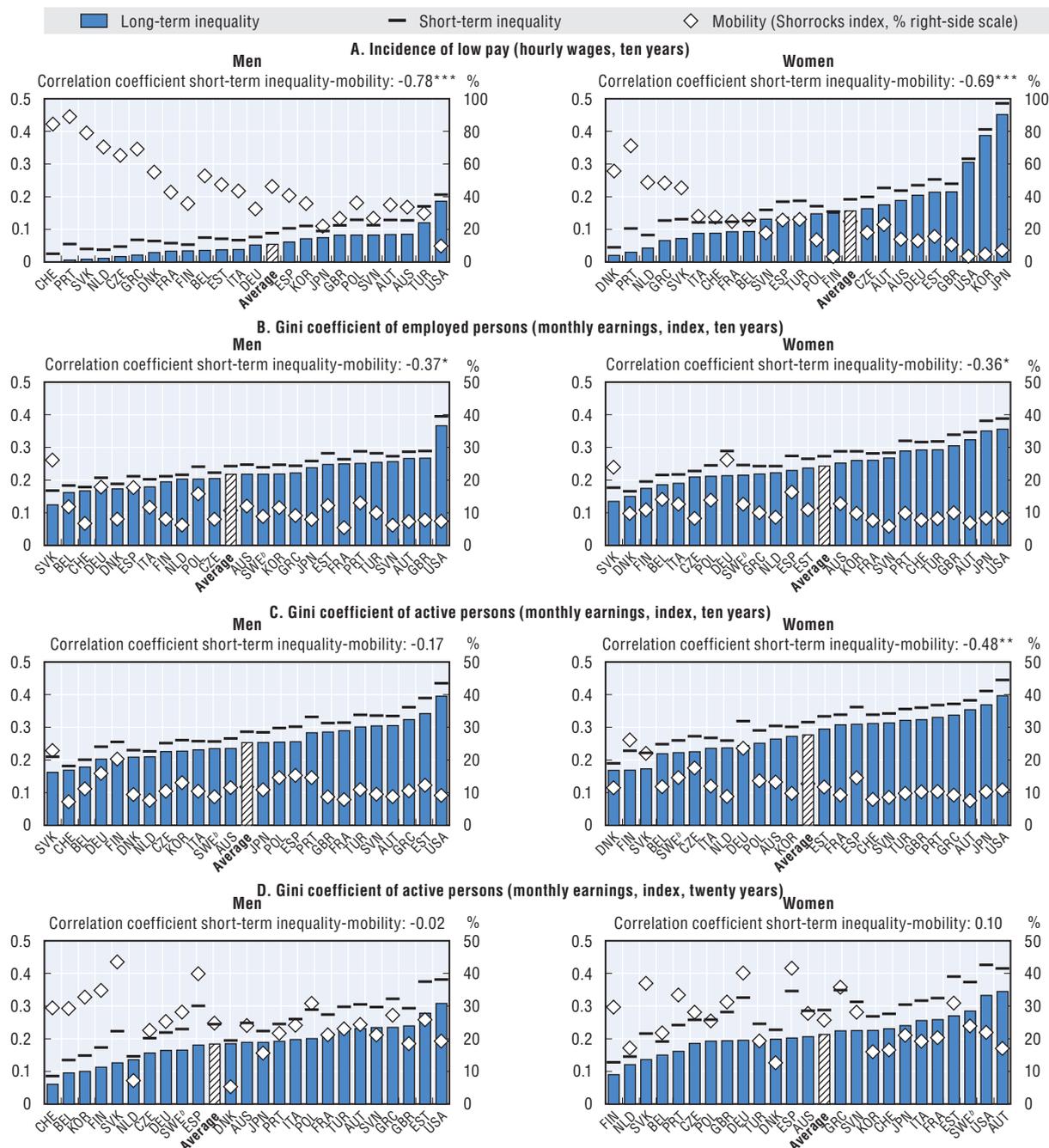
Cross-country comparisons of the degree of mobility have tended to focus on comparisons between the United States and one or more European countries. Such studies

typically have sought to understand to what extent higher short-term earnings inequality in the United States is mitigated by higher earnings mobility or, put differently, to what extent greater short-term inequality creates stronger incentives for mobility and/or greater opportunities for career advancement. However, the expectation that mobility is substantially higher in the United States than in Continental European countries has received mixed empirical support at best. An early study by Burkhauser and Poupore (1997) finds that mobility in the 1980s is higher in Western Germany than in the United States contrary to expectations. Several other studies have either not found any consistent patterns when comparing the United States and five European countries (OECD, 1997) or found that mobility is similarly large in the United States, Scandinavian countries and Germany (Aaberge et al., 2002; Aaberge and Mogstad, 2012). By contrast, Flinn (2002), Bayaz-Ozturk et al. (2012) and Bowlus and Robin (2012) suggest that mobility is more equalising in the United States than in Continental European countries. To an important extent, these mixed findings reflect the sensitivity of the results to differences in the concepts of mobility and inequality used, and the choice of whether to focus on labour earnings or household incomes, as well as numerous comparability issues across datasets and samples (Jäntti and Jenkins, 2015).

The results shown in Figure 4.2 improve upon these earlier findings by providing a comprehensive picture of long-term earnings inequality and the importance of earnings mobility across 24 OECD countries based on a consistent methodology and comparable data. Inequality is measured in terms of the incidence of workers with low hourly wages (i.e. below two-thirds of the median) among continuously employed persons (Panel A), the Gini among continuously employed persons (Panel B) and the Gini among continuously active persons (Panels C and D). Panels A to C focus on simulations over ten year periods, whereas Panel D provides results based on simulations over 20 years. In each panel, the average annual value of each measure of inequality (short-term inequality) is shown along with the corresponding inequality measure for long-term inequality and the degree of mobility. The latter is defined as the percentage reduction in short-term inequality over time as a result of mobility (Shorrocks's mobility index). Analogous results using other measures of inequality are reported in Garnero, Hijzen and Martin (2015). The analysis is conducted separately for men and women. This is important for at least two reasons. Women are more likely to be second earners in households, and hence, tend to make different choices with regards to the nature of the paid work they do and working time. This can have important implications for the assessment of measured inequality and how it affects well-being. Moreover, women are more likely than men to move in and out of the labour force over the course of their working life, while the present analysis assumes that all persons are continuously active in the labour market. The results for the entire workforce are reported in Annex 4.A1, Figure 4.A1.1.¹³ The main findings to emerge are:

- *Long-term inequalities tend to be larger among women than among men.* The difference in the incidence of long-term low pay is particularly striking, with about one in twenty continuously employed men earning less than two-thirds of the median hourly wage in the reference year on average over ten years, compared with almost one in six women.
- *The ranking of countries in terms of long-term inequality is broadly similar to that of short-term inequality.* While the ranking of countries differs somewhat across the three different concepts of inequality used in Panels A to C, Denmark, the Slovak Republic and Switzerland rank consistently among the third of countries with the lowest long-term inequality among men, while Austria, Slovenia, Turkey, the United Kingdom and the United States

Figure 4.2. **Short-term inequality, long-term inequality and mobility across countries**
Based on simulations over ten or twenty years^a



***, **, *: Statistically significant at 1%, 5% and 10% levels, respectively. Average: Unweighted average of countries shown.

a) Simulations refer to individuals aged 15-54 in the reference year in Panels A to C and 15-24 in Panel D (20 to 54 and 20 to 29 for Denmark and Japan). For definitions of the concepts, see the glossary in Box 4.1; for details on the methodology, see Box 4.2 and Garnero, Hijzen and Martin (2015).

b) Results based on annual earnings for Sweden.

Source: OECD calculations based on the European Union Statistics on Income and Living Conditions (EU-SILC) for European Union countries and Turkey; Household, Income and Labour Dynamics (HILDA) for Australia; British Household Panel Survey (BHPS) for the United Kingdom; German Socio-Economic Panel (GSOEP) for Germany; Keio Household Panel Survey (KHPS) for Japan; Korean Labor and Income Panel Study (KLIPS) for Korea; Swiss Household Panel (SHP) for Switzerland; and Survey of Income and Program Participation (SIPP) for the United States.

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consistently rank among the top third of countries with the highest long-term inequality among men. For women, the Czech Republic, Denmark, Italy, the Slovak Republic and Switzerland rank consistently in the bottom third, while Austria, Japan, the United Kingdom and the United States consistently rank among the most unequal countries. Distinguishing between men and women is particularly important for Japan. As emphasised in OECD (2015a), non-standard work is strongly concentrated among women in Japan. As a result, inequality among women is among the highest in the OECD, while inequality for men is much closer to the OECD average. Since women in non-standard jobs in Japan tend to be second-earners in the household the implications of non-standard work for poverty and household inequality tend to be relatively modest (OECD, 2015a).

- *On average across the countries analysed, mobility reduces inequality by about one quarter over the working life.* This can be seen from Panel D, which provides a crude indication of the role of mobility and inequality over the working life by following young persons during the first twenty years of their careers. While these results indicate that short-term inequality contains a sizeable transitory component, it also implies that three quarters of short-term inequality is permanent in nature. Long-term inequality reflects structural differences in earnings which are determined by the structure of labour demand and supply, and the nature of policies and institutions.
- *The correlation between mobility and short-term inequality across countries tends to be weak and depends on the measure of inequality used.* This means that mobility and inequality do not have to go hand in hand and that policies and institutions can give rise to different combinations of mobility and inequality. The correlation between mobility and short-term inequality tends to be negative or insignificant when focusing on inequality measures such as the Gini that emphasise the middle of the distribution (Panels B to D), but tends to be positive when focusing on percentile ratios that place more weight on the tails of the distribution, at least for men (Garnero, Hijzen and Martin, 2015).¹⁴ This may indicate that employment mobility, which tends to be concentrated in the bottom of the distribution, is more important in more unequal countries.

All in all, mobility has an important, albeit partial, equalising effect on inequality in the longer-term, but does not have major implications for cross-country comparisons of inequality. The main reason for this is that the cross-country association between mobility and short-term inequality tends to be weak.

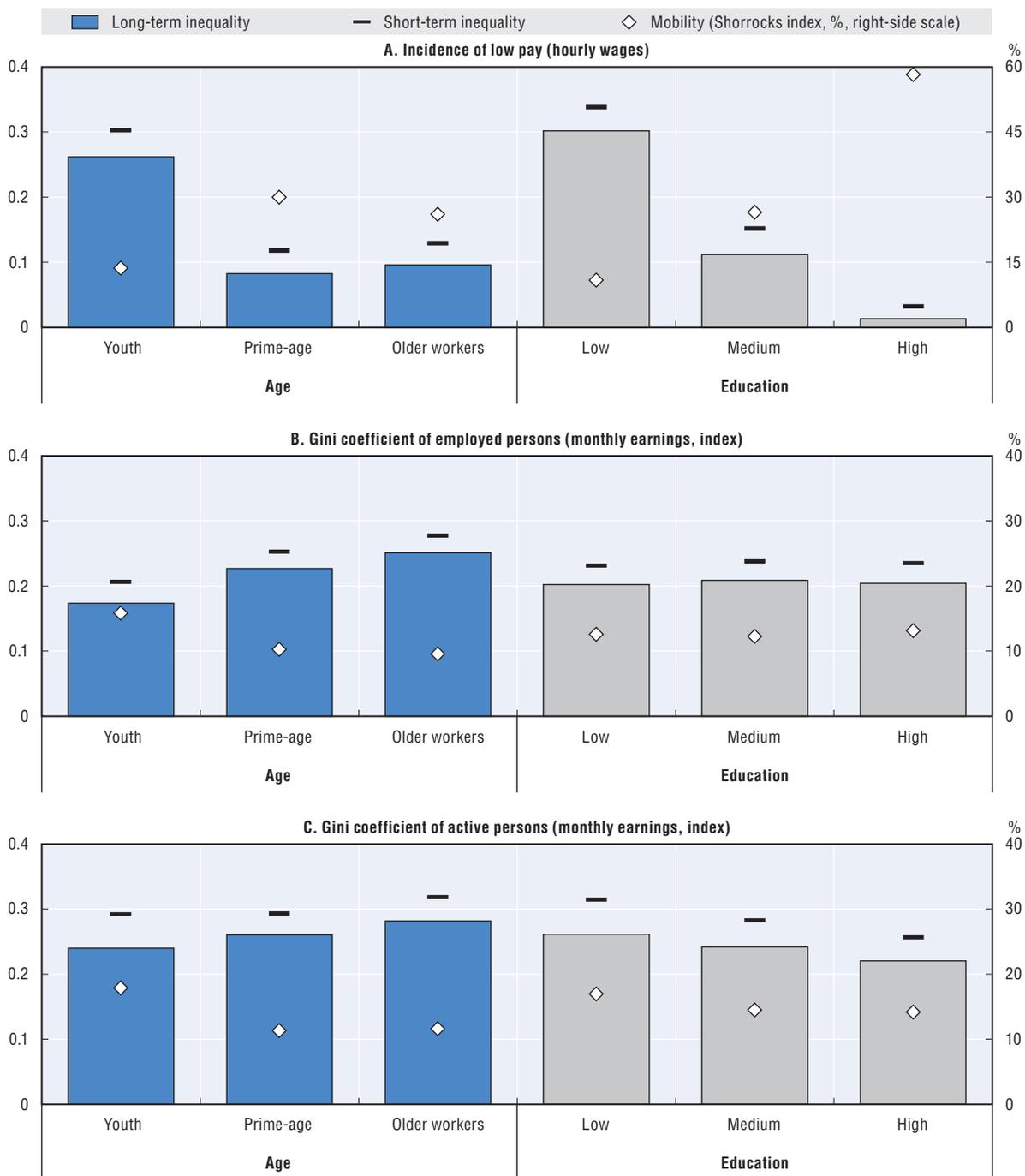
Long-term earnings differentials are disproportionately determined in the first ten years of workers' careers

Taking account of mobility also has implications for the assessment of labour market outcomes of different socio-economic groups. Figure 4.3 documents long-term inequality, short-term inequality and the degree of mobility for different age and education groups. As in the case of Figure 4.1, it focuses on the incidence of low pay among the continuously employed, the Gini among the continuously employed and the Gini among the continuously active.¹⁵

The following patterns emerge:

- *Age.* Long-term earnings inequality is increasing with age, while the equalising effect of mobility is declining with age. This means that a significant part of the increase in long-term inequality with age reflects declining mobility. The equalising effect of mobility on inequality among youth amounts to 16 to 18% on average across countries in

Figure 4.3. **Short-term inequality, long-term inequality and mobility by socio-economic group**
Unweighted average across 22 OECD countries based on simulations over ten years^a



a) Simulations refer to individuals aged 15-54 in the reference year. Youth refers to persons aged 15-24, Prime-age to persons aged 25-44 and older workers to persons aged 45-54 in the reference year. For definitions of the concepts see the glossary in Box 4.1; for details on the methodology see Box 4.2 and Garnero, Hijzen and Martin (2015).

Source: OECD calculations based on the *European Union Statistics on Income and Living Conditions (EU-SILC)* for European Union countries and Turkey; *Household, Income and Labour Dynamics (HILDA)* for Australia; *British Household Panel Survey (BHPS)* for the United Kingdom; *German Socio-Economic Panel (GSOEP)* for Germany; *Korean Labor and Income Panel Study (KLIPS)* for Korea; *Swiss Household Panel (SHP)* for Switzerland; and *Survey of Income and Program Participation (SIPP)* for the United States.

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comparison with 10 to 11% for older age groups. The marked decrease in mobility with age means that life-time earnings differentials are to an important extent determined in the first ten years of one's career. Despite the importance of mobility among youth for reducing overall earnings inequality, it does not much reduce the long-term incidence of low-pay below the short-term incidence for this age group. Youth have a risk of around 25% of being low-paid in the long-term.

- *Education.* Wage mobility is broadly constant across education groups (Panel B) while employment mobility declines (Panel C). The relatively high level of employment mobility among the low skilled reflects their higher risk of unemployment. The incidence of low long-term earnings is highest among those without upper secondary qualifications with almost one in three earning less than two thirds of the median on average over the course of ten years. However, the incidence of low-pay declines to about one in nine with upper secondary qualifications and just one in seventy-five among those with tertiary qualifications.

Garnero, Hijzen and Martin (2015) document in more detail how the importance of earnings mobility evolves over the life course by focusing on the correlation between earnings at point in time and long-term earnings across individuals. Consistent with the discussion above, this correlation strengthens rapidly with age, peaks around 0.9 when people are in their thirties and then remains persistently high until their late fifties. This implies that mobility is concentrated during the first decade of working lives and that the relative earnings position for prime-age workers can be considered representative of their position in the distribution of life-time earnings. The concentration of mobility in the first decade of working lives partly reflects the sorting of workers across high or low paying jobs (see Section 2).¹⁶ The same analysis by level of education suggests that workers with low levels of education show relatively less mobility in the first ten years of their career but relatively more from their thirties onwards. This may reflect lower earnings growth in the early phase of their career followed by relatively low levels of labour market security later on.

Short and long-term inequalities have tended to evolve in tandem

How has earnings mobility evolved in recent decades? Given the considerable data requirements for documenting long-term trends in earnings mobility, the evidence is patchy and limited to only a few countries. In an early study for Norway, Bjorklund (1993) shows that mobility tended to increase slightly between 1951 and 1989 both for men and women. More recent studies for France (Buchinsky et al., 2003), Germany (Bönke et al., 2015), the United Kingdom (Dickens and McKnight, 2008; Jenkins, 2011) and the United States (Buchinsky and Hunt, 1999; Kopczuk et al., 2010; Bradbury, 2011) tend to find that mobility either has declined slightly or remained broadly constant. All in all, it appears that for countries where there is evidence, mobility has tended to be largely stable, particularly in comparison with the strong upward trend in point-in-time earnings inequality that is observed in many OECD countries (OECD, 2013; 2015a). This means that life-time inequalities have tended to evolve in tandem with annual inequalities.

Since the data sources used in this chapter do not allow going back in time very far, it is not possible to provide comprehensive evidence on long-term trends in earnings mobility and long-term inequality on a cross-country basis. A case study approach was therefore taken that focuses instead on the evolution of mobility among youth cohorts from the 1980s to the 2000s in, respectively, Italy and the United States. Results (not shown) based on social security data for Italy reveal an increase in wage mobility for both

men and women. Wage mobility for youth aged between 16 and 25 over the first ten years of their career more than doubled between the late 1980s to the early 2000s. While in the late 1980s mobility tended to flatten out after the first few years of work experience, mobility continues to increase with work experience for much longer in the 2000s. These cohort effects may reflect the role of labour market conditions at labour market entry as well as changes in institutional settings, including those that encouraged an expanded use of fixed-term contracts. New results for the United States, based on a comparison of youth cohorts in the 1980s and 2000s using the *National Longitudinal Survey of Youth*, confirm that earnings mobility has been largely stable overall, consistent with previous studies, but also that earnings mobility has declined for young men and increased for women (see Box 4.3 for more details).

Box 4.3. Earnings mobility and inequality in the United States*

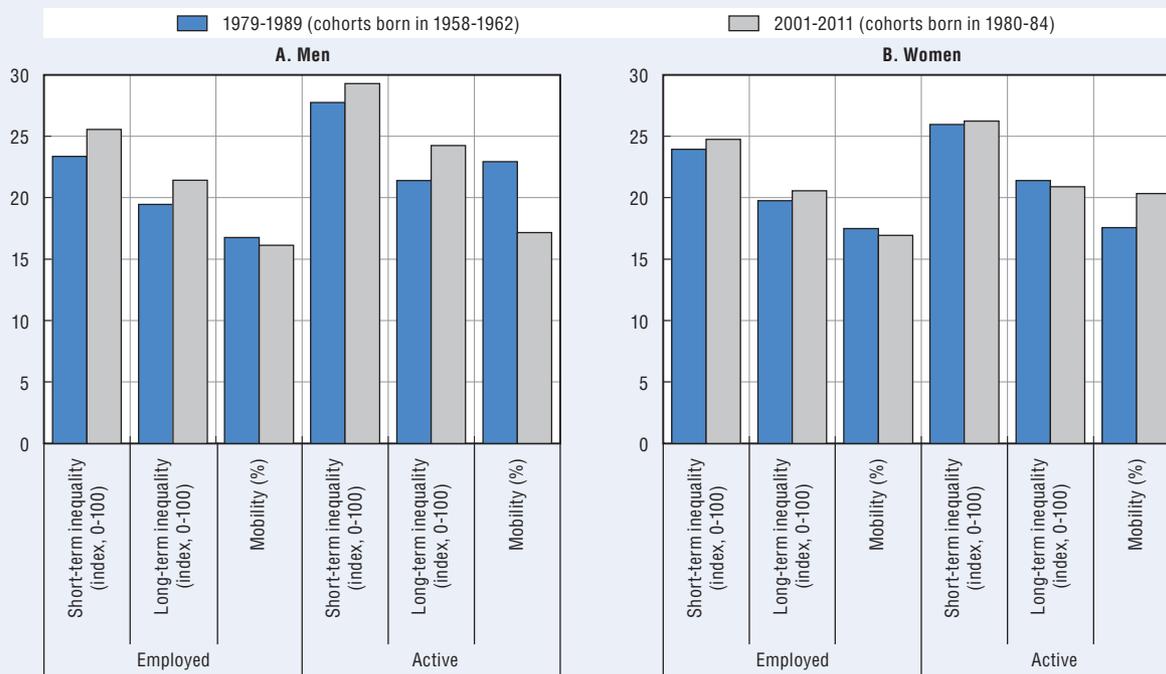
The perception that inequality has deepened and upward mobility has stalled is a prominent issue in the political debate in the United States. While it has been widely documented that earnings inequality has increased since the late 1970s, researchers have come to different conclusions concerning the evolution of mobility. Buchinsky and Hunt (1999) report a decrease in mobility between the late 1970s and the early 1990s. Gottschalk and Moffitt (1994) show that earnings instability (a similar but not equal concept as mobility) in the labour market increased during the late 1970s and early 1980s, but has been stable since. Kopczuk et al. (2010) show that in the United States short-term mobility (mobility over five years) has been largely stable since the 1970s while long-term mobility (over eleven years) has increased only among women as result of their increased labour market attachment. Bradbury (2011) shows that mobility in terms of disposable household income has been broadly stable during the 1970s and declined slightly during the 1980s.

This box presents new evidence on the evolution of inequality and mobility in the United States by focusing on two youth cohorts using data from National Longitudinal Survey of Youth (NLYS). More specifically, it compares earnings inequality and mobility among persons born during 1958-62 over the period 1979-89 using the NLYS79 with that of persons born during 1980-84 over the period 2001-11 using the NLSY97. This means that all persons are aged between 16 and 20 at the start of the observation window. To maximise the size of the sample, both the cross-sectional and the supplemental samples of the NLYS are used. Wages are measured in real terms using the consumer price deflator for the main job only (defined in terms of hours worked). In order to deal with outliers and measurement error, the data are trimmed excluding observations with hourly wages below USD 0.1 and above USD 1 000. The self-employed and individuals in the military are excluded. The analysis is conducted using both the full sample as well as a restricted sample that focuses exclusively on individuals present for the entire ten year period. The customised weights provided by the NLYS are used to ensure representativeness.

The results based on the restricted sample are reported in Figure 4.4 and show that inequality has increased significantly for men in both the short and long-term while for women inequality has increased only slightly or remained stable (results based on the unrestricted sample are qualitatively similar). These different patterns are due to diverging trends in mobility: earnings mobility among young men in the 2000s is significantly lower than that experienced by their counterparts in the 1980s (Panel A): the equalising effect of ten-year mobility among active men declined from 22% in the 1980s to 17% in the 2000s. By contrast, earnings mobility was stable or increased for women (Panel B): the equalising effect of mobility among active women increased from 17% in the 1980s to 20% in the 2000s. These trends are almost entirely driven by changes in employment mobility since wage mobility among continuously employed workers has been broadly stable.

Box 4.3. Earnings mobility and inequality in the United States* (cont.)

Figure 4.4. Short-term inequality, long-term inequality and mobility among recent cohorts of American youth



Source: OECD estimates based on NLSY79 and NLSY97.

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The decline in employment mobility for men is likely to reflect the secular decline in job reallocation and unemployment turnover during the period of the Great Moderation from 1983 to 2007 (Davis et al., 2006). The same pattern is not observed for women due to the offsetting effect of the rise in labour market attachment on employment mobility. Everything else equal, higher labour market attachment is likely to increase the importance of movements between employment and unemployment at the expense of movements between employment and inactivity and, hence, to increase the degree of employment mobility.

* This box was prepared in collaboration with Tugba Zeydanli.

2. What types of careers are associated with low long-term earnings?

This section uses the simulation approach that was introduced in the previous section to shed light on the determinants of long-term earnings. It does this by providing descriptive evidence on the characteristics of careers that are associated with different levels of long-term earnings, placing particular emphasis on identifying factors that increase the risk of low long-term earnings. The analysis first concentrates on the role of unemployment. The impacts of a wide variety of worker, job and firm characteristics on long-term outcomes are then considered. This is done by combining the simulated earnings and employment trajectories with information from the actual data in the reference year. Towards the end of the section, the role of experience and job mobility for earnings growth over the life course is briefly discussed.

Unemployment spells are highly concentrated

How much time do workers with low long-term earnings spend in unemployment? More generally, how does the amount of time spent in unemployment vary over the distribution of long-term earnings? Figure 4.5 makes use of the simulations to address these questions. Panel A documents the cumulative incidence of unemployment over ten years for workers in the bottom, middle and top thirds of the distribution of long-term earnings, showing these figures separately for men and women. Panel C provides a direct measure of the concentration of the total time spent in unemployment on the subset of workers with low long-term earnings.

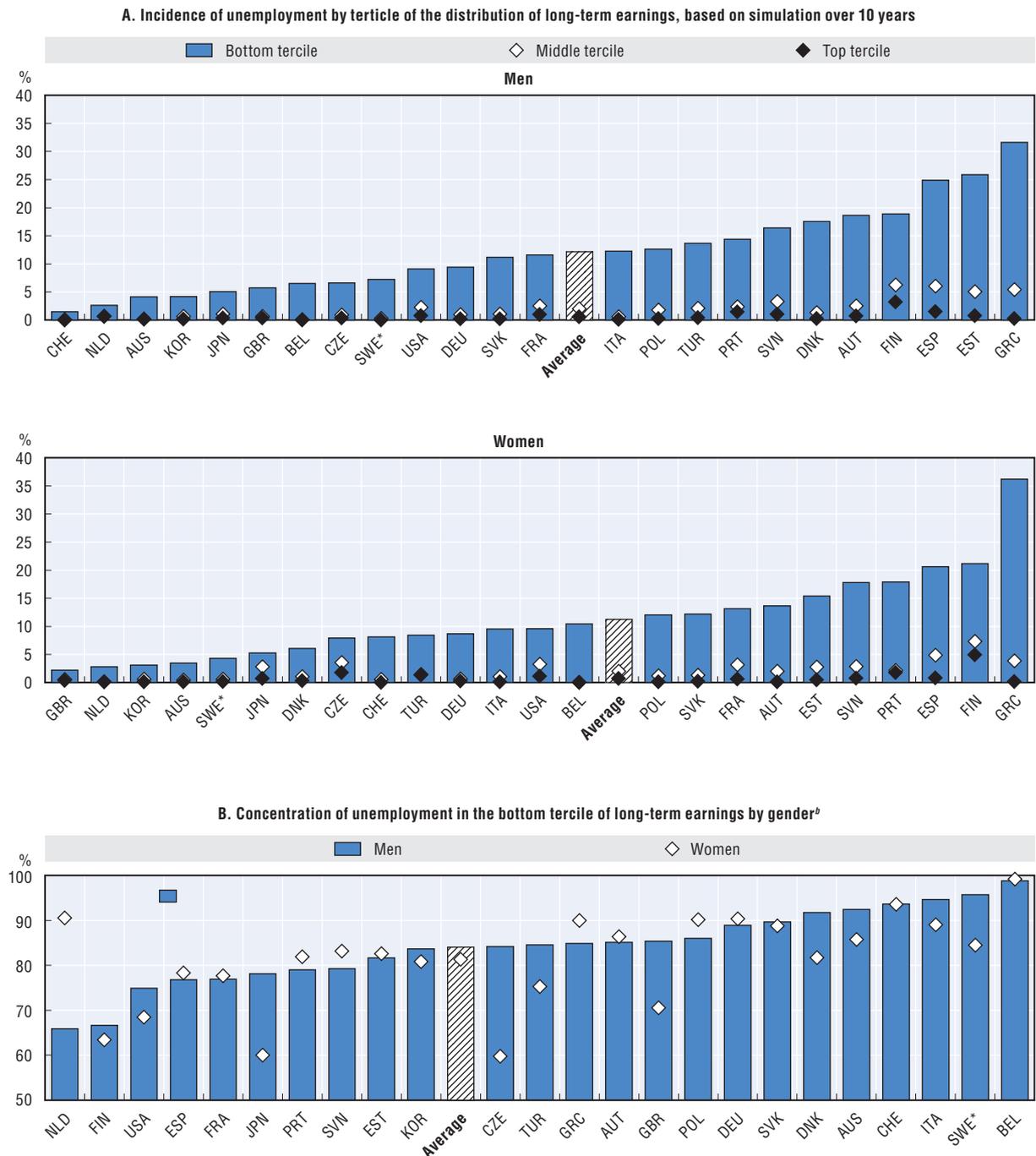
- On average across the countries analysed, workers in the bottom third of the long-term earnings distribution spend about 14 out of 120 months in unemployment, while those in the middle and top thirds of the distribution spend on average two and one months in unemployment, respectively. The results are similar for men and women, but vary considerably across countries. The exposure of workers with low long-term earnings to unemployment is highest in Greece, Estonia and Spain, where it exceeds two years of joblessness. All of these countries were hit particularly hard by the global financial crisis.
- On average across OECD countries, workers who are in the bottom third of the distribution of long-term earnings account for more than 80% of all unemployment. This means that unemployment is a major determinant of low long-term earnings. While this may seem obvious since individuals are classified according to their *ex post* earnings, there is considerable cross-country variation in the degree of concentration of unemployment along the distribution of long-term earnings. The concentration of unemployment in the bottom tercile is lowest in Finland, the Netherlands and the United States and highest in Belgium, Sweden and Italy.¹⁷

In general, the concentration of unemployment along the distribution of long-term earnings is likely to be greater in countries where average spells of unemployment are relatively long or where repeat spells of unemployment are common. The importance of long unemployment spells in explaining low long-term earnings suggests that activation policies should give particular attention to those at risk of long-term unemployment. The importance of repeat unemployment suggests that activation policies should also go beyond helping the unemployed back into work by focusing on placing jobseekers into stable good quality jobs, as much as possible. The design of effective activation policies is discussed in detail in Chapter 3 of this publication. The marked concentration of unemployment in the bottom range of the distribution of long-term earnings also highlights the importance of social protection schemes that allow for at least some income redistribution across the workforce and the risks of relying excessively on individual saving accounts for the purposes of providing insurance to labour market risks. Currently, Chile is the only OECD country with a dual system of unemployment insurance that combines mandatory individual savings accounts with a public redistributive component for those with insufficient savings.

Poor skills, atypical work and working in a low productivity firm all hinder career progress

Since the simulations are based on a rather parsimonious statistical model that takes account of only a few factors affecting earnings outcomes, they provide limited information about the determinants of long-term earnings. The roles of age, gender and education can be assessed, but the basic simulations do not allow going beyond that to take account of other individual characteristics, or those of the job or the firm.¹⁸ To go further and provide a more

Figure 4.5. **The incidence and concentration of unemployment in relation to long-term earnings**
Based on simulations over ten years^a



* Results based on annual earnings.

- a) Simulations refer to individuals aged 15 to 54 in the reference year (20 to 54 for Denmark and Japan). For definitions of the concepts see the glossary in Box 4.1; for details on the simulation methodology, see Box 4.2 and Garnero, Hijzen and Martin (2015).
- b) Concentration is defined as the share of total unemployment over ten years that accrues to workers in the bottom tertile of the long-term earnings distribution.

Source: OECD calculations based on the European Union Statistics on Income and Living Conditions (EU-SILC) for European Union countries and Turkey; Household, Income and Labour Dynamics (HILDA) for Australia; British Household Panel Survey (BHPS) for the United Kingdom; German Socio-Economic Panel (GSOEP) for Germany; Keio Household Panel Survey (KHPS) for Japan; Korean Labor and Income Panel Study (KLIPS) for Korea; Swiss Household Panel (SHP) for Switzerland; and Survey of Income and Program Participation (SIPP) for the United States.

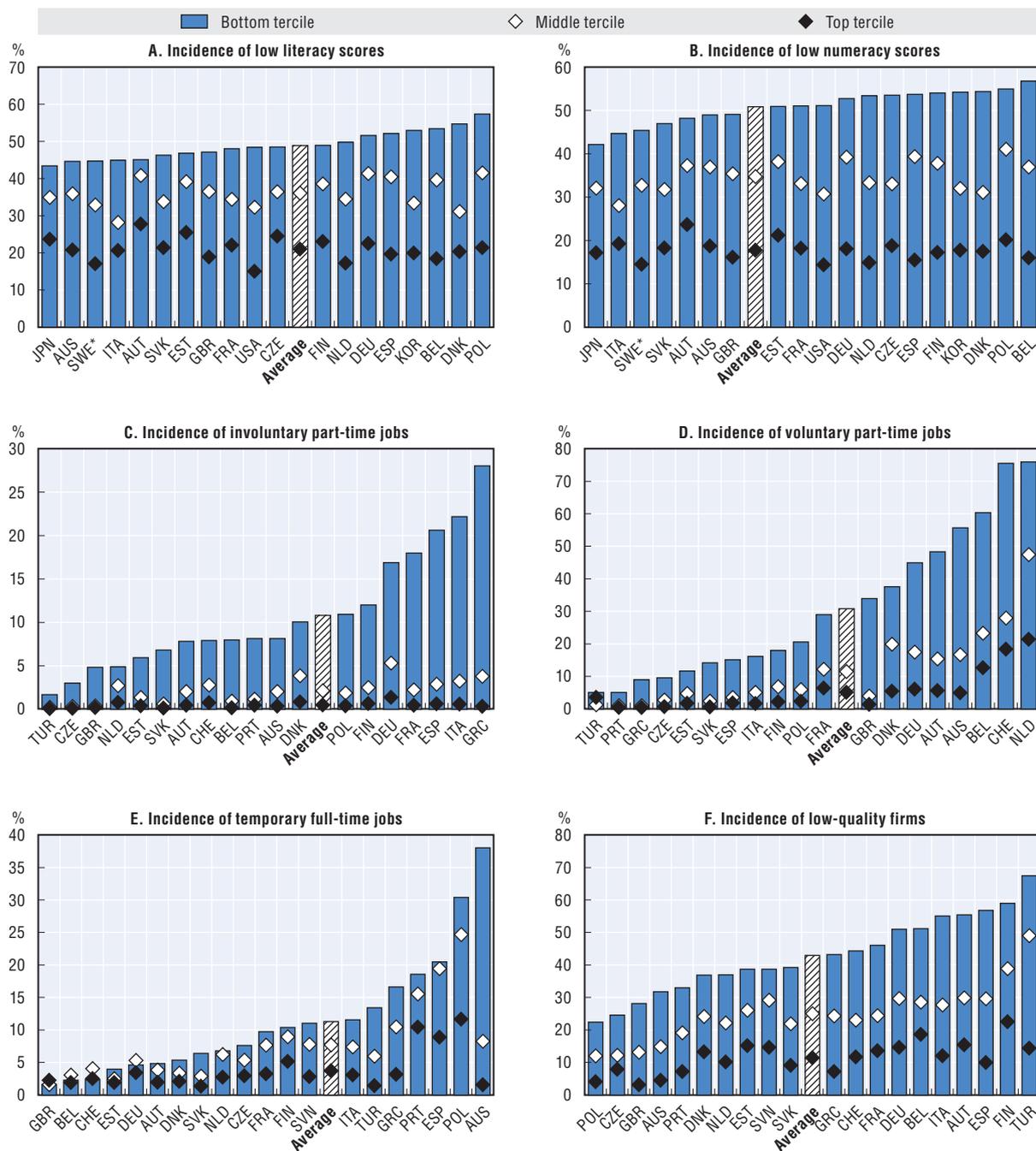
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detailed description of the workforce groups and career trajectories that are associated with low long-term earnings, the simulated dataset of individual earnings and employment trajectories is complemented with information from the actual data in the reference year for individuals with the same characteristics in terms of gender, age and education, employment status and their position in the distribution of earnings. Since the economic environment is held constant in the simulations to that in the reference year, adding information from the actual data in that same year is fully consistent with the simulation set-up, although it also means that the results discussed below are more sensitive to the choice of the reference year than other results presented in the chapter. The main value of this method is that it provides an indication of how the prevalence of certain worker, job and firm attributes varies with career quality – measured as before by cumulative earnings over a ten year period – rather than job quality at a point in time.¹⁹

Using this approach, Figure 4.6 summarises the association between long-term earnings among continuously employed workers and the following determinants of earnings potential: i) *worker* characteristics in the form of weak cognitive skills, ii) *job* characteristics in the form of non-standard work arrangements including the incidence of voluntary part-time, the incidence of involuntary part-time and the incidence of full-time workers with a temporary contract, and iii) *firm* characteristics as measured by the average wage paid by firms across detailed industry and size classes. The analysis mainly serves to highlight the role of these factors in determining structural earnings inequalities, but can also be used to provide an indication of differences in their relative importance in the short and long-term as a result of mobility (not reported). The following results emerge:

- *Cognitive skills.* In order to get an idea of the importance of worker ability for long-term outcomes, the analysis goes beyond formal educational qualifications and focuses instead on the incidence of low cognitive skills as measured in the *OECD Adult Skills Survey* (see the Programme for the International Assessment of Adult Skills, PIAAC, 2013).²⁰ For the present purposes, low cognitive skills are defined in relative terms by the bottom tercile of the distribution of literacy and numeracy skills within each worker's country of residence. The results show a strong association in all countries between adult skills along both dimensions and long-term earnings (Panels A and B). This is consistent with the finding in Hanushek et al. (2013) that cognitive skills are major determinants of long-term earnings.²¹ Since cognitive skills do not depend on mobility, essentially the same results would be obtained when focusing on the distribution of earnings within a given year. If anything, the association between cognitive skills and inequality is even stronger in the longer term due to the role of mobility in evening out temporary differences in earnings. Improving adult competencies should clearly be an essential component of any policy package that seeks to improve the long-term earnings potential of workers with a weak earnings potential.
- *Part-time work.* Part-time work is a major correlate of low long-term earnings. On average across countries, workers with low long-term earnings spend about 40% of their time in part-time work when employed. The role of part-time largely reflects working time, while hourly wages generally tend to be similar to their full-time counterparts (OECD, 2015a). In order to appreciate the policy implications of the association between part-time work and low long-term earnings, it is crucial to differentiate between part-time work for personal and economic reasons, i.e. between voluntary and involuntary part-time work. Doing so suggests that about three-quarters of the overall incidence of part-time work among low long-term earners represents part-time for personal reasons,

Figure 4.6. **The association between worker, job and firm characteristics and long-term earnings**
Average incidence by tertile of the distribution of long-term earnings and country (%)



* Results based on annual earnings.

Note: Simulations refer to individuals aged 15 to 54 in the reference year (20 to 54 for Denmark and Japan). For details on the simulation methodology see Box 4.2 and Garner, Hijzen and Martin (2015).

Source: OECD calculations based on the *European Union Statistics on Income and Living Conditions (EU-SILC)* for European Union countries and Turkey; *Household, Income and Labour Dynamics (HILDA)* for Australia; *British Household Panel Survey (BHPS)* for the United Kingdom; *German Socio-Economic Panel (GSOEP)* for Germany; *Keio Household Panel Survey (KHPS)* for Japan; *Korean Labor and Income Panel Study (KLIPS)* for Korea; *Swiss Household Panel (SHP)* for Switzerland; and *Survey of Income and Program Participation (SIPP)* for the United States.

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while the remainder corresponds to workers indicating that they would like to work more hours (Panels C and D).²² Only in three countries does the incidence of part-time for economic reasons dominate. These are Greece, Portugal and Spain. The main policy concern with respect to part-time for personal reasons is to assure that the taxes-and-benefits system does not discourage working longer hours, while that with respect to part-time for economic reasons is to assure adequate overall labour demand.

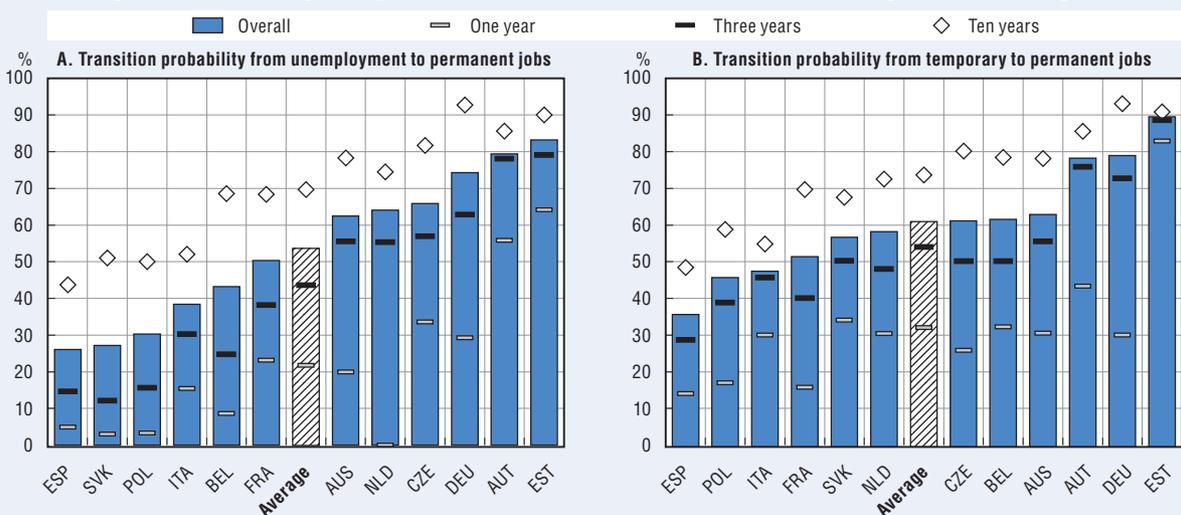
- *Temporary work.* On average across countries, workers with low long-term earnings spend 11% of their time in a temporary contract when employed, compared with 8% for workers in the middle tercile of long-term earnings and 4% for workers in the top tercile (Panel E). The concentration of temporary employment among the low paid in the long-term (not shown) is lowest in Belgium, Germany, Switzerland and the United Kingdom where temporary work tends to be evenly distributed across the workforce in the long-term. The concentration of temporary contracts in the bottom of the distribution is greatest in Australia, Greece, Italy, the Slovak Republic and Turkey. Apart from Australia, where the concept of casual work is rather different from that of temporary work in the other countries, the labour markets in these countries are characterised by a strong degree of contractual segmentation (OECD, 2014, Chapter 4). The concentration of temporary workers in the bottom range of the distribution of long-term earnings is likely to reflect the wage penalty associated with temporary work, weaker earnings growth and lower job stability (OECD, 2015a). The importance of temporary work for long-term earnings highlights the importance of providing balanced employment protection provisions across contract types (OECD, 2014, Chapter 4). The role of temporary contracts for worker careers in the long-term is discussed in more detail in Box 4.4.
- *Firm quality.* Firm quality is proxied by the average firm-level wages within finely defined industry and firm-size groups.²³ A worker is considered to work for a good (low) quality firm if he or she works for a firm in an industry and firm-size group in the top (bottom) tercile of the average wage distribution.²⁴ Panel F shows that workers with low long-term earnings work overwhelmingly for low quality firms, while they have only a small probability of working for a high paying firm. Firm quality thus has a tendency to compound the effects of skills as workers with weak skills tend to end up in firms which offer low wages which, in addition, often provide limited opportunities for learning or upward mobility. This “assortative matching” between firms and workers in the labour market is typically considered to be good for labour market efficiency, but also reinforces labour market inequalities (see Box 4.5). Improving job quality in the context of low-wage firms is a major challenge for policy makers. Policies to raise workforce skill levels may be able to play a role, since it has been argued that firm quality will improve as worker quality improves because the composition of firms adjusts endogenously as a function of the effective cost of labour and capital in a globalised world. Other policies may also have a role to play since firms often have a choice between different production and management methods and the choice between them is likely to depend on incentives. Policy makers can act on these incentives by promoting competition in markets for goods and services, a better business environment that stimulates investment and innovation, and indeed, through the use of subsidies or tax credits for low-wage workers (OECD, 2010; OECD, 2015b).

Box 4.4. The long-term effects of temporary contracts

This box analyses the long-term consequences of temporary work for individual workers. While for some workers, starting off from a low quality job represents a point of entry to better paid work (Booth et al., 2002; D’Addio and Rosholm, 2005; Ichino et al., 2008; OECD, 2015a), for others, it represents an impediment for career advancement (Zijl et al., 2011; Autor and Houseman, 2010). The analysis proceeds in two steps. In a first step, a series of dynamic multinomial logit models is estimated for each country that characterise the probability of transiting between different employment states (unemployment, temporary work and permanent work) as a function of gender, education, potential experience and its state in the previous period. In a second step, the predictions of the model are used to construct labour market trajectories for a “typical” worker based on the composition of the sample in terms of employment status, gender and education. Despite efforts to compare as much as possible like-with-like by controlling for the role of various worker characteristics, the results presented here – like those in most of the existing literature – are best interpreted in a descriptive sense as it is very difficult to satisfactorily address the problem selection bias in the current setting. Figure 4.7 summarises the results for a “typical” new labour market entrant (after spending one year in the labour force).

Figure 4.7. **Transition probabilities from unemployment and temporary work to permanent work**

Transition probabilities after spending one year in the labour force by number of years of potential work experience (%)



Source: OECD estimates based on the European Union Statistics on Income and Living Conditions (EU-SILC). To ensure reliable estimates of transition probabilities, country coverage is restricted to countries for which at least 5 000 observations are available in the data.

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The estimation results imply that:

- Having a temporary job is associated with a large persistent negative effect on the probability of having an open-ended contract in the future (Panel B). On average across countries, a person starting out in a temporary job has a much lower probability of having a permanent job after one or three years than a person who starts with an open-ended contract, but a similar probability of having a permanent job after ten years (results for those initially on open-ended contracts not shown). This confirms previous findings in OECD (2014, Chapter 4) that temporary work is rather persistent over the medium term, but also suggests that the effect of temporary work effectively disappears in the long-term.
- Despite the persistent negative effects of temporary work for future careers, in many cases, temporary contracts still provide a useful bridge between unemployment and stable work. This can be seen by comparing the probability of being in a permanent job conditional on being unemployed initially (Panel A) with the probability of having a permanent job conditional on having a temporary job initially (Panel B). The results suggest that in the large majority of countries starting off with a temporary job rather than staying unemployed is associated with a higher probability of having a permanent job than waiting to get a permanent job directly.

Box 4.4. The long-term effects of temporary contracts (cont.)

While having a temporary job rather than being unemployed and look for a permanent job tends to help a worker's career in the long-term *given the existing structure of employment* in terms of unemployment, temporary work and permanent work, this does not mean that having more temporary jobs in the economy also enhances long-term worker outcomes. The question here is whether temporary jobs promote access to permanent jobs and reduce unemployment by alleviating frictions in the labour market or whether they come at the expense of permanent jobs, thereby reducing job stability, lowering productivity and increasing frictional unemployment (e.g. when they are used as a buffer to adverse demand shocks). Garcia-Perez et al. (2014) analyse the impact of the liberalisation of the use of temporary contracts in Spain in 1984. They find that this reduced job stability and increased non-employment spells among the low-skilled, resulting in lower life-time earnings. The case of Spain, therefore, suggests that making fixed-term contracts more readily available can reduce welfare when temporary contracts become a substitute for permanent employment.

Promoting continued learning and efficient job mobility

The analysis so far suggests two ways for workers and policy makers to improve long-term career outcomes. First, long-term outcomes can be improved by investing in skills and competences. This can be achieved by gaining valuable work experience or by taking part in effective training or education programmes. Second, job mobility can also promote career advancement to the extent that workers move into jobs that better use or reward their skills (see also Chapter 2 of this publication).²⁵ Job mobility may take the form of movements between firms (i.e. sorting), but it can also take place within firms (i.e. conversions and promotions).²⁶ The role that job mobility between firms plays in earnings growth is analysed in more detail in Box 4.5 using social security data for Germany and Italy.

Box 4.5. Job mobility, inequality and matching efficiency

Much of the interest in job quality is based on the premise that it matters not just who you are but also who you are working for. But what do we know about the role of firms in determining worker wages? Figure 4.8 sheds some light on this question by focusing on an event study analysis that makes use of administrative data with linked employer-employee records for Germany (Western part only) and Italy. The analysis focuses on workers who change employers between $t = -1$ and $t = 0$ and follows them for four years from $t = -2$ to $t = 1$. Workers are classified by quartile of average co-worker wages in the old employer and the new one. The figure documents the evolution of average wages of workers who leave an employer in either the bottom or the top quartile of average co-worker wages (low and high-quality firms respectively). It shows that workers who move to a lower-quality employer see their average earnings fall, while workers who move to a higher-quality employer see their wages rise. Gains and losses are approximately symmetric in both countries. This suggests that the role of worker composition in determining the variation in wages across firms is quite limited. If the variation in wages across establishments were due to worker composition only then job mobility would not be associated with systematic wage changes. Contrary to that view, Figure 4.8 suggests that who you work for is an important determinant of how well you are paid.

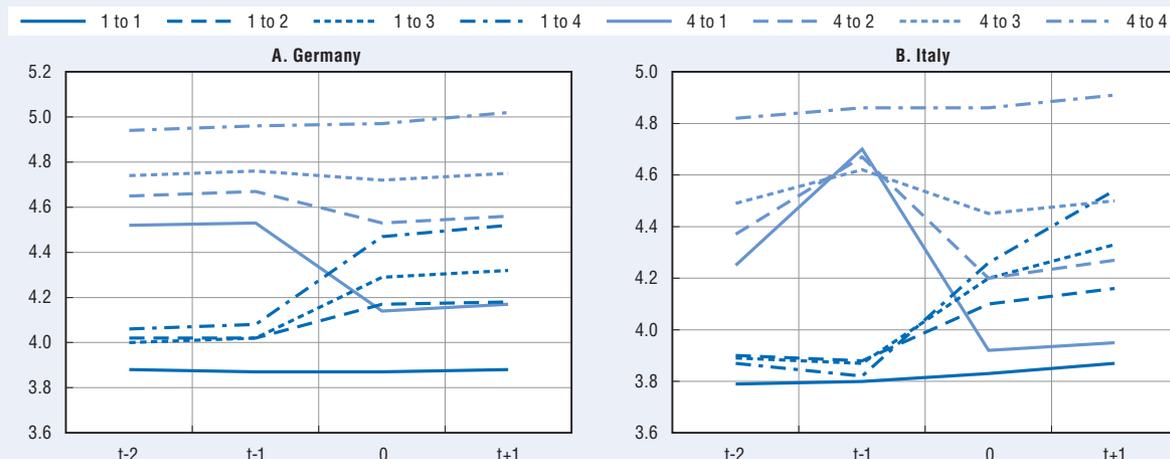
A number of studies have attempted to provide a more comprehensive assessment of the relative importance of firm and worker characteristics for wage determination. While the precise method differs somewhat across studies, they typically find that worker effects dominate in explaining the variation of individual wages. Using administrative data for France, Abowd, Kramarz and Margolis (1999) find that firms account for about 20% of the variation in individual wages, while Torres et al. (2013) using similar data for

Box 4.5. Job mobility, inequality and matching efficiency (cont.)

Portugal find that firm characteristics account for almost 30% of the variation in individual wages, job characteristics for about 10% and worker characteristics for the remainder.

Figure 4.8. Who you work for influences how well you are paid

Mean log wage of male full-time job changers by quartile of mean co-workers wages at origin and destination firms, 2002-09



Note: The figures show mean log wages of male full-time workers observed in 2002-09 who change employer in 2004-07 and have been working for the same employer in two years preceding and following the change. An employer job is classified into quartiles based on mean wage of co-workers (quartiles are based on all full time workers in the same year).

Source: Card, D., J. Heining and P. Kline (2013), "Workplace Heterogeneity and the Rise of West German Wage Inequality", *Quarterly Journal of Economics*, Vol. 128, No. 3, pp. 967-1015, for Germany; OECD's calculations based on data from the Istituto Nazionale della Previdenza Sociale for Italy.

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A number of studies have further shown that differences in average pay across firms may help to explain pay differences across socio-economic groups and the evolution of earnings inequality. For example, Cardoso et al. (2012) suggests that one fifth of the gender pay gap in Portugal is due to segregation across firms and another fifth due to segregation across jobs. Card et al. (2013) and Barth et al. (2014) show for Western Germany and the United States, respectively, that the dispersion in average pay across firms has increased over time. Barth et al. (2014) show that this is major factor behind the increase in inequality in the United States since the late 1970s, particularly in the top of the distribution.

To the extent that there are complementarities in production between firms and workers, the allocation of workers across firms will have implications for productivity and economic efficiency. Economic theory suggests that if labour markets are efficient, more productive workers will tend to match with good firms. Indeed, several recent studies have found evidence of positive assortative matching including Card et al. (2013) for Germany, Torres et al. (2013) for Portugal, Bartolucci and Devicienti (2013) for Italy and Woodcock (2011) for the United States. Card et al. (2013) further show that the degree of positive assortative matching has increased over time in Germany and accounts for a substantial part of the observed increase in earnings inequality. This "assortative matching" between firms and workers creates an important trade-off: it raises overall labour market efficiency, but also reinforces labour inequalities.

Assessing the relative importance of human capital and job mobility for worker careers is of great interest to economists and policy makers, but is difficult in practice because of the endogeneity of job mobility. Despite a great number of high-quality studies no clear consensus has emerged [see Rubinstein and Weiss (2006) for an overview], with

some papers suggesting that human capital dominates (Altonji et al., 2013), while others emphasise the role of job mobility (Topel and Ward, 1992). Moreover, much of the literature focuses on the United States and it is quite likely that the relative importance of human capital and sorting depends on the nature of policies and institutions. For example, the effectiveness of job mobility for earnings growth is likely to be lower in countries with strongly segmented labour markets, while the incentives for investing in skills may be more limited in countries with compressed wage structures.

3. Policies to promote rewarding and secure careers

This section builds upon the analysis above to explore the role that some key labour market policies can play in promoting rewarding and secure careers. It focuses on unemployment benefits which provide security to workers by endowing unemployed workers with an income and the minimum wage which provides insurance against the risk of low pay by placing a floor on the level of pay.

The role of unemployment benefits in reducing labour market risk and long-term inequality

This sub-section first quantifies the impact of existing unemployment benefit systems in reducing labour market risk, as measured by the degree of earnings volatility, and long-term earnings inequality. As in the previous sections, the analysis focuses on *effective* insurance by taking account of both benefit coverage and its generosity. The impacts of potential reforms to the unemployment benefit system are then analysed. Impacts on both labour market risk (earnings volatility) and inequality are considered, taking account of the dual role of unemployment benefits for consumption smoothing and redistribution.

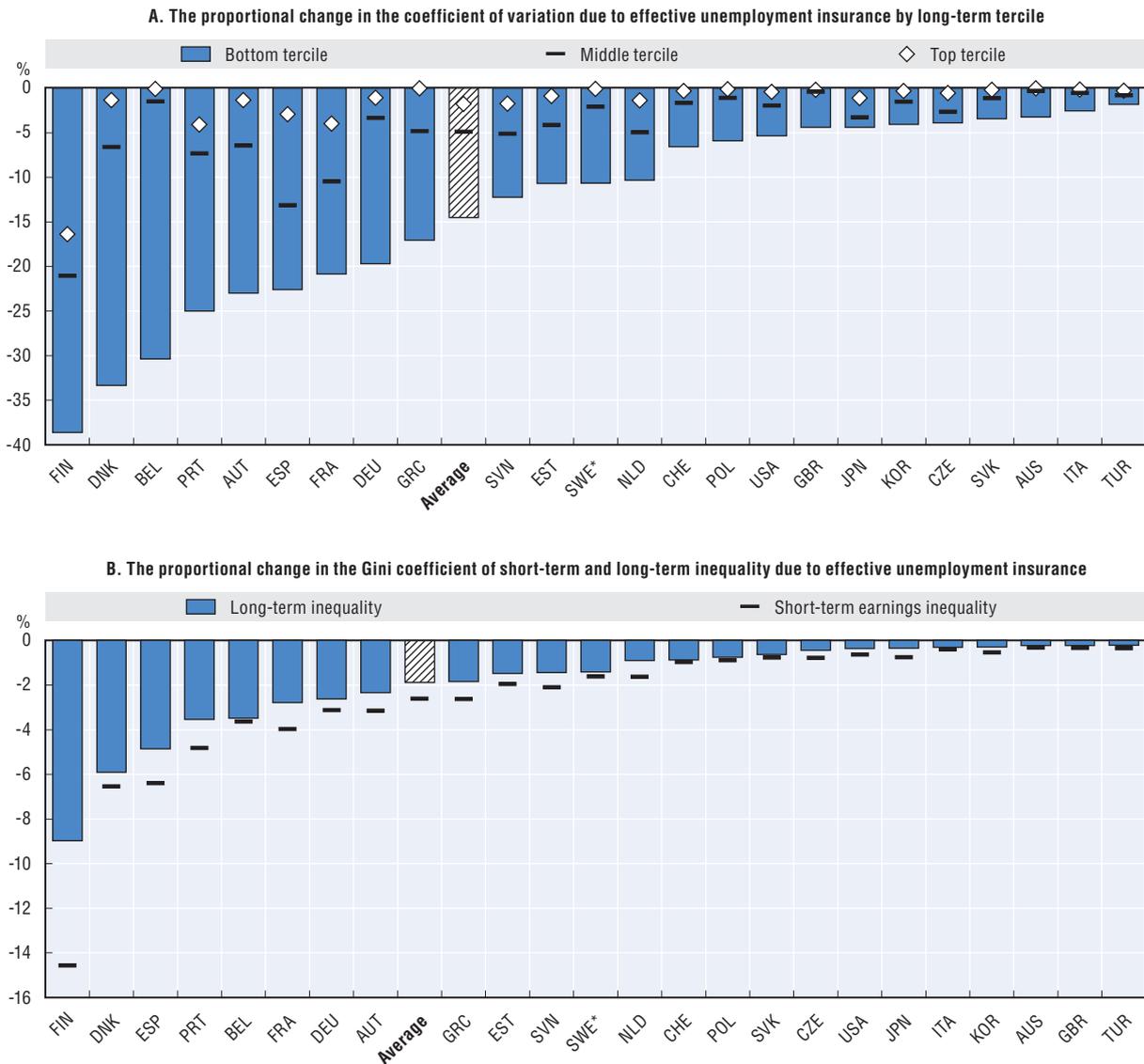
Effective unemployment insurance reduces earnings risk and, to a lesser extent, long-term inequality

The estimated impact of effective unemployment insurance on risk and inequality is documented in Figure 4.9. Panel A compares the reduction in risk (or earnings volatility) across terciles of the long-term earnings distribution associated with unemployment benefits where risk is measured by the coefficient of variation of individual earnings. The impact of unemployment insurance is identified by focusing on the proportional difference in earnings volatility in the actual situation – when the unemployed receive unemployment benefits if eligible – and a counterfactual setting in the absence of insurance (zero benefits). Panel B makes use of a similar comparison to quantify the impact of unemployment benefits in lowering earnings inequality, in both the short and the long-term. The figure shows the proportional reduction in equality, as measured by the Gini coefficient, due to unemployment insurance. Note that these figures provide an indication of the role of unemployment benefits in an accounting sense, but do not provide reliable information about their causal impact since the unemployment rate and the structure of wages are taken as given. This limitation will be partially addressed in the analysis of alternative policy scenarios below. The figure provides the following insights:

- The degree of *labour market risk* – as measured by the volatility of earnings – differs significantly across the distribution of long-term earnings, with risk being higher in the bottom tercile of long-term earnings in all countries (result not shown). This likely reflects the greater importance of unemployment risk at the bottom of the distribution, consistent with Figure 4.5. Consequently, it is not surprising to see that the reduction in risk associated

Figure 4.9. **The impact of effective unemployment insurance on labour market risk and long-term inequality**

Based on simulations over ten years for continuously active persons^a



* Results based on annual earnings.

a) Simulations refer to individuals aged 15 to 54 in the reference year (20 to 54 for Denmark and Japan). For details on the methodology, see Box 4.2 and Garnero, Hijzen and Martin (2015).

Source: OECD calculations based on the *European Union Statistics on Income and Living Conditions (EU-SILC)* for European Union countries and Turkey; *Household, Income and Labour Dynamics (HILDA)* for Australia; *British Household Panel Survey (BHPS)* for the United Kingdom; *German Socio-Economic Panel (GSOEP)* for Germany; *Keio Household Panel Survey (KHPS)* for Japan; *Korean Labor and Income Panel Study (KLIPS)* for Korea; *Swiss Household Panel (SHP)* for Switzerland; and *Survey of Income and Program Participation (SIPP)* for the United States.

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with unemployment benefits is concentrated at the bottom of the distribution of long-term earnings. On average across countries, unemployment benefits reduce earnings volatility risk by about 15% in the bottom tercile, 5% in the middle tercile and 2% in the top tercile. The degree to which unemployment insurance offsets earnings fluctuations – resulting both from wage and employment risk – differs importantly across countries. In Austria, Belgium, Denmark, France, Finland, Portugal and Spain, unemployment insurance reduces earnings

fluctuations by more than 10% on average (across terciles), and by more than 20% in the bottom tercile. By contrast, in Australia, Italy, Korea, Slovak Republic, the United Kingdom and Turkey, it reduces it by less than 2% on average.

- Due to the concentration of unemployment at the bottom of the earnings distribution, unemployment insurance reduces *inequality* in all countries in both the short and longer-term. However, its long-run impact is reduced by about a third to around 2% due to the equalising role of employment mobility, whereas the short-term impact is closer to 3%. The extent to which insurance reduces inequality differs importantly across countries, depending on the risk of unemployment and the effectiveness of unemployment insurance. In Finland and Denmark, unemployment insurance reduces long-term inequality by over 5%. By contrast, in countries such as Australia, Czech Republic, Italy, Japan, Korea, Turkey, the United Kingdom and the United States, its impact on long-term inequality is negligible (less than 0.5%). This reflects, in part, the limited concentration of unemployment in the lower range of the distribution of long-term earnings (see Figure 4.5), the limited generosity of unemployment benefits in countries such as Korea and the United States, and the possibility that coverage is limited to workers in generally well-paid and stable jobs in countries such as Italy and Turkey.²⁷

In order to provide a complete assessment of the role of unemployment insurance for social welfare, the analysis would need to be extended further. Account should be taken of the way unemployment insurance is financed, its indirect effects on unemployment and wages and the role of social assistance in providing income support to unemployed persons who are not eligible to unemployment benefits. Furthermore, potentially strong assumptions would need to be made with regard to the behaviour of workers and the nature of individual and social preferences. While such an analysis is not pursued here, the much larger proportional impact of insurance on earnings risk than on earnings inequality nevertheless provides some indication that the positive impact of unemployment insurance on social welfare predominantly reflects its contribution to consumption smoothing, rather than to redistribution.²⁸

Increasing UI coverage can be a promising avenue for promoting worker security, particularly in countries where benefit generosity is modest

Which UI reforms would be most effective in securing worker careers and limiting long-term inequality? In order to shed light on this issue, the following policy scenarios are considered: i) increasing benefit coverage to 100% for all unemployed workers; ii) increasing coverage to 100% during the first year of unemployment; iii) increasing the generosity of benefits to the level in Denmark, the country with the highest initial replacement rate among the countries analysed. Increasing coverage to 100% would mean making all newly unemployed persons eligible for unemployment benefits, including those who do not meet existing minimum contribution requirements, and extending the maximum duration of unemployment benefits. Limiting the increase in coverage to the first year of unemployment in most countries means focusing on expanding initial eligibility only, which is particularly an issue for youth. More targeted interventions may be of interest in their own right since they require fewer resources. Comparing more and less targeted measures also provides some further insight into how UI affects different labour market outcomes.

When considering the role of reforms for risk and inequality in the long-term, it is important to take account of the behavioural responses of firms and workers to the

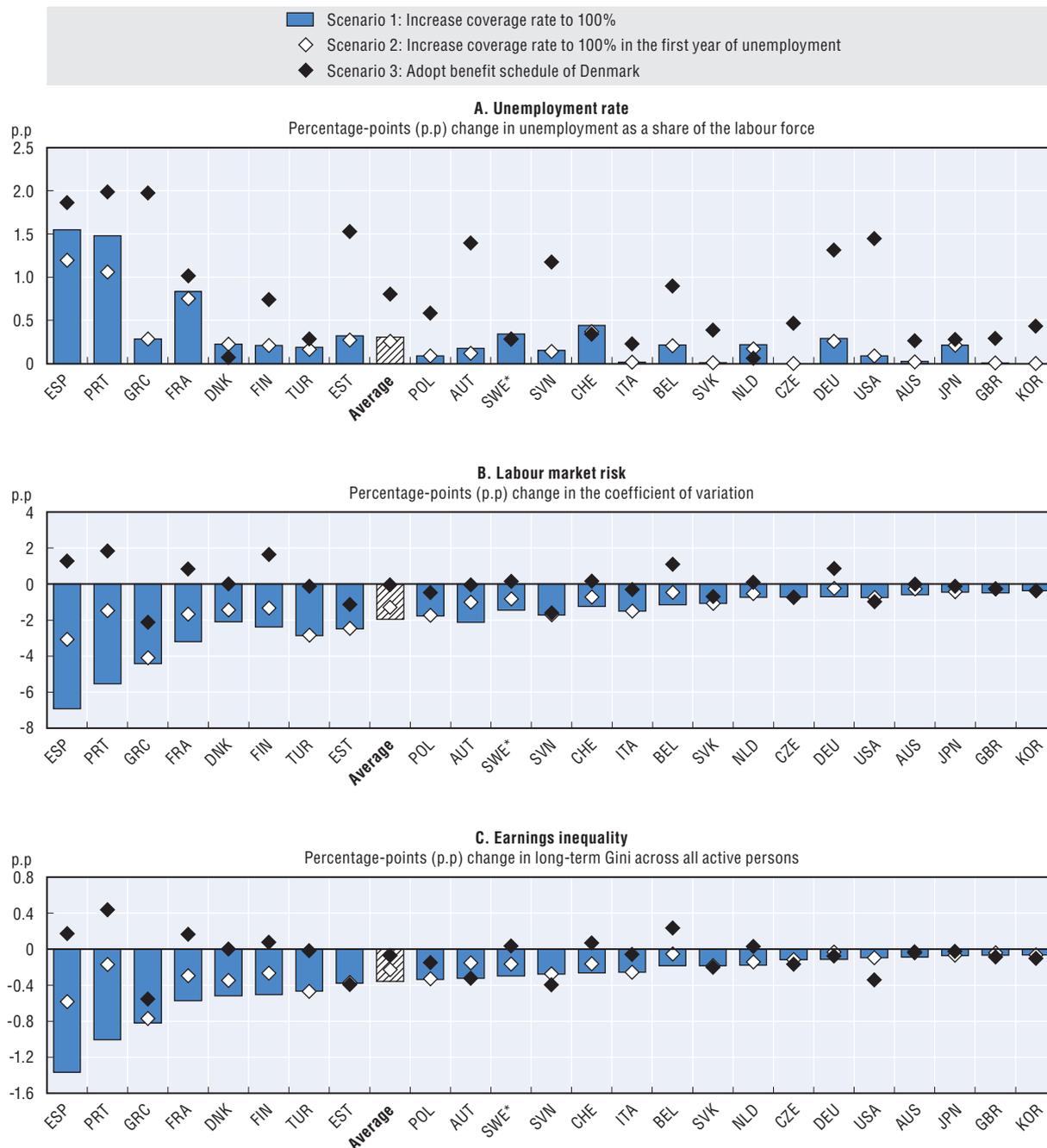
resulting changes in incentives and their potential implications for unemployment and the structure of wages. Doing so in a fully comprehensive way would require the estimation of a fully-fledged structural model, which is well beyond the scope of this chapter. However, it is possible to take account of these effects in the simulations to a limited extent by modelling the impact of unemployment benefits on the unemployment outflow rate by assuming that unemployment benefits create a reservation wage (i.e. the lowest wage at which a worker is willing to work), so that unemployed persons refuse job offers with wages below the level of their benefits (Feldstein and Poterba, 1984). This assumption implies that more generous unemployment benefits will have a tendency to increase the duration of unemployment in line with much of the empirical literature. However, in this case, the increase in unemployment only comes about through the impact of more generous unemployment insurance in lowering the acceptance rate of job offers: unemployed workers who would have returned to work in the absence of a more generous unemployment insurance system remain unemployed if the level of unemployment benefits exceeds that of the wage they would receive in their new job. The potential effect of unemployment insurance in lowering the intensity of job search is not taken into account, even though it may also be important. As in the analysis of the minimum wage in the next sub-section, reservation wages are imposed in the baseline scenario without allowing for an unemployment response.

Figure 4.10 displays the percentage-point changes in unemployment, labour market risk and overall inequality implied by each of the three policy scenarios considered. The following results emerge:

- Increasing the *coverage* rate reduces labour market risk and long-term inequality in all countries, but increases unemployment or leaves it unchanged. Explaining country differences is not easy as the size of the effects depends on the existing unemployment insurance system, in terms of its coverage and generosity, but also on the level of unemployment and the structure of earnings. Nevertheless, benefit generosity appears to be particularly important. The adverse unemployment effect of an increase in coverage is negligible in countries with relatively low replacement rates, while it tends to be relatively large in countries with relatively generous unemployment benefits, such as Spain and Portugal. Increasing coverage only during the first year of unemployment yields smaller effects, particularly in countries with a high incidence of long-term unemployment and a relatively short maximum duration of unemployment benefits.
- Replacing the existing *benefit schedule* with that of Denmark increases unemployment in all countries, and in some countries significantly, while it tends to reduce labour market risk and long-term inequality, albeit not in all countries.²⁹ The most likely explanation for the somewhat mixed picture with respect to risk and inequality is that replacement rates for unemployment insurance and assistance in Denmark are lower for persons with unemployment durations beyond two years (the maximum duration of unemployment insurance). When unemployed persons in Denmark exhaust their unemployment insurance benefits they fall back onto unemployment assistance which is much less generous and potentially less so than the applicable replacement rate in other OECD countries. In principle, this can offset the risk and inequality-reducing effects of more generous benefits in the first two years of unemployment. This is most likely when pre-reform benefits are generous and long-lasting and when the incidence of long-term unemployment is relatively high.

Figure 4.10. **The impact of unemployment benefit coverage and generosity on unemployment, labour market risk and earnings inequality**

Percentage-points change in unemployment, risk and inequality of different policy scenarios relative to the current situation



* Results based on annual earnings.

Note: Countries are ordered by ascending order of the percentage change in earnings inequality for Scenario 1 (Panel C).

Based on simulations over ten years for individuals aged 15 to 54 in the reference year (20 to 54 for Denmark and Japan).

Source: OECD calculations based on the *European Union Statistics on Income and Living Conditions (EU-SILC)* for European Union countries and Turkey; *Household, Income and Labour Dynamics (HILDA)* for Australia; *British Household Panel (BHPS)* for the United Kingdom; *German Socio-Economic Panel (GSOEP)* for Germany; *Keio Household Panel Survey (KHPS)* for Japan; *Korean Labor and Income Panel Study (KLIPS)* for Korea; *Swiss Household Panel (SHP)* for Switzerland; and *Survey of Income and Program Participation (SIPP)* for the United States.

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While it is not possible to say anything about the welfare effect of a particular reform option by looking at its simulated effects in isolation, it is possible to get a sense of their relative welfare effects by comparing different reform options. This suggests that increasing unemployment benefit coverage tends to be more promising than adopting the benefit schedule as it exists in Denmark in 2010. Increasing coverage tends to entail smaller costs in terms of increased unemployment but larger gains in terms of reduced labour market risk and long-term inequality. The balance of costs of benefits tends to deteriorate the more generous the existing benefit schedule is. This suggests that expanding coverage may be a particularly promising reform option in countries where the generosity of unemployment benefits is modest.

The role of statutory minimum wages in the context of mobility

The impact of minimum wages on long-term earnings is a priori ambiguous due to its potentially adverse impact on employment

While there is a large literature on the inequality-reducing effects of minimum wages in the short term,³⁰ there is hardly any research on their role in the longer-term. Two notable exceptions are provided by Carrington and Fallick (2001) and Neumark and Nizalova (2007). Both studies argue that the impact of the minimum wage on long-term outcomes could go either way. Lower cumulative earnings may result from increased non-employment as a result of the minimum wage or reduced incentives for education and training as a result of the increased opportunity cost. Higher cumulative earnings may result from the direct effect of the minimum wage in raising earnings and increased incentives for education and training when the minimum wage raises the productivity threshold for employment. Neumark and Nizalova (2007) find that in the United States the negative effects outweigh the potential positive effects in the long-run.

This sub-section contributes to the literature on the long-term effects of minimum wages by simulating its effects on labour market risk (earnings volatility), earnings inequality in the long-term as well as for unemployment. The analysis focuses on the potential impact of introducing a new minimum wage where none exists or of increasing a pre-existing minimum to a higher level. It considers different policy scenarios in which the new (or boosted) minimum wage equals, respectively, 50% of the median wage and 60% of the median.³¹ Importantly, this is done while preserving the country-specific age-profiles of the minimum wage (see Chapter 1 of this publication, particularly Table 1.1, for an overview of the current levels and design of statutory minimum wages in OECD countries).

The set-up of the simulations differs from those presented thus far in the chapter in two respects. *First*, the simulations focus on hourly instead of monthly earnings, consistent with the focus of minimum wages on hourly rates. *Second*, the baseline scenario takes account of the existence of the statutory minimum wage as of 2010, including any differences by age group. Consequently, any hourly wage observations below the applicable minimum wage for the corresponding age group have been replaced by the minimum wage. This implies that the analysis abstracts from any exemptions to the minimum wages related to specific sectors, occupations or worker types, as well as non-compliance in the case of undeclared work or unpaid overtime. Garnero, Kampelmann and Rycx (2015), however, show that these two factors account for a non-negligible share of the workforce being paid less than the applicable minimum wage in practice.³² These slight differences in the set-up mean that the results for the baseline scenario are not directly comparable with the results discussed elsewhere in the chapter.

Each of the policy scenarios is considered in combination with three behavioural settings, which differ in terms of the assumed responsiveness of labour demand to changes in wages: i) no labour demand effects – labour demand is perfectly inelastic (i.e. labour demand elasticity equals zero); ii) weak labour demand effects – labour demand is inelastic with an elasticity of -0.5, close to the ballpark figure suggested by Hamermesh (1993); and iii) strong labour demand effects – labour demand is unit elastic (i.e. equals -1).³³ It is important to note that these elasticities are applied at the margin, i.e. they are only applied to individuals with predicted hourly wages below the minimum wage. A labour demand elasticity of -0.5 implies that a person with a predicted wage of 5% below the minimum wage has a probability of becoming unemployed of 2.5%. Assuming that a newly introduced minimum wage is binding for 5% of workers with a 5% wage gap, this means that the new minimum wage increases the unemployment rate by about 0.1% ($2.5 * 0.05$). Since the labour demand elasticities in the simulations only apply at the margin these are conceptually different from the employment elasticities that are typically cited in the minimum wage literature (Neumark et al., 2015). Those elasticities are averaged across persons for whom the minimum wage is binding as well as those for whom it is not and thus tend to be smaller than the relevant elasticity of labour demand among workers for whom the minimum wage is binding.

The analysis also assumes that the minimum wage does not affect labour supply. While such effects may be important in practice, particularly for women (Bredemeier and Juessen, 2012) or in labour markets where firms have significant market power over their workers (i.e. where there is a “monopsony”, see Manning, 2003), they are not examined here.³⁴ The minimum wage is also assumed not to affect wages above the minimum wage floor which means that any possible “ripple” effects are ignored. Ripple effects may be particularly relevant in the presence of collective bargaining when minimum wages can serve as a base rate for further negotiations. Some ripple effects are reported in France, whereas they are weaker in the United States and practically absent in the United Kingdom.³⁵

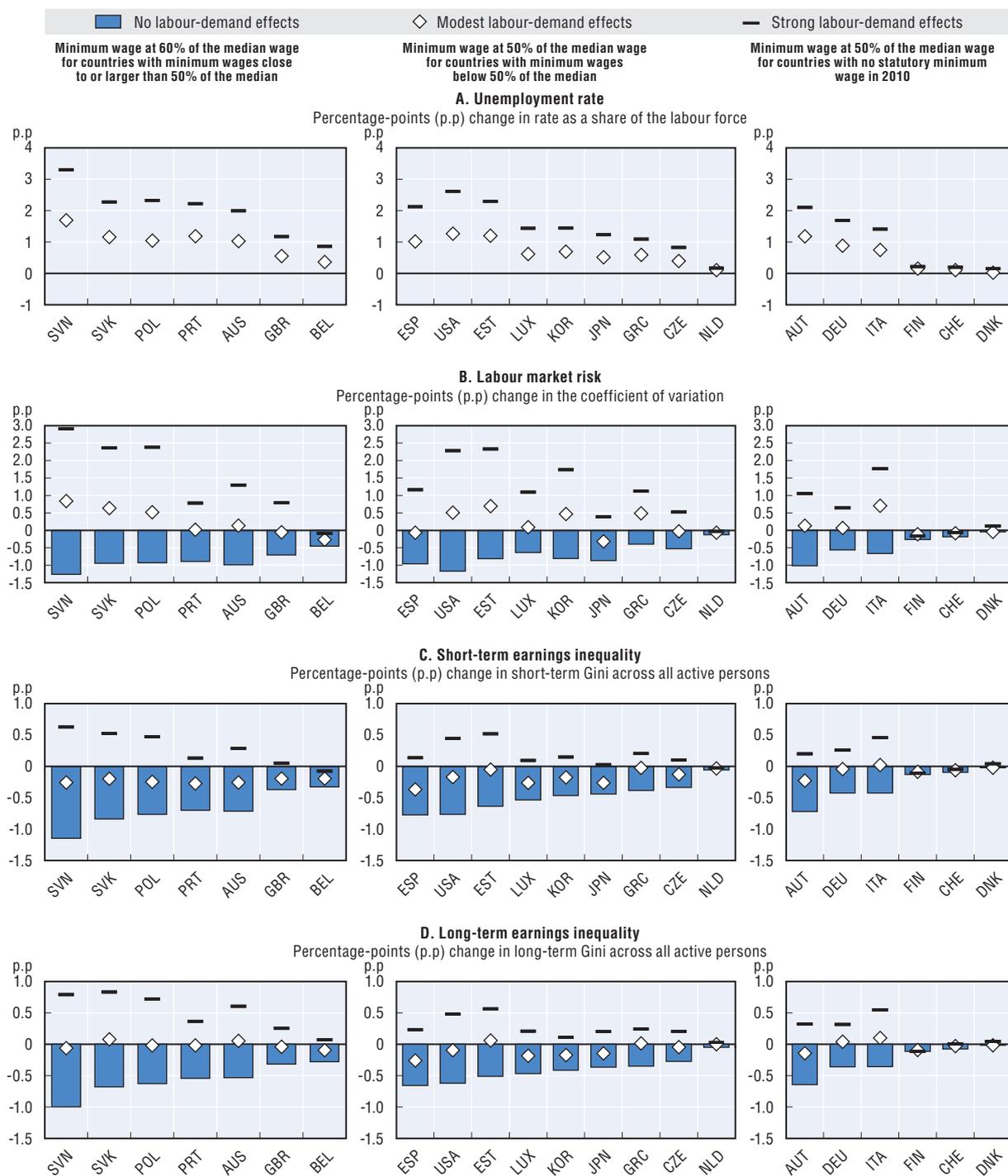
Finally, the analysis does not consider other potential channels of adjustment. As discussed in greater detail in Chapter 1, employers may respond to minimum wage increases in ways other than cutting employment. For instance, they may cut down on training or other overhead costs, as well as on non-wage benefits, or reduce the wage bill by reducing working hours or hiring some workers on more flexible contracts. Finally, employers may accept lower profits, increase prices or take measures to increase productivity (Hirsch et al., 2013; Riley and Rosazza Bondibene, 2015).

Mobility mitigates the impact of the minimum wage on long-term inequality

Figure 4.11 reports the results of these simulations showing how different scenarios for increasing an existing minimum wage or introducing a new one would affect unemployment, labour market risk and long-term inequality under different behavioural assumptions (no, weak or strong labour demand effects). Three groups of countries are distinguished: i) countries that have a minimum wage above or close to 50% but below 60% of the median; ii) countries that have a minimum wage lower than 50% of the median; and iii) countries that have no statutory minimum wage as of 2010. For the first group of countries, the simulation exercise considers an increase in the minimum wage to 60% of the median wage, the level in France. For the second group of countries, it focuses on an increase in the minimum wage to 50% of the median, the average level in the OECD. For the third group of countries, it focuses on the introduction of a new minimum wage at 50% of

Figure 4.11. The impact of the minimum wage on unemployment, risk and inequality

Percentage-points change in unemployment, risk and inequality due the introduction of a minimum wage or an increase in it relative to the baseline under different assumptions about the labour-demand response^a



Note: Countries are ordered by ascending order of the percentage change in earnings inequality for scenario 1 (Panel D).

a) Based on simulations over ten years for individuals aged 15 to 54 in the reference year (aged 20-54 for Denmark and Japan) for countries without a minimum wage or a minimum wage below 60% of the median.

Source: OECD calculations based on the *European Union Statistics on Income and Living Conditions (EU-SILC)* for European Union countries; *Household, Income and Labour Dynamics (HILDA)* for Australia; *British Household Panel Survey (BHPS)* for the United Kingdom; *German Socio-Economic Panel (GSOEP)* for Germany; *Keio Household Panel Survey (KHPS)* for Japan; *Korean Labor and Income Panel Study (KLIPS)* for Korea; *Swiss Household Panel (SHP)* for Switzerland; and *Survey of Income and Program Participation (SIPP)* for the United States.

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the median. By construction, no workers will be paid less than these thresholds once a binding wage floor is set, unless age exemptions are present and binding. The simulations suggest the following conclusions:

- *Raising the minimum wage to a moderate level may increase unemployment, but only to a limited extent (Panel A).* When assuming weak labour demand effects (e.g. a labour demand elasticity of -0.5) the increase in the unemployment rate is usually around 1 percentage point or less except in Slovenia, Estonia and the United States where it is larger. Assuming a stronger responsiveness of labour demand to labour costs increases the estimated impact of the minimum wage on unemployment, while a smaller one reduces it. Since a higher minimum wage increases the gap to the threshold and the number of persons exposed to it one would expect the unemployment effect to increase disproportionately with the level of the minimum wage, if adverse labour demand effects are present. This highlights the importance of setting the minimum wage at a level that is not excessively high.
- *The minimum wage may reduce labour market risk, provided that any adverse unemployment effects are small (Panel B).* A minimum wage fixes a floor to hourly wages and therefore limits the risk of “extreme” low pay. Hence, it can help smoothing earnings of workers over the life course by effectively insuring workers against the risk of extreme low pay. The results indicate that in the absence of unemployment effects labour market risk is reduced by about 1 percentage point in most countries, except in countries where the current minimum wage (either legislated or negotiated in collective agreements) is already close to the simulated value (e.g. the Netherlands, Finland, Switzerland and Denmark). The beneficial impact of the minimum wage on worker security is reduced or even reversed in the context of adverse unemployment effects. The adverse unemployment effect that results in the context of weak labour demand effects approximately offsets the beneficial impact of the minimum wage on labour market risk. In the context of strong labour demand effects, the unemployment effect is likely to dominate.
- *The impact of the minimum wage on overall inequality in the long-term tends to be modest due to the equalising effect of mobility (Panels C and D).* In the short-term, the net effect of the minimum wage on inequality (i.e. considering both the increase in wages and the potential increase in unemployment) as measured by the Gini index is negative and substantial, even in the presence of weak labour demand effects (Panel C). In the long-term, the impact of the minimum wage on inequality is reduced by the equalising effect of mobility but remains significant in the absence of adverse labour demand effects (Panel D). The impact is stronger in countries such as Poland, Slovak Republic, Slovenia, Spain and the United States, where the wage distribution tends to be more dispersed, while the impact is negligible in Austria, Denmark or Finland, where negotiated minimum wages by the social partners already tend to be close to 50% of the median and collective bargaining coverage is high. Once account is taken of the potentially adverse effect of minimum wages on employment, the impact on long-term inequality is considerably reduced but either remains negative or becomes negligible. In the context of strong labour demand effects, minimum wages increase long-term inequalities.

All in all, the impact of the minimum wage on long-term labour market outcomes is modest compared to its impact on short-term outcomes. As discussed in Chapter 1, in many countries, just ensuring full coverage (with the exception of age exemptions) and full compliance to the current system would already represent an improvement in terms of

lower inequalities and lower labour market risk. The impact on unemployment is subject to considerable uncertainty but can be potentially large for specific groups, particularly when the minimum wage is relatively high. Unemployment benefits can help to offset some of the adverse effects of increased unemployment on the distribution of earnings, even if they do not help improve the employment prospects of those who have lost their job as a result of the minimum wage. The simulations, however, at best provide a partial picture of the effects of minimum wage reforms as they do not take account of ripple and labour supply effects or other channels of adjustment.

Conclusions

The main contribution of this chapter is to propose a dynamic framework for assessing and measuring the quality of working lives and apply it to a large number of OECD countries. The framework focuses on the material aspects of work by concentrating on the cumulative sum of earnings in the long term. Importantly, the concept of the quality of working lives in this chapter combines elements of job quality (earnings and labour market security) with job quantity (unemployment and working time).

The main value of taking a long-term perspective is that workers' earnings mobility can be taken into account. Mobility is defined in terms of movements between employment and unemployment (employment mobility) and movements between different segments of the earnings distribution (wage mobility). The latter reflects both job mobility as well as wage changes for workers staying in the same job. The chapter shows that mobility has important implications for inequality by smoothing out the earnings dispersion across workers over time. On average across countries, mobility has an equalising effect of up to one quarter over a life time. If anything, mobility tends to be higher in countries with lower levels of inequality, which means that higher mobility and higher inequality do not have to go hand in hand. Mobility is much higher for young workers than for older age groups, which implies that life-time earnings differentials are to an important extent determined in the early years of workers' careers.

Taking account of earnings mobility has potentially important implications for the assessment of labour market performance and the role of policies and institutions. More specifically, the dynamic approach as implemented in this chapter raises three major challenges for policy makers.

- *How to promote rewarding careers and limit long-term earnings inequality?* The level and structure of long-term earnings are determined by the quality and composition of skills (labour supply), the quality and composition of jobs (labour demand), as well as the nature of labour market policies and institutions. Skills matter not only because of their role in determining the level and structure of wages (cf. Chapter 2 of this publication) but also through their impact on having a job and the prospects for career advancement. By allowing workers to move easily between jobs and adapt to changing circumstances at work, skills can also prevent getting stuck in a dead-end job. The chapter further shows that the minimum wage reduces the risk of experiencing extreme low pay at a point in time, but also that its impact on long-term earnings is muted due to the equalising effect of mobility and by any adverse employment effects. The impact of the minimum wage may be more pervasive in the context of strong collective bargaining by influencing wage-setting at all levels of the earnings ladder and, possibly, also more persistent by increasing the predictability of earnings-experience profiles.

- *How to make workers' careers more secure?* Labour market security is determined by the interplay of employment protection, unemployment compensation systems and active labour market policies. Unemployment is both a key determinant of low long-term earnings as well as earnings risk (i.e. volatility) over the life-course. The chapter shows that effective unemployment insurance plays a major role in mitigating earnings fluctuations due to employment mobility. It also suggests that expanding benefit coverage can be a promising way of promoting greater labour market security, particularly in the context of modest benefit generosity. Activation policies have a complementary key role to play in mitigating the risk of long-term unemployment by facilitating transitions from unemployment back into work (cf. Chapter 3 of this publication). Particular attention should be given to those at risk of long-term unemployment given its adverse impact on life-time earnings. However, to avoid creating a vicious circle between repeat spells of unemployment and precarious work, activation policies should go beyond job placement, *per se*, by also focusing on the creation of stable job matches. Temporary contracts can provide a bridge to work, but also can be a source of insecurity, and, if used as a substitute to open-ended contracts, even become an obstacle to finding good-quality jobs. This can be avoided by having balanced employment protection provisions with different types of contracts (OECD, 2014, Chapter 4).
- *How to promote good firms?* The chapter has shown that “who you work for” is a very important determinant of long-term earnings. Even relatively low-skilled workers who switch from a “low-quality” to a “high-quality” firm enjoy a wage premium. In addition to offering higher wages, good firms also tend to invest more in training and skill upgrading and to provide a better working environment. A comprehensive approach to improving the quality of working lives must therefore place a high priority on creating a business environment in which productive and innovative firms can thrive. This includes promoting effective corporate governance, investment and innovation, and well-functioning product, labour and capital markets.

Notes

1. This chapter represents a follow-up to the analysis of job quality that was published as Chapter 3 of the *OECD Employment Outlook 2014* (referred to as OECD, 2014, Chapter 3, henceforth). The 2014 chapter provided a framework for measuring and assessing job quality along three key dimensions, namely, earnings quality, labour market security and the quality of the working environment. The approach adopted in 2014 was largely static, as it focuses on the quality of employment at a given point in time. This chapter extends important components of that framework to assess the quality of working lives. Like the initial chapter, the present one and Chapter 5 in this publication have been produced with the financial and substantive assistance of the European Union as part of the OECD project “Defining, Measuring and Assessing Job Quality” and its Links to *Labour Market Performance and Well Being* [VS/2013/0108 (SI2.666737)].
2. A forward-looking perspective also helps to better understand worker behaviour. Indeed, theoretical models of the labour market typically model worker behaviour by comparing the future stream of earnings associated with different choices (Mortensen and Pissarides, 1994; Pissarides, 2000).
3. Consider two countries that have the same distribution of earnings at a given time. In one country, there is lots of movement across the wage distribution and between jobs so that the position of a particular individual in the earnings distribution varies significantly from year to year. In the other, there is great rigidity so that every worker stays in the same position year after year. The second country, therefore, entails less risk, but is also more unequal in the long-term. Consequently, the distinction between short and long-run inequality also has potentially important consequences for international comparisons of inequality.

4. In the core analysis, earnings are measured in monthly rather than hourly terms. This is more sensible from a life-course perspective and also allows taking account of part-time work. Nevertheless, hourly wages are also used in the chapter, including for the analysis of low pay and the minimum wage. Focusing on monthly rather than annual earnings makes it easier to differentiate between wage mobility (i.e. movements along the earnings distribution) and employment mobility (i.e. movements between employment and unemployment).
5. OECD (2014, Chapter 3) assesses the overall quality of working environment in terms of the incidence of jobs that involve considerable job strain, i.e. the risk that work impairs ones' health. This is measured in terms of the balance between the demands that work imposes on workers (time pressure, physical risk factors, workplace intimidation) and the resources that they have at their disposal to meet those demands (work autonomy and learning opportunities, good management practices and good workplace relationships). It can be shown that workers with low long-term earnings, as identified in this chapter, are also more likely to be in strained jobs than workers with better paying careers. The combination of low long-term earnings with job strain can have important implications for the sustainability of work at older ages. One way of looking at this nexus is by means of a question included in the *European Survey of Working Conditions (EWCS)* which asks whether a person anticipates being either willing or able to do the same job at age 60. The answers to this question show that job strain and low pay together reduce the reported ability and willingness to continue in the same job at age 60 by almost two thirds, suggesting that material and non-material working conditions are important determinants of the sustainability of work. This has potentially important implications for both the well-being of older persons, in terms of their financial resources and health, and society at large, because of its consequences for labour force participation and the affordability of social protection.
6. For a comprehensive discussion of different concepts of mobility see Fields and Ok (1999) and Jäntti and Jenkins (2015).
7. In principle, estimates of life-time earnings by country and socio-economic group can be derived from standard cross-sectional wage regressions (Haider and Solon, 2006).
8. In contrast to the analysis in OECD (2014, Chapter 3), the present analysis does not take account of social assistance.
9. Including inactive persons in the analysis is conceptually straightforward but challenging in practice due to the need to estimate transition probabilities between inactivity, unemployment and deciles of the wage distribution. This is, therefore, left for future work.
10. The self-employed are excluded from the analysis.
11. The authors of the chapters are grateful to Audra Bowlus and Jean-Marc Robin for kindly sharing their codes to allow building upon their work and ensuring a certain degree of consistency between the present analysis and their original work.
12. When assessing potential policy reforms in Section 3 of this chapter, a number of alternative assumptions about the behaviour of individuals will be considered.
13. When comparing the results for the entire workforce to those for men and women separately, it is important to keep in mind that the Gini index is not decomposable ("sub-group consistent" in technical terms). This means that the Gini for the total population is neither the sum nor the average of the Gini coefficients for men and women. For example, within-gender inequality would be very low in a country where all men earn little and all women earn a lot, but total wage inequality is very high because of the big difference in average earnings between the two groups. Panel B in Figure 4.2 shows that within-gender inequality is lower in Japan than in the United States, while Panel B in Annex 4.A1 shows that overall wage inequality is higher in Japan due to the larger gender wage gap.
14. The results in this chapter may seem inconsistent with those obtained by Bowlus and Robin (2012). Using a similar simulation technique for the United States, Canada, France, Germany and the United Kingdom, they find that earnings mobility is positively correlated with base-year inequality whereas Figure 4.2 shows a negative or insignificant correlation between mobility and short-term inequality. However, using the same inequality indicator (the P90/P10 percentile ratio) as in Bowlus and Robin (2012), the correlation between mobility and short-term inequality is also positive. This suggests that the relationship between inequality and mobility depends to an important extent on the concept on inequality used and, perhaps more importantly, that there is no simple relationship between mobility and inequality among the countries considered in this study.
15. The analysis thus focuses on within-group inequality. In principle, one could also document between-group inequality and between-group mobility following OECD (1997) and Buchinsky and

Hunt (1999). This is done in Garnero, Hijzen and Martin (2015). Consistent with previous studies, this shows that between-group inequality is not very important when considering short-term inequality: around two thirds of cross-sectional inequality is due to differences in earnings within groups. However, it also shows that between-group inequality is much more relevant in the long-term, increasing to more than 50% on average across countries. The reason for this is that mobility is largely concentrated within groups. As argued in OECD (1997), the predominance of within-group mobility means that much of the year-to-year change in workers' earnings does not reflect smooth increments in their earnings as they acquire more experience and may represent, in part, unpredictable fluctuations that are a source of economic insecurity.

16. Similar results are found by Guvenen et al. (2015) using data on 5 million US workers over nearly 40 years and by Bönke et al. (2015) who study life-time earnings of men in Western Germany.
17. The results discussed above may in part be driven by age effects. Younger workers are more likely to be unemployed and to have relatively low cumulative earnings over ten years. However, adjusting for age effects has no significant effect on the concentration of unemployment (not shown).
18. More traditional approaches to analysing poor long-term earnings have relied on estimates of average earnings-experience profiles for different socio-economic groups (OECD, 1997). As in the case of the simulations, this allows assessing the role of time-invariant characteristics such as sex and education for long-term earnings, but works less well when one is interested in assessing the role of job and firm characteristics. The main reason for this is that one needs to know at what time in their career and for how long workers have been exposed to these factors and this information is typically not available.
19. One may be concerned that movements between employment states and wage deciles depend on the characteristics of workers which in turn may be correlated with the different outcomes considered here. While this may be true in reality the simulations are set up by assuming that this is not the case. Mobility in the simulated data is modelled as a function of age, gender and education but is otherwise assumed to be random. This assumption allows calculating the overall exposure to a particular work attribute by averaging the corresponding probabilities over the individual employment and earnings trajectories during the ten year period. The use of wage deciles as a merging variable is particularly important. In the absence of this variable, the analysis would be restricted to analysing the role of different factors for mobility and inequality between groups. However, by making use of wage deciles, the present analysis also takes account of mobility and inequality within groups.
20. The information in PIAAC relates to 24 countries and was collected between August 2011 and March 2012. The reference period therefore does not perfectly correspond to the reference year used in the simulations which is 2010. However, this is unlikely to make a major difference in practice since the distribution of cognitive skills is unlikely to change substantially from one year to the next.
21. Hanushek et al. (2013) find that, on average across countries, a one-standard-deviation increase in numeracy skills is associated with an 18% wage increase among prime-age workers. The returns to skills are significantly lower in the Nordic countries and significantly higher in the United States. Chapter 2 of this publication provides a detailed analysis of the role of cognitive skills for cross-sectional inequality in wages.
22. The concentration of part-time for economic reasons in the bottom tercile is somewhat stronger than of part-time for personal reasons.
23. While total factor productivity would be the ideal measure of firm quality, this information is not available from labour force or household surveys.
24. It is assumed that firm groups are sufficiently large such that the individual wages do not affect the average wage level in the grouping. Average wages have not been adjusted for average worker characteristics and may therefore reflect average worker quality rather than firm quality. The association between long-term outcomes and firm quality may therefore be overstated.
25. Although it goes beyond the strictly positional mobility analysed in the chapter up until this point, job mobility can also improve average worker outcomes to the extent that it promotes a more efficient allocation of workers across firms. The evidence on the individual wage returns to mobility that is discussed in this section probably mixes together wage gains that reflect positional mobility and those that reflect an overall improvement in allocative efficiency in the labour market.
26. Both promotions within firms and mobility between firms have been shown to be important channels for earnings progression over the life-course, particularly during the early phases of workers' careers (McCue, 1996, for the United States; Van der Klaauw and Dias da Silva, 2011, for Portugal; and Frederiksen et al., 2014, for Denmark). According to a seminal study by Topel and

Ward (1992) for the United States, young people change jobs on average seven times during the first ten years of their careers and this accounts for one third of wage growth during this period. McCue (1996) shows that the role of promotions for earnings growth also tends to be concentrated in the first ten years of workers' careers and that it is somewhat less important than inter-firm job mobility for earnings growth.

27. However, in Italy, a comprehensive labour market reform (the "Jobs Act") is currently being legislated on employment protection, unemployment insurance, short-time working schemes and active labour market policies. As part of this reform, the coverage of unemployment benefits was extended to non-standard workers as of May 2015.
28. The redistributive role of unemployment insurance (UI) that has been considered so far reflects redistribution within cohorts. However, unemployment insurance may also be designed so that it affects redistribution across cohorts. A recent paper by Michelacci and Ruffo (2015) suggests that UI systems that are more generous for young than for older persons can be welfare enhancing. They argue that UI can be more valuable for youth because of their limited ability to smoothen consumption during unemployment spells, but also less costly because of the smaller potential adverse impact of more generous UI on job-search incentives due to the importance of finding a job quickly for future careers and life-time earnings. Consequently, it is argued that a UI system characterised by some degree of inter-generational solidarity may be welfare enhancing.
29. It should be mentioned that in Denmark more generous unemployment benefits are complemented by strong mutual obligations that make income support conditional on active job search and participation in active labour market policies (see Chapter 3 of this publication for further details).
30. DiNardo et al. (1996), Lee (1999) and Autor et al. (2014) find that the decline in the real value of the minimum wage contributed to the rise in inequality in the United States. Machin (1997), Dickens and Manning (2003) and Butcher et al. (2012) show similar findings for the United Kingdom. Cross-countries studies also show that minimum wages are associated with lower wage inequality (OECD, 1998; Keese, 1998; Koeniger et al., 2007). See Chapter 1 for more details.
31. A third scenario based on 40% of the median was also considered but did not yield interesting results as this does not tend to be binding in practice, even in countries without a statutory minimum wage.
32. More specifically, Garnero, Kampelmann and Rycx (2015) show that in European countries with a national statutory minimum wage the share of people paid below the minimum ranges from around 1% in Estonia to 7% in France.
33. The seminal study on labour demand by Hamermesh (1993) suggests that a typical labour-demand elasticity is about -0.6.
34. In their very influential paper on the employment effects in the fast-food industry of a minimum wage increase in New Jersey, Card and Krueger (1994) find that the raise in the minimum wage in New Jersey increased employment compared to fast-foods in near Pennsylvania. This finding is difficult to rationalise with standard labour market models but can be explained to some extent with models of monopsonic labour markets.
35. For France, Koubi and L'Hommeau (2007) find that an increase in the minimum wage has a large effect on wages well above the minimum wage in 2000-05 while Goarant and Muller (2011) find more modest ripple effects using more recent data. For the United States, Card and Krueger (1994), Lee (1999) and Neumark et al. (2004) find significant but small ripple effects. By contrast, Dickens and Manning (2004) and Stewart (2012) find no significant ripple effects in the United Kingdom.

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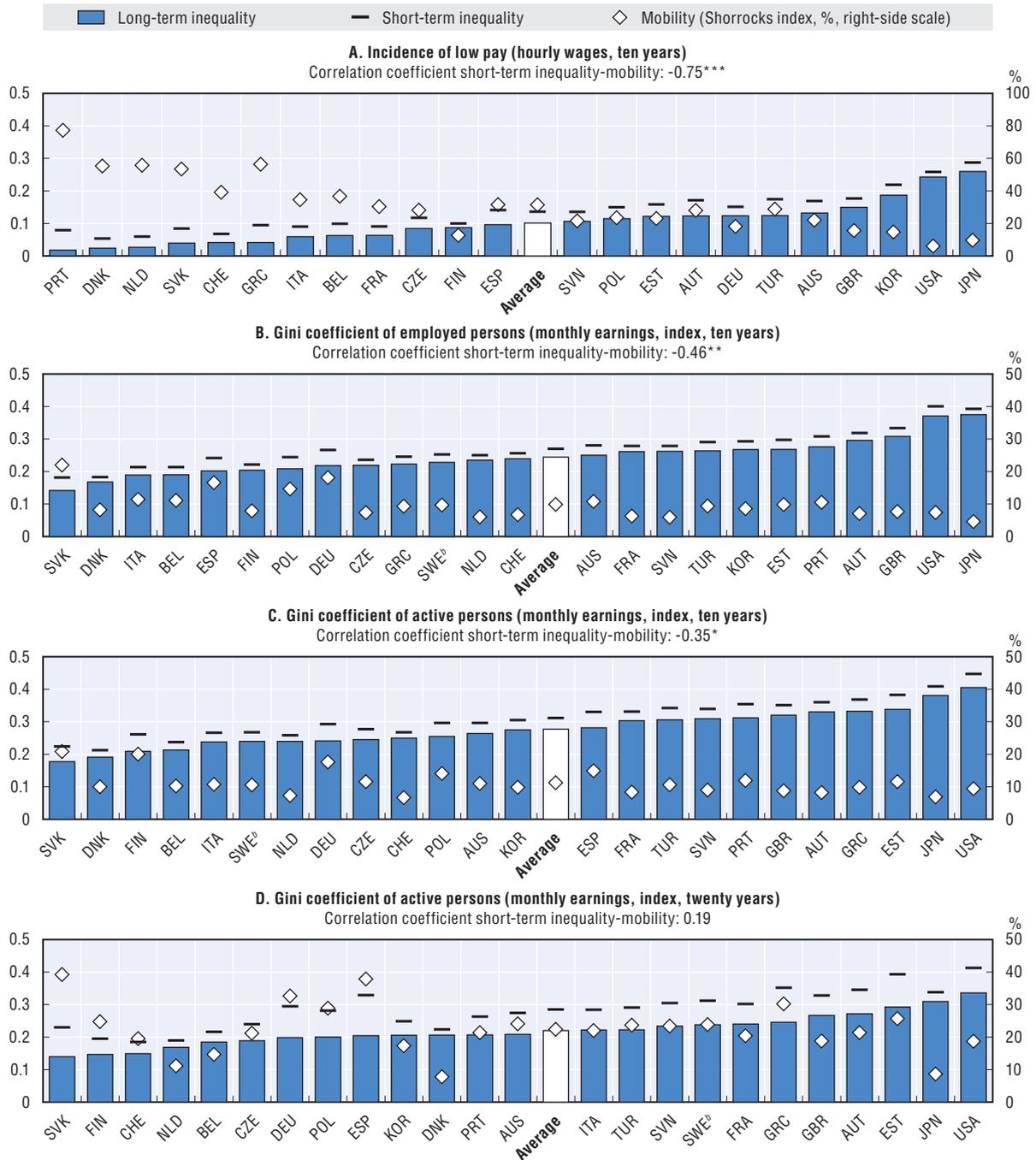
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ANNEX 4.A1

Further results

Figure 4.A1.1. **Short-term inequality, long-term inequality and mobility across countries**

Based on simulations over ten or twenty years^a



***, **, *: Statistically significant at 1%, 5% and 10% levels, respectively. For definitions of the concepts, see the glossary in Box 4.1; for details on the methodology, see Box 4.2 and Garnero, Hijzen and Martin (2015).

a) Simulations refer to individuals aged 15 to 54 in the reference year in Panel A to C and 15-24 in Panel D (20 to 54 and 20 to 29 for Denmark and Japan).

b) Results based on annual earnings for Sweden.

Source: OECD calculations based on the European Union Statistics on Income and Living Conditions (EU-SILC) for European countries and Turkey; Household, Income and Labour Dynamics (HILDA) for Australia; British Household Panel Survey (BHPS) for the United Kingdom; German Socio-Economic Panel (GSOEP) for Germany; Keio Household Panel Survey (KHPS) for Japan; Korean Labor and Income Panel Study (KLIPS) for Korea; Swiss Household Panel (SHP) for Switzerland; and Survey of Income and Program Participation (SIPP) for the United States.

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Chapter 5

Enhancing job quality in emerging economies

This chapter provides the first comprehensive analysis of job quality in emerging economies. It extends the OECD Job Quality Framework to better suit the countries considered, while maintaining its fundamental principles and its three broad dimensions: earnings quality, labour-market security and quality of the working environment. The analysis delivers a detailed cross-country picture of job quality across emerging countries and socio-demographic groups, placing particular attention on the gap between formal and informal occupations. Moreover, using panel data from a selection of countries, it presents an in-depth dynamic analysis of transitions in and out of informal jobs, with the aim to investigate whether such occupations may be considered stepping stones or traps leaving permanent scars on workers' career prospects. Finally, the chapter outlines a set of policy orientations to foster high-quality jobs in emerging economies.

Key findings

This chapter provides the first comprehensive analysis of job quality in emerging economies based on the new *OECD Job Quality Framework* (OECD, 2014, Chapter 3). The countries considered are: Argentina, Brazil, Chile, (urban) China, Colombia, Costa Rica, India, Indonesia, Mexico, the Russian Federation, South Africa, and Turkey.

The *main contribution* of the chapter is to adapt the implementation of the *OECD Job Quality Framework* to the most salient features of the labour markets of emerging economies, while maintaining its fundamental principles and its three dimensions: earnings quality, labour market security and the quality of the working environment. Two main adjustments are made:

- The *labour market (in)security* dimension is enriched by a complementary risk measure, namely the risk of falling below a subsistence level of earnings while employed. Indeed, in most emerging economies, open unemployment¹ is often low because workers simply cannot afford to be unemployed, partly due to the absence (or weakness) of social security – unemployment protection in particular. Their exposure to insecurity is thus better captured by the risk of falling below a threshold of extreme low pay, often in the informal, unprotected sector.
- The *quality of the working environment* dimension is proxied by the incidence of very long working hours. This adjustment is required as information on working conditions is typically scarce and limited in scope in emerging economies. This allows for broader coverage of emerging economies, as well as a breakdown between formal and informal jobs. The available data also supports this approach, as they indicate a strong positive correlation between job strain and long hours across a broad group of countries where both measures are available.

The *second contribution* of the chapter is to provide a detailed picture of cross-country differences in job quality along each dimension. The following findings emerge:

- The main issue for emerging economies is not the lack of jobs, as such, since open unemployment tends to be low. Rather, it is the lack of quality jobs that raises the greatest concerns. This partly reflects the inadequacy of social security, which pushes workers into subsistence-level occupations.
- Earnings quality is generally lower in emerging economies compared with OECD countries. This difference is due to both a wide gap in average earnings and considerably higher levels of inequality. Among the countries considered, earnings quality is lowest in India and South Africa and highest in Chile and the Russian Federation.
- Labour market insecurity due to unemployment is similar to the OECD average for most emerging economies. However, the risk of falling into extreme low pay while employed, which reaches peaks of 25% in Indonesia and 33% in India, represents a second significant source of insecurity. As a result, overall labour market insecurity tends to be higher in emerging economies than in more developed economies.

- The quality of the working environment is generally lower in emerging economies compared with the OECD. The incidence of working very long hours is remarkably high in many of the economies considered in the chapter. Of the four countries for which the incidence of job strain can be computed (Mexico, South Africa, Turkey and the Russian Federation), three perform worse than the OECD average, Mexico being the exception.

The *third contribution* of the chapter is to compare job quality for workers with different socio-demographic characteristics and identify which groups are most at risk of low-quality employment, thus providing new insights on labour market inequalities:

- Young people and low-skilled workers face the most dramatic challenges. They tend to experience poor performance in terms of both job quantity (i.e. low employment rates) and job quality (i.e. lower earnings quality, higher insecurity and lower quality of the working environment, as captured by working long hours).
- Women face some clear disadvantages. Sizeable gender gaps exist for both employment rates and earnings quality. Women also face higher labour market insecurity, as captured by the risk of extreme low pay, but are not exposed to a significantly higher risk of unemployment. The share of employed women who work extreme long hours is much lower than the corresponding share for men.
- Workers with informal jobs tend to do worse on all dimensions of job quality. Informal jobs display lower earnings quality, higher insecurity and lower quality of the working environment (as captured by a higher incidence of long hours).

Given the high incidence of informality in emerging economies and the relatively poor job quality outcomes associated with informal jobs, it is important to know how easily workers in informal jobs are able to move into formal jobs. Accordingly, the chapter examines workers' transitions into and out of informality. This analysis, which helps to clarify the role of informal jobs in social mobility and potential persistent effects on workers' careers, is limited to four countries for which the necessary data are available (urban China, urban Colombia, South Africa and Turkey). The results show that:

- While these countries display high mobility rates in and out of informality, most outflows from informal jobs are to unemployment and inactivity, rather than to formal employment. This finding casts doubt on the hypothesis that informality constitutes a reliable stepping stone towards better jobs.
- In urban China and urban Colombia, informal workers who transit to formality tend to move to temporary jobs, with a high probability of falling back into informality. This suggests some workers may become trapped in a vicious circle, cycling between informal jobs and non-standard (lower-quality) formal jobs.
- Starting a career with an informal job may have negative consequences for future labour market prospects.

Finally, the analysis conducted in the chapter has important implications for the design of policies to foster high quality jobs in emerging economies. They can be summarised as follows:

- *More effective social protection systems and labour laws can enhance the quality of existing jobs.* Policy makers should consider placing a high priority on promoting job quality. Among the most important policy objectives are the development of adequate and effective social protection systems (e.g. unemployment compensation, social assistance programmes, such as cash transfers, and health care benefits) and the promotion of

effective labour laws. In designing social protection schemes, an important challenge is to ensure an adequate balance between workers' protection and work incentives. The latter encompass incentives to participate and, crucially, to choose formal over informal employment. In the context of a large informal economy and often weak enforcement, another important area for policy action is improving the effectiveness of labour laws in protecting workers (e.g. working-time regulations, health and safety legislation, employment protection legislation).

- It is important to assist workers to find high quality jobs early in their careers. Given the possible deep scars that bad jobs can leave on future careers, it is important to help workers get onto a good career path early in their working lives. This is particularly important for low-skilled workers, who face the highest risk of being trapped in undesirable jobs with limited career prospects. Policy interventions in this area are very diverse and include a strengthened academic and vocational education, quality training and apprenticeship programmes, as well as carefully designed active labour market programmes.
- Policies to curb informality can reduce the incidence of low quality jobs. Policy interventions to reduce informality should follow a comprehensive approach that rests on three pillars: increasing the benefits of formality, decreasing the costs of formalisation and improving enforcement methods.

Introduction

Labour is often the only asset people own and their only source of income. Having a job is thus a fundamental determinant of well-being. Conversely, unemployment and under-employment in low-paid, onerous and unstable jobs have been widely documented as important sources of distress. At a time when the world economy is yet to recover from the global economic crisis, job creation remains a primary concern for policy makers. However, focusing exclusively on *how many* jobs an economy generates delivers a very partial picture of the situation, since workers' well-being also depends crucially on *how good* their jobs are. This observation appears all the more important in the context of emerging economies, where jobs are often characterised by low-pay, high risks, strenuous or hazardous working conditions and long working hours. This is particularly true for the large share of the labour force employed in the informal economy, outside the reach of regulation and without access to social protection.

In light of these considerations, the chapter adapts the implementation of the *OECD Job Quality Framework* for measuring job quality, which was first presented and applied to OECD countries in the 2014 *OECD Employment Outlook*, to take into account the characteristics of labour markets in emerging economies. The adjusted framework is then used to produce a comparative analysis of job quality across twelve emerging economies. The correlation between workers' characteristics and job quality is also explored in order to identify the groups with the lowest quality jobs. Particular attention is devoted to the quality gap between formal and informal jobs, since the latter constitute a very large share of employment in most of these economies. The chapter then investigates mobility into and out of informal employment, in order to assess whether informality is a trap or a stepping stone in workers' careers. Finally, the chapter reviews policy options to promote high-quality jobs in emerging economies.²

The *OECD Job Quality Framework* encompasses three key dimensions that capture the respective contributions of *earnings*, *security* and *work environment* to workers' well-being.

While these building blocks are broad enough to capture job quality in countries at all stages of development, this chapter adapts their empirical implementation so as to reflect the most salient features of labour markets in emerging economies. Most notably, when assessing labour market security, the risk of unemployment is complemented by a measure of the risk of falling below a subsistence level of earnings while employed. Indeed, in most of these economies, open unemployment is often low, because workers simply cannot afford not to work, partly due to the absence (or weaknesses) of social security (and unemployment protection in particular). Their exposure to insecurity is thus better captured by the risk of falling below a threshold of extreme low pay while employed, often in the informal sector. In this regard, it is important to emphasise that the analysis does not treat informality as a component of job quality. Rather informality is analysed as a potential determinant of job quality. That is the evidence about the quality of informal jobs relative to the quality of formal jobs is allowed to speak for itself.

The chapter provides a broad picture of job quality for twelve emerging economies, including OECD emerging economies and accession countries, G20 emerging economies and OECD Key Partners. More specifically, suitable data could be found for the following countries: Argentina, Brazil, Chile, Colombia, (urban) China, Costa Rica, India, Indonesia, Mexico, the Russian Federation, South Africa and Turkey.³ Data limitations precluded including other key emerging economies in the analysis.

The chapter is structured as follows. Section 1 adapts the implementation of the *OECD Job Quality Framework* to take account of the main characteristics of labour markets in emerging economies. It then uses the adjusted framework to assess job quality in twelve emerging countries and compare job quality across socio-demographic groups within the workforce. Section 2 explores the quality gap between formal and informal jobs, and investigates mobility out of informal employment. Section 3 highlights the main policy implications that emerge from the empirical analysis.

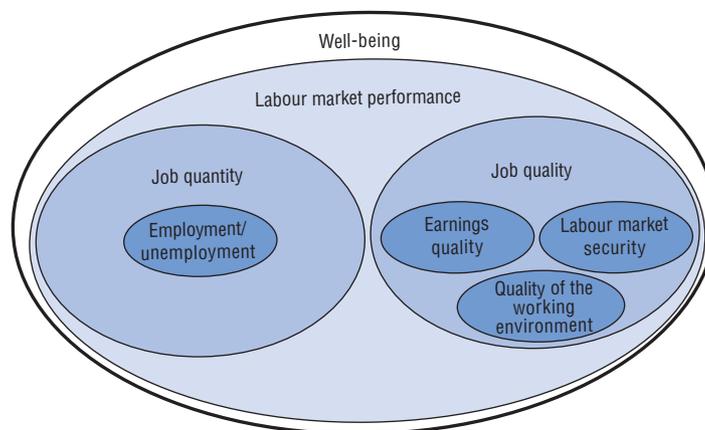
1. Job quality in emerging economies: A cross-country analysis

What makes a quality job? Adapting the OECD Job Quality Framework to emerging economies

Job quality is an inherently multi-dimensional concept that refers to those job characteristics that contribute to the well-being of workers. Following the influential report by the Stiglitz-Sen-Fitoussi Commission (Stiglitz et al., 2009), which identified eight dimensions of well-being, the *OECD Job Quality Framework* is structured around three of those dimensions that are closely related to people's employment situation, namely: material living standards, insecurity of an economic as well as physical nature and personal activities including work.⁴ Drawing on the existing literature in economics, sociology and occupational health, empirical implementations of these three aspects of job-related well-being were used to define the three dimensions of the *OECD Job Quality Framework*, which was first presented and applied to OECD countries in the 2014 *OECD Employment Outlook*. This chapter adapts that framework to emerging economies, by taking account of both the more limited data available for these countries and their labour market specificities, notably the weakness of social protection (inadequacy of benefits or low coverage of social insurance schemes), high incidence of informality and high rates of working poverty.

The three dimensions of the OECD Job Quality Framework, which also builds on previous work by other international organisations,⁵ are: earnings quality, labour market security and quality of the working environment (OECD, 2014, Chapter 3). Moreover, the framework follows two of the guiding principles of the broader well-being agenda (Stiglitz et al., 2009), in line with the OECD Better Life Initiative (OECD, 2013); notably, it focuses on: i) outcomes experienced by workers (e.g. low-pay and work-related hazards), as opposed to drivers of job quality (e.g. regulation and compliance); and ii) individuals, by defining all indicators at an individual level and using microdata for measurement. The framework relies on objective features of job quality (as opposed to subjective perceptions of “job satisfaction”, due to the all-encompassing nature of the latter and to the difficulty of relating them to specific features of the workplace).⁶ Figure 5.1 provides a schematic representation of the job quality framework, in relation to job quantity outcomes and overall well-being.

Figure 5.1. **Job quantity, job quality and well-being**



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Earnings quality

The first dimension of job quality, *earnings quality*, refers to the extent to which employment contributes to the material living standards of workers and their families. While the average level of earnings provides a key benchmark for assessing the degree to which having a job ensures good living conditions, the way earnings are distributed across the workforce also matters greatly for well-being. Therefore, the first building block of job quality is measured by a composite indicator that accounts for both *average earnings* and *earnings inequality*. Since emerging economies are characterised by considerably larger earnings inequality than OECD countries, this approach appears to be particularly well suited to assess workers' well-being in these countries. This approach is also in line with a growing body of research showing that both absolute and relative earnings matter for well-being, and that individuals display a certain degree of inequality aversion in their preferences (see OECD, 2014, Chapter 3 for a full discussion).

Following OECD (2014, Chapter 3), the indicator selected to measure the degree of earnings quality at the aggregate level makes use of the general means framework proposed by Atkinson (1970) and Foster et al. (2013). Using the general mean, a weighted average of individual earnings, as the main indicator of earnings quality differs from

calculating the simple (arithmetic) mean because it allows different relative importance (weights) to be attached to different parts of the earnings distribution, through the choice of a single parameter. This exponent is referred to as the *coefficient of inequality aversion* and in the current analysis it is set to a value below one as a way of focusing predominantly on the bottom part of the distribution (see Box 3.3 in Chapter 3 of the 2014 *OECD Employment Outlook* for a full discussion). For a given earnings distribution, higher inequality aversion leads to lower earnings quality. This approach also delivers a measure of inequality, calculated as the relative wedge between the general and the arithmetic mean of earnings.⁷ In a situation of perfect equality, the arithmetic and the general mean have the same value and inequality, thus calculated, is equal to 0. This approach is necessarily normative, as it rests on prior judgment with respect to the undesirability of inequality. In this chapter, different levels of inequality aversion are considered (e.g. 0, -1 and -3). The intermediate level (moderate risk-aversion), which corresponds to the *harmonic mean* of the distribution, amounts to placing most (around two-thirds) of the weight on the bottom tercile of the distribution, a smaller but still significant weight on the second tercile (one quarter) and a relatively small weight on the top tercile (10%).⁸ The more extreme value (-3) places an even heavier weight on the very bottom of the distribution.

Labour market security

The second building block of the *OECD Job Quality Framework*, *labour market security*, captures those aspects of economic security that are related to the risks workers face in the labour market. In OECD countries, becoming and staying unemployed is the most significant risk for a worker. The set-up presented in the 2014 *OECD Employment Outlook* thus defined labour market insecurity in terms of the expected earnings loss associated to unemployment, as a function of the risk of becoming unemployed, the expected duration of unemployment and the degree of income protection provided by unemployment benefit systems. While open unemployment may also be significant in emerging economies (e.g. South Africa or, more generally, in urban areas), it is often lower than in OECD countries. This is partly due to the absence or weakness of social insurance schemes, which makes unemployment unaffordable and pushes many workers into jobs of “last resort” (commonly jobs with very low and often uncertain earnings). A useful and complementary dimension of insecurity is thus the risk of falling into such undesirable jobs, defined here by a threshold of “extreme low pay”. This chapter, therefore, develops a supplementary measure of labour market risk that measures the risk of falling below such threshold. In sum, two distinct components of labour market security are analysed in this chapter: security against the risk of unemployment and security against the risk of extreme low-pay while employed. The former is constructed as in the 2014 *Employment Outlook* (except for the fact that here the risk of becoming unemployed is approximated by the unemployment rate, due to limited data availability), while the latter deserves some additional discussion.

The extreme low-pay threshold is set as an absolute value and corresponds to net hourly earnings of one US dollar, after purchasing power parity adjustments. Low-pay status defined in this way translates to a disposable per capita income of USD 2 (PPP-adjusted) per day in a typical household containing a single earner who works full-time (Bongaarts, 2001), and suggests absolute material deprivation for those concerned.⁹ This is a departure from the relative-deprivation approach commonly adopted in OECD studies, but it appears to be more appropriate in the context of this analysis. Crucially, a

measure of relative deprivation (e.g. earnings below two-thirds or one-third of the median) would fail to account for the large differences in average living standards that exist across emerging economies and, more significantly, between emerging economies and advanced ones. That would be unsatisfactory, since workers at the bottom of the distribution in rich countries with a functioning welfare state are generally in a far better position than workers with the same relative standing in emerging countries. Focusing on an *absolute* threshold provides a common benchmark for all countries and has the advantage of clearly distinguishing the labour market security dimension of job quality from the earnings quality dimension, because the latter directly incorporates inequality and hence places the emphasis on workers' relative standing in the economy.

Ideally, the risk of falling below the low-pay threshold would be estimated by means of balanced panel datasets where the earnings of the same individuals are observed over multiple time periods. As panel data of this kind are not systematically available, the analysis relies on a novel methodology proposed by Dang and Lanjouw (2013), who extend the work by Dang et al. (2011) to estimate transition probabilities using repeated representative cross-sections. The procedure amounts to estimating the persistence of individual earnings based on the behaviour of cohort averages over time. This makes it possible to calculate the joint probability, for each worker type, of being in (or out of) low-pay status in either of the two periods surveyed. With this information, one can produce an estimate of the probabilities of falling into and climbing out of low-paid employment from one period to the next – the combination of which determines the overall risk of extreme low pay.¹⁰ The average incidence of low-pay in a given population can be interpreted as the average share of time a person in that population can reasonably expect to spend in low-paying jobs. The fact that earnings risk is constructed using multiple cross-sections is another element that contributes to distinguishing this dimension of job quality from the earnings quality one, which is entirely static.

Finally, the analysis also takes into account the buffering effects of social security on labour market risks. In line with Chapter 3 of the 2014 *OECD Employment Outlook*, the risk-mitigating effects of all unemployment benefits and social assistance transfers that the active population may be eligible for are considered. This is done here by collecting all available information on transfer reciprocity from the micro-level sources used in the analysis, rather than by using aggregate national statistics (such as the number of benefit recipients in a country) or model-based estimates (such as replacement rates by household type), as was previously done. While there are important differences across countries in terms of the generosity and comprehensiveness of social security systems, the national labour force and household surveys used here perform well in identifying recipients of benefits from the main available schemes.¹¹ The use made of this information on transfer reciprocity varies depending on the specific aspect of labour market insecurity being considered. For unemployment risk, these data are used to calculate the effective (net) replacement rate of social insurance for the unemployed – defined as the ratio of the average net income of the unemployed relative to the median net earnings among the employed – in order to determine the net monetary cost of unemployment (much like it was done for the 2014 *OECD Employment Outlook*).¹² As for earnings risk, the assessment of the risk-mitigating effects of social transfers consists in comparing how the transition probabilities into and out of low-pay status, as well as the resulting risk estimates,

change when social transfers are ignored (compared to the main analysis, where such transfers are taken into account).

Quality of the working environment

The third dimension of job quality, *quality of the working environment* (QWE) captures non-economic aspects of job quality and includes factors that relate to the nature and content of the work performed, working-time arrangements and workplace relationships. The analysis carried out in the 2014 *OECD Employment Outlook* presented an innovative and comprehensive approach based on the literature on occupational health (notably job strain models), which establishes strong links between the quality of the working environment and workers' well-being. In particular, the "Job Demands-Job Resources Model" proposed by Bakker and Demerouti (2007) was used to identify those work-related stress factors, such as time pressure and exposure to physical health risk that represent a major hazard for workers when combined with insufficient job resources, such as work autonomy, learning opportunities or good workplace relationships.¹³ The QWE dimension was then implemented via three synthetic indices: i) an additive measure of various job demands; ii) an additive measure of various job resources; and iii) a synthetic index accounting for the buffering effect of job resources on the relationship between job demands and well-being at work. The incidence of jobs that involve considerable job strain – that is, jobs which combine a high level of demands with few resources – was used as the overall measure of QWE.

It is not possible to adopt the same QWE indicators for most of the emerging economies analysed in this chapter, because information on working conditions is often scarce and limited in scope.¹⁴ Even focusing on simpler proxies of quality of working environment (QWE), such as physical accident rates and sickness rates, is not a viable solution, since the relevant information is either not available at the country level (e.g. work accident rates reported by the ILO¹⁵) or not comparable across-countries (e.g. sickness rates¹⁶ or absence sickness rates¹⁷). To overcome these limitations, the chapter measures quality of the working environment through data on the incidence of very long working hours. Numerous studies on occupational health have investigated the impact of working long hours on workers' well-being. While evidence is mixed regarding the relationship between long work hours and life satisfaction (Hewlett and Luce, 2006; Gray et al., 2004), results suggest that working very long hours impairs workers' physical and mental health, particularly when employees have little control on the number of hours they work and/or on their work schedule (Bassanini and Caroli, 2015; Frijters et al., 2009; Dembe et al., 2005, Burke et al., 2009; Caruso et al., 2004). Using long hours as a proxy for working conditions allows for broader coverage of emerging economies, as well as a breakdown between formal and informal jobs. The available data also support this approach, as they indicate a strong positive correlation between job strain and long hours across a broad group of countries where both measures could be constructed.¹⁸

One important caveat is the potentially limited validity of long hours as an indicator of low-quality working conditions for self-employed workers. This group typically has some discretion in choosing their work schedule and working long hours may thus reflect a voluntary choice, rather than an imposition. This observation is particularly important in emerging economies, where the self-employed constitute a large share of the labour force. The concern is more general, however, because the applicability of the job demands-resources model to self-employment has been questioned. While the relevance of job strain models for *employees* has been validated both theoretically and empirically,¹⁹ its

applicability to the self-employed is still debated. Indeed, some drivers of job strain according to this theory, such as decision latitude or working intensity, appear *a priori* to be inappropriate for the self-employed.²⁰ More generally, the reliability of job strain models for informal workers has not been explored in depth. However, a few studies have put forth convincing arguments in support of this approach (and of the survey instruments it relies upon, such as job content questionnaires) as a valid tool to measure the QWE of informal jobs [e.g. see de Araujo and Karasek (2008) for Brazil]. In light of these caveats, the results in the next section report the incidence of long hours separately for employees and self-employed workers, and the results for the latter should be interpreted with caution.

How do emerging countries compare?

The following portrait of job quality across the twelve emerging economies analysed in this chapter is based on cross-sectional data from nationally representative labour force and household surveys.²¹ For the sake of consistency, both across the sampled countries and with Chapter 3 of the 2014 OECD *Employment Outlook*, the analysis takes 2010 as the reference year.²²

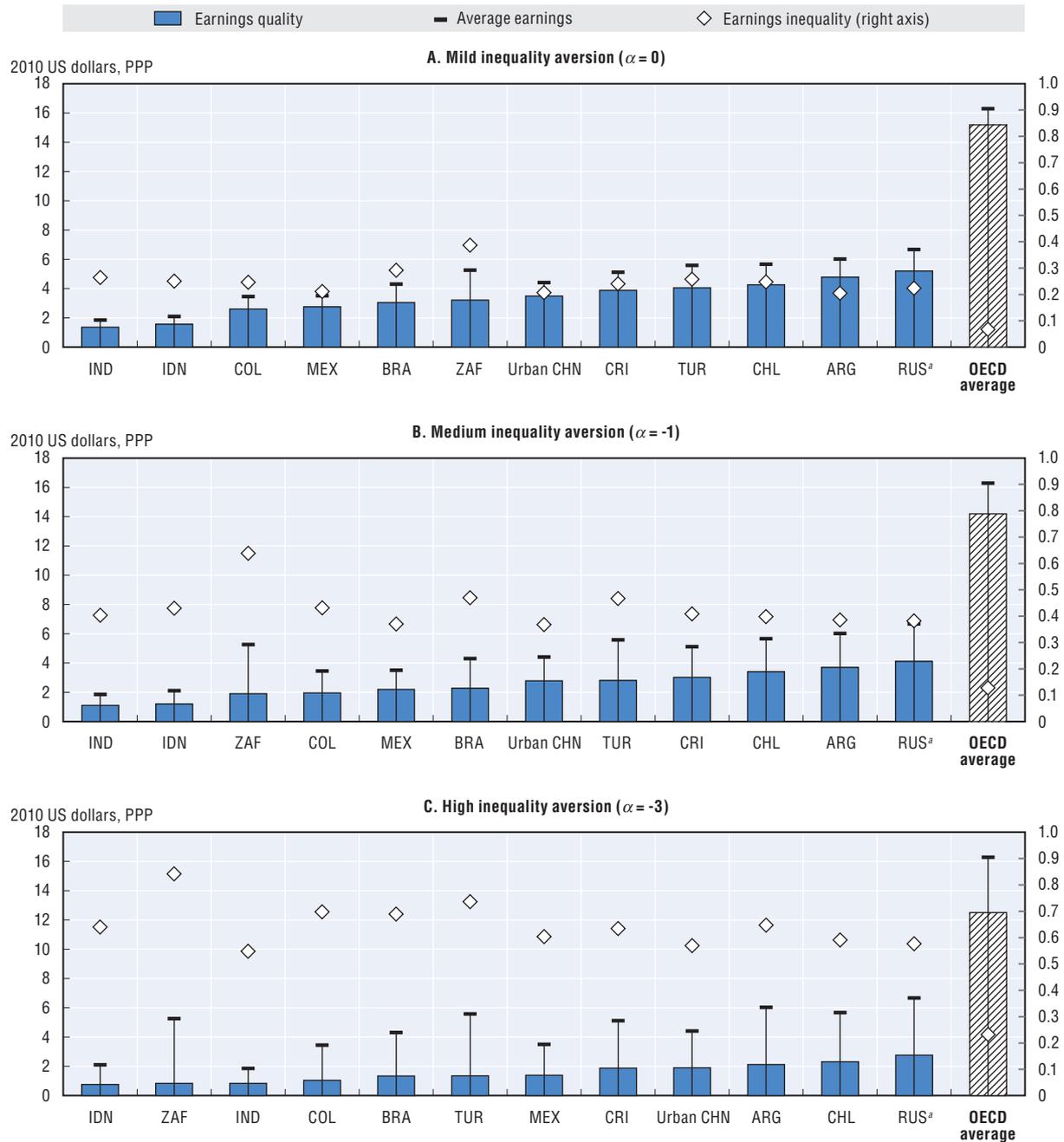
Earnings quality is low compared to OECD countries, and inequality weighs heavily on it

Figure 5.2 plots *earnings quality* across countries, using data on (net) hourly earnings. Each panel shows the general mean and its two sub-components (average earnings and earnings inequality) for a specific level of inequality aversion. As inequality aversion increases (from Panel A to Panel C), higher levels of inequality more strongly reduce the general mean and tend to lower earnings quality. This can be seen clearly in the case of South Africa, where earnings quality drops dramatically as a higher weight is placed on inequality. The levels of earnings inequality recorded in emerging economies are generally more than twice as high as in OECD countries (OECD, 2014, Chapter 3). Emerging economies also exhibit less cross-sectional variation (in relative terms), which makes the country ranking more stable across different specifications. At the highest level of inequality aversion (-3), earnings quality is highest in Argentina, Chile and Russia, while it is lowest in Colombia, Indonesia, India and South Africa.

The risk of unemployment is close to the OECD average in most countries...

Turning to the second dimension of job quality, Figure 5.3 plots labour market security against unemployment, showing separately the risk of transitioning to unemployment and the effective replacement rate of unemployment insurance. The former is constructed following the same principles as in OECD (2014, Chapter 3), conceiving unemployment risk as the share of time workers can expect to spend in unemployment due to job loss.²³ Unemployment insurance, on the other hand, captures the degree of loss absorption through government transfers – unemployment benefits and social assistance – that accrue to workers in the event of unemployment. It is calculated from survey data as the ratio of the average benefit level (among the unemployed) to the median net earnings (among the employed). As such, it captures the combined effect of benefit reciprocity and generosity, and is generally consistent with the effective (net) replacement rate concept used for Chapter 3 of the 2014 OECD *Employment Outlook*. Figure 5.3 shows that the risk of unemployment is below the OECD average in most countries. As concerns unemployment insurance, the average effective individual replacement rate is much lower in emerging economies than in the average OECD country, despite the large number of different

Figure 5.2. Earnings quality
US dollars (PPPs), 2010



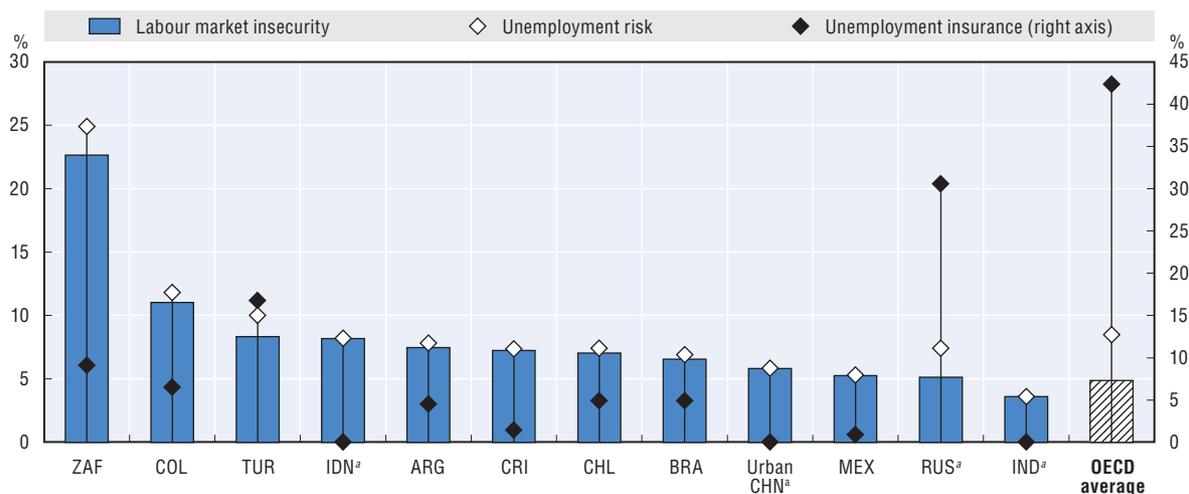
Note: Calculations are based on net hourly earnings and concern 2010 values, except for Brazil (2009), Chile (2009), China (2009) and India (2011). The OECD average is a simple cross-country average of earnings quality, as calculated in the *OECD Employment Outlook 2014*.

a) The figures for Russia are based on imputed data on households' disposable income from information on income brackets, and therefore include the effect of net transfers. Individual hourly income for two-earner households was calculated using available information on partners' employment status and working hours.

Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: China, GEIH: Colombia, ENHAO: Costa Rica, NSS: India, SAKERNAS: Indonesia, ENIGH: Mexico, NIDS: South Africa), the EU-SILC national files (Turkey) and the *European Social Survey* (Russia). Figures for OECD averages are taken from Chapter 3 of the *OECD Employment Outlook 2014*.

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Figure 5.3. Labour market insecurity due to unemployment



Note: Unemployment risk denotes the (scaled transformation of the) probability of becoming unemployed times the expected duration of unemployment, which may be interpreted as the average expected earnings loss associated with unemployment as a share of previous earnings. Unemployment insurance captures the average effective net individual replacement rate of unemployment and social assistance benefits in terms of previous earnings, for the median earner. Labour market insecurity is calculated as unemployment risk times one minus unemployment insurance and may be interpreted as the expected earnings loss associated with unemployment as a share of previous earnings.

The risk of unemployment is approximated by the unemployment rate, due to the lack of satisfactory data to calculate flows into and out of unemployment in the countries analysed. In a steady-state economy with a relatively low level of unemployment, the two approaches yield very similar results. The OECD average is a simple cross-country average of labour market security as calculated in the *Employment Outlook 2014*.

Calculations are based on 2010 data, except for Brazil (2011), Chile (2011), China (2009) and Turkey (2011).

a) The data for China, India and Indonesia do not contain transfers, so an insurance rate of 0% is assumed. For Russia, individual replacement rates were backed out from household-level replacement rates based on the assumption that all earners in a household have the same earnings.

Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: China, GEIH: Colombia, ENHAO: Costa Rica, NSS: India, SAKERNAS: Indonesia, ENIGH: Mexico, NIDS: South Africa), the EU-SILC national files (Turkey) and the *European Social Survey* (Russia). The figure for the OECD average is taken from Chapter 3 of the *OECD Employment Outlook 2014*.

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schemes operating in many of these countries.²⁴ Double-digit replacement rates are estimated only for Russia and Turkey, whereas the other countries provide minimal effective insurance for the unemployed – due to either very low coverage rates (as in Argentina or Colombia), or very low replacement rates for covered persons (as in South Africa), or a combination of both (as in Brazil, Chile, Costa Rica or Mexico). Altogether, the combination of low unemployment risk and very limited unemployment insurance causes labour market insecurity from unemployment in most emerging economies to be comparable to that in a typical OECD country. Given such low levels of social protection, the low unemployment risk in most emerging countries is likely to reflect the sheer unaffordability of unemployment when social insurance is so low. This suggests that many workers may need to accept very low quality jobs when better jobs are not available. The most striking example is India, which is seen to have the lowest level of labour market insecurity due to unemployment (lower than the OECD average), but a large proportion of workers in subsistence-level jobs.

... but the risk of falling into extreme low pay is high and social transfers are unable to reduce it...

Figure 5.4 plots the risk of extreme low-pay estimated using the methodology proposed by Dang et al. (2011) and extended by Dang and Lanjouw (2013). This methodology, discussed in Annex 5.A1, delivers an estimate of upward mobility (the probability of transitioning out of low pay) and an estimate of downward mobility (the probability of transitioning into low pay). The two can be combined to derive a measure of the long-term incidence of low pay, which can be interpreted as the risk that a random worker in the economy will be in a low-paying occupation at a given point in time. The results show substantial variation in the risk of extreme low-pay among the countries analysed. The rate is highest in India, Indonesia and Mexico, and lowest in Chile, China and the Russian Federation. While this largely reflects differences in average living standards, countries with similar levels of GDP per capita may display different patterns of mobility and risk. For instance, Turkey, Chile and South Africa have very similar levels of average earnings (Figure 5.2), but the risk of extreme low pay faced by the average Turkish and South African worker is respectively three and four times higher than their counterparts in Chile. The estimates in Figure 5.4 take into account the cushioning effects of social insurance by incorporating all public transfers in the measure of earnings. However, since most such transfers are not designed to reduce the specific risk of falling into extreme low pay, social insurance accounts for only a very small reduction in the risk of extreme low pay in the countries considered (Figure 5.A2.1 in Annex 5.A2). These patterns are robust to varying the choice of the absolute low-earnings threshold.

... which translates into higher levels of overall labour market insecurity than in most OECD countries

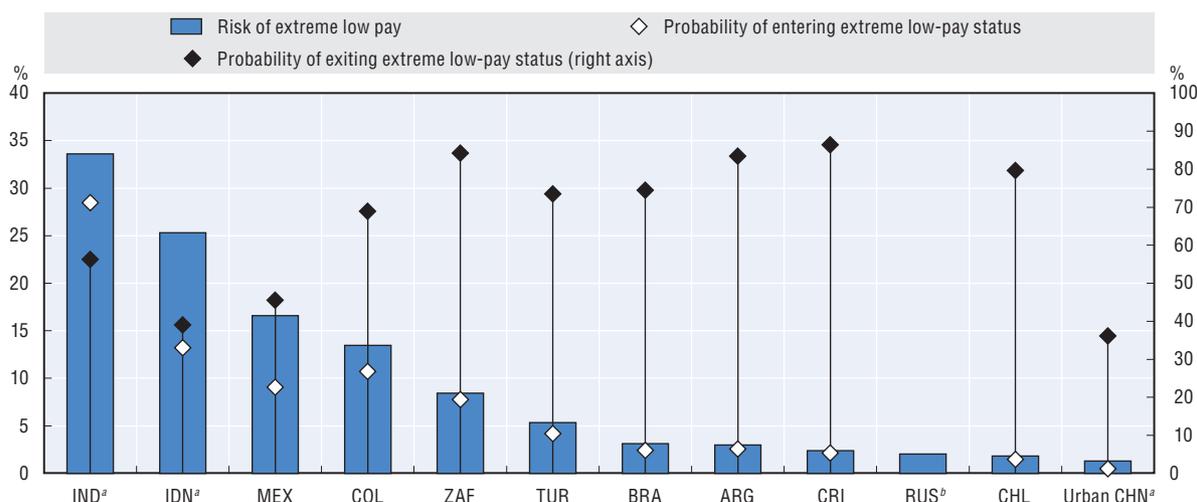
The high level of the risk of low pay in some emerging economies means that overall labour market insecurity would be underestimated if only the risk of unemployment were considered. The lack of a strong empirical association between the risk of unemployment and the risk of low pay across countries (as is evident when comparing Figures 5.3 and 5.4) also means that assessments of the relative level of insecurity in different emerging economies would be biased if only unemployment risk were considered. In order to obtain a complete picture of labour market risks, the results in Figures 5.3 and 5.4 are combined to create an overall measure of labour market security that is presented in Figure 5.5. This composite indicator is calculated as the insecurity from unemployment plus the insecurity from extreme low pay if employed.²⁵

Figure 5.5 reveals that truly high levels of labour market insecurity in emerging economies are generally driven by the risk of extreme low pay, rather than unemployment. The striking exception is South Africa, where the share of jobs with extreme low-pay is relatively low, while the risk of unemployment is substantial. A similar situation prevails in some developed economies (including several OECD countries), where the insecurity due to unemployment is quite high but higher productivity, minimum wage regulations and better social security greatly reduce the risk of extreme low-pay.

The incidence of working long hours is remarkably high in many emerging economies

Figure 5.6 displays the incidence of working more than 60 hours a week, which is the maximum authorised in the countries with the most permissive working time legislation

Figure 5.4. Labour market insecurity due to extreme low pay



Note: The low-pay threshold is set at USD PPP 1 in terms of net hourly earnings and corresponds to a disposable income per capita of USD PPP 2 per day in a typical household of five members with a single earner working full time. The choice of the household size follows Bongaarts (2001) and is based on data from Demographic and Health Surveys. Country rankings are generally robust to changing the low-pay threshold.

The probability of entering and exiting low-pay status are calculated by the pseudo-panel methodology proposed by Dang and Lanjouw (2013) using the sample of employed individuals. The risk of low pay is calculated by (the scaled transformation) of the probability of entering low-pay status times the inverse of the exit probability, and shows the likelihood that an individual's earnings are below the low-pay threshold at any given time.

The data displayed represent net hourly earnings adjusted for social transfers. Calculations are based on 2009-10 data, except for Brazil (2009-11), Chile (2009-11), China (2008-09), Costa Rica (2010-12), India (2011-12), Mexico (2010-12), Russia (2010-12), South Africa (2010-12) and Turkey (2011-12).

a) The data for China, India and Indonesia do not contain transfers, so an insurance rate of 0% is assumed.

b) For Russia, transition probabilities could not be estimated due to categorical income data. The corresponding risk figure therefore represents the share of employed working-age individuals living in households with a monthly disposable income of less than RUB 6 000, which corresponds to an hourly low-pay threshold of USD PPP 1.14 (as of 2010) for a member of a two-earner family working full-time.

Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: China, GEIH: Colombia, ENHAO: Costa Rica, NSS: India, SAKERNAS: Indonesia, ENIGH: Mexico, NIDS: South Africa), the EU-SILC national files (Turkey) and the European Social Survey (Russia).

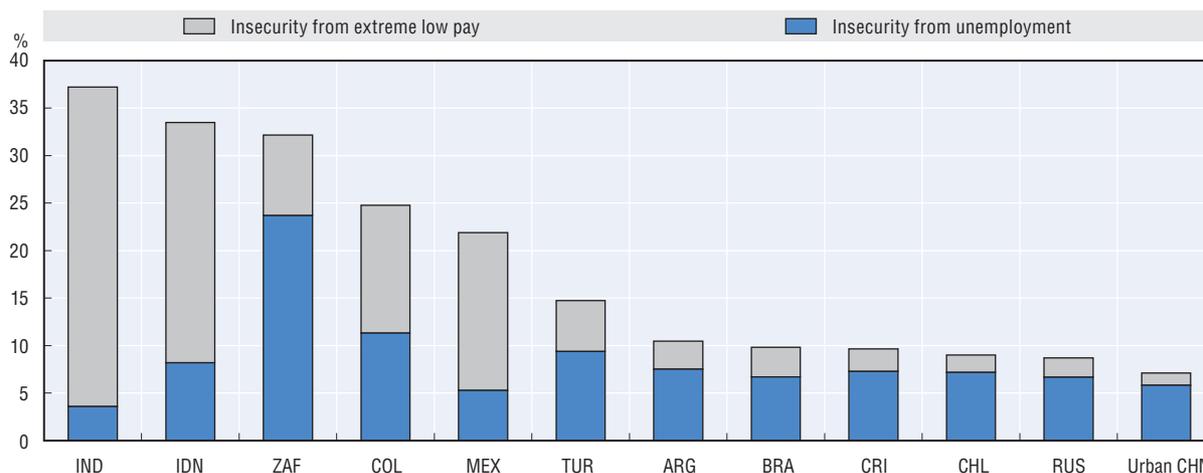
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among the countries included in this chapter (i.e. Colombia and Costa Rica).²⁶ The data show that the incidence of very long hours is remarkably high in six of the twelve emerging economies analysed in this chapter, and mostly higher than in advanced OECD countries (with the possible exception of Greece, Japan and Korea) (see also Box 5.1). There is however considerable heterogeneity across emerging countries, with Turkey, Colombia, Indonesia, India, Mexico and Costa Rica having a high incidence (from 12% up to 21% in Turkey) and South Africa, Chile, the Russian Federation and Brazil at levels below 5%. In all countries self-employed workers have a significantly higher incidence of very long hours than employees (the most dramatic example of this divergence being urban China). This is to be expected, since the self-employed do not face the same regulations and have more discretion in choosing their own working schedule.

How do workers compare?

It is also important to look at how different socio-demographic groups fare within countries. Doing so can provide new insights into labour market inequalities by shedding light on the nature and depth of the disadvantages faced by some segments of society. A break-down of the principal job quality indices and employment rates by gender, age and

Figure 5.5. Overall labour market insecurity

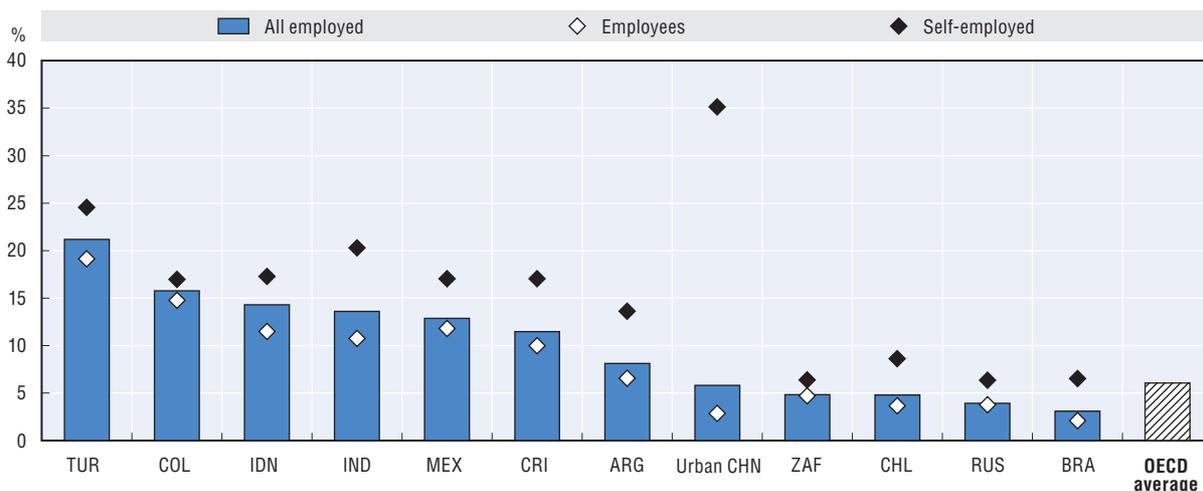


Note: Overall labour market insecurity is calculated as insecurity from unemployment plus the insecurity from extreme low pay if employed. Formally, $LMI_{OVERALL} = LMI_{UNEMPLOYMENT} + (1 - RISK_{UNEMPLOYMENT}) * LMI_{LOW-PAY}$, where LMI stands for labour market insecurity. Calculations are based on 2009-10 data, except for Brazil (2009-11), Chile (2009-11), China (2009-11), Costa Rica (2010-12), India (2010-12), Mexico (2010-12), Russia (2010-12), South Africa (2010-12) and Turkey (2011-12).

Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: China, GEIH: Colombia, ENHAO: Costa Rica, NSS: India, SAKERNAS: Indonesia, ENIGH: Mexico, NIDS: South Africa), the EU-SILC national files (Turkey) and the European Social Survey (Russia).

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Figure 5.6. Incidence of very long hours



Note: Working long hours is defined as working more than 60 hours in an average week. Figures represent 2010 values except for Brazil (2011), Chile (2011), China (2009) and India (2011).

Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: China, GEIH: Colombia, ENHAO: Costa Rica, SAKERNAS: Indonesia, ENIGH: Mexico, NIDS: South Africa), the EU-SILC national files (Turkey), the European Social Survey (Russia) and the Gallup World Poll (India). The respective figure for the OECD concerns all employed and is calculated as the simple cross-country average based on the OECD Employment Database.

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level of education was calculated for each country and cross-country averages are presented in Figure 5.8. The results show that some socio-demographic groups cumulate many disadvantages, while other groups show a good performance in all dimensions.

The worst off in terms of job quality are youth and low-skilled workers. These two groups cumulate low employment rates (Panel D) with poor outcomes along the different

Box 5.1. Job strain in four emerging economies*

As a supplement to the very long hours indicator presented in Figure 5.6, it is feasible to compute the reduced job strain indices from OECD (2014, Chapter 3) for four of the emerging economies considered in this chapter. The left panel of Figure 5.7 shows the percentage of employees in strained jobs in Mexico, South Africa, Turkey and the Russian Federation, together with the OECD average in 2005. The results show that these countries generally perform worse than the OECD average, except for Mexico which displays the lowest share of strained jobs (34%). In the three other emerging countries, job strain is experienced by between 49% and 67% of all employees (South Africa and Turkey, respectively). All four countries have a higher proportion of workers experiencing a high level of job demands than the OECD average, notably due to time pressure.

Figure 5.7. Job demands, job resources and incidence of job strain

Percentage of all employees in selected emerging economies, 2005



Source: OECD calculations based on Eurofound (2007), Fourth European Working Conditions Survey for Turkey; and International Social Survey Programme Work Orientations Module (2005) for others.

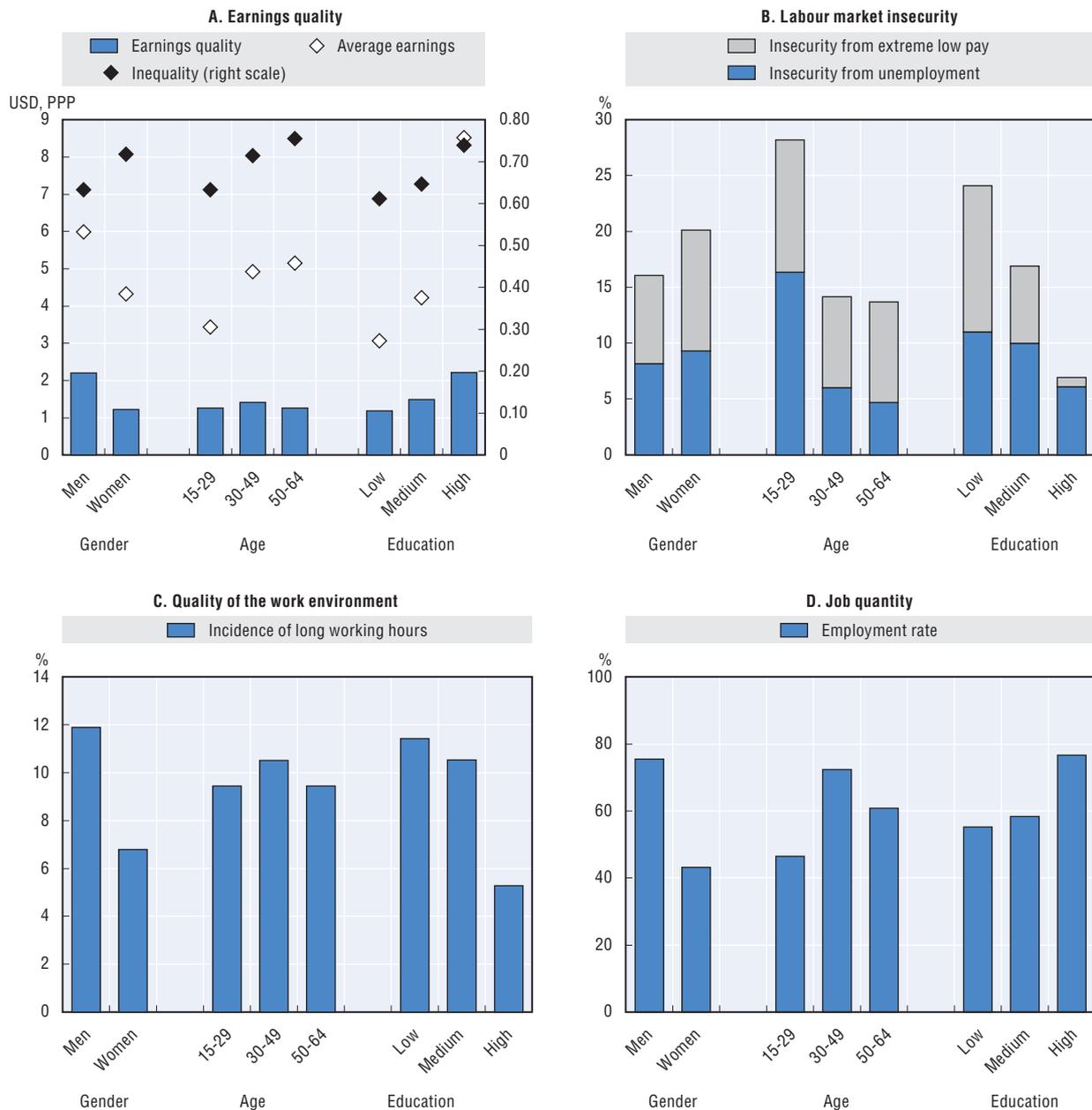
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As is shown on the right panel of Figure 5.7, there are important cross-country differences in the available job resources to compensate for those stress factors. For instance, Turkey and the Russian Federation have a high proportion of jobs with strong time pressure and insufficient resources to compensate for stress factors, while good workplace relationships play a buffer role in Mexico and South Africa. Moreover, a cross-country analysis of this small sample suggests that, long hours are indeed an adequate proxy to be used for measuring the QWE in emerging economies, even though long hours and job strain indices certainly do not capture exactly the same aspects of work (for instance time pressure, one of the key driver of job strain includes in addition to long hours, a notion of work intensity). It should not be surprising, therefore, that cross-country rankings may differ.

* This box benefited from the excellent statistical support from Hande Inanc (OECD Statistics Directorate).

dimensions of job quality (Panels A-C). By contrast, high-skilled workers have both higher employment rates and the best quality jobs along all of the dimensions analysed. Women face some clear disadvantages. A gender gap exists in terms of earnings quality and job quantity (i.e. employment). Women also face higher labour market insecurity, as captured by

Figure 5.8. Job quality and quantity outcomes by socio-demographic groups



Note: The figures represent unweighted country averages of all twelve sampled emerging economies, except that: i) China is excluded from employment rate calculations in Panel D due to data availability reasons; and ii) China, India, Indonesia and Russia are excluded from the calculation of overall labour market insecurity in Panel B due to missing information on social transfers. Employment rates for Panel D are calculated using the same data sources as for the rest of the analysis, except that the *OECD Education Database* was used for Russia. For more information about the construction of these indicators, see the corresponding notes to previous figures.

Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: China, GEIH: Colombia, ENHAO: Costa Rica, NSS: India, SAKERNAS: Indonesia, ENIGH: Mexico, NIDS: South Africa), the EU-SILC national files (Turkey), the *European Social Survey* (Russia) and the *Gallup World Poll* (India).

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the risk of extreme low pay, but their risk of unemployment is similar to that experienced by men. However, women are less exposed than men to very long working hours.

While these results are broadly representative of the patterns observed in different economies, the aggregate figures hide a considerable degree of heterogeneity across countries. Most importantly, it is crucial to observe that between-group disparities tend to decrease with the aggregate level of job quality. In other words, a higher score for a country in a given dimension of job quality typically reflects less inequality between groups and, in particular, a more favourable (relative) position for the most disadvantaged.

The quality gap between formal and informal workers

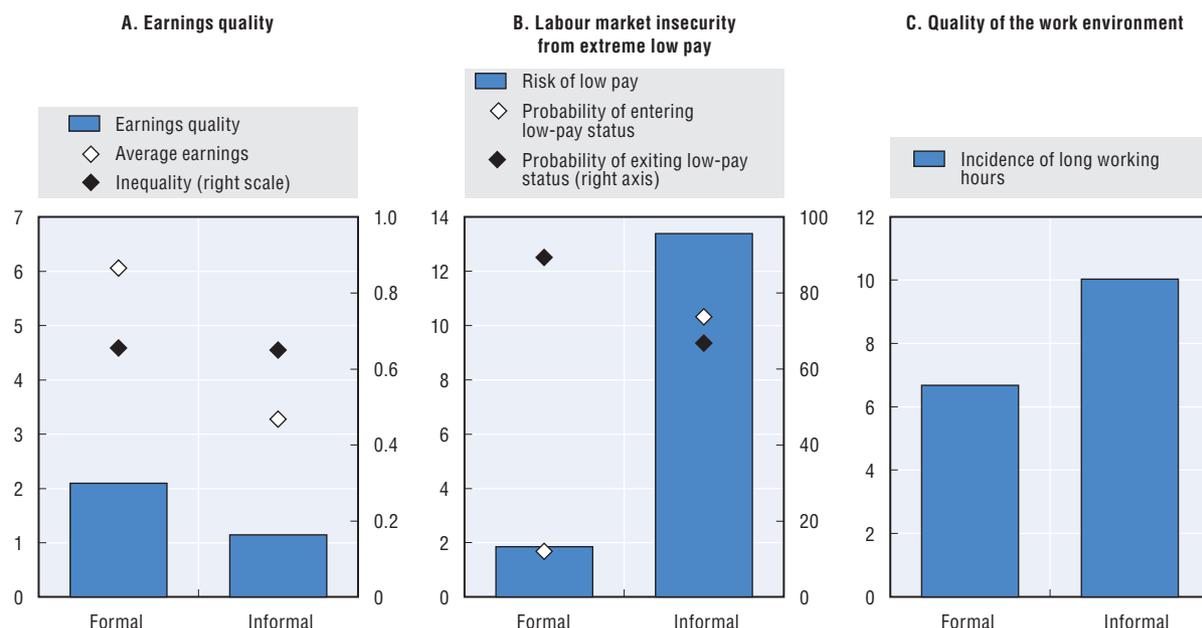
The high incidence of informality in the labour market is one of the most salient features of emerging economies. Jütting and J. de Laiglesia (2009) estimated that 60% of all non-agricultural employment worldwide is in the informal sector, with higher shares in Africa, South Asia and Latin America. The research literature has long debated whether informality is a choice or rather a necessity for most workers involved, concluding that the sector is highly heterogeneous.²⁷ With a view to advancing this unresolved debate, this section makes use of the job quality framework outlined above to gauge the magnitude of the quality gap between formal and informal jobs along the three dimensions used in the *OECD Job Quality Framework*.

Informal workers are defined here as “those salaried workers who are not affiliated to social security systems (do not pay contributions) and those own-account (self-employed) workers whose business is not registered.”²⁸ This choice is consistent with both much previous research and the conceptual underpinnings of this chapter, which place the emphasis on individual workers, as opposed to firms.²⁹ Furthermore, since part of the motivation is to explore the link between labour market security and well-being, a definition based on access to social welfare appears to be the particularly appropriate.³⁰ Using this definition, the incidence of informality (in total employment) among the countries considered ranges from less than 10% in Russia to more than 70% in India and Indonesia. Informality is more prevalent among women, younger workers and especially among the low-skilled (see Box 5.2 for a detailed discussion).

Figure 5.9 compares earnings quality, labour market insecurity from the risk of low-pay and quality of the working environment (as defined by the incidence of very long working hours) for formal and informal workers.³¹ The results strongly suggest that informal jobs are worse along all the dimension of job quality:

- Earnings inequality is similar among formal and informal workers, but formal workers earn significantly more on average and thus their level of earnings quality is substantially higher. Lower average earnings for informal workers are consistent with the widely held perception that informal jobs are less productive.³² While earnings quality is lower among informal workers in all the countries analysed, the quality gap is widest in Argentina and South Africa and smallest in Chile, Mexico and Colombia (not shown). Cross-country differences are largely driven by differences in the size of the average earnings gap between the two sectors.
- The difference in terms of labour market risk is very stark. Informal jobs tend to be associated with a significantly higher incidence of extreme low pay in all the countries considered (approximately seven times higher on average across these countries). Moreover, the analysis of upward and downward earnings mobility reveals that downward mobility is generally higher in informal jobs, whereas upward mobility is significantly larger in formal jobs. This means that workers holding informal jobs not

Figure 5.9. Job quality among formal and informal workers



Note: Figures represent unweighted country averages across all sampled emerging economies except Indonesia. Due to missing information, China was excluded from the calculation of labour market security in Panel B, while India was excluded from the calculation of the incidence of long working hours in Panel C. Classification between formal and informal status is based on social security payments (employees) and business registration (self-employed), except for Colombia and Russia where information on work contract (written or not) was used. For more information about the construction of the job quality indicators used, please see the notes to Figures 5.2, 5.3 and 5.4. Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: China, GEIH: Colombia, ENHAO: Costa Rica, NSS: India, ENIGH: Mexico, NIDS: South Africa), the EU-SILC national files (Turkey), and the European Social Survey (Russia).

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only face the most significant downward risks, they also have fewer opportunities for wage progression.

- The share of workers working very long hours averages 10% for workers in informal jobs, as compared to 6.7% for workers in formal occupations. Very long hours are more common for informal workers in all countries reviewed in this chapter except for Chile and Mexico, where the two shares are similar. In Turkey, one of the countries with the highest incidence of working very long hours, 29% of workers in informal jobs work more than 60 hours a week against 16% of those with formal jobs; in Colombia, where informal work is also widespread, the two shares are 20% and 11%.
- The bivariate results reported in Figure 5.9 are confirmed by a simple regression analysis (see Annex Table 5.A3.1), which shows that even after controlling for differences in the gender, age and educational composition of the formal and informal workforces, informality is associated with a negative and significant job quality gap.

2. How hard is it to escape low-quality informal jobs?

The previous section documented a significant quality gap between formal and informal jobs. This section takes a dynamic perspective and, in the same vein as the dynamic analysis of working lives in Chapter 4, investigates how difficult it is to move out of informal jobs, what determines mobility and the extent to which different types of workers can hope to move out of informality over the course of their career. In doing so the

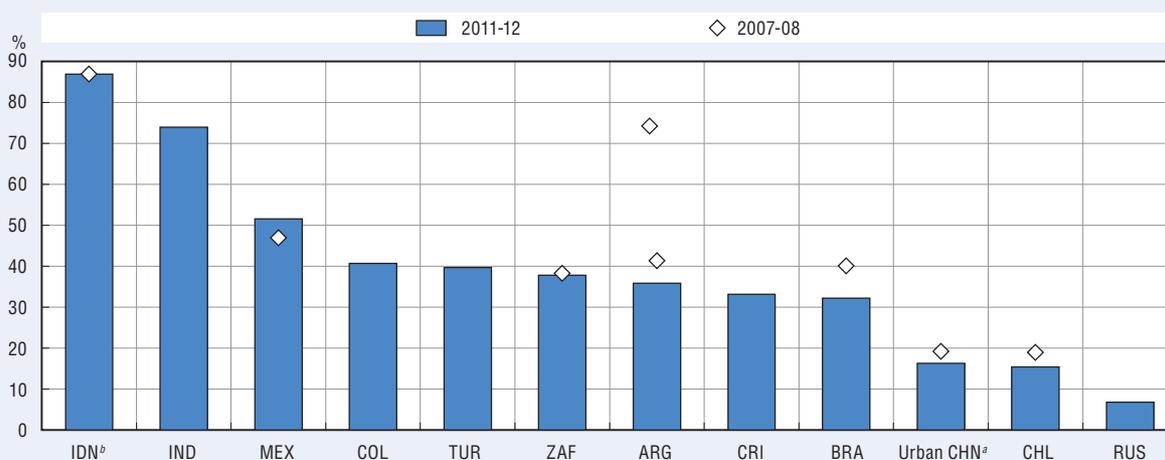
Box 5.2. Characterising informality

How common is informal employment in emerging economies?

Figure 5.10 compares the incidence of informality in total employment in the twelve emerging economies analysed in this chapter. It shows that the share of informal employment is highest in Indonesia and India (above 70%) and lowest in Chile, urban China and Russia (around or less than 15%). Argentina, South Africa, Colombia, Costa Rica and Brazil have similar levels of informality (between 35% and 40%), moderately below Mexico and Turkey (between 40% and 50%). In countries where time-series data are available, informality appears to have fallen in recent years (the only exception being Mexico). Some of the most significant reductions have been recorded in Brazil, thanks to effective policy measures to induce formalisation (to be discussed in the final section of the chapter).

Figure 5.10. **Incidence of informality in emerging economies**

As a share of total employment



Note: Informality is defined to include: i) employees who do not pay social contribution, except for Colombia, where contract status is used; and ii) self-employed workers who do not pay social contributions (Brazil, Chile, China, India, Indonesia, Turkey) or whose business is not registered (Argentina, Colombia, Costa Rica, Mexico, South Africa).

a) The figures for China are for 2008 and 2009.

b) All figures for Indonesia are for 2007.

Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: China, GEIH: Colombia, ENHAO: Costa Rica, NSS: India, SAKERNAS: Indonesia, ENIGH: Mexico, NIDS: South Africa), the EU-SILC national files (Turkey) and the European Social Survey (Russia).

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Who works in the informal sector?

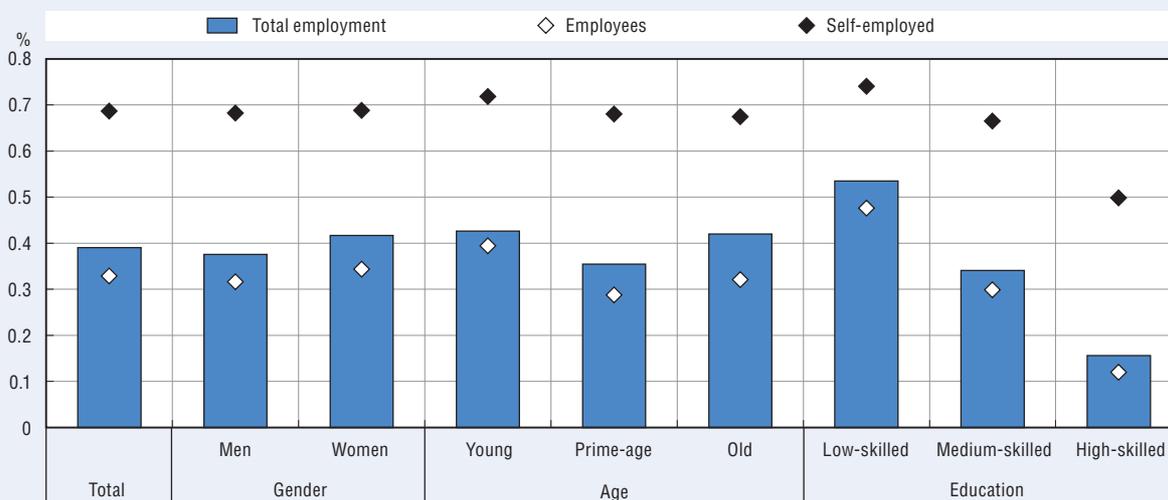
Figure 5.11 shows how the average incidence of informality varies by worker characteristics. It highlights some clear patterns. *First*, informality is only slightly more common among women than it is among men. *Second*, it is higher among younger and older workers than it is among prime-aged ones. To the extent that informal jobs constitute a stepping stone towards formal careers for youth, a high incidence for this age group may not be a source of major concern. However, if informality has strong scarring effects, starting a career with an informal job may be highly detrimental. The implications of the relatively high incidence of informality among older workers can also vary. Some older workers may choose to work informally prior to retirement, but others may lack opportunities for formal employment when they lose their career jobs. *Third*, and most strikingly, the incidence of informality is over three times higher among low-skilled workers than it is among high skilled ones. This result is consistent with the productivity gap that divides formal and informal firms (La Porta and Schleifer, 2014). It also suggests that informal jobs may often be the only opportunity available to unskilled workers with stark implications for inequality. *Finally*, and consistently

Box 5.2. Characterising informality (cont.)

with existing evidence, informality is significantly more common among the self-employed than it is among dependent workers in all the countries considered. This provides a strong indication that informal jobs are often a subsistence strategy, as workers who lack opportunities for formal wage employment need to generate employment opportunities out of their own initiative.

Figure 5.11. **Incidence of informality by key worker characteristics**

Average of selected countries, 2010^a



Note: Informality is defined as: i) employees who do not pay social contribution, except for Colombia, where contract status is used; ii) self-employed who do not pay social contributions (Brazil, Chile, India, Turkey) or whose business is not registered (Argentina, Colombia, Costa Rica, Mexico, South Africa).

a) The figures exclude China and Indonesia (due to data availability) and Russia (where it has not been possible to separately identify informal self-employment); figures for Brazil, Chile and India are from 2011.

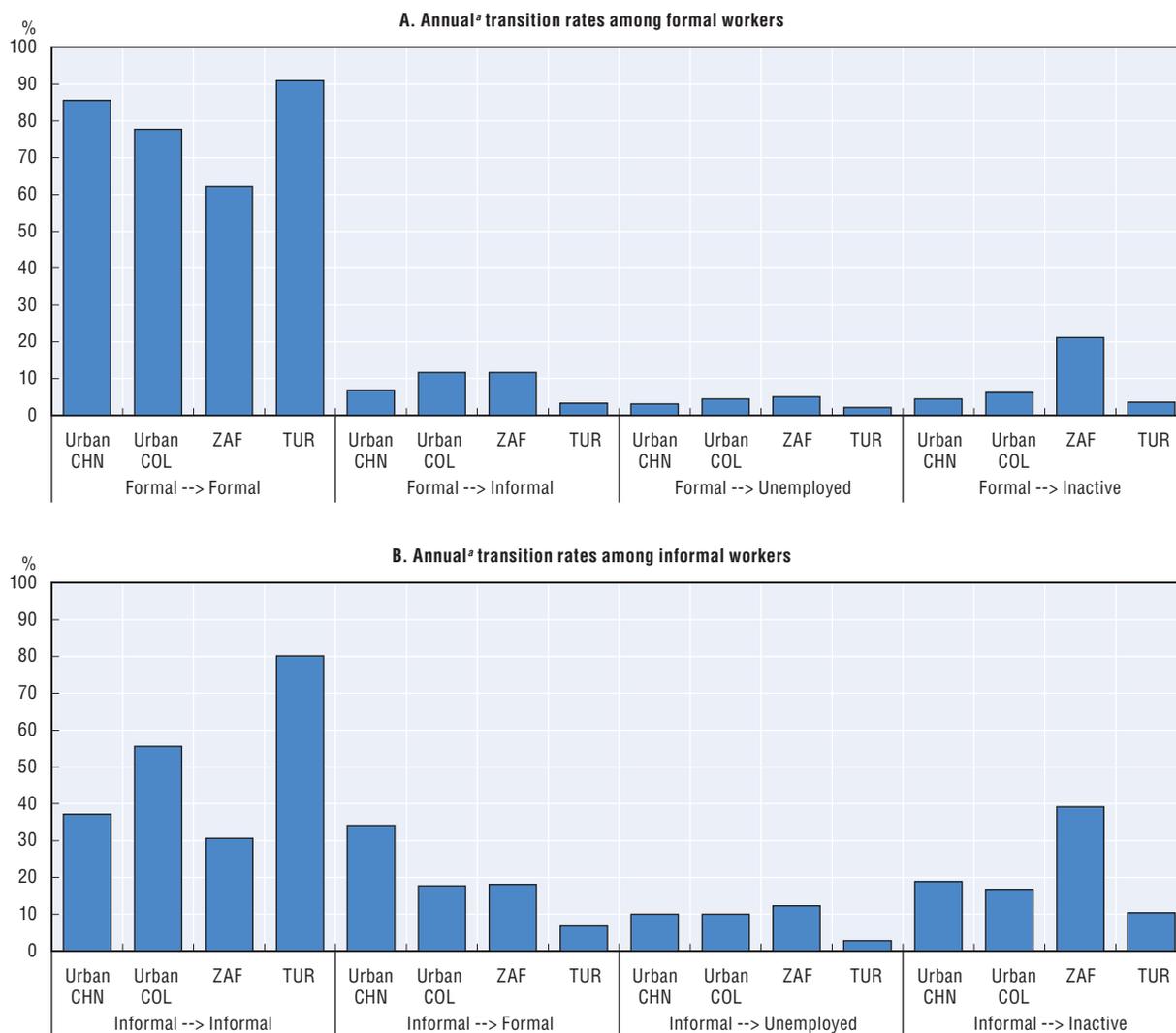
Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: Colombia, ENHAO: Costa Rica, NSS: India, ENIGH: Mexico, NIDS: South Africa) and the EU-SILC national files (Turkey).

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analysis attempts to address a long-standing debate on whether informal jobs constitute a stepping stone or a trap. To meet these objectives, the focus are placed on a subset of four emerging economies where panel data at the individual level are available: urban Colombia, South Africa, urban China and Turkey. This permits an in-depth investigation of job-transitions and their determinants.

Informal jobs are highly unstable...

As a first step, it is useful to quantify the extent of mobility into and out of informal employment. Figure 5.12 plots the probability that formal (Panel A) and informal workers (Panel B) change employment status between two consecutive survey waves.³³ A first finding is that informal jobs are very unstable. In every country analysed, the percentage of workers who remain employed in the informal sector between any two years is significantly lower than the retention rate among formal workers. Second, a significant percentage of informal workers move to a formal job every year, ranging from 7% in Turkey to 34% in urban China. Finally, informality also appears to expose workers to a significantly

Figure 5.12. **Flows into and out of informality**

Note: Informality is defined as all employed persons not paying social contributions in Turkey and China. In Colombia and South Africa, informality includes both employees not paying social contributions and self-employed persons whose business is not registered. The sample for China and Colombia covers the urban population only. Annual transition rates are calculated over the following periods for China (2008-09), Colombia (2009-10) and Turkey (2010-11), while the figures for South Africa represent bi-annual transitions calculated over the 2010-12 period.

a) Except for South Africa, where the transitions are bi-annual.

Source: OECD calculations based on national longitudinal household and labour force surveys (UHS: China, Fedesarollo: Colombia, NIDS: South Africa) and the EU-SILC national files (Turkey).

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higher probability of unemployment and inactivity than formal employment. This is particularly striking in South Africa, where the economic crisis led to a dramatic flow into inactivity, which was particularly significant among informal workers. Overall, it appears that informal jobs are highly volatile. They offer a sizeable probability of moving to the formal sector (in this respect they may constitute a stepping stone), but are also characterised by a high risk of job loss, including transitions into inactivity.³⁴

... and they are harder to escape for women, older workers and especially for low-skilled workers

Looking at the socio-demographic characteristics of workers who move from an informal to a formal job reveals that women, older workers and, in particular, low-skilled workers find it especially hard to escape informal jobs. The results are summarised in Annex Figure 5.A3.1.

Informal workers are often more likely to move to temporary jobs...

To assess whether informal jobs are a useful stepping stone to good quality employment, it is first important to recall that not all formal jobs are equally appealing and the answer thus depends on which formal jobs are accessible to informal workers. In particular, a large literature documents the existence of a deep divide, within the formal sector, between jobs offering permanent contracts and those offering fixed-term contracts. The distinction is especially relevant from a job quality perspective since fixed-term jobs tend to be, on average, second best jobs characterised by lower earnings quality, higher labour market risk (due to both higher risk of joblessness and to lower unemployment benefit coverage) and lower quality of the working environment (OECD, 2014, Chapter 3). Furthermore, these forms of fixed-term employment are quite widespread in emerging economies, notably in Latin American countries and China.

Which types of formal jobs are informal workers more likely to access? Panel A of Figure 5.13 addresses this question by showing that the majority of informal workers who transit to formal jobs moves into fixed-term employment in urban Colombia and urban China, while the opposite holds for South Africa and Turkey. Low transition rates from informality to fixed-term contracts in Turkey and South Africa can be, at least partly, explained by the relatively restrictive legislation on fixed-term employment in the former and the very light employment protection rules applying to permanent contracts in the latter.

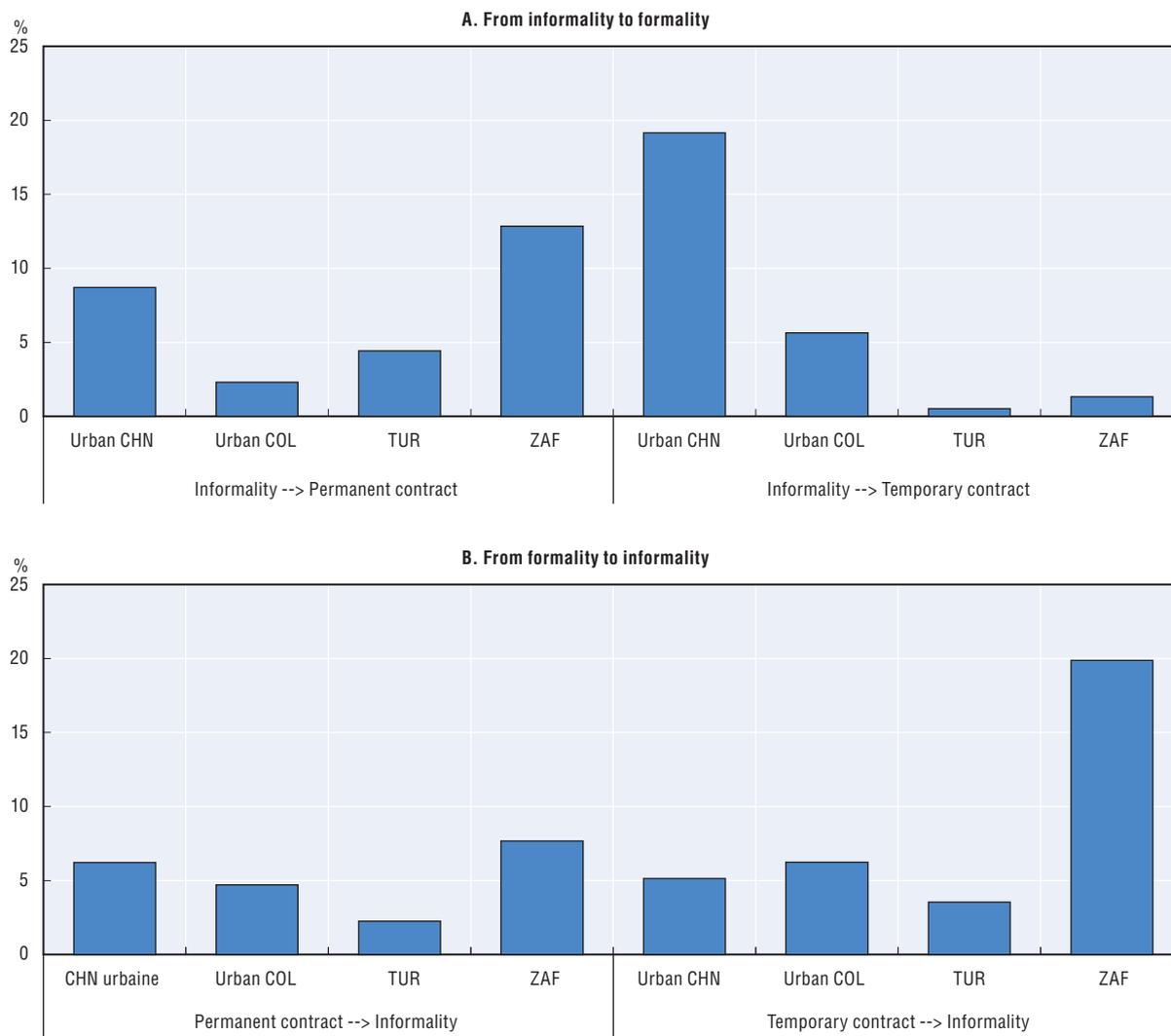
... and temporary jobs in the formal sector generally carry the highest risk of subsequently falling into informality

Panel B of Figure 5.13 shows that workers in the formal sector in all the countries analysed except urban China are significantly more likely to transition to informality if they work in a fixed-term job than if they have a permanent contract. This evidence points to the potential existence of a vicious cycle, in countries like (urban) Colombia, where some workers may be stuck in a back-and-forth between informality, fixed-term formal jobs and joblessness. Such a possibility weakens the claim that informal employment typically serves as a stepping stone towards good careers. The next section sheds further light on this question.

Starting a career in informal jobs may constrain workers' prospects

What part of their career can different types of workers expect to spend in formal and informal jobs? Which workers face the bleakest prospects? And how do these prospects depend on whether a worker starts his/her career in a formal or informal job? To address these questions, the analysis uses a multinomial logit model (McFadden, 1974) and estimates transition probabilities as a function of worker characteristics and prior employment histories (the model is discussed extensively in Annex 5.A1). Figure 5.14 shows the estimated career shares that a worker who has an informal job at age 20 can expect to spend in each employment status (formal, informal, unemployed/inactive) over the following

Figure 5.13. **Informality and subsequent work**
Percentage of workers who change employment status



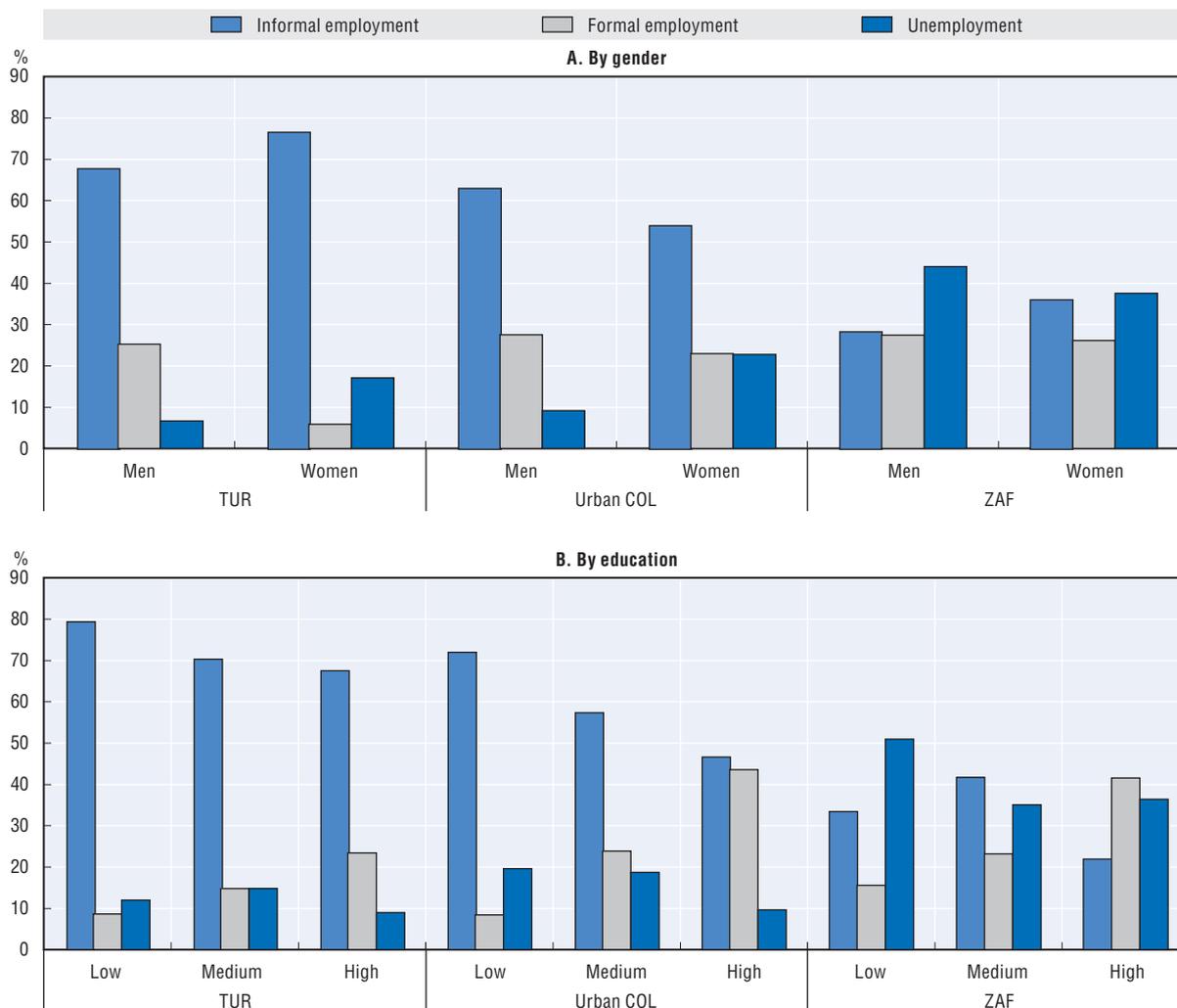
Note: Informality is defined as all employed persons not paying social contributions in Turkey and China. In Colombia and South Africa, informality includes both employees not paying social contributions and self-employed persons whose business is not registered. The sample for China and Colombia covers the urban population only. Annual transition rates are calculated over the following periods for China (2008-09), Colombia (2009-10) and Turkey (2010-11), while the figures for South Africa represent bi-annual transitions calculated over the 2010-12 period. Transitions from informality to formal self-employment are not included.

Source: OECD calculations based on national longitudinal household and labour force surveys (UHS: China, Fedesarrollo: Colombia, NIDS: South Africa) and the EU-SILC national files (Turkey).

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40 years, depending on his/her characteristics. The results, not available for China,³⁵ show that informality is hard to escape for workers in urban Colombia and Turkey, where persons starting their careers with an informal job tend to spend the majority of their working life in informality. By contrast, since transitions out of informality are more common in South Africa, the resulting career share spent with an informal job is lower.³⁶ In all countries, the persistence of informality tends to fall with education (most significantly so in urban Colombia), indicating that high-skilled workers have a better chance of leaving informality, while there are no distinctive patterns by gender.³⁷

Figure 5.14. **Predicted career shares if a worker starts with an informal job**
Percentage over a total working life

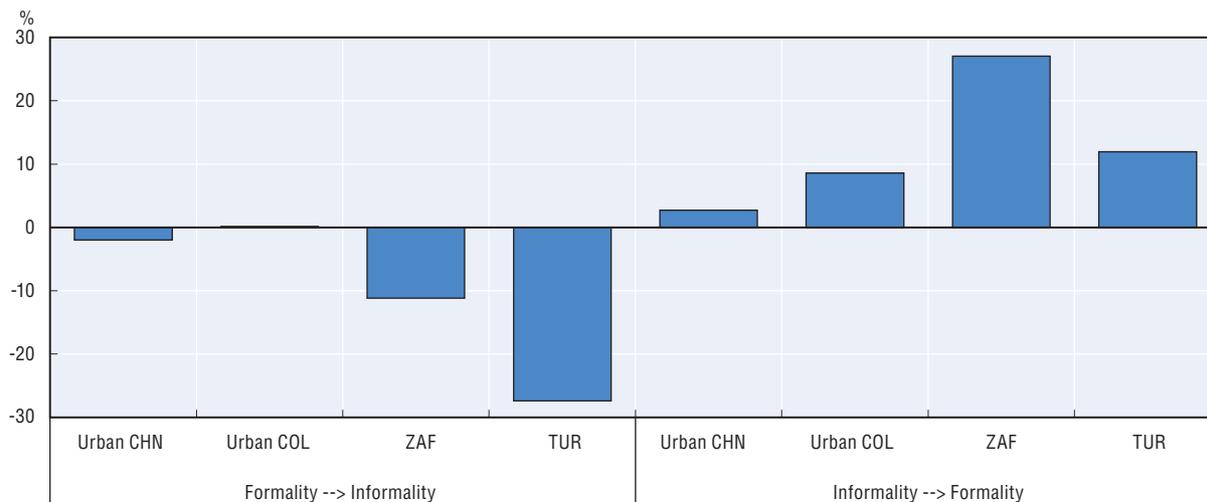


Note: Predictions are based on yearly transition probabilities (bi-yearly for South Africa) obtained from a dynamic multinomial logit model, controlling for individuals' observed characteristics. Figures represent shares obtained for a simulated working life from age 20 to age 60. Source: OECD calculations based on national longitudinal household and labour force surveys (Fedesarrollo: Colombia, NIDS: South Africa) and the EU-SILC national files (Turkey).

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Having documented the extent and the determinants of movement into and out of informality, the final part of the analysis investigates the link between transitions into and out of informal jobs and workers' earnings (hence providing indirect evidence on the well-being implications of such transitions). In particular, given the structure of the available data, it is possible to estimate the average earning changes associated with different job transitions (i.e. into and out of informality), relative to average earning changes among workers who do not transition (stayers).³⁸ Figure 5.15 plots the results by country and shows that transitions to informality tend to be associated with earning losses, although the estimated changes are very small in urban China and urban Colombia. Given that endogenous sorting might take workers towards the type of job where their comparative advantage is highest, this result is likely to represent a lower bound on the actual negative effect of informality.³⁹ Splitting the analysis by worker characteristics (gender, age,

Figure 5.15. **Changes in earnings when moving into and out of informality**
Average percentage change in earnings among employees



Note: Informality is defined as all employed persons not paying social contributions in Turkey and China. In Colombia and South Africa, informality includes both employees not paying social contributions and self-employed persons whose business is not registered. The sample for China and Colombia covers the urban population only. Earnings changes are calculated relative to stayers (i.e. subtracting the average change in earnings among stayers from the average change among movers) over the following periods: China (2008-09), Colombia (2009-10), South Africa (2010-12), Turkey (2010-11). The distribution of earnings changes is trimmed at the 1st and 99th percentiles. Source: OECD calculations based on national longitudinal household and labour force surveys (UHS: China, Fedesarollo: Colombia, NIDS: South Africa) and the EU-SILC national files (Turkey).

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education) further reveals that men stand to gain more than women from transitions out of informality, young workers gain more than older ones and highly skilled workers gain the most (the results are presented in Annex Figure 5.A3.2).

In conclusion, the chapter shows that informal jobs are less desirable in terms of job quality, they rarely lead to better employment opportunities and are hardest to escape for the most disadvantaged members of the workforce (e.g. low-skilled workers), who are most likely to be trapped in a vicious cycle between informal jobs, temporary contracts and joblessness. While these conclusions hold on average, one should keep in mind that informal jobs are also extremely diverse. They range from low-pay manufacturing jobs, which are characterised by low quality working environments, limited access to social insurance and no labour regulations, to productive forms of entrepreneurship that (in some relatively rare occasions) thrive in the absence of regulation. Some of this heterogeneity is already evident in Annex Figure 5.A3.2, which shows that different types of workers fare very differently when they move out of informality. Furthermore, Figure 5.A3.3 plots the full distribution of changes in (log) earnings that result from transitions from informality to formality in three of the countries analysed in this section. It shows that while some workers clearly benefit from moving out of informality, the informal sector is far more desirable for others, at least from an earnings perspective. This conclusion is consistent with a large existing literature, including Fields (1990), Maloney (2004) and recent work by Falco et al. (2015).

3. Policy implications

This section highlights some key policy orientations for enhancing job quality in emerging economies drawing on the evidence presented in this chapter as well as previous issues of the

OECD *Employment Outlook* (OECD, 2010; OECD, 2011, Chapter 2). In particular, it considers policy actions to improve the quality of existing jobs, help workers move to better quality jobs and reduce the share of low quality jobs in total employment by curbing informality.⁴⁰ These different policy actions would need to be tailored to national specificities and institutional frameworks before they can be implemented at the country level.

Enhancing jobs quality through more effective social protection systems and labour laws

The findings presented in this chapter have shown that the multitude of risks that workers (notably those with informal jobs and with low-skills) face represents a major drag on job quality in emerging economies. These risks include a high exposure to earnings volatility, a high risk of falling below minimal subsistence levels and frequent exposure to stressful working conditions such as very long hours.

In light of these considerations, policy makers should consider placing priority on promoting measures that increase workers's security and the quality of their working environment, such as safety standards and labour regulations. Among the most important policy objectives are the development of adequate and effective social protection systems (unemployment compensation and social assistance programmes, such as cash transfers and health-care benefits) and the promotion of effective labour laws (good design and especially proper enforcement). While there are large differences across countries, most emerging economies are still lagging behind in these two areas. They often have a weak administrative and institutional capacity to administer social protection programmes, and low levels of enforcement, making labour legislation ineffective. Labour market policies, such as active measures and unemployment benefits schemes are either non-existent or have only a modest reach and effectiveness.

Among the countries analysed in the chapter, only a few have an effective system of unemployment benefits.⁴¹ The share of the unemployed effectively covered by unemployment benefits is much lower than in advanced economies, generally less than 15%, except for Chile and the Russian Federation where it ranges from 20 to 25% respectively (OECD, 2011, Chapter 2). While these low coverage rates can be explained by different factors (e.g. strict eligibility rules in Turkey, Chile and China; an obligation to be affiliated to the social security schemes in several countries), it ultimately implies low income support for the unemployed in the majority of these countries. Furthermore, these schemes tend to be less generous than the OECD average, with lower replacement rates and shorter duration of entitlements in the majority of emerging economies. The share of expenditure on unemployment benefits as a proportion of GDP provides an additional indication of both the coverage and generosity of unemployment systems: despite some cross-country variation, these shares are generally much lower in emerging economies than in advanced OECD economies (OECD, 2010).

Building more effective unemployment compensation systems, including by establishing or expanding a system of unemployment *insurance*, is a challenging but important policy priority that governments of emerging economies should consider in light of the insufficient income protection generally provided by existing schemes. Among the immediate objectives is to improve benefit administration, strengthen incentives for working formally and target benefits to those most in need (OECD, 2011, Chapter 2). One important challenge in designing an adequate and effective system of unemployment benefits is to strike the right balance between protection and work incentives. The latter encompass incentives to participate in the labour market and, crucially, the choice of

formal over informal employment.⁴² Eligibility conditions, generosity and duration of benefits should therefore be set at a level that does not discourage employment and, in particular, formal employment. Adequate unemployment benefits should be made conditional on strictly enforced work-availability conditions and be part of a well-designed “activation” package (OECD, 2010). The introduction of a system of unemployment benefits based on individual savings accounts in Chile is a good example of reforms that aim to strengthen the link between benefits and individual incentives.

Similar concerns apply when designing cash transfers (CTs) and health care schemes. These schemes, either unconditional transfers (such as *Dibao* in China, or the Child support grant in South Africa) or conditional ones (such as *Bolsa Familia*⁴³ in Brazil or *Oportunidades* in Mexico), are targeted at poor households and do not depend on the labour market status of the recipient. While their objective is to reduce extreme poverty, they can also be an important resource to help workers make better employment choices and facilitate more effective job search. Conditional CTs can also promote access to education and health care of workers and their families, with positive effects on human capital formation and future labour market outcomes. As for health-care benefits, they can play a key role in enhancing opportunities to develop physically and intellectually, increasing workers’ productivity and improving their employment prospects.

Although differences exist across programmes, target groups and share of the population covered, evidence suggests that the short-term impact of cash transfers on the incentives to participate in the labour market are limited and tend to be less negative for the poorest households. The longer-term effects of conditional cash transfers can be positive, if the conditionalities relate to investment in education and health. Ultimately, the design of these CT schemes and their long-term strategy are critical aspects to consider (OECD, 2011, Chapter 2).

The implementation of adequate health protection systems and their extension raises the same types of issues. While uncontroversial from an equity standpoint, it is often argued that significant efficiency losses may result from the introduction of non-contributory schemes. For example, the introduction of subsidised health insurance may reduce the value of formal jobs that offer employer-based insurance, hence encouraging informality. New evidence, however, suggests this is not necessarily the case in practice, since universal protection may free up resources and allow workers to participate more actively in the labour market. For example, Del Valle Suarez (2014) and OECD (2011, Chapter 2) show that the introduction of *Seguro Popular* in Mexico contributed positively to the country’s growth, by freeing women from their caring duties and bringing them into the labour force. *Bolsa familia* has lowered poverty and income inequality, without decreasing labour force participation (Soares et al., 2007). New results on the Child Support Grant in South Africa suggest that the programme has no adverse impacts on participation rates and formal employment, and may even contribute to reducing informality (Tondini, 2015). While this evidence provides novel insights into the work-incentives associated with non-contributory benefits, the debate is not yet settled and many observers are still concerned about the potentially perverse labour market effects of these schemes (see Levy and Schady, 2013 for a broad discussion).

These considerations imply that policy makers need to consider the range of available options and carefully assess their costs and benefits, taking into account the full array of channels through which such schemes may affect work-incentives, when introducing or

developing any social protection programmes. The options to consider include: targeting support to those who need it most; identifying how CTs can provide resources to help workers make better labour market choices and support more effective job search; unifying separate programmes or combining different policies under a common umbrella (this may also include some sequencing between measures, e.g. starting with targeted measures, such as conditional cash transfers, while then establishing the pre-conditions for implementing a broad-based unemployment benefit scheme); increasing the use of mandatory self-insurance based on individual saving accounts for those who can afford it while providing a redistributive component for those who cannot rely on individual savings (OECD, 2011, Chapter 2).

Another important policy implication relates to the effectiveness of labour laws in protecting workers in the presence of a large informal economy and weak law enforcement. In this respect, enhancing health and safety rules as well as working-time regulation, so as to converge towards international labour standards should be considered. The labour inspection system should be given sufficient resources to carry out its work effectively. The number of workers per labour inspector remains very high in countries like Colombia, Turkey or Mexico (28 000, 26 000 and about 192 000 respectively, OECD, 2015). Labour inspectors should be adequately qualified and able to use modern statistical techniques to increase the efficiency of their work. These techniques include statistical profiling so as to identify the workers and firms who are most at risk of informality and selective targeting of enforcement actions. Improved co-ordination among different government agencies is another necessary ingredient for success. One important policy lesson that can be drawn from these experiences is that good enforcement should be transparent and strict, but not be overly harsh, as informality ultimately constitutes a means of survival for many people. One potential concern with better enforced regulation is that it may increase the costs of formality and hence attract even more workers into the informal sector. This is a legitimate concern, but it should not be used as an excuse for inaction as its pertinence for any given initiative to strengthen enforcement needs be carefully assessed against the available evidence for that specific context.

More generally, the effectiveness of employment regulation could be enhanced through an adequate design of employment protection legislation and through stronger enforcement. Very often, employment protection legislation in emerging economies is strict in a *de jure* sense, but poor enforcement renders the legislation ineffective. In India, for instance, factories employing more than 100 employees are required to gain permission from the Ministry of Labour before making any dismissals. Figures from the Ministry of Labour's annual report show that in 2006, only 24 firms were given permission to dismiss a total of 884 workers. Despite this, job destruction rates in large manufacturing firms are relatively high, suggesting that many enterprises are able to evade this requirement (Venn, 2009). A survey of judges, labour inspectors, employment centres, employer organisations and trade unions in Russia shows also that labour law enforcement is seriously lacking: almost 85% of respondents think that non-observance of labour law is a serious or very acute problem, with hiring, contracts, dismissal, pay and working time being the areas of labour law most frequently violated (Gimpelson et al., 2008). In many Latin American countries, the failure of employers to make legally mandated severance payments is an important issue. A study of labour tribunal cases in Mexico finds that 60% of monetary awards made to employees in unfair dismissal cases are not collected (Kaplan and Sadka, 2011). Similarly, in Chile, according to a survey conducted in the early 2000s, only 44% of

the unemployed dismissed for economic reasons reported that they had received some form of compensation. Among those who should have received a payment but did not, 22% said that they had reached an agreement with their employer, while 44% stated that the employer had simply refused to pay (Sehnbruch, 2006).

Assisting workers to find quality jobs early in their careers

The dynamic analysis in Section 2 of this chapter suggests that starting with an informal job can leave permanent scars on workers' careers. It is important, therefore, that policy makers help workers get on a good career path early in their working lives; particularly low-skilled workers who face the highest risk of being trapped in low-productivity and low-quality jobs with limited career prospects.

In this context, policy makers should consider making use of the range of available active labour programmes, such as training schemes or entrepreneurship incentives. While originally conceived for OECD countries, such policy interventions also have an important role to play in emerging economies, notably in assisting young workers and the most vulnerable groups to transition from informal jobs to higher quality jobs in the formal sector, including by preventing human capital deterioration and creating new jobs. Each programme would need to be carefully adapted to the labour markets of emerging economies (where underemployment, informality and working poverty, as well as informal market transactions prevail) and to the weak level of technical (e.g. public employment service providers are often not well trained and under-staffed) and financial capacity.

The OECD Action Plan for Youth: "Giving Youth a Better Start" outlines a comprehensive range of measures to tackle the current youth unemployment crisis and strengthen the long-term employment prospects of all youth. Among the structural measures proposed, a strengthened education system that prepares workers well for the world of work is one of the priorities. This crucially entails increasing enrolment rates and reducing the number of school dropouts; but also increasing the quality of education and tailoring curricula to the needs of the labour market. Within this plan, a particularly important role is played by the vocational education and training (VET) system; this system should provide good foundation skills, be responsive to the needs of the labour market and have strong elements of work-based learning. Where possible, the social partners should be actively involved in developing VET programmes to make sure they are relevant to current labour market requirements.

Apprenticeships are another crucial element to give workers a better start in their careers, as they can help them overcome the hurdle of lacking experience. Well-designed apprenticeship systems can promote skills acquisition, facilitate the transition from school to work, increase the availability of quality jobs and reduce school drop-out rates. The main actions in this field should concentrate on giving better access to high-quality programmes to the most disadvantaged and disengaged youth. Another important issue is the need to improve the recognition and value of apprenticeships as an attractive career choice for youth. The limited evidence available for emerging economies suggests, however, that this is not a major issue compared to some OECD countries: apprenticeship completion rates reach about 80% in India, Argentina and Mexico, suggesting that the programmes' rules and content are rather well-suited to youth expectations and needs. Finally, the engagement of employers is another crucial element for the success of an apprenticeship schemes. Despite financial incentives, employers are often reluctant to engage with the apprenticeship system, especially when other forms of cheap labour are available. There

may be a difficult trade-off between ensuring that the costs to firms investing in apprenticeships are not too high and ensuring suitable working conditions and quality of training for apprentices. In Brazil, *Aprendiz Legal*, an apprenticeship programme based on a legal requirement for firms to hire apprentices, has been successful in expanding the number of apprenticeships (see OECD, 2015)

More generally and as advocated above, training schemes, job subsidies, entrepreneurship incentives, but also public work programmes, can promote job quality. In many emerging economies, specific work schemes and training programmes exist that can complement apprenticeship programmes. They include on the job training programmes in Turkey, the BECATE programme in Mexico and the *Joven* programmes in Chile, Argentina and Colombia, which combine education, job training and internships. These programmes have generally been shown to have a positive impact on formal employment (OECD, 2015). Furthermore, public works programmes can also provide important forms of social protection and improve longer term employment outcomes, as in the case of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREG) in India⁴⁴ or the Extended Public Works Programme (EPWP) in South Africa (Cazes and Verick, 2013). Yet, as already highlighted, in emerging economies such schemes often lack sufficient resources (both financial and technical) to be fully effective.

While overall spending on active policies in emerging economies is typically well below the levels observed in OECD countries (for instance, Mexico spent 0.01% GDP in 2007), ALMPs are spreading out, notably those targeting the most vulnerable groups in the labour market, including public work programmes and entrepreneurship incentives (Betcherman et al., 2004). These are important initiatives which need to be further scaled up. Maintaining or introducing cost-effective active labour market measures, including counselling and job-search assistance, can facilitate the transition of young workers into jobs and increase the efficiency of the matching process between job seekers and firms. In a situation of scarce resources, it is crucial that funds are allocated to the most effective interventions. However, programmes are usually not monitored and evaluated in a systematic way in these economies.

Reducing the incidence of low-quality jobs by curbing informality

Given the strong association between informality and low job quality documented in this chapter, policy measures to reduce informality can be expected to contribute to raising overall job quality. In that perspective, it is useful to briefly outline some key policy recommendations to promote formalisation, along three main pillars (OECD, 2008, Chapter 2).

- First, firms and workers need to clearly recognise the benefits of formalisation. Governments should improve the quality of the public services they deliver and strengthen the link between contributions and benefits in social protection schemes. Better public services will increase people's trust in their governments and strengthen their motivation to join the formal sector. As discussed above, the introduction of individual unemployment saving accounts (as in Chile) is a good example of how the costs of formalisation can be clearly linked to its benefits, providing incentives to workers to join the formal sector. Another example is South Africa, where domestic workers were included in the Unemployment Insurance Fund in 2003 and increasingly brought into the formal sector.

- *Second*, the costs of formality should be lowered for employers and the self-employed. Simplified tax and administrative systems, streamlined registration processes and a reduction in red tape are crucial steps in the right direction. Brazil provides a good example of the benefits of this approach. Over the past two decades, Brazil adopted a number of policy measures to reduce the costs of formality, such as the “Simples Law” that introduced a more progressive tax structure and simplified the collection of taxes and social security contributions. It is estimated that these measures contributed to the formalisation of 500 000 microenterprises accounting for 2 million jobs from 2000 to 2005 (Delgado et al., 2007).
- *Third*, enforcement methods should be improved. Enforcement agencies, such as labour inspectorates, should be given sufficient resources to carry out their work effectively (as already discussed in the previous section).

When implementing these recommendations, policy makers need to carefully tailor them to the specific context in which they are operating, and be mindful of their potential adverse effects. For instance, in some emerging economies, the formalisation process has been achieved at the cost of an increased casualisation of the (formal) workforce (as was the case in Colombia and Indonesia). Since temporary jobs are typically of low quality, this is not a desirable outcome.

Finally, it is important to emphasise that these sets of measures are likely to be most beneficial for workers on the verge of formalisation. As argued by La Porta and Shleifer (2014), informality is ultimately the result of both demand (i.e. high demand for basic products supplied by informal firms) and supply factors (i.e. poor skills). Many (possibly most) informal firms are fundamentally different from formal ones and they would be unable to compete in the formal economy, even if the costs of formalisation were low. This is why forcing these firms to enter the formal economy may simply drive them out of business. Ultimately, the best way to reduce informality is to encourage economic growth, since the general process of development tends to reduce the size of the informal sector (La Porta and Shleifer, 2014). It will also be important to foster skill accumulation, especially entrepreneurial skills, which are a fundamental driver of development.

Table 5.1 summarises the range of policies that appear best suited to promote high-quality employment in emerging economies.

Table 5.1. Promoting quality jobs through labour market policies and social protection

Policies to increase job quality in emerging economies		
Effective regulation	Social protection	ALMPs
Improve effectiveness of labour laws (notably working time regulations, health and safety in the workplace)	Implement/broaden social protection schemes including microinsurance and cash transfers to reach those in the informal economy and poor households in general	Develop ALMPs that target poor workers including public works programmes, employment guarantees, entrepreneurship incentives
Strengthen capacity of labour inspectors to enforce legislation		Implement ALMP for both under- and un-employed workers such as training and job search assistance
Simplify taxation	Expand/establish a universal social security system	Strengthen capacity of the public employment service

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Conclusions

The main contribution of this chapter is to adapt the *OECD Job Quality Framework*, which was first presented and applied to OECD countries in the 2014 *OECD Employment Outlook*, to the context of emerging economies, where a large share of the labour force is employed in the informal economy and thus largely outside the reach of regulation and without access to social protection. Using the extended framework, the chapter provides the first comprehensive analysis of job quality in twelve emerging economies for which the required data are available.

The implementation of the *OECD Job Quality Framework* is adapted to take into account the labour market specificities of emerging economies, while maintaining its fundamental principles and its three core dimensions: earnings quality, labour market security and quality of the working environment. Most notably, the labour market security dimension of job quality is extended to cover the risk of extreme low pay while employed, which is significant in most emerging economies. Furthermore, a suitable proxy for quality of the working environment is identified which overcomes data limitations that preclude using the job strain indices developed last year.

While this represents an important step forward in the analysis of job quality on a global scale, extending the job quality framework to emerging economies poses a number of challenges. Notably, the available data may not accurately reflect the actual replacement rates provided by social insurance and assistance benefit schemes. Second, approximating the quality of the working environment by the incidence of very long hours, while conceptually and statistically justified, inevitably results in a more simplistic approach than the full job strain model outlined in the 2014 edition of the *OECD Employment Outlook*.

The empirical analysis presented in this chapter provides a detailed picture of cross-country differences in job quality. The results show that the main issue for emerging economies is not the lack of jobs as such, but the shortage of quality jobs. This is partly the reflection of inadequate social security, which pushes workers into subsistence-level occupations. Earnings quality is generally much lower in emerging economies than in more developed OECD countries. This reflects both the wide gap in average earnings and the higher levels of inequality in emerging economies. Labour market insecurity due to unemployment is similar to the OECD average for most emerging economies, but workers in emerging economies face a significant additional risk of falling into extreme low pay while employed. The quality of the working environment is generally lower than in the OECD with the incidence of working very long hours being remarkably high in about half of the countries considered in the chapter.

The chapter also investigates the relationship between job quality and workers' socio-demographic characteristics and identifies the groups most at risk of low-quality employment. Like in advanced economies, young people and low skilled workers face the biggest challenges. They tend to cumulate poor performance in terms of both job quantity (i.e. low employment rates) and job quality (lower earnings quality, higher insecurity and lower quality of the working environment). Crucially, workers with informal jobs tend to do worse on all measures of job quality than workers with formal jobs. The chapter also provides a detailed analysis of transitions into and out of informal jobs in urban China, urban Colombia, South Africa and Turkey; assessing possible scarring effects of starting a career with an informal job. The results show that while mobility in and out of informality is fairly high, informality may leave long-lasting scars on workers' career prospects, so that

young workers who start with an informal job may expect to spend most of their working lives in informal employment.

While the chapter highlights the main types of policies needed to foster high quality jobs in emerging economies, further work will be necessary to identify the policy mix that best suits each country's specificities and institutional setting. Further statistical efforts will also be needed to verify and extend the empirical results presented here. Particular priority should be placed on better measuring the effectiveness of social assistance (coverage rates) and the quality of the working environment, where data are particularly scarce. Concerted international action, particularly among international organisations and policy makers, should support the broader use of job quality measures in analytical work and give job quality the place it deserves in the policy debate on labour market performance.

Notes

1. Open unemployment is a condition in which workers have no work to do, as opposed to underemployment (where their capacities are under-utilised) or disguised unemployment (where employment is effectively a work-sharing device in subsistence level activities with a marginal product of labour close to zero). Throughout the chapter unemployment will be interpreted as open unemployment and the two terms will be used interchangeably.
2. This chapter has been produced with the financial and substantive assistance of the European Union, as part of the OECD project "Defining, Measuring and Assessing Job quality and its Links to Labour Market Performance and Well Being" [VS/2013/0108 (SI2.666737)]. The contents of this chapter are the sole responsibility of the OECD and can in no way be taken to reflect the views of the European Union. This project is a joint undertaking between the OECD Directorate for Employment, Labour and Social Affairs and the OECD Statistics Directorate, and it runs until September 2015. The project also encompasses Chapter 3 of the 2014 *Employment Outlook* and Chapter 4 of this publication.
3. The statistical analysis has benefited from excellent assistance from Alessandro Tondini. The analysis on urban China has benefited from precious statistical support from Ms Zhe Liang.
4. The OECD *Job Quality Framework* is also fully consistent with the OECD Better Life Initiative (OECD, 2013), which builds upon the work of the Stiglitz-Sen-Fitoussi Commission. Annex 5.A4 Figure 5.A4.1 provides an overview of the relationship between these three frameworks for measuring well-being.
5. For a review of the main international job quality frameworks see Cazes et al. (2015).
6. This is a somewhat small departure from the OECD's approach to measure well-being, which considers both objective and subjective outcomes, based on the view that people's evaluations and feelings about their lives are as important as objectively measurable aspects that can be observed by a third party.
7. The general mean (GM) of order α for a distribution of earnings y is defined as:

$$W_{GM}(y, \alpha) = \left[\frac{y_1^\alpha + y_2^\alpha + \dots + y_N^\alpha}{N} \right]^{1/\alpha} \text{ if } \alpha \neq 0 \text{ and } W_{GM}(y, \alpha) = [y_1 \times y_2 \times \dots \times y_N]^{1/N} \text{ if } \alpha = 0$$

The order α can be taken to represent the level of inequality aversion, with lower levels of α placing more emphasis on the lower half of the distribution. For $\alpha = 1$, the general mean corresponds to the arithmetic mean under the assumption of inequality-neutral preferences, while values of α smaller than one imply inequality aversion. When earnings are equally distributed across the workforce, all general means equal the arithmetic mean. Exploiting this "normalisation" property of general means provides a measure of the welfare loss due to inequality, which can be represented as follows:

$$I_A = \frac{W_A(y) - W_{GM}(y, \alpha)}{W_A(y)} = 1 - \frac{W_{GM}(y, \alpha)}{W_A(y)}$$

where $W_A(y)$ stands for the arithmetic mean. I_A is the measure of inequality presented in the chapter.

8. The exact weighting depends on the specific distribution analysed. The figures provided here are based on the earnings distribution of a typical OECD country, but one can generally expect that assuming inequality aversion of -1 (or below, e.g. -3) will place most of the weight on the bottom deciles of the distribution.
9. While the PPP adjustment is the most consistent way to carry out cross-country comparisons, it presents some potential limitations. For instance, living standards may differ substantially across countries (despite the PPP correction) depending on the availability of free public services that are not in the PPP basket. Similarly, access to non-market production, which is likely to be more extensive in certain countries and in rural areas, may drive cross-country differences that the PPP adjustment is unable to correct for.
10. For a detailed description of the methodology, see Annex 5.A1. Risk estimates and country rankings are robust to changes in the estimated persistence parameter of individual earning shocks (see Figure 5.A1.1 in Annex 5.A1).
11. Table 5.A2.1 in Annex 5.A2 presents a detailed breakdown of the income transfer schemes in each country and identifies the subset of those schemes that could be studied using the available microdata and which are thus covered in this chapter's analysis.
12. The main methodological difference is that unemployment insurance was calculated in two steps in the 2014 *OECD Employment Outlook*. First, coverage rates and replacement rates were estimated using country-level information and model-based considerations to provide separate insurance rates by transfer type (unemployment insurance, unemployment assistance and social assistance transfers), which then were added up in the second step to generate the overall degree of insurance. In this year's chapter, due to both the use of microdata and the dominance of social assistance transfers, these steps are combined for simplicity to provide the overall insurance capacity of all transfers at once. Another methodological difference concerns the inclusion of severance pay in the calculation of unemployment insurance, due to the latter's greater importance relative to unemployment benefits in emerging economies (OECD, 2011, Chapter 2).
13. However other reference models are available, such as the Demand Control Model (Karasek, 1979) or the Effort-Rewards Imbalance Model (Siegrist, 1996), see OECD (2014) for further details.
14. Box 5.1 implements the reduced set of job strain indicators used in OECD (2014, Chapter 3) for the four emerging economies studied in this chapter where the necessary data could be accessed.
15. The most recent country-level figures published by the ILO date to 2003. More recent figures are only available for regional aggregates. The underlying National figures are no longer released because it is believed that different reporting standard could undermine cross-country comparability.
16. Information on sickness rates that one could potentially obtain from the national LFS of the emerging economies considered in this chapter is unfortunately not comparable due to inconsistency and heterogeneity in the questions asked, types of illness considered and time spans covered by the different surveys.
17. Figures for sickness absence rates may be biased by the existence of more or less generous social security schemes because workers may have a stronger incentive to take sickness leave in countries with good social security schemes, as they can better afford to be sick.
18. These include all OECD countries, plus South Africa and Russia. The estimated correlation is 0.51.
19. See *OECD Employment Outlook 2014*, notably Annex 3.A1.
20. The need to tailor these models to the self-employed is recognised in the research literature and some progress has been made. For example, rather than autonomy, negotiation power is suggested to be a better indicator of job resources for this group. Overall two challenges remain: data comparability and the difficulty to distinguish between "genuine" and "dependent" self-employed in survey data.
21. More specifically, the measures of earnings quality, labour market security from unemployment and quality of the working environment are based on single cross-sections, while insecurity from extreme low pay is calculated from repeated cross sections. When panel datasets are available (for selected countries), the current section treats them as repeated cross sections to ensure comparability with purely cross-sectional datasets. The longitudinal dimension of the available panels will be explored in Section 2 as part of the dynamic analysis of job and earnings mobility.
22. When 2010 data are missing, information from the closest available year is used, with a preference for more recent observations.

23. Due to lack of panel data, it has been impossible to directly estimate flows into and out of unemployment and the risk of job-loss is approximated by the unemployment rate. In a steady-state economy with a relatively low level of unemployment, this is a valid approximation.
24. Table 5.A2.1 in Annex 5.A2 identifies the social insurance programmes that were considered in each of the emerging economies analysed in the chapter. See OECD (2011, Chapter 2) for an extensive discussion of unemployment compensation schemes in the great majority of these countries.
25. Formally, overall labour market insecurity (LMI) is calculated as:

$$LMI_{OVERALL} = LMI_{UNEMPLOYMENT} + (1 - Risk_{UNEMPLOYMENT}) * LMI_{LOW-PAY}$$
26. Defining long hours is somewhat arbitrary. It can be based on either working time legislation or the distribution of hours worked in the population under investigation. Here the threshold of 60 hours was chosen as the upper limit authorised by national legislation in the 12 emerging economies covered in the chapter. Colombia and Costa Rica use the 60-hour upper limit, while the weekly upper limit varies between 45 (Turkey) and 57 (Mexico) hours in the remaining ten countries (ILO, Travail database). Frijters et al. (2009) choose the same threshold to study the cost of working long hours on mental health in China as it is very close to the median number of hours worked in their sample.
27. See the seminal contributions by De Soto (1989, 2000), as well as La Porta and Schleifer (2008, 2014), and Falco and Haywood (2013) for a more recent discussion.
28. Jütting and J. de Laiglesia (2009) indicate that “the operational criteria for defining informal employment are mainly that the job has no written contract and lacks social protection.” It should be noted that according to this definition informal salaried employment may be found both in formally registered enterprises (i.e. in the formal sector) and in unregistered (informal) enterprises (i.e. in the informal sector). Still, the majority of informal employment occurs in the informal sector. For example, two out of three informal jobs are in the informal sector in India (ILO, 2014). However, a significant number of workers in formal enterprises are informally employed.
29. Some previous research has relied, instead, on firm characteristics to define informality. For example, a prominent alternative is to define the informal sector on the basis of firm-size (e.g. firms with five employees or less).
30. In a recent article, Öznur and Tansel (2014) support this argument in the case of Turkey. Yet, one could argue that precisely because social security is intimately related to the outcome of interest, a separate criterion should be used to define informality, such as the existence of a written contract.
31. It has not been feasible to calculate labour market security from the risk of unemployment for formal and informal workers separately (since separate information on the probability of job-loss is not available for formal and informal workers).
32. The estimated gap in net earnings is likely to be an under-estimate of the actual productivity differential due to the distorting role of taxation. Since formal workers pay taxes and social contributions, while informal workers commonly do not, the gap in pre-tax earnings should be *ceteris paribus*, even larger.
33. Working with consecutive survey waves implies calculating annual transitions rates, except for South Africa for which the survey is bi-annual. However, the conclusions of this section are robust to changes in the transition horizon. In particular, the transition rates observed between two consecutive years paint a very similar picture to the transition rates over longer intervals.
34. It should be noted that the conditional probabilities in Figure 5.12 depend on the size of the destination sector. In countries with a larger formal sector, for instance, the conditional probability of transitioning from informality to formality should be larger. Hence, one should be careful in interpreting cross-country differences. This limitation is discussed by Maloney (1999), who proposes an alternative methodology to standardise the transition probabilities by the size of the receiving sector. The same method is applied by Duryea et al. (2006). For the sake of simplicity, it has been chosen not to adopt that methodology here, but the reader should be alert to this issue. It should also be remarked that from the worker’s perspective, the raw transition probabilities matter the most, as they express the likelihood that all things considered workers may move from one sector to the other.
35. The model cannot be estimated for China since it requires at least three years of data and the available Chinese panel only covers two years.
36. This may partly result from the fact that transitions for South Africa are calculated over a longer time horizon (two years). However, upon calculating transition rates for all countries over the longer horizon, the qualitative patterns that emerge from the analysis did not change significantly.

37. This descriptive exercise has the advantage of effectively summarising the transition probabilities presented above into a simple measure of time spent in different forms of employment. Its main shortcoming is that workers' employment histories are only observed for a short time-span in the available data, from which one extrapolates long-term patterns. The underlying assumption is one of stationarity in labour market mechanisms, namely that the career patterns of old workers offer a good indication of the career trajectories that young workers can expect to have in the future.
38. The average change among stayers is subtracted from the average change among movers.
39. The effect of self-selection (endogenous sorting) seems to be particularly evident in the case of urban China and urban Colombia, where workers who move to informality do not appear to experience significant earnings changes on average. This pattern points to the possibility that working informally might be a voluntary choice for at least some Chinese and Colombian workers, as opposed to a necessity.
40. Clearly, the three categories are inter-dependent and many policies have simultaneous effects on different dimensions.
41. Some emerging countries simply have no unemployment protection schemes at all (e.g. Indonesia and Mexico).
42. Bosch and Esteban-Pretel (2014) provide an in-depth discussion of the effects of introducing unemployment benefits in an economy with high levels of informality.
43. *Bolsa Familia* for instance reaches over 11 million poor families, who received an average transfer of BRL 70.00 (about USD 35). In return, they commit to keeping their children in school and taking them to regular health checks.
44. This scheme confers a right to employment of up to 100 days per year in public works programmes per rural household.

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ANNEX 5.A1

*Empirical methods***A methodology to estimate earning risk with pseudo-panel data**

This section outlines the methodology proposed by Dang et al. (2011). In particular, it focuses on the parametric version of their method and on the subsequent extension by Dang and Lanjouw (2013). While this model is used by Dang et al. to estimate the probability that people move in and out of poverty using income data from repeated cross-sections, the same model is applied in this chapter to measure transitions in and out of low-pay status for individual workers.

Consider the case of two repeated cross-sections and assume that the underlying population being sampled in both rounds is the same. In what follows, the superscripts A and B are used to refer to individuals from the first and the second cross-section respectively.

Using observations from Cross-section A, one can estimate the following model of individual earnings in Period 1, containing only time-invariant covariates on the right-hand side:¹

$$y_{i,1}^A = \beta_1' x_{i,1}^A + \varepsilon_{i,1}^A \quad [1]$$

and obtain estimates for $\beta_{t=1}$, $\varepsilon_{i,t=1}^A$ and for the standard deviation of the error terms σ_{ε_1} .

The same model can be estimated for Period 2, using observations from Cross-section B:

$$y_{i,2}^B = \beta_2' x_{i,2}^B + \varepsilon_{i,2}^B \quad [2]$$

Assuming that $\varepsilon_{i,1}^A$ and $\varepsilon_{i,2}^B$ have a bivariate normal distribution with non-negative correlation coefficient ρ and standard deviations σ_{ε_1} and σ_{ε_2} , the percentage of workers from Cohort B who have low earnings in the first period but not in the second period (upward mobility) can be estimated as follows:

$$\hat{P}(\tilde{y}_{i1}^B < z_1 \text{ and } y_{i2}^B > z_2) = \Phi\left(\frac{z_1 - \hat{\beta}_1' x_{i,t=2}^B}{\hat{\sigma}_{\varepsilon_1}}, -\frac{z_2 - \hat{\beta}_2' x_{i,t=2}^B}{\hat{\sigma}_{\varepsilon_2}}, -\hat{\rho}\right) \quad [3]$$

where $\Phi(\cdot)$ is the bivariate normal cumulative distribution function (cdf) and \tilde{y}_{i1}^B captures the imputed earnings in Period 1 of workers from Cohort B.

Conversely, the percentage of Cohort B workers who have high earnings in the first period and low earnings in the second period (a measure of downward mobility) can be estimated as:

$$\hat{P}(\tilde{y}_{i1}^B > z_1 \text{ and } y_{i2}^B < z_2) = \Phi\left(-\frac{z_1 - \hat{\beta}_1' x_{i,t=2}^B}{\hat{\sigma}_{\varepsilon_1}}, \frac{z_2 - \hat{\beta}_2' x_{i,t=2}^B}{\hat{\sigma}_{\varepsilon_2}}, -\hat{\rho}\right) \quad [4]$$

Dividing these unconditional probabilities by the share of workers who start out with low (high) earnings generates the conditional probabilities of exiting (entering) low-pay, which are used in the main analysis.

The main challenge in implementing this model is estimating $\hat{\rho}$, since repeated cross sections do not contain observations for the same individuals over time; it is therefore impossible to estimate the serial correlation of individual shocks.

Dang et al. (2011) get around this issue by assuming a minimum and a maximum value for $\hat{\rho}$, to obtain lower and upper bound estimates (rather than point-estimates) of mobility. To implement this approach, one possibility is to calibrate the minimum and maximum bounds on the basis of actual panel-data from previous time-periods or from sufficiently similar contexts. In the absence of these, Dang et al. suggest using the extreme values of $\rho = 0$ (no serial correlation) and $\rho = 1$ (perfect correlation). This approach proves to be quite successful in their validation exercise, as estimates of mobility obtained with true panels are generally within these estimated bounds. The main draw-back of this procedure is that the bounds can be quite large. Moreover, it is not clear whether policy makers should target the lower or the upper bound of estimated mobility. The former approach has been applied in a recent World Bank publication on income mobility in Latin America (Ferreira et al., 2013), where the authors assume $\rho = 1$ and obtain a conservative (lower-bound) estimate of mobility. Ferreira et al. argue that this assumption provides a better assessment of “true” mobility since, by assuming perfect correlation of the error terms over time, the lower-bound estimate is “purged” of classical measurement error. Moreover, assuming perfect serial correlation in individual-specific shocks, brings out more clearly the effect of economic growth on overall poverty. As the focus of this chapter is on the positional mobility and on the uncertainty and risks faced by individual workers, this approach is not suitable for our purposes.

In a follow-up study, Dang and Lanjouw (2013) outline a cohort-based approach that can be used to estimate $\hat{\rho}$ directly to obtain point estimates of mobility. For a sufficiently large sample, like that of a typical household survey, this can be done by estimating the following dynamic income model for various age cohorts:²

$$\bar{y}_{c,2} = \delta' \bar{y}_{c,1} + \bar{\eta}_{c,2} \quad [5]$$

where $\bar{y}_{c,t}$ is the average of y in Cohort c and Period $t = 1, 2$.

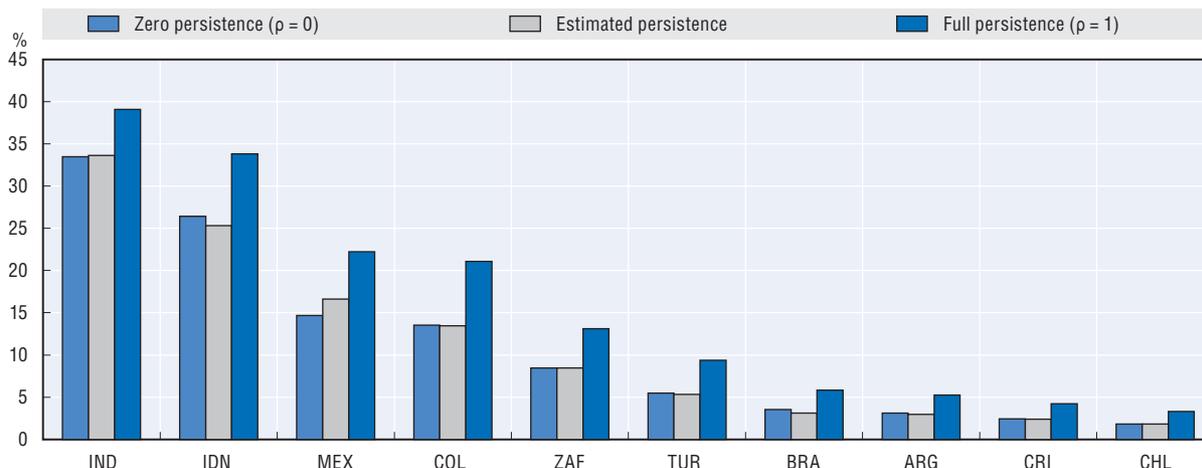
From the estimation of [5], one can obtain a consistent estimate of δ and of the cohort-level correlation coefficient, $\hat{\rho}_{y_{c,1} y_{c,2}}$, which can be used to approximate the individual-level correlation coefficient $\hat{\rho}_{y_{i,1} y_{i,2}}$.

$$\hat{\rho}_{y_{i,1} y_{i,2}} \approx \hat{\rho}_{y_{c,1} y_{c,2}} = \frac{\text{cov}(\bar{y}_{c,1}, \bar{y}_{c,2})}{\sqrt{\text{var}(\bar{y}_{c,1}) \text{var}(\bar{y}_{c,2})}} \quad [6]$$

Finally, in order to estimate [3] and [4], one needs to obtain the partial correlation Coefficient ρ , which captures the serial correlation in income *conditional on the control variables* (i.e. the serial correlation in the model residuals). As shown by Dang and Lanjouw (2013), ρ can be obtained as follows:

$$\hat{\rho} = \frac{\hat{\rho}_{y_{i,1} y_{i,2}} \sqrt{\text{var}(y_{i1}) \text{var}(y_{i2})} - \hat{\beta}'_1 \text{var}(x_i) \hat{\beta}'_2}{\hat{\sigma}_{\varepsilon_1} \hat{\sigma}_{\varepsilon_2}} \quad [7]$$

Figure 5.A1.1 checks the robustness of the results presented in Section 1 of the chapter to changes in ρ . In addition to the value of the parameter estimated using the methodology above, it presents two extreme cases of zero persistence ($\rho = 0$) and full persistence ($\rho = 1$) in earning shocks. Two results emerge. First, it appears that the method proposed here delivers

Figure 5.A1.1. **Sensitivity of the risk of extreme low pay to the persistence of individual earnings shocks**

Note: The risk of low pay is calculated by means of the pseudo-panel method discussed above, under three different assumptions about persistence in earnings shock: zero persistence ($\rho = 0$), estimated persistence based on Dang and Lanjouw (2013) and full persistence ($\rho = 1$). Due to data limitations, the sensitivity calculations could not be carried out for Russia and China.

Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, GEIH: Colombia, ENHAO: Costa Rica, NSS: India, SAKERNAS: Indonesia, ENIGH: Mexico, NIDS: South Africa) and the EU-SILC national files (Turkey).

StatLink  <http://dx.doi.org/10.1787/888933240087>

estimates that are close to the lower bound (zero persistence) level of ρ . Second, and most reassuringly, the country ranking is unaffected by changes in the persistence parameter.

A methodology to estimate career profiles from short panels

The simulated career profiles discussed in Section 3 are based on a multinomial logit (McFadden, 1974) which models the probability of transitioning between employment states (formal, informal, unemployed and inactive) from one survey period to the next.

For each origin state:

$$P(i, j | x_{it}) = \frac{\exp[x_{it}\gamma(i, j)]}{\sum_{m=0}^N \exp[x_{it}\gamma(i, m)]} \quad [8]$$

where $P(i, j)$ is the probability of moving from state i at a time t to state j at time $t + 1$ for an individual characterised by a vector of covariates x_{it} that includes dummies for gender, education and age in the starting period. In order to capture the true extent of mobility in the data, state-specific dummies for the previous period $t - 1$ are also included in the analysis. As such, the coefficients $\gamma(i, j)$ partially account for duration dependence and persistence of labour market transitions. The same approach has been used in Chapter 4 to model persistence in employment and earnings.³

The estimates from this model can be used to predict the likelihood that a worker initially aged 20 with a specific set of characteristics (e.g. low-educated male) and a first job in the informal sector will transition to every other employment state year after year; and hence derive the share of time that he can expect to spend in different employment states throughout his career (40 years in total).⁴

The main potential shortcoming of this methodology is that workers' employment histories are only observed for a short time-span, from which this approach extrapolates long-term patterns. The underlying assumption is that the observed transition patterns

are time invariant, suggesting that the career patterns of old workers (and their transition probabilities) offer a good indication of the career trajectories that young workers can expect in the future. The analysis may also suffer from issues of endogenous selection. If informal workers are significantly different from workers in formal jobs (e.g. because informal jobs tend to attract less productive or motivated workers), one should be cautious in generalising the conclusions of this analysis to the entire population. With this caveat in mind, the results reveal that *among those who start a career in the informal sector*, the predicted share of working life spent with an informal job is very high. This hints at the potential existence of scarring effects from informality, although the endogenous selection issues discussed above suggest some caution in this interpretation.

Notes

1. The set of covariates includes individuals' gender, year of birth and education level.
2. As pointed out by Dang and Lanjouw (2013), there is no consensus in the literature on how large the sample size should be to obtain precise estimates of $\hat{\rho}$. Monte Carlo simulations by Verbeek and Nijman (1992) suggest that cohort sizes of 100 to 200 are sufficient, while recent work by Devereux (2007) points to an ideal cohort-size of 2000 or more observations.
3. The multinomial logit model rests on the assumption of Independence of Irrelevant Alternatives (IIA), which can only hold if the different choices are sufficiently distinct from each other. That is likely to be the case in the specification used in this chapter, with only three, clearly different labour market status outcomes: formality, informality and unemployment/inactivity. See Falco (2014) for a similar application to occupational choices in a developing country.
4. In practice, this is done by generating a synthetic cross section of 1 000 individuals with the same characteristics (gender, education, initial age and initial state) and letting them transition to different states in shares equal to the model's predicted transition rates. Carrying this procedure forward in time, each simulated worker ends up with a full employment history by the age of 60 and the average share of those histories spent in each state can be calculated.

ANNEX 5.A2

Social transfers in emerging economies

Table 5.A2.1. Social transfer schemes and data sources used to measure public insurance by country

	<ul style="list-style-type: none"> • Unemployment insurance (Seguro de Desempleo, private sector employees) • Severance pay 	<ul style="list-style-type: none"> • Unemployment insurance • Severance pay 	Lustig, N. and C. Pessino (2013), "Social Spending and Income Redistribution in Argentina during the 2000s: The Rising Role of Noncontributory Pensions", CEQ Working Paper, Vol. 3, No. 5.
Argentina	<ul style="list-style-type: none"> • Income support for families with unemployed heads (Jefes y Jefas) • Family allowance (Programa Familias para la Inclusión Social) • Child allowance (Asignación Universal por Hijo) • Child benefits • School allowance • Non-contributory mother's pension • Government scholarships (Programa Nacional de Becas Estudiantiles) 	<ul style="list-style-type: none"> • Social assistance transfers • Government scholarships 	
	<ul style="list-style-type: none"> • Unemployment insurance (Seguro Desempleo) • Unemployment assistance (Fundo de Amparo ao Trabalhador, INSS) • Severance pay (Aviso Previo) 		Higgins, S. and C. Pereira (2013), "The Effects of Brazil's High Taxation and Social Spending on the Distribution of Household Income", CEQ Working Paper, No. 7.
Brazil	<ul style="list-style-type: none"> • Family Allowance (Bolsa Família) • Continued Payment benefits (Benefício de Prestação Continuada) • Assistance for rural labourers (Previdência Rural) • Social assistance from employers' contributions (PIS/PASEP) • Other elements of the Basic Social Protection • Scholarships and professional qualification grants • Food for workers programmes • Residence allowance (Abono de permanência) 	<ul style="list-style-type: none"> • Government transfers (Pensão) • Other types of transfers • Other type of non-labour income (including social assistance) 	
	<ul style="list-style-type: none"> • Unemployment insurance (individual accounts) • Unemployment assistance and subsidy • Severance pay 	<ul style="list-style-type: none"> • Unemployment benefits • Severance pay 	<ul style="list-style-type: none"> • Country chapter for OECD series 'Benefits and Wages (2011) • Country file from the OECD Employment Protection Database (2013) • Websites of the Chilean Government:
Chile	<ul style="list-style-type: none"> • Family subsidy (Subsidio Familiar) • Family support (Chile solidario, Ingreso Etico familiar) • Social allowance (Asignación social) • In-kind benefits (Pensión de alimentos) • Grant water consumption (SAP) • Allowance for working women (Bono al Trabajo de la Mujer) • Housing subsidy (Fondo Solidario de Elección de Vivienda) 	<ul style="list-style-type: none"> • Family subsidy • Family support (Bono de protección familiar) • Family support (Bono de apoyo a la familia) • Social allowance • In-kind benefits • Drinking water, electricity and fuel allowance • Youth employment subsidy • Other state subsidies 	<ul style="list-style-type: none"> http://www.previsionsocial.gob.cl/subprev/ http://www.programasociales.cl/

Table 5.A2.1. Social transfer schemes and data sources used to measure public insurance by country (cont.)

China	Unemployment compensation	<ul style="list-style-type: none"> Unemployment insurance (administered by the local government) 	Yukun Zhu (2009), "A Case Study on Social Security Coverage Extension in China", ISSA Working Paper, No. 7.
	Social transfers	<ul style="list-style-type: none"> Minimum living allowance (Dibao, only urban areas) 	OECD (2010), Tackling Inequalities in Brazil, China, India and South Africa. The Role of Labour Market and Social Policies, OECD Publishing, Paris.
Colombia	Unemployment compensation	<ul style="list-style-type: none"> Unemployment insurance and assistance (FONDEE) Severance pay (Cesantias, similar to individual savings account) 	Medina, C. J. Núñez and J.A. Tamayo (2013), "The Unemployment Subsidy Program in Colombia: An Assessment", Inter-American Development Bank Working Paper Series, No. 369.
	Social assistance transfers	<ul style="list-style-type: none"> Social assistance transfers (Familias en Acción) 	Medina, C. J. Núñez and J.A. Tamayo, (2011), "The Unemployment Insurance Program in Colombia: An Assessment", Banco de la Republica de Colombia.
Costa Rica	Unemployment compensation	<ul style="list-style-type: none"> Unemployment insurance (Seguro de Desempleo) Adolescence Work insurance (Seguro de Riesgos para Adolescentes) Domestic Help insurance (Seguro de Riesgos del Trabajo Hogar) Income insurance (Proteccion Crediticia) Severance pay (Cesantia) 	Sauma, P. and J.D. Trejos (2014), "Social Public Spending, Taxes, Redistribution of Income, and Poverty in Costa Rica", CEQ Working Paper, No. 18.
	Social assistance transfers	<ul style="list-style-type: none"> Family allowances (Asignaciones Familiares) Financial support to households (IMAS) Government scholarships (Fondo Nacional de Becas; Avancemos) Housing benefits (Bono Familiar de Vivienda) 	<ul style="list-style-type: none"> Social assistance (Transferencias régimen no contributivo) Social support (IMAS, ayuda social) Government scholarships Government subsidies Subsistence transfers
India	Unemployment compensation	<ul style="list-style-type: none"> Unemployment insurance (with partial coverage) Severance pay 	OECD (2010), "Tackling Inequalities in Brazil, China, India and South Africa. The Role of Labour Market and Social Policies", OECD Publishing, Paris.
	Social assistance transfers	<ul style="list-style-type: none"> Family allowance (National Family Benefit Scheme) Food subsidies (Targeted Public Distribution System) 	World Bank (2012), "Program Keluarga Harapan (PKH) Conditional Cash Transfer", Social Assistance Program and Public Expenditure Review, No. 6.
Indonesia	Unemployment compensation	<ul style="list-style-type: none"> Severance pay 	World Bank (2012), "Bantuan Langsung Tunai (BLT) Temporary Unconditional Cash Transfer", Social Assistance Program and Public Expenditure Review, No. 2.
	Social assistance transfers	<ul style="list-style-type: none"> Family allowance (Program Keluarga Harapan) Government subsidies (Bantuan Langsung Tunai) 	

Table 5.A2.1. Social transfer schemes and data sources used to measure public insurance by country (cont.)

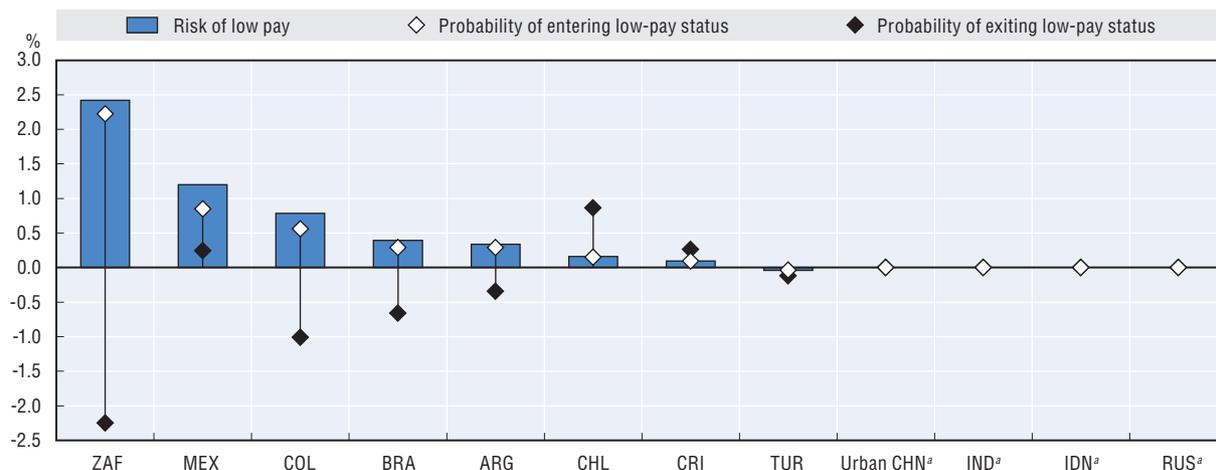
	<ul style="list-style-type: none"> • Severance pay 	<ul style="list-style-type: none"> • Country file from the OECD Employment Protection Database (2013) • Website of the Mexican Government: http://www.semarnat.gob.mx/apoyos
Mexico	<ul style="list-style-type: none"> • Family allowance (Oportunidades) • Food aid programme (Programa Alimentario) • Temporary income support (Programa de Empleo Temporal) • Agricultural subsidies (Programa de Apoyos Directos al Campo) • Government scholarships • In-kind transfers 	<ul style="list-style-type: none"> • Conditional cash transfer (Oportunidades) • Conditional cash transfer (Programa Alimentario) • Conditional cash transfer (Programa de Empleo Temporal) • Agricultural subsidies • Government scholarships • Other social programs
	<ul style="list-style-type: none"> • Unemployment insurance and assistance • Severance pay 	Social Security Administration (2010), "Social Security Programs Throughout the World: Europe, 2010", Washington, DC.
Russia	<ul style="list-style-type: none"> • Child and family allowances • Housing subsidies • Various in-kind transfers (housing, utilities, transport services) 	
	<ul style="list-style-type: none"> • Unemployment insurance • Severance pay 	The website of the Department of Labour of South Africa: http://www.labour.gov.za/DOL/legislation/acts/basic-guides
South Africa	<ul style="list-style-type: none"> • Child support grant • Foster care grant • Social relief 	Woolard, I. and M. Leibbrandt (2010), "The Evolution and Impact of Unconditional Cash Transfers in South Africa", Southern Africa Labour and Development Research Unit Working Papers, No. 51.
	<ul style="list-style-type: none"> • Unemployment insurance • Severance pay 	<ul style="list-style-type: none"> • Country chapter for OECD series Benefits and Wages (2010) • Country file from the OECD Employment Protection Database (2013)
Turkey	<ul style="list-style-type: none"> • Family allowance (based on educational and health compliance) 	<ul style="list-style-type: none"> • Education-related allowances

Note: Concerning existing programmes, classification is based on 2010 information. Unemployment compensation may include unemployment benefits (unemployment insurance and assistance) and severance pay. Social assistance transfers may include government cash transfers and in-kind transfers. Importantly, only those transfers are considered that are part of nationwide schemes and target the active and employable working age population [this means that transfers that are aimed at the permanently inactive (e.g. old-age or disability pensions) and the temporarily inactive (e.g. sickness benefits or compensation programmes), or are related to changes in the family situation of individuals (e.g. marriage bonus, maternity benefits, adoption allowance) are not considered].

In the "Available data" column, those relevant transfer items are listed that feature in the respective national household and labour force surveys used and are used for the empirical analysis. The lists correspond to the relevant survey year used for the calculations (see the notes attached to Figures 5.3 and 5.4).

Source: Country profiles, International Social Security Association, Chapter 2 of the *OECD Employment Outlook 2010*, and Chapter 2 of the *OECD Employment Outlook 2011*.

Figure 5.A2.1. **Reduction in the risk of extreme low pay due to social transfers**
Percentage-point changes, 2010



Note: The probability of entering and exiting low-pay status are calculated by the pseudo-panel methodology proposed by Dang and Lanjouw (2013) and represent annual concepts. The risk of low pay is calculated by (the scaled transform) of the probability of entering low-pay status times the expected duration of remaining there.

Calculations are based on comparisons of net hourly earnings with and without social transfers. Figures represent estimates from the 2009-10 cross-sections, except for Brazil (2009-11), Chile (2009-11), China (2008-09), Costa Rica (2010-12), India (2011-12), Mexico (2010-12), Russia (2010-12), South Africa (2010-12) and Turkey (2011-12).

a) Information on social transfers are missing for China, India, Indonesia and Russia.

Source: OECD calculations based on national household and labour force surveys (EPH: Argentina, PNAD: Brazil, CASEN: Chile, UHS: China, GEIH: Colombia, ENHAO: Costa Rica, NSS: India, SAKERNAS: Indonesia, ENIGH: Mexico, NIDS: South Africa), the EU-SILC national files (Turkey) and the European Social Survey (Russia).

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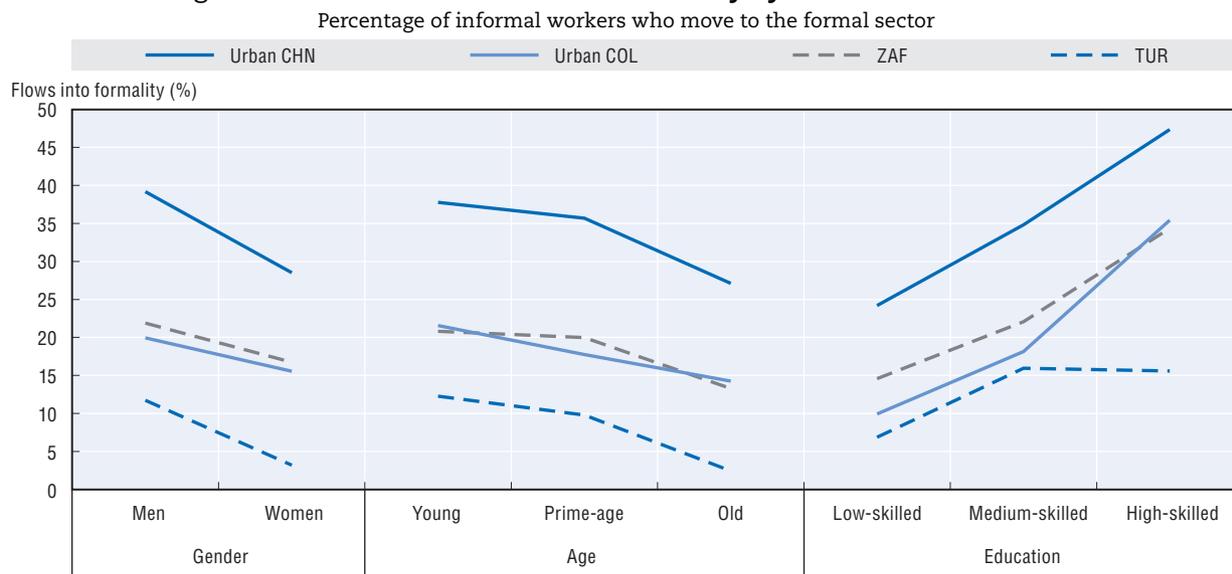
ANNEX 5.A3

*Informality*Table 5.A3.1. **Group level regressions of job quality on worker characteristics and informality**

	Earnings quality	Labour market insecurity	Quality of the working environment (long working hours)
Female	-0.910*** (0.175)	3.158*** (0.785)	-6.973*** (0.915)
Aged 30-49	1.441*** (0.214)	-3.635*** (0.961)	0.979 (1.119)
Aged 50-64	2.510*** (0.214)	-3.500*** (0.961)	1.616 (1.129)
Secondary education	1.238*** (0.214)	-4.710*** (0.961)	-1.092 (1.132)
Tertiary education	4.848*** (0.214)	-9.830*** (0.961)	-5.360*** (1.136)
Informal sector	-2.051*** (0.175)	10.21*** (0.785)	4.189*** (0.922)
Observations	324	324	334
R-squared	0.773	0.644	0.371

Note: Estimates are derived from group-level regression specifications that include country-fixed effects. Earnings quality is captured by average earnings (measured in PPP-adjusted USD), labour market insecurity denotes the risk of extreme low-pay among the employed (measured in percentage points), while the quality of the working environment captures the incidence of long working hours (60+) among all employed (measured in percentage points). The reference category is low-educated males aged 15-29 working in the formal sector. Standard errors in parentheses. ***, **, *: statistically significant at 1%, 5% and 10% levels, respectively. For more information on data sources, see the respective figure notes in the main text.

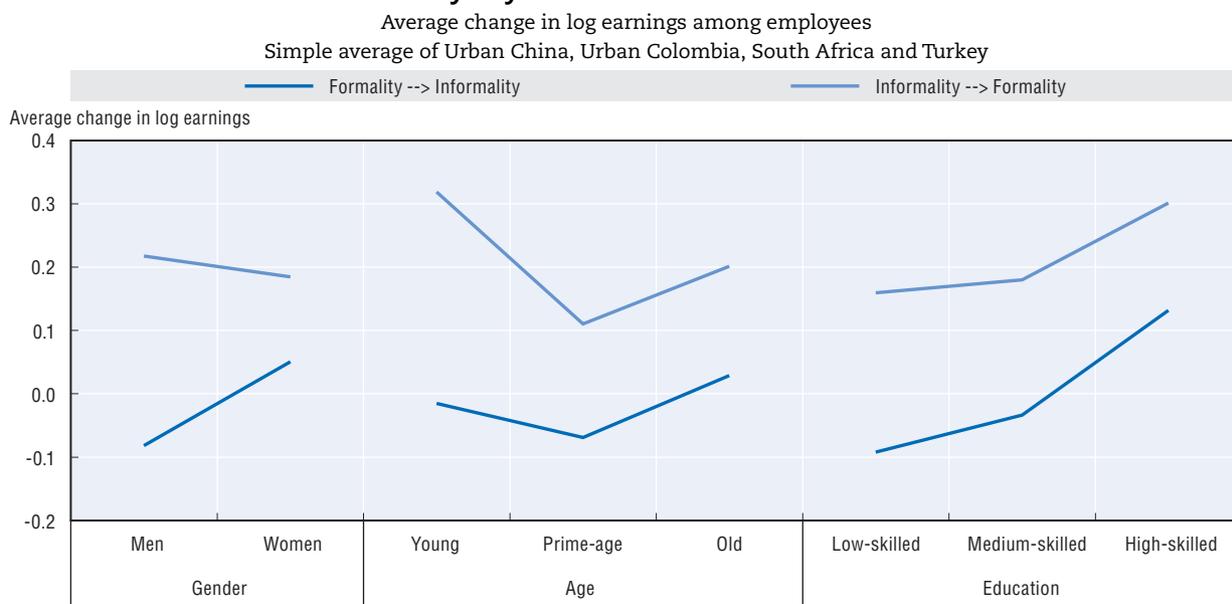
StatLink  <http://dx.doi.org/10.1787/888933240264>

Figure 5.A3.1. **Transitions out of informality by worker characteristics**

Note: Informality is defined as all employed persons not paying social contributions in Turkey and China. In Colombia and South Africa, informality includes both employees not paying social contributions and self-employed persons whose business is not registered. The sample for China and Colombia covers the urban population only. Earnings changes are calculated relative to stayers (i.e. subtracting the average change in earnings among stayers from the average change among movers) over the following periods: China (2008-09), Colombia (2009-10), South Africa (2010-12), Turkey (2010-11). The distribution of earnings changes is trimmed at the 1st and 99th percentiles.

Source: OECD calculations based on national longitudinal household and labour force surveys (UHS: China, Fedesarollo: Colombia, NIDS: South Africa) and the EU-SILC national files (Turkey).

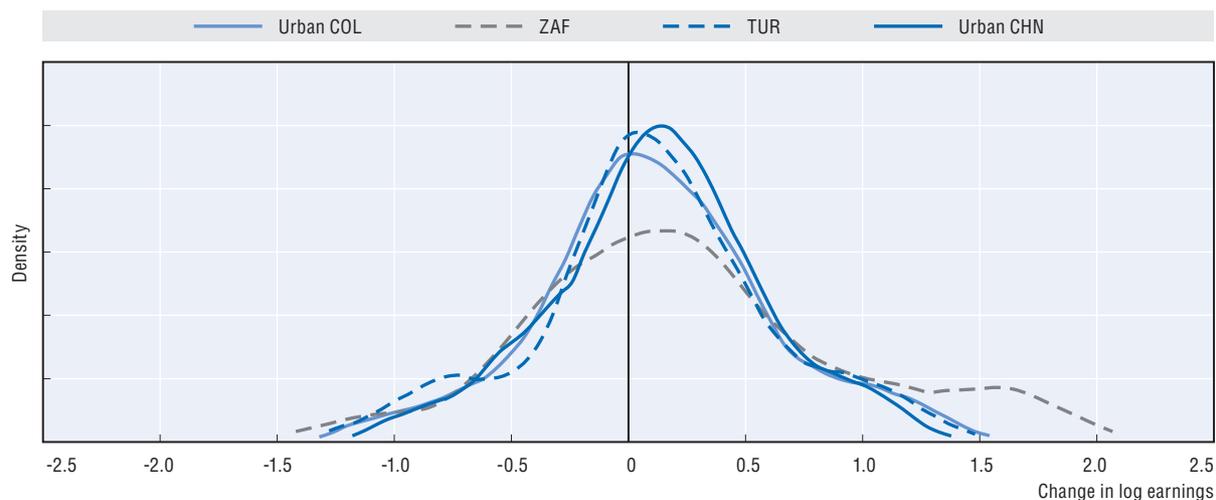
StatLink <http://dx.doi.org/10.1787/888933240109>

Figure 5.A3.2. **Earning changes associated with transitions in and out of informality, by key worker characteristics**

Note: Informality is defined as all employed persons not paying social contributions in Turkey and China. In Colombia and South Africa, informality includes both employees not paying social contributions and self-employed persons whose business is not registered. The sample for China and Colombia covers the urban population only. Earnings changes are calculated relative to stayers (i.e. subtracting the average change in earnings among stayers from the average change among movers) over the following periods: China (2008-09), Colombia (2009-10), South Africa (2010-12), Turkey (2010-11). The distribution of earnings changes is trimmed at the 1st and 99th percentiles.

Source: OECD calculations based on national longitudinal household and labour force surveys (UHS: China, Fedesarollo: Colombia, NIDS: South Africa) and the EU-SILC national files (Turkey).

StatLink <http://dx.doi.org/10.1787/888933240118>

Figure 5.A3.3. **Distribution of earning changes associated with moves out of informality**

Note: Informality is defined as all employed persons not paying social contributions in Turkey and China. In Colombia and South Africa, informality includes both employees not paying social contributions and self-employed persons whose business is not registered. The sample for China and Colombia covers the urban population only. Earnings changes are calculated relative to stayers (i.e. subtracting the average change in earnings among stayers from the average change among movers) over the following periods: China (2008-09), Colombia (2009-10), South Africa (2010-12), Turkey (2010-11). The distribution of earnings changes is trimmed at the 1st and 99th percentiles.

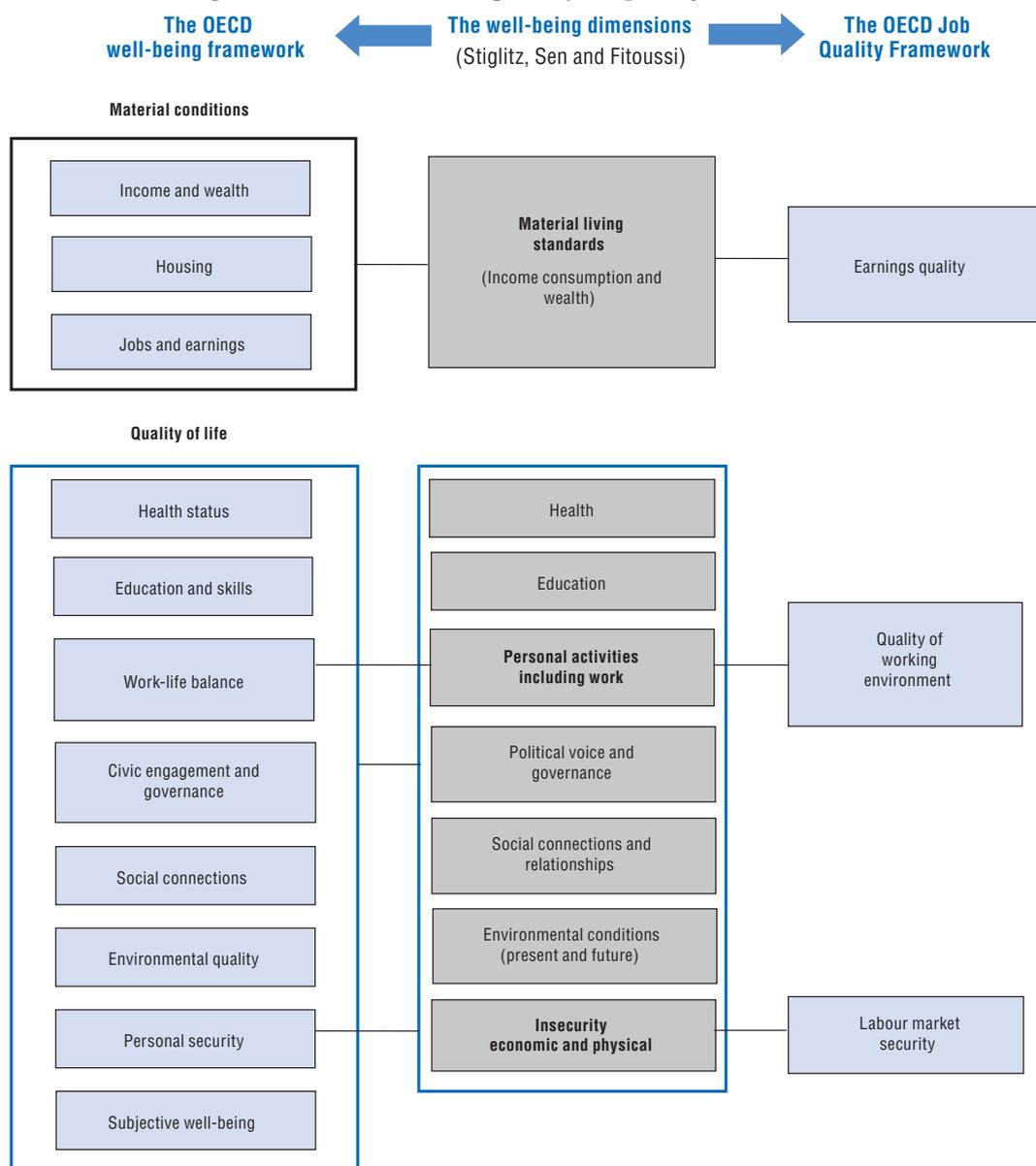
Source: OECD calculations based on national longitudinal household and labour force surveys (UHS: China, Fedesarrollo: Colombia, NIDS: South Africa) and the EU-SILC national files (Turkey).

StatLink  <http://dx.doi.org/10.1787/888933240126>

ANNEX 5.A4

Well-being and job quality

Figure 5.A4.1. Well-being and job quality frameworks



StatLink  <http://dx.doi.org/10.1787/888933240136>

Statistical annex

Sources and definitions

The tables of the statistical annex show data for all 34 OECD countries. Data for Brazil, China, Colombia, Costa Rica, India, Indonesia, Latvia, Lithuania, the Russian Federation and South Africa are included in a number of tables.

In general, Tables A to K and Table M report annual averages of monthly and quarterly estimates, when they are available, based on labour force surveys. The remaining Tables L, N, O, P and Q are based on a combination of survey and administrative sources. Data shown for a number of European countries in Tables B, C, D, H, I, J, K and Table M are based on the *European Labour Force Survey* (EU-LFS), which are more comparable and sometime more consistent over time than data series from national LFS (i.e. France).

Statistical tables showing data for Israel are supplemented with the following footnote: “The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law”.

Data on employment, unemployment and the labour force are not necessarily the same as the series used for analyses and forecasting by the OECD Economics Department that are reported in the *OECD Economic Outlook* and included in the first three figures and annex tables of Chapter 1 of this publication.

Most of the statistics shown in these tables can also be found in the OECD central data repository *OECD.Stat* (<http://stats.oecd.org>) accessible from the web page dedicated to employment statistics (www.oecd.org/employment/database).

The database contains both raw data and derived statistics. It contains longer time series and more detailed datasets by age group, gender, educational attainment, employee job tenure intervals, part-time employment, temporary employment, duration of unemployment, and other series than are shown in this annex, such as the distribution of employment by weekly usual hours worked intervals, people not in the labour force marginally attached to the labour force, etc. The datasets include information on definitions, notes and sources used by member countries. The online database also contains additional series on working time, earnings and features of institutional and regulatory environments affecting the functioning of labour markets. Among these are the following:

- Annual hours worked for comparisons of trends over time.
- Average gross annual wages per full-time equivalent employee.
- Distribution of gross earnings of full-time workers by earnings decile and by sex for earnings dispersion measures.
- Statutory minimum wages.

- Public expenditure on labour market programmes, number of beneficiaries and inflows into the labour market.
- Union members and employees.
- Synthetic indicators of employment protection.

Conventional signs

- .. Data not available
- . Decimal point
- | Break in series
- Nil or less than half of the last digit used

Major breaks in series

Table A: Breaks in series have been adjusted in most countries to ensure that harmonised unemployment rates are consistent over time.

Tables B to K and Table M: Most of the breaks in series in the data shown in the tables occurred for any of the following reasons: changes in survey design, survey questionnaire, survey frequency and administration, revisions of data series based on updated population census results. These changes have affected the comparability over time of employment and/or unemployment levels and to a certain extent the ratios reported in the aforementioned tables:

- *Introduction of a continuous survey producing quarterly results:* Austria (2003/04), France (2002/03), Germany (2004/05), Hungary (2005/06, monthly results), Iceland (2002/03), Italy (2003/04), Luxembourg (2002/03, quarterly results as of 2007) and Turkey (2013/14).
- *Redesign of labour force survey:* Introduction of a new survey in Chile since April 2010 (see below), Germany (2010/11), Hungary (2002/03), Portugal (2010/11), Poland (2004/05) and Turkey (2004/05 from quarterly to monthly results). Israel (2011/12), change from quarterly to monthly survey results and a change from “civilian” to “total” labour force (including those who are in compulsory or permanent military service). New continuous quarterly survey in Mexico since 2005 (*Encuesta Nacional de Ocupación y Empleo, ENOE*) with a different questionnaire from that of the previous survey.
- *Change in the operational definition of employment:*
 - ❖ Neat application of the criterion of “at least one hour worked in a gainful job” in the Chilean *Nueva Encuesta Nacional de Empleo (NENE)*, a quarterly continuous survey, from April 2010 onward.
- *Change in the operational definition of unemployment regarding:*
 - ❖ Active job-search methods: in particular a change from registration to contact with the public employment service: France (2002/03) and Spain (2000/01).
 - ❖ Duration of active job search: In Belgium (2010/11), the duration of job search has been changed from an unlimited duration to previous four weeks including the survey reference week. In Chile (2009/10), the duration of active job search has been shortened from last two months to previous four weeks including the survey reference week.

Major breaks in series (cont.)

- ❖ Availability to work criterion: In Sweden (2004/05), the work availability criterion changed from the reference week to two weeks from the reference week to be consistent with the operational definition in other EU countries. In Chile, the work availability criterion did not exist prior to 2010 in the *Encuesta Nacional de Empleo* (ENE) and has been introduced in the *Nueva Encuesta Nacional de Empleo* (NENE) since April 2010. It has been fixed to two weeks from the end of the reference week.
- ❖ Persons on lay-off considered as employed instead of unemployed: Norway (2005/06).
- ❖ Other minor changes: Australia (2000/01) and Poland (2003/04).
- Changes in the questionnaire with impact on employment and unemployment estimates: Germany (2010/11): new questionnaire design ensures better coverage of small jobs. This leads to higher than normal annual employment increase. Spain (2004/05): impact on employment and unemployment and impact on unemployment estimates in Norway (2005/06) and Sweden (2004/05).
- Change from seasonal to calendar quarters: Switzerland (2009/10) and the United Kingdom (2005/06). However, there is no break in series between 2005 and 2006 for the United Kingdom as calendar-quarter-based historical series are available since 1992.
- Introduction of new EU harmonised questionnaire: Sweden (2004/05) and Turkey (2003/04).
- Change in lower age limit from 16 to 15 years: Iceland (2008/09), Norway (2005/06) and Sweden (2006/07).
- In Norway, since 2006, age is defined as years reached at the survey reference week, instead of completed years at the end of the year, as in previous years.
- Inclusion of population controls based on census results in the estimation process: Israel (2007/08), Mexico (2009/10) and Turkey (2006/07).
- In Japan, data for 2011 exclude three prefectures (Iwate, Miyagi and Fukushima) due to the temporary suspension of the labour force survey operation following the Great East Japan earthquake.

Further explanations on breaks in series and their impact on employment and unemployment levels and on ratios can be found at: www.oecd.org/employment/outlook.

Colombia, Costa Rica, Latvia and Lithuania are currently undergoing an accession process.

Table A. Harmonised unemployment rates in OECD countries
As a percentage of civilian labour force

	1991	1995	2000	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Australia	9.6	8.5	6.3	5.9	5.4	5.0	4.8	4.4	4.2	5.6	5.2	5.1	5.2	5.7	6.1
Austria	..	4.2	3.9	4.8	5.5	5.6	5.3	4.9	4.1	5.3	4.8	4.6	4.9	5.4	5.6
Belgium	6.4	9.7	6.9	8.2	8.4	8.4	8.3	7.5	7.0	7.9	8.3	7.2	7.6	8.5	8.5
Canada	10.3	9.5	6.8	7.6	7.2	6.8	6.3	6.1	6.1	8.4	8.1	7.5	7.3	7.1	6.9
Chile	8.2	7.3	9.7	9.5	10.0	9.2	7.8	7.1	7.8	9.7	8.2	7.1	6.4	5.9	6.4
Czech Republic	..	4.0	8.8	7.8	8.3	7.9	7.1	5.3	4.4	6.7	7.3	6.7	7.0	7.0	6.1
Denmark	7.9	6.7	4.3	5.4	5.5	4.8	3.9	3.8	3.5	6.0	7.5	7.6	7.5	7.0	6.5
Estonia	..	..	14.5	10.4	10.1	8.0	5.9	4.6	5.5	13.6	16.7	12.4	10.0	8.6	7.4
Finland	6.6	15.4	9.8	9.0	8.8	8.4	7.7	6.9	6.4	8.2	8.4	7.8	7.7	8.2	8.7
France	9.6	12.0	9.6	8.5	8.9	8.9	8.9	8.0	7.5	9.1	9.3	9.2	9.8	10.3	10.3
Germany	5.5	8.3	8.0	9.8	10.5	11.3	10.3	8.5	7.4	7.6	7.0	5.8	5.4	5.2	5.0
Greece	..	..	11.2	9.7	10.6	10.0	9.0	8.4	7.8	9.6	12.8	17.9	24.5	27.5	26.6
Hungary	..	..	6.3	5.7	6.1	7.2	7.5	7.4	7.8	10.0	11.2	11.1	11.0	10.1	7.7
Iceland	..	..	..	3.4	3.1	2.6	2.9	2.3	3.0	7.2	7.6	7.1	6.0	5.4	5.0
Ireland	14.8	12.3	4.2	4.6	4.5	4.4	4.5	4.7	6.4	12.0	13.9	14.7	14.7	13.1	11.3
Israel	..	6.9	8.8	10.7	10.4	9.0	8.4	7.3	6.1	7.5	6.6	5.6	6.9	6.2	5.9
Italy	8.5	11.2	10.1	8.4	8.0	7.7	6.8	6.1	6.7	7.8	8.4	8.4	10.6	12.1	12.7
Japan	2.1	3.2	4.7	5.3	4.7	4.4	4.1	3.8	4.0	5.1	5.1	4.6	4.4	4.0	3.6
Korea	2.5	2.1	4.4	3.6	3.7	3.7	3.5	3.3	3.2	3.7	3.7	3.4	3.2	3.1	3.5
Luxembourg	1.7	2.9	2.2	3.8	5.0	4.7	4.6	4.2	4.9	5.1	4.6	4.8	5.1	5.9	5.9
Mexico	2.7	6.3	2.5	3.4	3.9	3.6	3.6	3.7	4.0	5.5	5.4	5.2	5.0	4.9	4.8
Netherlands	5.7	8.4	3.7	4.8	5.7	5.9	5.0	4.2	3.7	4.4	5.0	5.0	5.8	7.2	7.4
New Zealand	10.6	6.5	6.2	4.8	4.0	3.8	3.9	3.7	4.2	6.1	6.6	6.5	6.9	6.2	5.8
Norway	5.5	4.9	3.2	4.2	4.3	4.5	3.4	2.5	2.6	3.2	3.6	3.3	3.2	3.5	3.5
Poland	..	..	16.1	19.8	19.1	17.9	14.0	9.6	7.0	8.1	9.7	9.7	10.1	10.3	9.0
Portugal	4.2	7.2	5.1	7.4	7.8	8.8	8.9	9.1	8.8	10.7	12.0	12.9	15.8	16.5	14.1
Slovak Republic	..	..	18.9	17.7	18.4	16.4	13.5	11.2	9.6	12.1	14.5	13.7	14.0	14.2	13.2
Slovenia	..	..	6.7	6.7	6.3	6.5	6.0	4.9	4.4	5.9	7.3	8.2	8.9	10.1	9.7
Spain	15.5	20.8	11.9	11.5	11.0	9.2	8.5	8.2	11.3	17.9	19.9	21.4	24.8	26.1	24.5
Sweden	3.1	8.8	5.6	6.6	7.4	7.6	7.0	6.1	6.2	8.3	8.6	7.8	8.0	8.0	7.9
Switzerland	..	..	..	..	..	..	..	..	..	..	4.5	4.0	4.2	4.4	4.5
Turkey	..	..	..	..	..	9.2	8.8	8.8	9.7	12.6	10.7	8.8	8.2	8.7	10.0
United Kingdom	8.6	8.5	5.4	5.0	4.7	4.8	5.4	5.3	5.6	7.6	7.8	8.1	7.9	7.6	6.2
United States	6.8	5.6	4.0	6.0	5.5	5.1	4.6	4.6	5.8	9.3	9.6	9.0	8.1	7.4	6.2
OECD ^a	6.6	7.4	6.1	7.0	6.9	6.6	6.1	5.6	6.0	8.1	8.3	7.9	7.9	7.9	7.4

Note: The OECD harmonised unemployment rates are compiled for 34 OECD member countries and conform to the guidelines of the 13th Conference of Labour Statisticians of the International Labour Office (referred to as the ILO guidelines). In so far as possible, the data have been adjusted to ensure comparability over time. All series are benchmarked to labour-force-survey-based estimates. The unemployment rates for the European Union member countries, Norway and Turkey are produced by the Statistical Office of the European Communities (Eurostat). For the remaining OECD countries, the OECD is responsible for collecting data and calculating unemployment rates. Please refer to the following URL for methodological notes: www.oecd.org/std/labourstatistics/44743407.pdf.

a) Weighted average.

Source: OECD (2015), *Main Economic Indicators*, Vol. 2015, No.5, OECD Publishing, Paris, <http://dx.doi.org/10.1787/mei-v2015-5-en>.

StatLink  <http://dx.doi.org/10.1787/888933240270>

Table B. Employment/population ratios by selected age groups
As a percentage of the population in each age group

	Total (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	69.1	72.8	72.0	71.6	61.7	64.1	58.7	57.7	76.2	79.9	79.2	78.8	46.1	56.5	61.4	61.5
Austria	68.3	69.9	71.4	71.1	52.8	53.8	53.1	52.1	82.5	82.9	84.0	83.4	28.3	36.0	43.8	45.1
Belgium	60.5	62.0	61.8	61.9	29.1	27.5	23.6	23.2	77.4	79.7	79.0	79.1	26.3	34.4	41.7	42.7
Canada	70.9	73.5	72.4	72.3	56.2	59.5	55.1	55.5	79.9	82.2	81.6	81.2	48.1	57.0	60.3	60.4
Chile	53.3	56.3	62.3	62.2	26.4	26.4	30.4	30.1	65.0	69.5	75.2	74.9	47.5	54.4	64.0	64.2
Czech Republic	65.2	66.1	67.7	69.0	38.3	28.5	25.6	27.1	81.6	83.5	83.5	83.8	36.3	46.0	51.6	54.0
Denmark	76.3	77.0	72.5	72.8	66.0	65.3	53.7	53.7	84.2	86.1	82.0	82.0	55.7	58.9	61.7	63.2
Estonia	60.6	69.6	68.5	69.6	34.9	34.6	33.4	34.4	74.4	84.6	80.3	80.7	42.8	59.4	62.5	64.0
Finland	67.5	70.5	68.5	68.9	42.9	46.4	40.2	43.0	80.9	83.3	81.0	80.4	42.3	55.0	58.7	59.2
France	61.7	64.3	64.1	64.2	28.2	31.0	28.4	28.1	78.4	82.0	80.7	80.5	29.4	38.2	45.6	47.1
Germany	65.6	69.0	73.5	73.8	47.2	45.9	46.9	46.1	79.3	80.3	83.4	83.5	37.6	51.3	63.6	65.6
Greece	56.5	60.9	48.8	49.4	27.6	24.0	11.8	13.3	70.5	75.4	61.3	62.4	39.0	42.7	35.6	34.0
Hungary	56.0	57.0	58.1	61.8	32.5	21.1	20.1	23.5	73.0	74.7	75.7	79.2	21.9	32.2	37.9	41.8
Iceland ^a	84.6	85.7	81.8	82.2	68.2	74.3	70.4	69.7	90.6	89.4	85.5	85.7	84.2	84.9	81.6	84.1
Ireland	65.1	69.2	60.2	61.3	49.3	50.4	28.8	27.2	75.5	78.8	70.8	72.3	45.3	54.2	50.9	52.6
Israel ^b	62.1	64.5	67.1	67.9	48.1	46.4	44.4	44.5	71.3	74.0	77.1	78.2	46.5	57.1	64.6	65.1
Italy ^a	53.9	58.6	56.4	56.5	27.8	24.5	18.0	17.2	68.0	73.4	68.5	67.9	27.7	33.7	42.7	46.2
Japan	68.9	70.7	71.7	72.7	42.7	41.4	39.7	40.3	78.6	80.2	81.4	82.1	62.8	66.1	66.8	68.7
Korea	61.5	63.9	64.4	65.3	29.4	25.7	24.2	25.8	72.2	74.0	75.0	75.7	57.8	60.6	64.3	65.6
Luxembourg	62.7	64.2	65.7	66.6	31.8	22.5	21.9	20.4	78.2	81.9	82.9	83.7	27.2	32.0	40.5	42.5
Mexico	60.1	61.1	61.0	60.4	48.9	44.2	42.3	41.2	67.4	70.3	70.7	70.2	51.7	54.7	55.2	55.0
Netherlands	72.1	74.4	74.3	73.1	66.5	65.5	62.3	58.8	81.0	84.4	82.4	81.7	37.6	48.8	60.1	59.9
New Zealand	70.3	75.1	72.8	74.2	54.2	58.0	49.2	51.7	78.2	81.8	80.8	81.8	56.9	71.8	74.3	76.2
Norway ^a	77.9	76.9	75.5	75.3	58.1	55.1	52.4	50.9	85.3	85.8	84.1	83.9	67.1	69.0	71.1	72.2
Poland	55.0	57.0	60.0	61.7	24.5	25.8	24.2	25.8	70.9	74.9	77.0	78.4	28.4	29.7	40.6	42.5
Portugal	68.3	67.6	60.6	62.6	41.8	34.4	21.7	22.4	81.8	80.9	74.6	77.4	50.8	51.0	46.9	47.8
Slovak Republic	56.8	60.7	59.9	61.0	29.0	27.6	20.4	21.8	74.7	78.0	76.0	76.8	21.3	35.7	44.0	44.8
Slovenia	62.8	67.8	63.3	63.9	32.8	37.6	26.5	26.8	82.6	85.3	81.9	81.9	22.7	33.5	33.5	35.4
Spain ^a	57.4	66.8	55.6	56.8	36.3	43.0	18.6	18.5	68.4	77.1	65.8	67.4	37.0	44.5	43.2	44.3
Sweden ^a	74.3	74.2	74.4	74.9	46.7	42.1	41.5	42.6	83.8	86.1	85.4	85.4	65.1	70.1	73.7	74.2
Switzerland	78.3	78.6	79.6	79.8	65.0	62.6	61.9	61.6	85.4	86.1	86.4	86.9	63.3	67.2	71.7	71.6
Turkey	48.9	44.6	49.5	49.5	37.0	30.2	32.2	33.5	56.7	53.2	59.1	58.8	36.4	27.1	31.5	31.4
United Kingdom ^a	72.2	72.4	71.3	72.6	61.5	56.5	48.8	51.2	80.2	81.4	80.8	82.0	50.4	57.3	59.7	60.8
United States ^a	74.1	71.8	67.4	68.1	59.7	53.1	46.5	47.6	81.5	79.9	75.9	76.7	57.8	61.8	60.9	61.3
OECD ^c	65.6	66.5	65.3	65.8	46.2	43.3	39.6	40.1	75.8	77.0	75.6	76.0	48.3	53.4	56.3	57.3
Brazil ^d	64.3	67.4	66.7	..	50.7	52.9	48.5	..	73.1	76.1	76.5	..	51.2	53.8	53.3	..
China ^e	79.3	..	75.1	..	61.9	..	53.7	..	88.0	..	85.8	..	59.2	..	59.0	..
Colombia ^d	60.3	60.2	66.5	67.1	41.4	38.0	44.2	44.4	71.0	72.0	77.7	78.2	52.0	51.9	61.0	61.6
Costa Rica	..	..	61.8	61.7	..	..	37.2	36.1	..	..	74.5	74.2	..	..	55.0	55.8
India ^e	..	..	53.3	..	..	..	30.7	..	..	..	64.1	..	..	..	52.5	..
Indonesia	..	62.4	64.6	..	..	39.1	37.9	..	..	72.1	75.1	..	..	67.6	66.7	..
Latvia	57.3	68.1	65.0	66.3	29.2	38.1	30.2	32.5	73.5	82.1	77.9	78.2	35.9	58.0	54.8	56.4
Lithuania	58.8	65.0	63.7	65.7	25.2	24.8	24.6	27.6	75.0	82.2	79.6	80.8	40.3	53.2	53.4	56.2
Russian Fed.	63.3	68.5	68.8	69.3	34.6	33.7	34.3	33.4	80.2	84.7	85.2	85.7	34.8	52.0	47.3	47.4
South Africa	..	44.4	42.7	42.8	..	15.7	12.5	12.3	..	60.6	57.7	57.5	..	42.2	39.2	40.6

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Table B. Employment/population ratios by selected age groups (cont.)
As a percentage of the male population in each age group

	Men (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	76.9	79.5	77.6	77.1	62.6	65.0	58.6	57.5	85.6	88.1	86.2	85.8	57.6	65.7	69.0	69.1
Austria	77.3	76.3	76.0	75.2	57.6	57.0	56.4	54.3	91.4	89.0	87.5	86.6	40.5	46.0	52.8	54.3
Belgium	69.5	68.7	66.4	65.8	32.8	29.9	25.3	24.5	87.3	87.0	84.0	83.2	36.4	42.9	47.7	48.4
Canada	76.2	77.0	75.2	75.2	56.7	59.2	54.1	54.2	85.8	86.2	85.1	85.1	57.4	63.5	64.7	65.0
Chile	71.9	72.3	73.8	72.8	34.2	32.7	35.3	35.0	87.4	89.0	88.1	86.8	71.6	77.2	83.1	82.5
Czech Republic	73.6	74.8	75.7	77.0	42.8	32.8	29.9	32.3	89.3	91.7	91.2	91.5	51.7	59.6	62.5	64.8
Denmark	80.8	80.8	75.0	75.8	68.5	66.5	52.3	52.7	88.5	89.8	85.0	85.5	64.1	64.9	66.5	68.9
Estonia	64.1	73.2	71.4	73.0	40.8	39.1	36.0	35.4	75.8	89.4	84.6	85.5	51.0	58.1	61.3	65.1
Finland	70.5	72.4	69.2	69.8	45.7	47.9	36.8	42.9	84.1	85.9	83.8	82.8	43.7	55.1	56.8	56.8
France	68.8	69.1	67.8	67.6	31.3	34.1	31.0	30.2	87.3	88.2	85.2	85.0	32.9	40.5	48.4	48.9
Germany	72.9	74.7	78.0	78.1	49.7	48.2	48.4	47.7	87.2	86.4	88.2	88.0	46.4	59.4	69.9	71.4
Greece	71.5	74.2	57.9	58.0	32.7	29.1	14.6	15.8	88.5	90.1	71.4	71.8	55.2	59.1	46.0	44.0
Hungary	62.7	63.7	63.7	67.8	36.0	24.4	23.0	26.4	79.2	81.6	81.4	85.3	32.8	40.1	44.8	49.6
Iceland ^a	88.2	89.5	83.7	84.4	66.1	73.6	65.3	66.6	95.1	94.2	88.7	89.4	94.2	89.6	87.2	87.6
Ireland	76.3	77.5	64.6	66.3	53.4	53.2	28.0	28.0	88.4	87.9	76.2	78.3	63.6	68.1	58.7	60.3
Israel ^b	68.9	70.1	71.2	71.5	51.2	49.3	45.7	45.7	79.6	80.6	81.7	82.2	56.9	65.1	72.9	72.9
Italy ^a	68.2	70.6	65.7	65.7	33.2	29.4	20.7	20.1	84.9	87.4	79.2	78.2	40.9	45.0	52.8	56.5
Japan	80.9	81.7	80.8	81.5	42.5	41.3	38.6	39.6	93.4	92.8	91.7	92.1	78.4	81.5	79.8	81.5
Korea	73.1	74.7	74.9	75.7	24.6	20.5	20.3	21.8	88.0	87.3	87.8	88.3	68.5	74.7	78.2	79.6
Luxembourg	75.0	72.3	72.1	72.6	35.3	26.5	24.2	21.9	92.8	92.2	90.1	90.5	37.9	35.6	48.3	49.8
Mexico	82.8	80.9	78.3	77.9	64.7	57.8	54.8	53.3	93.8	92.9	90.2	90.2	78.1	79.2	75.4	76.1
Netherlands	81.2	81.1	78.7	78.1	67.9	66.9	61.8	58.7	91.4	91.4	86.4	86.9	49.7	60.0	70.2	69.4
New Zealand	77.8	82.0	78.3	79.7	56.2	60.3	50.9	53.9	87.0	90.0	88.3	89.2	67.9	80.7	79.3	80.8
Norway ^a	81.7	79.7	77.4	77.1	61.0	54.0	50.9	49.5	88.8	89.2	86.5	86.3	73.1	73.9	74.9	75.8
Poland	61.2	63.6	66.6	68.2	27.3	29.2	28.6	30.0	77.6	81.1	82.7	83.9	36.7	41.4	51.3	53.1
Portugal	76.3	73.6	63.5	65.8	47.3	38.5	22.9	22.9	90.0	87.2	77.1	80.6	62.2	58.7	53.5	54.3
Slovak Republic	62.2	68.4	66.4	67.6	29.8	30.9	24.5	26.8	79.6	85.0	82.2	83.2	35.4	52.6	53.2	53.1
Slovenia	67.2	72.7	67.1	67.5	35.7	43.2	29.7	29.5	85.7	88.1	84.3	84.6	32.3	45.3	41.8	41.8
Spain ^a	72.7	77.3	60.1	61.6	43.2	48.6	19.1	19.3	85.6	87.5	70.4	72.5	55.2	59.6	50.5	51.2
Sweden ^a	76.3	76.5	76.3	76.6	47.9	41.9	40.4	41.4	85.9	89.0	87.9	87.8	67.7	73.1	77.0	76.6
Switzerland	87.3	85.6	84.6	84.4	66.5	65.4	62.7	62.4	95.2	93.6	91.8	91.9	77.0	76.4	79.9	78.7
Turkey	71.7	66.8	69.5	69.5	49.7	41.5	43.1	45.0	85.0	80.7	83.2	82.8	51.9	40.5	45.2	45.6
United Kingdom ^a	78.9	78.6	76.1	77.6	64.0	58.0	48.9	51.1	87.4	88.3	86.5	88.0	59.7	66.1	66.6	67.7
United States ^a	80.6	77.8	72.6	73.5	61.9	54.4	46.9	48.2	89.0	87.5	82.8	83.6	65.7	67.4	66.0	66.8
OECD ^c	76.4	75.9	73.2	73.7	51.0	47.2	42.6	43.2	88.2	87.9	84.9	85.3	60.2	63.8	65.1	66.1
Brazil ^d	78.2	79.7	78.6	..	62.0	63.0	57.0	..	88.1	89.0	89.1	..	68.1	70.1	70.2	..
China ^e	84.6	..	82.0	..	61.8	..	55.9	..	94.2	..	93.3	..	70.4	..	70.1	..
Colombia ^d	75.5	75.2	79.1	79.6	52.1	47.9	54.0	53.9	87.6	88.9	90.8	91.3	73.4	72.8	78.7	79.6
Costa Rica	..	..	74.6	75.2	..	..	44.3	44.7	..	..	89.1	89.5	..	..	75.9	74.9
India ^e	..	..	78.5	..	..	..	44.3	..	..	..	95.2	..	..	..	80.3	..
Indonesia	..	78.4	80.1	..	..	47.9	45.5	..	..	91.8	93.7	..	..	83.4	83.3	..
Latvia	61.1	72.7	66.8	68.4	34.3	43.8	33.3	36.5	74.4	86.0	79.9	80.4	48.1	64.3	55.2	56.3
Lithuania	60.1	68.2	64.7	66.5	28.3	29.4	27.6	31.0	73.8	84.2	79.8	80.7	49.9	60.7	56.1	58.8
Russian Fed.	67.6	72.0	73.6	74.3	38.2	36.6	38.2	37.3	82.7	87.0	88.6	89.2	46.8	63.9	57.9	57.9
South Africa	..	52.2	48.7	48.9	..	18.8	14.5	14.4	..	71.3	65.5	65.2	..	55.3	48.2	49.9

StatLink  <http://dx.doi.org/10.1787/888933240282>

Table B. Employment/population ratios by selected age groups (cont.)
As a percentage of the female population in each age group

	Women (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	61.3	66.1	66.4	66.1	60.8	63.2	58.7	58.0	67.0	71.9	72.2	72.0	34.2	47.3	54.0	54.1
Austria	59.4	63.5	66.9	66.9	48.1	50.6	49.8	49.9	73.6	76.7	80.5	80.3	16.8	26.5	35.2	36.4
Belgium	51.5	55.3	57.2	57.9	25.4	25.0	21.9	21.8	67.2	72.3	74.0	74.9	16.6	26.0	35.8	37.0
Canada	65.6	69.9	69.7	69.4	55.7	59.8	56.0	56.9	73.9	78.2	78.1	77.4	39.1	50.7	56.0	56.0
Chile	35.1	40.4	51.0	51.7	18.2	19.6	25.1	24.5	43.4	50.6	62.6	63.4	24.6	32.5	45.6	46.9
Czech Republic	56.9	57.3	59.6	60.7	33.6	23.9	21.0	21.6	73.7	74.9	75.5	75.7	22.4	33.5	41.4	43.8
Denmark	71.6	73.2	70.0	69.8	63.3	64.0	55.0	54.9	79.8	82.3	79.0	78.4	46.6	52.9	56.8	57.6
Estonia	57.3	66.1	65.6	66.2	28.5	29.8	30.6	33.3	73.2	79.9	76.0	76.0	36.5	60.5	63.6	63.0
Finland	64.5	68.5	67.8	67.9	39.9	44.7	43.8	43.1	77.6	80.7	78.1	78.0	40.9	54.8	60.5	61.6
France	54.8	59.6	60.4	60.9	25.1	27.9	25.7	26.0	69.6	76.0	76.3	76.2	26.1	36.0	43.1	45.4
Germany	58.1	63.2	69.0	69.5	44.6	43.5	45.2	44.3	71.2	74.0	78.6	78.8	29.0	43.4	57.6	60.0
Greece	41.7	47.7	39.9	41.1	22.4	18.8	9.1	10.9	52.7	60.9	51.4	53.1	24.3	27.0	26.0	25.0
Hungary	49.6	50.7	52.6	55.9	28.8	17.7	17.0	20.5	66.9	67.9	70.0	73.2	13.1	25.8	32.1	35.2
Iceland ^a	81.0	81.7	79.9	80.0	70.5	75.0	76.0	73.0	86.0	84.1	82.3	82.1	74.4	80.0	75.9	80.6
Ireland	53.7	60.6	55.9	56.4	45.1	47.6	29.7	26.4	62.6	69.5	65.6	66.6	26.8	40.0	43.2	44.9
Israel ^b	55.5	59.0	63.0	64.2	44.8	43.4	43.0	43.1	63.5	67.7	72.5	74.3	36.8	49.3	57.0	57.9
Italy ^a	39.6	46.6	47.2	47.5	22.1	19.5	15.1	14.1	50.9	59.6	58.0	57.6	15.3	23.0	33.2	36.6
Japan	56.7	59.5	62.5	63.6	43.0	41.5	40.8	41.0	63.6	67.4	70.8	71.8	47.9	51.2	54.2	56.1
Korea	50.0	53.2	53.9	54.9	33.7	30.4	27.8	29.5	56.0	60.5	61.8	62.7	47.9	46.9	50.8	52.0
Luxembourg	50.0	56.1	59.1	60.5	28.3	18.4	19.4	18.8	63.0	71.7	75.5	76.8	16.8	28.6	32.4	35.0
Mexico	39.6	43.6	45.3	44.5	34.0	31.5	30.1	28.8	44.3	51.0	53.5	52.6	27.7	32.7	37.5	36.3
Netherlands	62.7	67.5	69.9	68.1	65.1	64.0	62.8	58.8	70.3	77.3	78.3	76.5	25.5	37.5	50.0	50.4
New Zealand	63.1	68.6	67.7	69.1	52.1	55.6	47.5	49.4	69.9	74.2	74.0	74.9	46.1	63.2	69.7	71.8
Norway ^a	74.0	74.0	73.5	73.4	55.0	56.3	54.0	52.5	81.6	82.3	81.6	81.4	61.2	64.0	67.1	68.5
Poland	48.9	50.6	53.4	55.2	21.8	22.4	19.5	21.3	64.3	68.8	71.2	72.7	21.4	19.4	31.0	32.9
Portugal	60.5	61.8	57.9	59.6	36.1	30.2	20.4	21.9	73.9	74.8	72.2	74.3	40.9	44.3	41.0	42.1
Slovak Republic	51.5	53.0	53.4	54.3	28.2	24.1	16.2	16.5	69.8	71.0	69.6	70.2	9.8	21.2	35.7	37.2
Slovenia	58.4	62.6	59.2	60.0	29.7	31.4	23.0	24.0	79.3	82.4	79.3	79.1	13.8	22.2	25.2	29.0
Spain ^a	42.0	56.0	51.0	52.0	29.0	37.2	18.0	17.7	51.0	66.3	61.2	62.3	20.1	30.2	36.3	37.8
Sweden ^a	72.2	71.8	72.5	73.2	45.4	42.2	42.8	43.9	81.7	83.0	82.7	82.8	62.4	67.2	70.5	71.7
Switzerland	69.3	71.6	74.4	75.1	63.4	59.7	61.0	60.9	75.6	78.5	80.9	81.8	50.1	58.1	63.6	64.4
Turkey	26.2	22.8	29.6	29.5	24.8	19.3	21.5	22.0	27.6	25.6	34.8	34.6	21.5	14.6	18.2	17.5
United Kingdom ^a	65.6	66.3	66.6	67.8	59.1	54.8	48.7	51.3	73.1	74.6	75.3	76.1	41.4	48.9	53.0	54.3
United States ^a	67.8	65.9	62.3	63.0	57.4	51.8	46.0	47.1	74.2	72.5	69.3	70.0	50.6	56.6	56.2	56.3
OECD ^c	55.0	57.3	57.5	58.0	41.4	39.3	36.5	36.9	63.5	66.3	66.5	66.9	37.1	43.6	48.1	49.1
Brazil ^d	51.2	55.9	55.5	..	39.7	42.7	39.8	..	59.2	64.3	65.0	..	36.5	39.5	38.7	..
China ^e	73.8	..	68.0	..	62.1	..	51.5	..	81.6	..	78.0	..	47.1	..	47.8	..
Colombia ^d	46.0	46.0	54.6	55.2	30.8	28.2	34.3	34.9	55.4	56.3	65.2	65.9	32.9	33.4	45.7	45.8
Costa Rica	..	..	48.7	48.0	..	..	29.1	26.1	..	..	60.2	59.0	..	..	34.6	38.0
India ^e	..	..	27.3	..	..	..	15.5	..	..	..	33.0	..	..	..	25.2	..
Indonesia	..	46.3	49.0	..	..	30.0	30.1	..	..	52.8	56.5	..	..	50.3	49.6	..
Latvia	53.8	63.9	63.4	64.3	23.8	32.2	27.0	28.3	72.6	78.4	76.1	76.0	26.8	53.4	54.6	56.4
Lithuania	57.5	62.0	62.8	64.9	22.1	20.0	21.5	24.1	76.1	80.2	79.4	80.9	33.0	47.5	51.2	54.3
Russian Fed.	59.3	65.3	64.4	64.8	30.9	30.8	30.3	29.5	77.8	82.5	82.0	82.5	25.9	43.1	39.5	39.6
South Africa	..	37.4	36.9	36.9	..	12.6	10.5	10.2	..	51.2	50.2	49.9	..	31.8	31.7	32.9

a) The lower age limit is 16 instead of 15 for Iceland up to 2008, Italy prior to 2009, Norway up to 2005 and Sweden up to 2006.

b) There is a break in series between 2011 and 2012 with the introduction of a redesigned monthly labour force survey since January 2012. Therefore, data prior to 2012 are spliced using new-to-old chaining coefficients between monthly and quarterly surveys based on data of fourth quarter of 2011.

c) Weighted average.

d) Data for 2000 refer to 2001.

e) Data for 2013 refer to 2010 for China and 2012 for India.

Source and definition: OECD Online Employment Database : www.oecd.org/employment/database and www.oecd.org/els/emp/fsnotes_sources.pdf.

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Table C. Labour force participation rates by selected age groups
As a percentage of the population in each age group

	Total (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	73.8	76.2	76.4	76.3	70.2	70.8	66.8	66.6	80.3	82.7	82.9	82.8	48.2	58.1	63.9	64.1
Austria	70.8	73.5	75.5	75.4	55.7	59.4	58.8	58.0	85.2	86.5	88.3	88.0	29.8	37.2	45.5	46.9
Belgium	65.1	67.1	67.5	67.7	35.3	33.9	31.0	30.2	82.4	85.3	85.3	85.6	27.1	35.9	44.1	45.1
Canada	76.2	78.3	78.0	77.8	64.4	67.0	63.8	64.2	84.8	86.6	86.7	86.2	50.9	60.0	64.4	64.4
Chile	58.8	60.8	66.4	66.6	33.6	32.1	36.3	36.0	70.4	73.9	79.2	79.3	50.3	56.5	65.9	66.6
Czech Republic	71.6	69.8	72.9	73.5	46.1	31.9	31.5	32.2	88.4	87.8	89.1	88.8	38.2	48.2	54.8	56.8
Denmark	80.0	80.1	78.1	78.1	70.7	70.6	61.7	61.5	87.9	88.9	87.5	87.1	58.2	61.0	65.0	66.4
Estonia	71.1	73.0	75.1	75.2	44.8	38.4	40.7	40.1	86.6	88.3	87.6	87.0	48.3	61.6	66.6	67.6
Finland	74.9	75.7	74.8	75.5	53.8	55.0	50.2	53.3	87.9	88.0	86.8	86.6	46.6	58.8	62.9	63.9
France	68.8	69.9	71.1	71.3	35.5	38.4	37.3	36.6	86.4	88.1	88.4	88.2	31.7	40.2	49.1	50.8
Germany	71.1	75.6	77.6	77.7	51.5	52.0	50.8	50.0	85.3	87.2	87.7	87.6	42.9	57.2	67.5	69.1
Greece	63.8	66.5	67.5	67.4	39.0	31.0	28.4	28.0	78.1	81.8	83.9	84.3	40.5	44.2	42.4	41.1
Hungary	59.9	61.6	64.7	67.0	37.2	25.7	27.4	29.5	77.3	80.1	83.3	85.0	22.6	33.7	41.2	44.6
Iceland ^a	86.6	87.8	86.6	86.7	71.6	80.1	78.9	77.5	92.2	90.6	89.7	89.6	85.7	85.7	84.3	86.8
Ireland	68.2	72.7	70.1	69.7	53.6	56.2	40.9	37.3	78.7	82.1	81.0	81.0	46.5	55.5	56.9	58.1
Israel ^b	69.9	71.2	71.6	72.2	58.2	55.5	49.6	49.7	78.7	80.3	81.7	82.6	50.9	61.2	67.6	67.9
Italy ^a	60.3	62.4	64.3	64.9	39.5	30.8	30.0	30.0	74.3	77.5	77.1	77.0	29.0	34.5	45.3	48.9
Japan	72.5	73.6	74.9	75.5	47.0	44.9	42.6	43.0	81.9	83.3	84.8	85.1	66.5	68.4	69.4	71.0
Korea	64.4	66.2	66.6	67.8	33.0	28.2	26.6	28.6	75.2	76.4	77.3	78.2	59.5	62.0	65.7	67.3
Luxembourg	64.2	66.9	69.9	70.8	34.0	26.5	25.9	26.3	79.8	84.7	87.5	88.0	27.6	32.7	42.5	44.5
Mexico	61.7	63.3	64.3	63.7	51.5	47.4	46.6	45.6	68.6	72.3	73.9	73.2	52.4	55.6	56.8	56.5
Netherlands	74.3	77.1	79.7	79.0	70.8	70.4	70.0	67.4	83.1	86.8	87.5	87.1	38.5	50.8	64.1	64.9
New Zealand	75.0	78.1	77.9	79.0	62.7	64.5	58.8	60.8	82.0	84.0	84.9	85.6	59.7	72.9	77.4	78.7
Norway ^a	80.7	78.9	78.3	78.1	64.7	59.4	57.7	55.2	87.6	87.5	86.7	86.8	68.0	69.7	72.0	73.1
Poland	65.8	63.2	67.0	67.9	37.8	33.0	33.3	33.9	82.4	81.7	84.6	85.1	31.3	31.8	44.0	45.6
Portugal	71.2	73.9	73.0	73.2	45.7	41.3	35.0	34.3	84.8	87.7	88.3	88.6	52.5	54.6	54.4	55.3
Slovak Republic	69.9	68.2	69.8	70.3	46.0	34.5	30.8	31.0	88.4	86.8	87.2	87.3	24.3	38.8	49.5	50.1
Slovenia	67.5	71.3	70.5	70.9	39.2	41.8	33.8	33.6	87.4	89.3	90.7	90.3	24.0	34.6	36.0	38.4
Spain ^a	66.7	72.8	75.3	75.3	48.5	52.5	41.7	39.6	78.0	83.1	87.2	87.3	40.9	47.4	54.1	55.4
Sweden ^a	79.0	79.1	81.1	81.5	52.9	52.1	54.3	55.3	88.2	90.0	90.9	90.8	69.3	73.0	77.7	78.4
Switzerland	80.5	81.6	83.3	83.8	68.3	67.4	67.7	67.4	87.4	88.9	90.1	90.8	65.1	69.3	73.9	74.0
Turkey	52.4	49.8	55.0	55.1	42.5	37.7	39.6	40.8	59.6	58.2	64.5	64.4	37.2	28.3	33.2	33.4
United Kingdom ^a	76.4	76.5	77.4	77.6	69.7	65.8	61.7	61.2	83.9	84.6	85.8	86.1	52.7	59.2	62.6	63.5
United States ^a	77.2	75.3	72.8	72.7	65.8	59.4	55.0	55.0	84.0	83.0	81.0	80.9	59.2	63.8	64.4	64.1
OECD ^c	70.0	70.6	71.1	71.2	52.5	49.2	47.3	47.2	79.9	81.0	81.5	81.5	50.8	55.7	59.7	60.5
Brazil ^d	71.1	73.5	71.4	..	61.8	63.6	57.1	..	78.5	81.1	80.6	..	53.4	55.4	54.6	..
China ^e	82.3	..	77.4	..	67.9	..	57.4	..	90.5	..	88.0	..	59.4	..	59.7	..
Colombia ^d	71.3	68.0	73.9	74.0	57.1	48.8	54.6	54.6	80.6	79.1	84.3	84.4	56.5	55.2	64.7	65.1
Costa Rica	..	..	68.2	68.4	..	..	48.0	48.2	..	..	79.9	79.5	..	..	57.5	58.2
India ^e	..	..	55.4	..	..	..	34.4	..	..	..	65.6	..	..	..	53.2	..
Indonesia	..	68.9	69.0	..	..	52.3	48.3	..	..	76.4	77.7	..	..	68.8	67.5	..
Latvia	67.0	72.6	74.0	74.6	37.4	42.6	39.4	40.4	85.5	87.1	87.6	87.2	39.8	60.7	61.3	62.6
Lithuania	70.5	67.9	72.4	73.7	36.2	27.1	31.5	34.2	88.8	85.6	89.5	89.7	45.4	55.3	60.1	63.0
Russian Fed.	70.9	72.9	72.8	73.1	43.6	39.4	39.8	38.7	88.3	89.2	89.4	89.7	37.5	53.7	49.1	49.1
South Africa	..	57.2	56.8	57.1	..	29.3	25.8	25.3	..	74.5	73.8	74.1	..	44.8	42.5	44.0

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Table C. Labour force participation rates by selected age groups (cont.)
As a percentage of the male population in each age group

	Men (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	82.3	83.0	82.4	82.2	71.9	71.8	67.4	66.9	90.2	90.8	90.1	89.9	60.9	67.7	72.1	72.2
Austria	79.9	80.0	80.4	80.0	60.6	62.9	62.3	60.7	94.0	92.5	92.1	91.5	42.8	47.6	55.1	56.8
Belgium	73.7	73.6	72.7	72.4	38.7	36.1	33.7	32.3	91.8	92.5	90.9	90.7	37.5	44.4	50.5	51.3
Canada	81.9	82.4	81.4	81.3	65.8	67.4	63.8	63.8	91.0	91.1	90.7	90.5	60.7	67.0	69.4	69.7
Chile	78.9	77.4	78.1	77.6	42.5	39.0	41.1	40.8	94.4	93.9	92.3	91.7	76.5	80.2	85.7	85.8
Czech Republic	79.4	78.1	80.5	81.2	51.3	36.7	36.8	38.1	94.9	95.0	95.8	95.6	54.5	62.4	66.1	67.9
Denmark	84.2	83.7	80.6	81.1	73.4	72.0	61.1	61.0	91.7	92.3	90.2	90.3	66.7	66.9	70.2	72.6
Estonia	76.3	77.5	78.6	79.3	52.1	44.3	43.1	43.1	89.2	93.2	92.3	92.0	60.0	62.4	66.7	69.1
Finland	77.6	77.4	76.0	77.1	56.4	56.3	47.8	54.1	90.7	90.3	90.0	89.6	48.1	59.2	61.6	61.9
France	75.2	74.7	75.4	75.3	38.6	41.8	40.7	39.8	94.3	94.2	93.3	93.2	35.5	42.7	52.3	53.1
Germany	78.9	81.8	82.6	82.5	54.7	54.9	52.9	52.1	93.4	93.8	92.9	92.6	52.4	65.8	74.5	75.5
Greece	77.4	78.4	76.9	76.0	41.7	34.4	31.6	30.0	94.4	94.6	93.6	93.1	57.3	60.9	55.0	53.4
Hungary	67.5	68.6	71.0	73.4	41.8	29.5	31.0	33.0	84.4	87.2	89.5	91.2	34.1	42.1	49.0	53.2
Iceland ^a	89.8	91.6	88.8	89.1	70.1	80.0	75.5	76.6	96.1	95.3	92.8	92.9	94.7	90.4	90.0	90.3
Ireland	80.0	81.6	77.2	77.1	57.8	59.6	41.5	38.9	92.3	91.7	89.5	89.7	65.2	69.8	66.9	68.3
Israel ^b	77.5	77.0	76.0	76.1	61.9	58.3	51.0	50.9	87.5	87.0	86.5	86.8	63.5	70.3	76.7	76.2
Italy ^a	74.3	74.3	74.4	74.7	44.6	36.0	33.9	34.3	90.6	91.0	88.3	87.7	42.7	46.2	56.6	60.2
Japan	85.2	85.2	84.6	84.9	47.4	45.1	41.8	42.7	97.1	96.3	95.7	95.6	84.1	84.9	83.5	84.8
Korea	77.1	77.6	77.6	78.6	28.4	23.1	22.5	24.6	92.2	90.5	90.7	91.3	71.3	76.8	80.4	82.0
Luxembourg	76.4	75.0	76.3	77.2	37.4	30.6	29.8	29.6	94.2	94.9	94.4	94.9	38.6	36.4	50.5	52.1
Mexico	84.7	83.7	82.5	82.1	67.7	61.7	59.9	58.8	95.2	95.3	94.3	94.1	79.3	80.9	78.2	78.7
Netherlands	83.2	83.8	84.7	84.2	71.6	71.4	69.3	67.0	93.2	93.5	92.3	92.2	50.9	62.6	75.3	75.5
New Zealand	83.1	84.9	83.1	84.1	65.8	67.1	60.5	63.0	91.1	92.1	91.8	92.4	71.9	81.9	82.5	83.6
Norway ^a	84.8	81.8	80.4	80.2	67.5	58.6	56.9	54.3	91.4	90.9	89.2	89.3	74.4	74.7	76.0	77.0
Poland	71.7	70.0	73.9	74.6	40.9	36.5	38.4	38.8	88.3	87.9	90.0	90.5	40.4	44.8	55.9	57.2
Portugal	78.9	79.2	76.5	76.7	50.5	44.7	36.2	34.8	92.5	92.9	91.1	91.6	64.5	63.2	62.7	64.0
Slovak Republic	76.8	75.8	77.2	77.6	49.4	38.7	37.6	38.1	93.9	93.0	93.6	94.0	41.0	56.9	59.5	58.9
Slovenia	71.9	75.8	74.2	74.3	41.7	47.6	37.1	36.6	90.6	91.3	92.6	92.3	34.6	46.7	45.1	45.7
Spain ^a	80.4	82.6	80.9	80.7	53.6	57.3	43.7	41.5	93.0	92.5	92.4	92.6	60.5	62.8	63.3	64.3
Sweden ^a	81.5	81.4	83.3	83.6	54.4	51.5	53.7	54.7	90.7	92.9	93.6	93.5	72.6	76.4	81.8	81.7
Switzerland	89.4	88.2	88.6	88.5	70.5	70.2	68.8	68.2	96.7	95.8	95.6	95.8	79.3	78.4	82.4	81.4
Turkey	76.9	74.4	76.3	76.6	57.6	51.6	51.9	54.0	89.5	88.1	90.0	89.8	53.4	42.9	48.2	49.3
United Kingdom ^a	84.1	83.3	83.1	83.1	73.6	68.8	63.8	62.7	91.9	91.7	92.0	92.4	63.2	68.9	70.4	70.9
United States ^a	83.9	81.7	78.7	78.5	68.6	61.5	56.6	56.4	91.6	90.9	88.4	88.2	67.3	69.6	70.0	69.9
OECD ^c	81.1	80.4	79.6	79.7	57.8	53.7	51.2	51.1	92.5	92.2	91.3	91.2	63.6	66.6	69.3	70.0
Brazil ^d	84.7	84.9	82.8	..	72.6	72.3	65.0	..	93.0	92.8	92.3	..	71.1	72.3	71.8	..
China ^e	87.8	..	84.3	..	68.0	..	59.6	..	96.8	..	95.4	..	70.8	..	71.0	..
Colombia ^d	86.1	82.6	85.5	85.7	67.2	58.2	63.2	63.1	96.5	95.2	96.3	96.2	80.2	77.7	83.5	84.3
Costa Rica	..	..	81.3	82.0	..	..	55.1	56.9	..	..	94.5	94.3	..	..	79.6	78.7
India ^e	..	..	81.4	..	..	..	49.5	..	..	..	97.2	..	..	..	81.4	..
Indonesia	..	85.6	85.4	..	..	62.8	57.7	..	..	96.3	97.0	..	..	84.9	84.4	..
Latvia	72.3	77.9	76.6	77.8	43.4	49.2	42.6	45.3	87.8	91.6	90.6	90.5	53.9	67.6	62.2	63.7
Lithuania	74.3	71.3	74.7	76.0	41.6	31.6	35.8	38.6	89.7	87.7	90.6	90.8	57.9	63.3	65.2	68.2
Russian Fed.	75.9	76.9	78.1	78.6	47.5	42.7	44.1	43.0	91.4	92.0	93.2	93.6	50.6	66.3	60.4	60.5
South Africa	..	64.3	63.4	63.7	..	32.0	27.9	27.7	..	84.0	82.2	82.3	..	59.1	53.0	54.3

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Table C. Labour force participation rates by selected age groups (cont.)
As a percentage of the female population in each age group

	Women (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	65.3	69.4	70.5	70.5	68.5	69.7	66.2	66.2	70.5	74.8	75.8	75.9	35.3	48.6	55.8	56.2
Austria	61.8	67.1	70.7	70.8	50.8	56.0	55.3	55.4	76.3	80.5	84.5	84.5	17.6	27.5	36.4	37.5
Belgium	56.4	60.4	62.3	63.0	31.8	31.6	28.2	28.1	72.7	78.0	79.7	80.6	17.1	27.5	37.8	39.0
Canada	70.4	74.2	74.7	74.2	62.9	66.5	63.8	64.6	78.5	82.1	82.7	81.9	41.4	53.3	59.5	59.2
Chile	39.1	44.4	54.9	55.7	24.2	24.8	31.1	30.6	47.3	54.6	66.5	67.3	25.5	33.7	47.0	48.4
Czech Republic	63.7	61.5	65.1	65.6	40.6	26.9	26.1	26.1	81.8	80.3	81.9	81.6	23.7	35.2	44.2	46.3
Denmark	75.6	76.4	75.6	75.0	67.8	69.1	62.4	62.0	84.0	85.3	84.8	83.8	49.0	55.1	59.9	60.3
Estonia	66.3	68.8	71.7	71.2	37.1	32.1	38.1	37.0	84.1	83.4	82.8	81.8	39.4	61.0	66.5	66.5
Finland	72.1	73.9	73.5	73.8	51.1	53.7	52.8	52.5	85.0	85.6	83.4	83.4	45.2	58.3	64.1	65.8
France	62.5	65.2	66.9	67.4	32.4	35.0	33.9	33.4	78.6	82.3	83.5	83.5	28.2	37.8	46.0	48.6
Germany	63.3	69.4	72.6	72.9	48.2	49.0	48.7	47.7	76.9	80.6	82.4	82.4	33.5	48.9	60.8	62.9
Greece	50.5	54.8	58.3	59.0	36.2	27.5	25.3	26.1	62.0	69.2	74.3	75.6	25.4	28.2	31.0	29.9
Hungary	52.6	54.9	58.6	60.7	32.5	21.8	23.6	25.9	70.5	73.2	77.1	78.8	13.3	26.9	34.7	37.4
Iceland ^a	83.3	83.6	84.3	84.2	73.2	80.1	82.5	78.4	88.2	85.4	86.6	86.3	76.8	80.7	78.5	83.3
Ireland	56.3	63.5	63.2	62.5	49.2	52.7	40.3	35.5	65.1	72.2	72.8	72.6	27.6	40.8	47.0	48.1
Israel ^b	62.5	65.5	67.3	68.4	54.3	52.5	48.2	48.5	70.3	73.9	77.0	78.4	39.1	52.4	59.1	60.3
Italy ^a	46.3	50.6	54.3	55.2	34.3	25.4	25.8	25.5	57.9	64.1	66.1	66.4	16.1	23.4	34.7	38.3
Japan	59.6	61.9	65.0	66.0	46.6	44.7	43.5	43.4	66.5	70.1	73.6	74.5	49.7	52.5	55.8	57.5
Korea	52.0	54.8	55.6	57.0	37.0	32.7	30.6	32.5	57.8	62.0	63.4	64.8	48.8	47.6	51.4	53.0
Luxembourg	51.7	58.9	63.2	64.2	30.6	22.3	21.8	23.0	64.9	74.7	80.5	80.9	16.8	29.1	34.2	36.5
Mexico	41.0	45.3	47.8	46.8	36.3	34.1	33.6	32.2	45.4	52.6	55.9	54.8	28.0	32.9	38.0	36.9
Netherlands	65.2	70.4	74.6	73.8	70.0	69.4	70.8	67.7	72.7	79.9	82.6	81.9	25.9	38.9	52.9	54.3
New Zealand	67.2	71.5	73.0	74.1	59.5	61.9	56.9	58.5	73.4	76.5	78.5	79.3	47.8	64.1	72.6	74.2
Norway ^a	76.5	75.9	76.1	75.9	61.8	60.3	58.5	56.2	83.5	84.0	84.0	84.1	61.6	64.6	68.0	69.2
Poland	59.9	56.5	60.1	61.1	34.8	29.3	27.9	28.7	76.5	75.6	79.1	79.6	23.7	20.6	33.3	35.2
Portugal	63.8	68.7	69.8	70.0	40.9	37.8	33.8	33.8	77.3	82.7	85.5	85.8	42.0	47.0	46.9	47.5
Slovak Republic	63.2	60.7	62.4	62.8	42.6	30.1	23.7	23.6	82.9	80.5	80.5	80.4	10.7	23.3	40.4	42.1
Slovenia	62.9	66.6	66.6	67.3	36.4	35.4	30.2	30.5	84.2	87.3	88.7	88.3	14.1	23.1	27.0	31.1
Spain ^a	52.9	62.8	69.7	69.8	43.3	47.5	39.6	37.6	62.8	73.3	81.8	82.0	22.6	32.7	45.2	46.9
Sweden ^a	76.4	76.8	78.8	79.3	51.2	52.6	55.0	55.9	85.6	87.1	88.1	88.0	65.9	69.6	73.5	75.2
Switzerland	71.6	75.0	78.0	79.0	66.0	64.5	66.5	66.6	78.0	81.9	84.5	85.7	51.3	60.3	65.4	66.5
Turkey	28.0	25.7	33.7	33.6	28.1	24.4	27.5	27.7	28.9	28.0	38.9	38.8	21.6	14.8	18.8	17.9
United Kingdom ^a	68.9	69.8	71.7	72.1	65.7	62.7	59.6	59.6	76.2	77.6	79.7	80.0	42.5	49.9	55.1	56.4
United States ^a	70.7	69.1	67.2	67.1	63.0	57.2	53.5	53.6	76.7	75.4	73.9	73.9	51.9	58.3	59.2	58.8
OECD ^c	59.0	60.9	62.6	62.8	47.1	44.5	43.3	43.1	67.5	70.1	71.9	72.0	38.7	45.3	50.7	51.5
Brazil ^d	58.3	62.8	60.7	..	51.2	54.7	48.9	..	65.1	70.2	69.7	..	37.9	40.6	39.7	..
China ^e	76.7	..	70.3	..	67.8	..	55.1	..	84.0	..	80.4	..	47.2	..	48.3	..
Colombia ^d	57.4	54.2	62.8	62.9	47.2	39.5	46.0	46.1	65.7	64.2	73.1	73.2	35.3	35.2	48.3	48.3
Costa Rica	..	..	54.9	54.6	..	..	39.8	38.1	..	..	65.7	64.9	..	..	35.9	39.0
India ^e	..	..	28.5	..	..	..	17.5	..	..	..	34.0	..	..	..	25.6	..
Indonesia	..	52.1	52.5	..	..	41.3	38.6	..	..	56.8	58.4	..	..	51.3	50.1	..
Latvia	62.1	67.8	71.6	71.6	31.2	35.8	36.0	35.3	83.3	82.8	84.8	84.0	29.2	55.7	60.5	61.7
Lithuania	67.1	64.9	70.3	71.6	30.5	22.3	27.0	29.6	87.9	83.6	88.4	88.7	35.9	49.2	56.1	58.9
Russian Fed.	66.2	69.2	67.9	68.1	39.7	36.0	35.4	34.3	85.3	86.6	85.8	86.1	27.8	44.2	40.7	40.7
South Africa	..	50.8	50.4	50.7	..	26.6	23.6	22.8	..	66.2	65.7	66.1	..	33.3	33.7	35.4

a) The lower age limit is 16 instead of 15 for Iceland up to 2008, Italy prior to 2009, Norway up to 2005 and Sweden up to 2006.

b) There is a break in series between 2011 and 2012 with the introduction of a redesigned monthly labour force survey since January 2012. Therefore, data prior to 2012 are spliced using new-to-old chaining coefficients between monthly and quarterly surveys based on data of fourth quarter of 2011.

c) Weighted average.

d) Data for 2000 refer to 2001.

e) Data for 2013 refer to 2010 for China and 2012 for India.

Source and definition: OECD Online Employment Database : www.oecd.org/employment/database and www.oecd.org/els/emp/lfsnotes_sources.pdf.

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Table D. Unemployment rates by selected age groups
As a percentage of the total labour force in each age group

	Total (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	6.4	4.4	5.8	6.2	12.1	9.4	12.2	13.3	5.0	3.4	4.6	4.8	4.5	2.7	3.8	4.1
Austria	3.5	4.9	5.4	5.7	5.1	9.4	9.7	10.3	3.1	4.2	4.9	5.2	5.2	3.4	3.8	3.8
Belgium	7.0	7.5	8.5	8.6	17.5	18.8	23.7	23.2	6.1	6.6	7.4	7.6	3.0	4.2	5.4	5.4
Canada	6.9	6.1	7.2	7.0	12.7	11.2	13.7	13.5	5.8	5.1	5.9	5.8	5.5	5.1	6.3	6.2
Chile	9.4	7.4	6.2	6.6	21.3	17.8	16.1	16.5	7.6	6.0	5.1	5.5	5.6	3.8	2.9	3.6
Czech Republic	8.8	5.4	7.0	6.2	17.0	10.7	19.0	15.9	7.7	4.9	6.2	5.6	5.2	4.6	5.8	4.9
Denmark	4.6	3.8	7.2	6.8	6.7	7.5	13.1	12.6	4.2	3.1	6.3	5.9	4.4	3.4	5.1	4.8
Estonia	14.8	4.7	8.8	7.5	22.2	9.9	17.9	14.3	14.0	4.2	8.3	7.2	11.5	3.6	6.0	5.4
Finland	9.8	6.9	8.3	8.7	20.3	15.7	20.0	19.3	8.0	5.3	6.7	7.1	9.4	6.5	6.7	7.3
France	10.3	8.0	9.9	9.9	20.6	19.1	23.9	23.2	9.3	7.0	8.7	8.7	7.3	5.1	7.0	7.3
Germany	7.8	8.7	5.3	5.1	8.4	11.7	7.8	7.8	7.0	8.0	4.9	4.7	12.3	10.3	5.7	5.1
Greece	11.6	8.5	27.7	26.7	29.2	22.7	58.3	52.4	9.7	7.8	26.9	26.0	3.9	3.4	16.2	17.2
Hungary	6.4	7.5	10.2	7.8	12.7	18.0	26.6	20.4	5.7	6.9	9.1	6.8	3.0	4.4	8.1	6.4
Iceland ^a	2.3	2.3	5.5	5.1	4.7	7.2	10.7	10.0	1.7	1.3	4.6	4.3	1.7	0.9	3.2	3.1
Ireland	4.7	4.9	14.1	12.1	7.9	10.3	29.6	26.9	4.0	4.0	12.6	10.7	2.6	2.3	10.7	9.6
Israel ^b	11.2	9.4	6.3	6.0	17.3	16.3	10.5	10.6	9.4	7.8	5.7	5.3	8.7	6.8	4.4	4.1
Italy ^a	10.6	6.2	12.3	12.9	29.7	20.4	40.0	42.7	8.5	5.3	11.2	11.8	4.5	2.4	5.7	5.5
Japan	5.0	4.1	4.3	3.8	9.2	7.7	6.9	6.3	4.1	3.7	4.1	3.6	5.6	3.4	3.8	3.3
Korea	4.6	3.4	3.2	3.7	10.8	8.8	9.3	10.0	4.0	3.1	2.9	3.3	2.9	2.2	2.1	2.5
Luxembourg	2.4	4.1	5.9	5.9	6.4	15.2	15.5	22.6	2.0	3.4	5.3	4.9	1.4	2.1	4.7	4.3
Mexico	2.6	3.5	5.2	5.1	5.1	6.7	9.2	9.6	1.8	2.7	4.3	4.1	1.4	1.6	2.8	2.8
Netherlands	3.1	3.6	6.7	7.5	6.1	7.0	11.0	12.7	2.5	2.8	5.8	6.2	2.1	4.0	6.3	7.7
New Zealand	6.2	3.8	6.5	6.0	13.5	10.1	16.3	15.0	4.7	2.6	4.8	4.4	4.7	1.4	4.0	3.2
Norway ^a	3.5	2.6	3.6	3.6	10.2	7.3	9.2	7.8	2.6	1.9	2.9	3.3	1.3	1.0	1.3	1.3
Poland	16.4	9.7	10.5	9.1	35.2	21.7	27.3	23.9	13.9	8.4	9.0	7.9	9.4	6.8	7.7	6.8
Portugal	4.2	8.5	17.0	14.5	8.6	16.7	38.1	34.8	3.5	7.7	15.5	12.7	3.2	6.5	13.7	13.5
Slovak Republic	18.8	11.0	14.3	13.2	37.0	20.1	33.6	29.7	15.5	10.1	12.8	12.0	12.3	8.1	11.0	10.6
Slovenia	6.9	5.0	10.3	9.9	16.3	10.1	21.6	20.2	5.6	4.5	9.7	9.3	5.3	3.3	7.0	7.8
Spain ^a	13.9	8.3	26.2	24.6	25.3	18.1	55.5	53.2	12.3	7.2	24.5	22.8	9.4	6.0	20.0	20.0
Sweden ^a	5.9	6.2	8.2	8.1	11.7	19.2	23.6	22.9	4.9	4.4	6.1	6.0	6.1	3.9	5.1	5.4
Switzerland	2.7	3.7	4.5	4.7	4.8	7.1	8.5	8.6	2.3	3.1	4.1	4.2	2.7	3.1	3.0	3.3
Turkey	6.7	10.5	9.9	10.1	13.1	20.0	18.7	17.9	4.9	8.5	8.5	8.7	2.1	4.3	5.3	6.0
United Kingdom ^a	5.5	5.3	7.8	6.4	11.7	14.2	20.9	16.3	4.4	3.7	5.8	4.8	4.4	3.3	4.7	4.2
United States ^a	4.0	4.7	7.5	6.3	9.3	10.5	15.5	13.4	3.1	3.7	6.3	5.2	2.5	3.1	5.3	4.3
OECD ^c	6.2	5.8	8.1	7.5	11.9	12.0	16.2	15.0	5.2	4.9	7.3	6.7	4.9	4.0	5.6	5.2
Brazil ^d	9.6	8.3	6.6	..	17.9	16.8	15.0	..	6.9	6.1	5.0	..	4.1	2.9	2.3	..
China ^e	..	..	2.9	..	..	..	6.4	..	..	..	2.5	..	..	..	..	..
Colombia ^d	15.4	11.5	9.9	9.4	27.6	22.2	19.1	18.7	11.9	9.0	7.9	7.3	7.9	5.9	5.6	5.4
Costa Rica	..	..	9.5	9.8	..	..	22.5	25.1	..	..	6.8	6.7	..	..	4.3	4.1
India ^e	..	..	3.7	..	..	..	10.7	..	..	..	2.3	..	..	..	1.4	..
Indonesia	..	9.5	6.4	..	..	25.1	21.6	..	..	5.6	3.3	..	..	1.8	1.3	..
Latvia	14.5	6.2	12.1	11.1	22.1	10.6	23.2	19.6	14.0	5.7	11.0	10.4	9.6	4.5	10.5	9.9
Lithuania	16.7	4.3	12.0	10.9	30.2	8.4	21.9	19.3	15.6	4.0	11.0	9.9	11.2	3.7	11.2	10.7
Russian Fed.	10.7	6.1	5.5	5.2	20.7	14.4	13.8	13.7	9.2	5.1	4.7	4.4	7.3	3.1	3.7	3.6
South Africa	..	22.3	24.7	25.1	..	46.5	51.4	51.3	..	18.6	21.8	22.5	..	5.6	7.7	7.7

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Table D. Unemployment rates by selected age groups (cont.)
As a percentage of the male labour force in each age group

	Men (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	6.6	4.1	5.9	6.1	12.9	9.5	13.0	14.1	5.1	3.0	4.4	4.6	5.3	2.8	4.3	4.3
Austria	3.3	4.6	5.5	5.9	5.0	9.3	9.4	10.6	2.8	3.8	5.0	5.4	5.4	3.4	4.2	4.5
Belgium	5.8	6.7	8.7	9.1	15.3	17.1	24.7	24.0	4.9	5.9	7.5	8.2	3.0	3.6	5.5	5.6
Canada	7.0	6.5	7.6	7.5	13.8	12.3	15.2	15.0	5.7	5.3	6.1	6.0	5.5	5.2	6.8	6.7
Chile	9.0	6.5	5.5	6.3	19.4	16.1	13.9	14.3	7.4	5.2	4.5	5.3	6.3	3.8	3.0	3.8
Czech Republic	7.4	4.3	6.0	5.2	16.7	10.6	18.6	15.0	6.0	3.5	4.9	4.3	5.0	4.5	5.4	4.6
Denmark	4.1	3.5	6.9	6.6	6.8	7.6	14.3	13.7	3.5	2.7	5.7	5.4	3.9	3.0	5.2	5.1
Estonia	16.0	5.5	9.1	7.9	21.7	11.8	16.5	17.8	15.0	4.2	8.3	7.1	15.0	6.9	8.2	5.8
Finland	9.1	6.5	9.0	9.4	18.9	14.8	23.0	20.6	7.2	4.8	6.9	7.6	9.3	6.9	7.8	8.3
France	8.6	7.5	10.0	10.2	19.0	18.3	23.7	24.1	7.4	6.3	8.7	8.8	7.3	5.3	7.5	7.9
Germany	7.6	8.6	5.6	5.4	9.2	12.2	8.5	8.4	6.6	7.8	5.1	5.0	11.5	9.7	6.1	5.5
Greece	7.6	5.3	24.7	23.8	21.6	15.5	53.8	47.4	6.2	4.7	23.7	23.0	3.7	2.9	16.4	17.7
Hungary	7.1	7.2	10.3	7.6	13.8	17.4	25.6	20.0	6.2	6.5	9.1	6.5	3.7	4.8	8.6	6.7
Iceland ^a	1.8	2.3	5.8	5.2	5.7	8.0	13.6	13.1	1.1	1.2	4.4	3.8	0.5	0.9	3.1	2.9
Ireland	4.7	5.0	16.3	14.0	7.6	10.7	32.5	28.0	4.2	4.2	14.9	12.7	2.5	2.4	12.3	11.6
Israel ^b	11.1	9.0	6.3	6.0	17.3	15.3	10.4	10.1	9.1	7.4	5.5	5.3	10.4	7.4	5.0	4.3
Italy ^a	8.2	5.0	11.7	12.1	25.4	18.4	39.0	41.3	6.3	4.0	10.3	10.8	4.4	2.6	6.7	6.2
Japan	5.1	4.1	4.5	4.0	10.4	8.3	7.6	7.1	3.9	3.6	4.2	3.6	6.8	4.1	4.4	3.8
Korea	5.1	3.8	3.4	3.7	13.5	11.4	9.8	11.2	4.5	3.6	3.2	3.3	3.9	2.7	2.8	2.9
Luxembourg	1.8	3.6	5.5	6.0	5.7	13.5	18.7	26.1	1.4	2.8	4.6	4.7	2.0	2.3	4.3	4.4
Mexico	2.3	3.3	5.2	5.1	4.4	6.2	8.5	9.2	1.5	2.5	4.4	4.2	1.5	2.0	3.6	3.4
Netherlands	2.5	3.2	7.1	7.2	5.3	6.3	10.8	12.4	1.9	2.3	6.3	5.8	2.5	4.2	6.9	8.1
New Zealand	6.4	3.5	5.9	5.3	14.5	10.0	15.9	14.3	4.6	2.2	3.9	3.4	5.5	1.5	3.9	3.3
Norway ^a	3.6	2.6	3.8	3.9	9.5	7.9	10.6	8.9	2.9	1.9	2.9	3.5	1.8	1.1	1.4	1.5
Poland	14.6	9.1	9.8	8.6	33.3	20.0	25.4	22.7	12.1	7.8	8.2	7.2	9.1	7.4	8.3	7.1
Portugal	3.3	7.0	17.0	14.2	6.3	13.8	36.7	34.2	2.7	6.1	15.4	12.0	3.6	7.1	14.6	15.2
Slovak Republic	19.0	9.8	14.0	12.9	39.7	20.3	34.9	29.5	15.2	8.6	12.2	11.5	13.5	7.7	10.6	9.7
Slovenia	6.6	4.1	9.6	9.1	14.6	9.4	20.1	19.4	5.4	3.4	8.9	8.3	6.6	3.0	7.4	8.6
Spain ^a	9.6	6.5	25.7	23.7	19.4	15.2	56.2	53.4	8.0	5.5	23.8	21.7	8.6	5.0	20.3	20.4
Sweden ^a	6.3	6.0	8.4	8.4	12.1	18.6	24.8	24.3	5.3	4.1	6.0	6.0	6.8	4.3	5.8	6.2
Switzerland	2.3	3.0	4.4	4.5	5.6	6.8	8.8	8.6	1.6	2.3	3.9	4.1	3.0	2.6	3.1	3.4
Turkey	6.8	10.2	8.9	9.2	13.7	19.6	16.9	16.6	5.0	8.5	7.6	7.8	2.9	5.4	6.3	7.4
United Kingdom ^a	6.1	5.6	8.4	6.6	13.2	15.7	23.3	18.5	4.8	3.7	6.1	4.7	5.5	4.1	5.4	4.6
United States ^a	3.9	4.8	7.8	6.4	9.7	11.6	17.1	14.5	2.9	3.7	6.4	5.2	2.4	3.2	5.6	4.5
OECD ^c	5.8	5.6	8.1	7.5	11.8	12.2	16.6	15.5	4.7	4.6	7.1	6.5	5.3	4.2	6.1	5.6
Brazil ^d	7.7	6.1	5.1	..	14.7	12.9	12.3	..	5.3	4.2	3.5	..	4.3	3.0	2.2	..
China ^e	..	..	2.7	..	..	..	6.3	..	..	..	2.2	..	..	..	1.4	..
Colombia ^d	12.3	8.9	7.5	7.1	22.5	17.8	14.6	14.6	9.2	6.6	5.7	5.2	8.5	6.3	5.8	5.6
Costa Rica	..	..	8.3	8.2	..	..	19.7	21.4	..	..	5.8	5.1	..	..	4.6	4.9
India ^e	..	..	3.5	..	..	..	10.4	..	..	..	2.1	..	..	..	1.3	..
Indonesia	..	8.4	6.3	..	..	23.8	21.2	..	..	4.7	3.3	..	..	1.8	1.3	..
Latvia	15.5	6.7	12.8	12.1	20.9	11.0	21.8	19.4	15.3	6.1	11.8	11.2	10.7	4.9	11.4	11.6
Lithuania	19.1	4.3	13.4	12.4	32.1	7.0	23.0	19.6	17.7	3.9	11.9	11.1	13.7	4.1	13.9	13.8
Russian Fed.	10.9	6.4	5.8	5.5	19.5	14.5	13.3	13.3	9.6	5.4	5.0	4.7	7.5	3.5	4.2	4.4
South Africa	..	18.8	23.1	23.3	..	41.1	48.0	48.0	..	15.1	20.3	20.8	..	6.4	9.1	8.1

StatLink  <http://dx.doi.org/10.1787/888933240303>

Table D. Unemployment rates by selected age groups (cont.)
As a percentage of the female labour force in each age group

	Women (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	6.1	4.8	5.7	6.3	11.2	9.2	11.3	12.5	4.9	3.9	4.7	5.1	3.2	2.6	3.2	3.8
Austria	3.8	5.4	5.4	5.5	5.2	9.6	10.0	9.9	3.5	4.7	4.8	5.0	4.7	3.5	3.2	2.8
Belgium	8.7	8.5	8.2	8.0	20.3	20.9	22.5	22.3	7.6	7.4	7.2	7.0	2.9	5.3	5.3	5.1
Canada	6.7	5.7	6.7	6.5	11.4	10.1	12.2	11.9	5.8	4.8	5.6	5.5	5.5	4.9	5.8	5.5
Chile	10.2	8.8	7.1	7.1	24.8	20.8	19.2	19.7	8.1	7.3	5.8	5.8	3.4	3.6	2.9	3.2
Czech Republic	10.6	6.8	8.4	7.5	17.4	11.0	19.4	17.1	9.9	6.7	7.9	7.1	5.4	4.8	6.4	5.4
Denmark	5.3	4.2	7.4	6.9	6.7	7.4	11.8	11.5	5.0	3.6	6.9	6.4	5.1	4.0	5.1	4.5
Estonia	13.5	3.9	8.5	7.0	23.0	7.2	19.7	10.0	12.9	4.2	8.2	7.2	7.5	0.9	4.4	5.1
Finland	10.6	7.3	7.7	8.0	21.8	16.8	17.2	18.0	8.8	5.8	6.4	6.5	9.4	6.0	5.6	6.4
France	12.2	8.6	9.8	9.6	22.6	20.1	24.2	22.1	11.4	7.7	8.7	8.7	7.4	4.8	6.5	6.7
Germany	8.1	8.9	5.0	4.7	7.5	11.1	7.1	7.1	7.5	8.1	4.6	4.4	13.6	11.2	5.2	4.6
Greece	17.5	13.0	31.6	30.4	38.2	31.7	63.8	58.1	15.1	12.0	30.9	29.8	4.3	4.3	15.9	16.4
Hungary	5.7	7.8	10.2	8.0	11.2	18.9	27.9	20.9	5.0	7.3	9.2	7.2	1.6	3.9	7.5	6.0
Iceland ^a	2.8	2.4	5.2	5.0	3.6	6.3	7.8	6.9	2.4	1.6	4.9	5.0	3.2	0.9	3.4	3.2
Ireland	4.7	4.7	11.5	9.8	8.3	9.8	26.5	25.6	3.8	3.7	9.9	8.3	2.9	2.0	8.3	6.7
Israel ^b	11.2	9.9	6.3	6.0	17.4	17.3	10.7	11.1	9.7	8.4	5.8	5.2	6.0	6.0	3.7	3.9
Italy ^a	14.6	7.9	13.2	13.9	35.4	23.3	41.5	44.7	12.1	7.1	12.3	13.2	4.7	2.1	4.2	4.4
Japan	4.7	3.9	3.9	3.5	7.9	7.1	6.2	5.4	4.4	3.9	3.9	3.5	3.6	2.4	2.8	2.5
Korea	3.8	2.8	3.0	3.6	9.0	7.1	9.0	9.2	3.0	2.4	2.6	3.3	1.6	1.4	1.2	1.9
Luxembourg	3.2	4.7	6.4	5.8	7.3	17.5	10.9	18.1	2.9	4.0	6.2	5.1	0.0	1.7	5.3	4.2
Mexico	3.4	3.8	5.1	5.0	6.2	7.5	10.5	10.3	2.4	3.1	4.2	4.1	0.9	0.6	1.4	1.7
Netherlands	3.9	4.1	6.3	7.8	7.0	7.8	11.2	13.1	3.3	3.3	5.2	6.6	1.5	3.8	5.5	7.2
New Zealand	6.0	4.0	7.2	6.8	12.4	10.2	16.7	15.7	4.8	3.0	5.8	5.6	3.6	1.3	4.1	3.1
Norway ^a	3.2	2.5	3.4	3.3	10.9	6.6	7.7	6.6	2.3	2.0	2.9	3.2	0.7	0.8	1.2	1.0
Poland	18.4	10.4	11.2	9.7	37.3	23.8	30.1	25.5	16.0	9.1	10.0	8.7	9.7	5.7	6.9	6.3
Portugal	5.2	10.1	17.0	14.8	11.6	20.3	39.6	35.4	4.4	9.5	15.6	13.4	2.6	5.8	12.5	11.5
Slovak Republic	18.6	12.6	14.6	13.7	33.8	19.9	31.6	30.1	15.8	11.9	13.6	12.7	8.7	9.1	11.6	11.7
Slovenia	7.2	6.0	11.1	10.8	18.5	11.2	23.7	21.3	5.8	5.6	10.6	10.5	2.5	3.8	6.3	6.6
Spain ^a	20.6	10.7	26.8	25.5	32.9	21.7	54.6	52.9	18.9	9.5	25.2	24.1	11.3	7.7	19.7	19.4
Sweden ^a	5.4	6.5	8.0	7.8	11.3	19.8	22.3	21.5	4.5	4.7	6.1	5.9	5.4	3.5	4.2	4.6
Switzerland	3.2	4.6	4.6	4.8	3.9	7.4	8.3	8.5	3.1	4.1	4.2	4.5	2.3	3.8	2.9	3.1
Turkey	6.5	11.3	12.2	12.1	11.9	20.8	21.9	20.4	4.6	8.8	10.6	10.9	0.5	1.1	2.7	2.2
United Kingdom ^a	4.8	5.0	7.2	6.1	10.1	12.5	18.3	14.0	4.0	3.8	5.6	4.9	2.7	2.2	3.8	3.8
United States ^a	4.1	4.6	7.2	6.1	8.9	9.4	13.9	12.2	3.3	3.8	6.3	5.3	2.5	3.0	5.0	4.2
OECD ^c	6.8	6.1	8.1	7.6	12.1	11.8	15.7	14.5	5.9	5.3	7.5	7.0	4.3	3.7	5.0	4.7
Brazil ^d	12.2	11.0	8.6	..	22.5	21.9	18.7	..	9.1	8.5	6.8	..	3.7	2.7	2.6	..
China ^e	3.8	..	3.3	..	8.4	..	6.5	..	2.9	..	2.9	..	0.2	..	0.9	..
Colombia ^d	19.8	15.1	13.1	12.3	34.8	28.6	25.4	24.3	15.7	12.3	10.7	10.0	6.7	5.0	5.4	5.1
Costa Rica	..	..	11.3	12.2	..	..	26.9	31.5	..	..	8.4	9.0	..	..	3.6	2.7
India ^e	..	..	4.3	..	..	..	11.6	..	..	..	2.9	..	..	..	1.8	..
Indonesia	..	11.2	6.7	..	..	27.3	22.1	..	..	7.2	3.3	..	..	1.9	1.1	..
Latvia	13.4	5.7	11.4	10.1	23.7	10.0	24.9	20.0	12.8	5.3	10.3	9.5	8.0	4.1	9.9	8.5
Lithuania	14.3	4.4	10.6	9.4	27.5	10.4	20.4	18.7	13.5	4.0	10.1	8.8	8.1	3.4	8.7	7.9
Russian Fed.	10.4	5.7	5.2	4.8	22.2	14.4	14.5	14.1	8.8	4.8	4.4	4.2	7.1	2.6	3.1	2.7
South Africa	..	26.4	26.7	27.2	..	52.8	55.5	55.3	..	22.6	23.6	24.5	..	4.5	5.9	7.1

a) The lower age limit is 16 instead of 15 for Iceland up to 2008, Italy prior to 2009, Norway up to 2005 and Sweden up to 2006.

b) There is a break in series between 2011 and 2012 with the introduction of a redesigned monthly labour force survey since January 2012. Therefore, data prior to 2012 are spliced using new-to-old chaining coefficients between monthly and quarterly surveys based on data of fourth quarter of 2011.

c) Weighted average.

d) Data for 2000 refer to 2001.

e) Data for 2013 refer to 2010 for China and 2012 for India.

Source and definition: OECD Online Employment Database : www.oecd.org/employment/database and www.oecd.org/els/emp/lfsnotes_sources.pdf.

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Table E. Employment/population ratios by educational attainment, 2013
Persons aged 25-64, as a percentage of the population in each gender

	Total			Men			Women		
	Less than upper secondary education	Upper secondary education	Tertiary education	Less than upper secondary education	Upper secondary education	Tertiary education	Less than upper secondary education	Upper secondary education	Tertiary education
Australia	60.3	77.7	83.5	69.3	85.5	89.4	52.2	67.3	78.9
Austria	55.3	78.5	86.6	63.1	82.0	89.3	50.8	74.6	83.4
Belgium	47.8	73.6	84.1	56.9	79.4	87.2	37.9	67.1	81.5
Canada	56.3	74.5	81.9	64.6	79.4	85.3	45.7	68.4	79.2
Chile ^a	60.0	70.3	84.3	83.7	86.2	91.7	40.0	56.1	77.8
Czech Republic	41.8	76.6	84.9	52.5	84.5	92.7	35.7	67.9	77.3
Denmark	60.9	79.3	86.5	67.6	82.6	88.4	53.9	75.1	85.0
Estonia	58.2	74.3	83.1	62.5	79.1	87.9	50.7	68.6	80.2
Finland	54.1	73.6	83.8	58.2	76.3	86.3	48.3	70.4	82.0
France	54.3	73.3	84.4	61.8	76.7	87.3	47.6	69.4	81.9
Germany	57.9	78.8	87.8	67.4	83.0	91.1	50.8	74.7	83.9
Greece	45.2	54.4	69.1	57.5	66.4	74.5	33.3	42.5	63.9
Hungary	39.4	69.0	80.1	47.5	75.0	87.0	33.6	62.1	75.2
Iceland	74.4	85.7	90.0	82.1	88.0	93.9	67.6	81.9	87.3
Ireland	46.9	66.0	80.1	57.1	73.6	84.8	34.4	58.2	76.3
Israel	48.1	71.7	85.1	63.5	76.6	89.3	31.1	66.0	81.8
Italy	49.8	69.7	77.9	64.6	79.0	83.2	34.1	60.4	73.7
Japan	^b	74.7	80.9	^b	85.7	92.5	^b	63.7	69.1
Korea	65.4	71.1	77.3	77.7	84.2	89.6	57.7	57.9	62.3
Luxembourg	61.8	70.8	84.9	72.8	78.6	89.3	51.7	62.8	80.0
Mexico	63.7	71.9	79.7	87.0	90.6	87.5	43.9	55.6	71.4
Netherlands	60.7	78.2	88.0	71.9	82.9	89.7	50.6	73.4	86.1
New Zealand	68.4	81.1	85.8	76.5	89.4	90.2	61.5	71.3	82.2
Norway	62.3	81.8	89.5	66.2	85.5	91.3	58.0	76.9	88.1
Poland	38.5	65.2	84.8	49.0	74.2	89.5	28.3	55.0	81.5
Portugal	61.8	76.0	80.2	67.2	77.9	82.4	55.8	74.1	78.8
Slovak Republic	31.0	69.9	79.5	36.8	76.9	85.7	27.3	62.2	74.4
Slovenia	45.5	69.5	83.8	55.1	73.9	86.3	36.4	63.8	82.0
Spain	48.3	64.4	76.4	55.8	69.8	79.9	40.1	59.1	73.2
Sweden	62.5	82.8	89.2	72.0	85.9	90.4	50.1	79.0	88.3
Switzerland	69.0	81.9	89.1	77.1	87.8	92.9	63.3	76.8	83.8
Turkey	51.2	61.7	77.0	75.1	81.5	85.1	27.6	31.0	65.5
United Kingdom	57.4	78.7	84.8	66.8	84.2	89.7	49.3	72.5	80.2
United States	53.2	67.8	80.4	64.0	73.5	85.8	40.6	61.9	75.7
OECD ^c	54.9	73.4	83.1	65.2	80.5	87.9	45.1	65.5	78.6
Brazil	66.9	76.3	85.1	83.2	88.4	91.4	50.2	65.9	80.7
Colombia	71.8	76.2	83.8	89.8	88.3	90.0	54.5	64.7	78.8
Latvia	50.9	69.7	85.2	56.8	73.4	88.7	41.0	65.8	83.3
Russian Federation ^d	49.5	73.2	83.0	57.2	80.2	88.6	40.5	64.6	79.2

Note: The classification of the levels of education is based on the International Standard Classification of Education (ISCED 1997). ISCED 97 is an instrument for compiling statistics on education internationally and distinguishes among six levels of education (ISCED 1-6). Below upper secondary corresponds to ISCED levels 0, 1, 2 and 3C short programmes; upper secondary or post-secondary non-tertiary correspond to ISCED levels 3A, 3B, 3C long programmes, and 4; and tertiary corresponds to ISCED levels 5A, 5B and 6.

a) Year of reference 2011.

b) Data at the lower and upper secondary levels of education are not broken down. Individuals with lower secondary education are included in upper secondary education.

c) Unweighted average.

d) Year of reference 2012.

Source: OECD (2015), *Education at a Glance Interim Report: Update of Employment and Educational Attainment Indicators*, Chapter 2 (www.oecd.org/edu/eag-interim-report.htm).

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Table F. Labour force participation rates by educational attainment, 2013
Persons aged 25-64, as a percentage of the population in each gender

	Total			Men			Women		
	Less than upper secondary education	Upper secondary education	Tertiary education	Less than upper secondary education	Upper secondary education	Tertiary education	Less than upper secondary education	Upper secondary education	Tertiary education
Australia	65.0	81.5	86.0	74.5	89.0	91.9	56.3	71.5	81.3
Austria	60.5	81.6	89.4	70.4	85.5	91.7	54.9	77.4	86.7
Belgium	55.3	79.0	87.9	66.0	84.9	90.9	43.8	72.4	85.3
Canada	63.4	79.8	86.0	72.7	85.1	89.7	51.4	73.2	83.0
Chile ^a	63.8	75.1	88.1	87.7	90.6	95.9	43.6	61.3	81.2
Czech Republic	54.6	81.6	87.0	68.4	88.8	94.7	46.7	73.7	79.6
Denmark	67.1	84.0	90.6	74.4	86.7	92.6	59.4	80.5	89.1
Estonia	67.5	81.6	87.8	73.2	86.8	92.6	57.4	75.3	85.0
Finland	61.7	79.6	87.8	65.9	82.5	90.8	55.6	76.0	85.5
France	63.0	80.1	89.1	71.9	83.6	92.3	55.2	76.2	86.3
Germany	66.2	83.1	89.9	78.9	87.8	93.2	56.7	78.4	86.1
Greece	61.8	73.3	83.3	76.2	82.7	84.8	47.3	63.6	81.8
Hungary	50.4	75.6	83.2	61.4	82.0	90.0	42.6	68.2	78.2
Iceland	78.9	89.3	93.5	^b	92.1	^b	72.5	^b	91.1
Ireland	58.9	76.8	85.9	73.6	87.3	91.4	40.7	65.9	81.5
Israel	52.6	76.7	88.8	69.8	81.6	93.0	33.7	71.1	85.5
Italy	58.1	76.5	83.8	74.8	85.8	88.2	40.4	67.3	80.4
Japan	^c	78.4	83.6	^c	90.3	95.6	^c	66.5	71.3
Korea	66.9	73.2	79.7	80.5	86.9	92.4	58.6	59.3	64.1
Luxembourg	67.6	74.9	88.1	78.0	82.3	92.5	58.0	67.3	83.3
Mexico	66.2	74.8	84.0	90.7	94.3	92.5	45.4	57.9	75.2
Netherlands	66.5	83.6	91.4	79.4	89.0	93.5	54.8	78.0	89.1
New Zealand	73.4	84.8	89.1	81.6	92.5	93.9	66.4	75.8	85.2
Norway	65.9	83.7	91.2	70.0	87.6	93.0	61.5	78.7	89.7
Poland	47.8	72.2	89.3	60.0	81.1	93.5	35.8	62.1	86.3
Portugal	74.6	88.8	90.9	81.7	89.4	91.7	66.7	88.1	90.4
Slovak Republic	51.7	79.8	84.9	64.0	87.0	90.8	43.9	71.7	80.1
Slovenia	55.3	77.1	89.0	66.3	81.0	90.7	45.0	71.9	87.7
Spain	71.8	84.0	89.8	81.9	89.2	92.2	60.7	78.9	87.5
Sweden	71.8	88.0	92.9	81.1	91.2	94.5	59.7	84.1	91.6
Switzerland	75.2	84.9	91.9	84.8	91.1	95.5	68.4	79.6	86.7
Turkey	55.9	67.6	83.4	81.8	87.1	90.3	30.2	37.7	73.7
United Kingdom	63.7	83.2	87.4	74.2	89.0	92.6	54.7	76.7	82.6
United States	60.9	73.8	83.8	72.7	80.4	89.4	47.3	67.1	79.0
OECD ^d	63.2	79.6	87.6	74.6	86.8	92.1	52.0	71.3	83.3
Brazil	70.1	80.8	87.6	86.0	91.9	93.4	53.8	71.2	83.6
Colombia	77.0	83.8	91.1	94.4	94.9	96.1	60.2	73.3	87.1
Latvia	65.7	79.6	90.1	72.0	84.0	93.5	55.2	75.1	88.3
Russian Federation ^e	56.4	77.9	85.4	65.5	85.1	91.3	45.7	68.9	81.4

Note: The classification of the levels of education is based on the International Standard Classification of Education (ISCED 1997). ISCED 97 is an instrument for compiling statistics on education internationally and distinguishes among six levels of education (ISCED 1-6). Below upper secondary corresponds to ISCED levels 0, 1, 2 and 3C short programmes; upper secondary or post-secondary non-tertiary correspond to ISCED levels 3A, 3B, 3C long programmes, and 4; and tertiary corresponds to ISCED levels 5A, 5B and 6.

a) Year of reference 2011.

b) There are too few observations to provide reliable estimates.

c) Data at the lower and upper secondary levels of education are not broken down. Individuals with lower secondary education are included in upper secondary education.

d) Unweighted average.

e) Year of reference 2012.

Source: OECD (2015), *Education at a Glance Interim Report: Update of Employment and Educational Attainment Indicators*, Chapter 2 (www.oecd.org/edu/eag-interim-report.htm).

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Table G. Unemployment rates by educational attainment, 2013
Persons aged 25-64, as a percentage of the labour force in each gender

	Total			Men			Women		
	Less than upper secondary education	Upper secondary education	Tertiary education	Less than upper secondary education	Upper secondary education	Tertiary education	Less than upper secondary education	Upper secondary education	Tertiary education
Australia	7.1	4.6	2.9	7.0	3.9	2.8	7.3	5.8	3.0
Austria	8.7	3.9	3.1	10.3	4.1	2.5	7.4	3.6	3.8
Belgium	13.5	6.8	4.3	13.7	6.5	4.1	13.3	7.3	4.4
Canada	11.1	6.7	4.8	11.1	6.7	5.0	11.1	6.6	4.7
Chile ^a	6.0	6.4	4.3	4.6	4.8	4.4	8.3	8.4	4.2
Czech Republic	23.4	6.1	2.5	23.2	4.8	2.1	23.6	7.8	2.9
Denmark	9.2	5.6	4.6	9.2	4.7	4.5	9.3	6.8	4.6
Estonia	13.7	8.9	5.4	14.6	8.9	5.2	11.7	8.9	5.6
Finland	12.2	7.5	4.5	11.7	7.6	5.0	13.1	7.5	4.0
France	13.9	8.5	5.3	14.0	8.2	5.4	13.8	8.8	5.1
Germany	12.5	5.1	2.4	14.5	5.5	2.3	10.3	4.7	2.6
Greece	28.8	28.1	19.4	28.1	23.5	16.2	30.1	34.2	22.7
Hungary	21.8	8.7	3.6	22.6	8.6	3.3	20.9	8.9	3.9
Iceland	5.7	4.1	3.7	^b	4.4	^b	6.7	^b	4.2
Ireland	20.3	14.0	6.7	22.4	15.7	7.2	15.5	11.7	6.3
Israel	8.6	6.5	4.1	9.0	6.1	3.9	7.7	7.1	4.3
Italy	14.3	8.9	7.0	13.7	7.8	5.6	15.7	10.4	8.3
Japan	^c	4.8	3.2	^c	5.2	3.2	^c	4.3	3.2
Korea	2.3	2.8	2.9	3.4	3.1	3.0	1.4	2.4	2.7
Luxembourg	8.6	5.5	3.7	6.8	4.5	3.5	10.8	6.8	4.0
Mexico	3.8	4.0	5.2	4.1	3.8	5.4	3.3	4.1	5.0
Netherlands	8.6	6.4	3.7	9.4	6.9	4.0	7.7	5.9	3.3
New Zealand	6.8	4.3	3.7	6.3	3.3	3.9	7.4	5.8	3.6
Norway	5.6	2.3	1.8	5.5	2.3	1.8	5.7	2.3	1.8
Poland	19.3	9.7	5.0	18.3	8.5	4.3	21.0	11.4	5.6
Portugal	17.1	14.4	11.7	17.7	12.8	10.1	16.3	15.9	12.8
Slovak Republic	40.0	12.3	6.4	42.5	11.6	5.6	37.7	13.3	7.2
Slovenia	17.8	9.8	5.8	16.8	8.8	4.9	19.1	11.4	6.6
Spain	32.7	23.3	14.9	31.9	21.7	13.4	34.0	25.1	16.4
Sweden	13.0	5.9	4.0	11.2	5.8	4.4	16.1	6.0	3.7
Switzerland	8.2	3.6	3.0	9.0	3.6	2.8	7.5	3.5	3.4
Turkey	8.3	8.8	7.7	8.2	6.3	5.7	8.6	17.7	11.1
United Kingdom	9.9	5.4	3.0	10.0	5.3	3.2	9.8	5.5	2.9
United States	12.7	8.2	4.1	11.9	8.6	4.0	14.1	7.8	4.1
OECD ^d	13.5	8.0	5.3	13.8	7.5	4.9	13.5	9.0	5.6
Brazil	4.5	5.6	2.9	3.2	3.9	2.1	6.7	7.4	3.4
Colombia	6.7	9.0	8.1	4.9	6.9	6.4	9.5	11.7	9.5
Latvia	22.6	12.5	5.5	21.2	12.7	5.2	25.7	12.4	5.6
Russian Federation ^e	12.2	5.9	2.8	12.7	5.8	3.0	11.3	6.2	2.8

Note: The classification of the levels of education is based on the International Standard Classification of Education (ISCED 1997). ISCED 97 is an instrument for compiling statistics on education internationally and distinguishes among six levels of education (ISCED 1-6). Below upper secondary corresponds to ISCED levels 0, 1, 2 and 3C short programmes; upper secondary or post-secondary non-tertiary correspond to ISCED levels 3A, 3B, 3C long programmes, and 4; and tertiary corresponds to ISCED levels 5A, 5B and 6.

a) Year of reference 2011.

b) There are too few observations to provide reliable estimates.

c) Data at the lower and upper secondary levels of education are not broken down. Individuals with lower secondary education are included in upper secondary education.

d) Unweighted average.

e) Year of reference 2012.

Source: OECD (2015), *Education at a Glance Interim Report: Update of Employment and Educational Attainment Indicators*, Chapter 2 (www.oecd.org/edu/eag-interim-report.htm).

Table H. **Incidence and composition of part-time employment^a**
Persons aged 15 and over, percentages

	Part-time employment as a proportion of total employment												Women's share in part-time employment			
	Total				Men				Women							
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia ^b	..	23.7	24.9	25.2	..	12.3	13.6	14.0	..	37.7	38.1	38.3	..	71.5	70.3	69.9
Austria	11.7	17.3	19.9	20.9	2.4	5.6	7.9	8.5	23.9	31.4	33.4	34.9	88.6	82.4	78.9	78.6
Belgium	19.3	18.1	18.2	18.1	6.9	6.4	6.6	7.2	35.5	32.2	31.4	30.5	79.5	80.7	80.8	79.1
Canada	18.1	18.3	19.1	19.3	10.4	11.1	12.2	12.3	27.2	26.3	26.7	27.0	69.1	68.0	66.7	66.6
Chile	4.7	8.0	16.5	..	3.1	5.2	11.3	..	8.7	13.9	24.3	..	53.9	56.9	59.2	..
Czech Republic	3.2	3.5	4.9	4.8	1.6	1.7	2.5	2.5	5.4	5.9	8.0	7.7	72.5	72.3	71.2	70.5
Denmark	15.3	17.3	19.2	19.7	9.1	11.9	14.2	14.6	22.4	23.4	24.7	25.4	68.1	63.3	61.1	61.0
Estonia	7.2	6.8	8.0	7.6	4.6	3.6	4.9	5.0	10.0	10.1	11.3	10.3	67.9	73.2	69.3	66.1
Finland	10.4	11.7	13.0	13.3	7.1	8.2	9.6	10.0	13.9	15.5	16.7	16.8	63.8	63.7	62.2	61.4
France	14.2	13.3	14.0	14.2	5.3	4.9	6.2	6.6	24.3	22.8	22.5	22.3	80.1	80.5	76.9	75.7
Germany	17.6	22.0	22.6	22.3	4.8	7.8	9.0	9.1	33.9	39.1	38.1	37.5	84.5	80.7	78.6	78.1
Greece	5.3	7.7	10.3	11.2	3.0	4.1	6.6	7.5	9.4	13.3	15.6	16.2	65.0	67.7	62.3	60.8
Hungary	2.9	2.8	4.6	4.2	1.5	1.6	3.2	2.9	4.5	4.2	6.3	5.8	71.2	68.6	62.5	62.8
Iceland ^{b,c}	20.4	15.9	17.4	16.7	8.8	8.0	10.9	10.8	33.7	25.4	24.6	23.2	77.0	72.7	67.5	66.2
Ireland	18.1	19.9	24.2	23.4	7.3	7.4	13.1	12.5	32.0	35.0	36.2	35.4	77.1	79.8	71.9	72.2
Israel	14.6	14.8	14.4	14.7	6.6	7.1	8.3	8.4	24.1	23.8	21.5	21.8	75.3	74.2	69.1	69.4
Italy ^c	11.7	15.3	18.5	18.8	5.4	5.5	8.3	8.6	22.5	29.8	32.8	32.9	70.9	78.2	74.1	73.4
Japan ^d	..	18.9	21.9	22.7	..	9.2	11.3	12.0	..	32.6	36.2	37.2	..	71.5	70.3	69.8
Korea ^d	7.0	8.9	11.1	10.5	5.1	6.3	7.5	6.8	9.8	12.5	16.2	15.6	57.7	58.9	60.5	62.2
Luxembourg	13.0	13.1	15.3	15.5	2.1	1.4	5.4	5.6	28.9	27.6	27.7	27.7	90.4	93.9	80.3	80.1
Mexico	13.5	17.6	19.0	18.7	7.1	11.2	13.1	13.0	25.6	28.1	28.4	27.9	65.1	60.1	57.6	56.8
Netherlands	32.1	35.9	38.7	38.5	13.1	16.1	19.3	19.6	57.3	59.9	61.1	60.6	76.7	75.5	73.2	72.5
New Zealand	22.2	21.9	21.6	21.5	10.9	11.0	11.0	11.4	35.7	34.5	33.5	32.7	73.2	73.2	73.2	72.0
Norway ^c	20.2	20.4	19.5	18.8	8.7	10.5	11.3	10.8	33.4	31.6	28.8	27.7	77.0	72.9	69.4	69.8
Poland	12.8	10.1	7.7	7.1	8.8	6.0	4.5	4.2	17.9	15.0	11.8	10.7	61.7	67.0	67.9	67.1
Portugal	9.3	10.0	12.0	11.0	4.9	6.3	9.9	9.1	14.7	14.4	14.1	12.9	70.9	66.7	58.0	57.9
Slovak Republic	1.9	2.4	4.3	4.9	1.0	1.1	3.3	3.7	2.9	4.0	5.6	6.4	70.6	74.0	58.0	58.2
Slovenia	4.9	7.8	8.6	9.6	3.9	6.3	6.4	7.1	6.1	9.7	11.2	12.5	56.8	56.2	59.1	59.6
Spain ^c	7.5	10.5	14.7	14.7	2.6	3.6	7.3	7.1	16.1	20.1	23.4	23.6	78.3	80.0	73.4	74.0
Sweden ^c	14.0	14.4	14.3	14.2	7.3	9.5	10.6	10.5	21.4	19.7	18.4	18.3	72.9	65.0	61.2	61.1
Switzerland	24.4	25.4	26.4	26.9	8.4	8.7	9.8	10.8	44.7	45.6	45.7	45.6	80.6	81.3	80.0	78.5
Turkey	9.4	8.1	12.3	10.6	5.7	4.4	7.0	6.4	19.3	18.6	24.5	20.6	55.4	59.6	59.9	57.7
United Kingdom ^c	23.3	22.9	24.6	24.1	8.5	9.8	12.2	11.7	40.7	38.3	38.7	38.1	80.2	77.0	73.8	74.2
United States ^{c,e}	12.6	12.6	12.3	12.3	7.7	7.6	8.2	8.0	18.0	17.9	16.7	16.8	68.1	68.4	65.5	66.3
OECD ^f	11.3	15.4	16.8	16.7	5.6	7.8	9.4	9.4	19.1	25.3	26.1	25.9	71.5	71.6	68.9	68.8
Brazil	..	18.3	16.4	..	..	10.3	10.2	..	..	29.1	24.7	..	..	67.6	64.2	..
Colombia	..	14.5	17.8	16.5	..	9.2	10.2	9.2	..	22.8	28.4	26.6	..	61.3	66.5	67.5
Costa Rica	..	..	18.2	19.0	..	..	10.7	11.8	..	..	30.0	30.6	..	..	63.7	61.4
Latvia	8.8	5.4	7.6	6.6	6.3	3.4	5.4	4.1	11.4	7.4	9.9	9.0	64.6	67.5	65.5	69.2
Lithuania	11.8	7.0	8.6	8.7	8.8	4.3	5.8	6.0	14.5	9.5	11.0	11.0	64.5	69.9	67.8	67.4
Russian Fed.	7.4	5.1	4.3	4.0	4.9	3.5	2.9	2.7	10.0	6.6	5.8	5.3	66.0	64.8	65.5	65.1
South Africa	..	..	8.3	8.0	..	..	5.2	5.0	..	..	12.2	11.9	..	..	64.9	64.8

a) Part-time employment refers to persons who usually work less than 30 hours per week in their main job.

b) Part-time employment based on hours worked at all jobs.

c) The lower age limit is 16 instead of 15, for Iceland up to 2008, Italy prior to 2009, Norway up to 2005 and Sweden up to 2006.

d) Data are based on actual hours worked.

e) Data are for wage and salary workers only.

f) Weighted average.

Source and definition: *OECD Online Employment Database*: www.oecd.org/employment/database. See van Bastelaer, A., G. Lemaître and P. Marianna (1997), "The Definition of Part-Time Work for the Purpose of International Comparisons", Labour Market and Social Policy Occasional Paper, No. 22, OECD Publishing, Paris, <http://dx.doi.org/10.1787/132721856632>.

StatLink  <http://dx.doi.org/10.1787/888933240347>

Table I. **Incidence and composition of involuntary part-time employment**^{a, b}
Persons aged 15 and over, percentages

	Involuntary part-time employment as a proportion of total employment												Involuntary part-time employment as a proportion of part-time employment			
	Total				Men				Women				2000	2007	2013	2014
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014				
Australia	6.3	6.6	8.0	8.6	4.3	4.5	5.6	6.2	8.8	9.3	10.8	11.6	23.8	23.5	26.5	28.3
Austria	1.8	2.7	3.1	3.1	0.9	1.0	1.5	1.6	3.0	4.6	4.8	4.7	11.1	11.7	11.4	11.0
Belgium	4.6	3.2	2.3	2.4	1.7	1.5	1.2	1.3	8.4	5.5	3.6	3.7	22.2	14.7	9.4	10.0
Canada	4.6	4.0	5.2	5.3	2.8	2.6	3.5	3.6	6.6	5.6	7.0	7.1	25.4	22.0	27.1	27.3
Chile	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	1.4	0.8	1.4	1.3	0.3	0.3	0.6	0.6	2.9	1.4	2.5	2.1	27.1	16.4	21.6	20.0
Denmark	2.9	3.1	4.5	4.1	1.1	1.3	2.3	2.1	5.1	5.1	6.9	6.4	13.8	13.2	17.8	16.5
Estonia	..	1.3	1.9	1.4	..	0.7	1.2	0.8	..	1.8	2.6	2.0	..	15.9	19.7	15.2
Finland	3.5	2.9	3.4	3.7	1.5	1.3	1.8	2.0	5.7	4.6	5.1	5.5	28.7	20.7	22.5	23.9
France	4.6	5.2	6.8	7.0	2.3	1.8	2.6	3.0	7.4	9.0	11.4	11.4	27.2	30.0	37.3	37.5
Germany	2.3	5.3	4.0	3.7	0.8	2.7	2.1	1.9	4.3	8.4	6.3	5.7	12.2	20.6	14.8	13.7
Greece	2.0	2.4	5.5	6.3	1.2	1.2	3.7	4.7	3.2	4.3	8.1	8.6	44.4	43.9	65.5	67.7
Hungary	0.7	1.1	2.7	2.5	0.4	0.7	1.9	1.9	1.2	1.5	3.7	3.2	19.0	26.0	40.7	38.4
Iceland ^c	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ireland	2.7	1.8	9.4	8.9	2.2	1.3	7.5	7.1	3.4	2.5	11.6	10.9	16.6	10.3	39.6	38.2
Israel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Italy ^c	3.2	5.2	11.0	11.7	1.8	2.4	5.6	6.2	5.4	9.5	18.4	19.2	37.1	38.3	61.8	63.6
Japan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Korea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Luxembourg	0.8	0.8	2.1	2.2	0.2	0.4	0.5	0.4	1.7	1.5	4.0	4.5	6.9	4.7	10.8	11.8
Mexico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Netherlands	1.4	2.1	4.2	4.8	0.9	1.1	2.7	3.2	2.2	3.3	6.0	6.7	4.7	6.1	11.7	13.3
New Zealand	6.0	3.9	5.0	4.9	3.5	2.5	2.9	2.9	9.0	5.4	7.2	7.2	26.0	16.6	21.5	21.6
Norway ^c	1.6	1.5	1.5	1.4	0.8	0.7	0.9	0.8	2.6	2.3	2.3	2.2	6.4	5.6	5.9	5.8
Poland	..	2.0	2.2	2.3	..	1.3	1.3	1.4	..	2.8	3.2	3.3	..	21.3	27.9	28.9
Portugal	2.5	3.3	5.2	4.8	1.0	1.5	3.3	3.1	4.3	5.4	7.2	6.6	22.4	26.8	36.4	36.9
Slovak Republic	0.7	0.9	2.9	3.3	0.2	0.3	2.3	2.8	1.3	1.6	3.7	3.9	33.5	33.8	61.5	63.4
Slovenia	..	0.4	1.0	1.0	..	0.2	0.6	0.6	..	0.7	1.4	1.4	..	5.0	10.0	9.1
Spain ^c	1.8	3.9	10.3	10.3	0.6	1.4	5.7	5.6	3.8	7.4	15.8	15.9	22.1	33.6	65.3	64.6
Sweden ^c	3.4	7.7	8.4	7.3	1.7	4.3	5.8	4.4	5.3	11.5	11.2	10.6	16.0	32.4	36.4	32.1
Switzerland	1.3	1.8	2.4	2.6	0.8	0.8	1.2	1.4	1.9	3.1	3.7	4.1	4.4	5.7	6.8	7.3
Turkey	..	..	0.8	0.9	..	..	0.8	0.9	..	..	0.9	1.0	..	..	6.7	8.7
United Kingdom ^c	2.5	2.4	5.0	4.6	1.8	1.8	4.1	3.7	3.2	3.1	6.0	5.6	9.9	9.6	18.7	17.5
United States ^c	0.7	0.8	1.8	1.7	0.5	0.6	1.4	1.4	0.9	1.0	2.3	2.2	4.1	4.8	9.4	9.3
OECD ^d	2.1	3.0	4.2	4.1	1.2	1.6	2.5	2.5	3.3	4.7	6.2	6.1	12.4	16.7	21.0	21.0
Colombia	..	7.6	8.1	7.0	..	5.4	5.7	4.7	..	11.0	11.5	10.2	..	52.1	45.6	42.2
Latvia	..	1.4	3.1	2.6	..	1.0	2.3	1.9	..	1.9	3.8	3.3	3.3	24.0	39.4	36.4
Lithuania	..	2.4	2.8	2.8	..	2.0	2.1	2.2	..	2.8	3.4	3.3	3.3	27.2	31.8	30.9
Russian Fed.	0.3	0.1	0.2	0.3	0.3	0.1	0.1	0.2	0.4	0.2	0.3	0.4	3.0	1.9	3.2	3.5

a) Involuntary part-time employment refers to part-time workers who could not find full-time work.

b) Part-time employment is based on national definitions.

c) The lower age limit is 16 instead of 15 for Iceland up to 2008, Italy prior to 2009, Norway up to 2005 and Sweden up to 2006.

d) Weighted average.

Source and definition: OECD Online Employment Database: www.oecd.org/employment/database and www.oecd.org/els/emp/lfsnotes_sources.pdf.

StatLink  <http://dx.doi.org/10.1787/888933240354>

Table J. Incidence and composition of temporary employment^a
As a percentage of dependent employment in each age group

	Total (15+)				Youth (15-24)				Prime age (25-54)				Women's share in temporary employment			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia ^b	4.8	6.3	5.6	..	4.6	6.0	5.5	..	5.0	6.4	5.6	..	54.4	52.3	52.7	..
Austria	7.9	8.8	9.2	9.1	33.0	34.8	34.8	35.1	3.8	4.3	5.3	5.3	47.1	47.5	47.2	48.5
Belgium	9.1	8.7	8.2	8.7	30.8	31.6	32.8	34.2	6.9	6.6	6.5	7.1	58.3	57.3	54.2	54.3
Canada	12.5	13.0	13.4	13.4	29.1	28.9	29.8	30.8	8.8	9.2	10.1	9.8	51.0	51.8	51.1	51.5
Chile	..	..	29.7	..	..	..	45.8	..	..	..	28.1	..	..	..	35.7	..
Czech Republic	9.3	8.6	9.6	10.2	19.6	17.4	29.0	32.4	5.2	5.6	7.6	8.1	46.6	54.3	54.7	53.3
Denmark	9.7	9.1	8.8	8.5	27.4	22.5	20.9	21.4	6.6	6.9	7.3	6.8	54.8	55.7	53.4	51.3
Estonia	3.0	2.1	3.5	3.2	6.4	6.6	12.3	11.2	2.6	1.6	2.9	2.6	27.4	37.6	43.7	48.2
Finland	16.5	16.0	15.6	15.6	45.6	42.4	43.0	42.7	13.0	13.2	12.7	12.9	60.3	61.8	61.0	61.0
France	15.4	15.1	16.0	15.8	55.1	53.5	58.4	57.0	11.6	11.2	12.3	12.3	49.6	52.5	52.2	52.9
Germany	12.7	14.6	13.3	13.0	52.4	57.4	52.9	53.4	7.5	9.1	9.4	9.3	46.2	46.7	48.4	48.4
Greece	13.5	11.0	10.1	11.7	29.5	26.5	26.4	29.4	11.6	10.0	9.6	11.1	46.5	50.9	49.5	48.3
Hungary	7.1	7.3	10.9	10.8	13.9	18.9	24.7	25.1	5.9	6.5	10.2	9.8	43.8	44.0	45.2	45.3
Iceland ^c	12.2	12.4	14.2	13.4	28.9	32.0	33.9	31.3	7.5	8.9	11.0	10.6	53.3	53.8	49.9	49.5
Ireland	6.0	8.5	10.0	9.3	15.9	21.2	33.1	33.9	3.0	5.6	7.6	6.9	55.1	56.6	50.4	51.5
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy ^c	10.1	13.2	13.2	13.6	26.6	42.2	52.7	56.0	8.5	11.4	12.1	12.7	48.1	51.7	48.8	47.3
Japan	36.5	13.9	8.4	7.6	48.3	26.4	16.5	14.4	33.7	10.9	6.1	5.4	84.8	65.1	60.5	60.5
Korea	..	24.7	22.4	21.7	..	30.0	27.5	25.7	..	21.3	17.4	16.4	..	44.4	48.0	47.8
Luxembourg	3.4	6.8	7.1	8.2	14.5	34.1	30.9	45.4	2.3	5.3	5.7	6.2	54.0	49.9	55.5	51.1
Mexico	20.5	..	..	..	25.7	..	..	..	17.8	..	..	..	19.7	..	..	..
Netherlands	13.7	18.1	20.6	21.7	35.5	45.1	53.1	55.5	9.1	12.9	15.1	16.2	53.7	51.1	50.6	49.8
New Zealand	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Norway ^c	9.3	9.5	8.3	7.8	28.5	27.3	23.6	23.2	6.9	7.4	6.6	6.1	58.8	59.8	59.3	60.0
Poland	..	28.2	26.9	28.4	..	65.7	68.6	71.2	..	24.0	24.2	25.7	..	45.9	45.6	46.3
Portugal	19.9	22.3	21.4	21.5	41.4	53.1	61.5	63.0	16.4	19.7	19.9	19.7	50.0	49.1	51.5	50.8
Slovak Republic	4.8	5.1	7.0	8.9	10.5	13.7	21.3	28.2	3.4	3.7	5.7	7.4	44.6	48.3	49.5	45.9
Slovenia	13.7	18.5	16.5	16.7	46.3	68.3	73.6	72.7	9.4	12.9	12.9	13.5	51.3	52.4	49.4	48.4
Spain ^c	32.2	31.6	23.1	24.0	68.3	62.7	64.7	69.1	27.7	29.3	22.7	23.6	40.7	45.4	50.4	49.2
Sweden ^c	15.2	17.5	16.9	17.5	49.5	57.3	55.9	56.4	11.9	13.0	12.1	12.6	57.6	56.9	56.3	55.3
Switzerland	11.5	12.9	12.9	13.1	47.0	50.3	51.9	52.6	5.1	6.4	6.5	6.9	50.1	47.1	48.2	48.0
Turkey	20.3	11.9	12.0	13.0	23.7	12.4	19.8	21.7	18.6	11.3	10.0	10.7	12.1	21.6	23.0	23.4
United Kingdom ^c	7.0	5.9	6.2	6.4	14.2	13.3	14.7	15.2	5.4	4.2	4.6	4.7	54.4	53.6	52.8	52.7
United States	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
OECD ^d	14.7	12.2	11.1	11.1	24.7	25.6	24.0	24.1	12.3	10.1	9.2	9.2	57.8	47.5	46.5	46.1
Colombia ^e	..	29.1	25.6	23.7	..	..	..	..	..	..	..	..	..	26.0	22.1	36.7
Costa Rica	..	..	9.0	8.4	..	..	13.7	15.0	..	..	7.9	6.4	..	..	28.6	24.6
Latvia	6.6	4.1	4.4	3.3	10.9	9.0	10.0	8.4	6.0	3.5	3.7	2.7	33.6	33.8	42.4	38.0
Lithuania	4.4	3.8	2.7	2.8	9.4	10.5	8.0	8.5	4.1	3.1	2.3	2.2	38.1	33.1	37.4	37.9
Russian Fed.	5.5	12.3	8.5	8.9	14.5	23.1	16.9	17.4	4.2	11.2	7.9	8.3	36.5	41.9	37.0	37.0

a) Temporary employees are wage and salary workers whose job has a pre-determined termination date as opposed to permanent employees whose job is of unlimited duration. To be included in these groups are: i) persons with a seasonal job; ii) persons engaged by an employment agency or business and hired out to a third party for carrying out a "work mission"; iii) persons with specific training contracts (including apprentices, trainees, research assistants, probationary period of a contract, etc.). National definitions broadly conform to this generic definition, but may vary depending on national circumstances. Country-specific details can be found in the PDF reported below.

b) Data refer to 2001 instead of 2000.

c) The lower age limit is 16 instead of 15 for Iceland up to 2008, Italy after 2009, Norway up to 2005 and Sweden up to 2006.

d) Weighted average.

e) The data cover only salaried employees who reported a written labour contract.

Source and definition: OECD Online Employment Database: www.oecd.org/employment/database and www.oecd.org/els/emp/ifsnotes_sources.pdf.

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Table K. Incidence of job tenure, less than 12 months
As a percentage of total employment in each age group

	Total (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	..	23.6	18.8	..	..	47.7	41.4	..	..	20.1	16.2	..	..	10.2	6.5	..
Austria	..	15.5	15.1	14.6	..	39.7	37.1	38.6	..	12.3	12.8	12.1	..	5.0	5.2	5.1
Belgium	13.2	13.0	10.9	11.4	50.8	48.8	45.9	46.6	10.1	10.7	9.3	9.8	2.4	2.7	2.0	2.6
Canada	21.4	21.0	19.0	18.7	54.0	53.2	48.8	48.9	16.2	16.1	15.4	15.1	8.0	8.3	7.4	7.5
Chile	..	..	29.7	..	..	..	61.9	..	..	..	27.6	..	..	..	15.7	..
Czech Republic	10.5	10.7	9.6	10.0	27.8	35.0	34.7	37.7	8.4	8.8	8.5	8.9	2.6	7.6	5.1	4.8
Denmark	22.5	26.0	21.2	21.9	53.5	56.4	49.5	50.5	18.9	23.3	18.2	19.1	6.5	10.2	8.6	8.3
Estonia	..	15.1	15.7	15.7	..	42.5	47.8	48.8	..	12.7	13.9	14.2	..	7.9	8.0	7.2
Finland	20.6	20.3	18.2	17.8	65.2	62.6	58.0	58.5	16.1	16.8	15.3	14.7	5.8	6.3	6.0	5.8
France	15.8	15.4	12.4	12.5	56.7	54.9	50.6	50.4	12.6	12.3	10.1	10.2	3.6	4.6	3.8	4.3
Germany	14.9	14.9	13.5	13.4	38.8	40.9	38.9	39.0	13.0	12.7	12.0	12.1	4.7	4.9	4.6	4.7
Greece	9.5	8.4	8.2	10.1	31.0	28.8	33.3	38.2	7.7	7.5	7.9	9.7	2.8	3.1	3.1	3.9
Hungary	11.7	11.7	14.7	14.8	29.7	39.1	46.5	46.1	9.3	10.3	13.5	13.3	4.5	5.3	7.9	9.0
Iceland ^a	25.4	22.5	19.9	19.2	59.1	53.1	46.5	46.7	20.0	18.3	16.4	15.4	6.1	7.2	6.7	7.2
Ireland	19.4	18.0	13.6	14.4	46.8	45.0	45.9	47.0	13.6	14.1	11.8	12.8	5.7	4.6	4.1	4.4
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy ^a	10.6	11.6	9.1	9.5	36.8	41.1	36.3	39.7	8.9	10.3	8.6	9.1	3.3	3.7	3.5	3.4
Japan	..	12.5	..	..	..	41.2	..	..	..	10.3	..	..	..	6.3	..	..
Korea	..	38.1	31.8	30.8	..	70.7	72.6	70.8	..	33.8	26.8	25.7	..	44.7	36.6	35.1
Luxembourg	11.6	10.6	11.7	13.0	40.4	44.0	48.7	55.1	9.6	9.0	10.2	11.7	0.5	1.9	3.8	3.9
Mexico	..	35.0	21.5	21.4	..	61.3	42.9	43.0	..	29.3	17.7	17.6	..	15.8	8.5	8.3
Netherlands	..	9.8	14.1	14.5	..	34.3	40.8	42.0	..	8.2	10.4	10.8	..	2.5	3.6	3.8
New Zealand	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Norway ^a	16.9	20.9	15.5	14.9	46.1	52.5	42.3	42.3	13.9	18.1	13.2	12.7	3.3	4.9	3.6	3.0
Poland	13.7	15.7	11.4	12.1	41.2	47.3	39.4	42.8	11.0	12.8	10.0	10.6	6.0	6.9	4.8	5.2
Portugal	14.1	13.1	12.3	13.7	39.2	40.0	46.3	51.9	11.4	11.7	11.3	12.5	3.2	3.6	4.1	4.9
Slovak Republic	..	11.8	8.2	9.9	..	35.7	31.7	35.6	..	9.5	7.1	8.7	..	6.3	4.5	4.6
Slovenia	..	13.9	11.2	9.3	..	51.1	43.4	39.0	..	10.5	9.5	8.1	..	2.8	4.9	3.2
Spain ^a	21.2	21.9	14.4	15.9	54.5	55.5	50.1	56.4	17.8	19.8	14.0	15.5	6.5	6.1	5.0	5.2
Sweden ^a	15.8	20.4	18.9	19.5	49.4	65.4	59.2	60.2	14.0	17.0	15.7	16.3	4.6	6.5	6.6	6.9
Switzerland	16.5	15.3	15.6	16.1	44.6	41.4	41.8	41.0	13.4	12.7	13.3	14.2	3.9	4.2	4.3	4.6
Turkey	..	19.6	25.6	27.5	..	41.6	52.8	56.5	..	15.7	21.7	23.0	..	6.4	11.7	13.0
United Kingdom ^a	19.8	17.9	15.1	16.2	48.5	45.9	41.9	43.1	16.1	14.5	12.3	13.3	8.1	7.2	6.3	7.2
United States ^{a,b}	27.1	23.4	..	20.2	61.8	56.6	..	54.6	21.7	19.3	..	16.3	11.2	9.4	..	9.4
OECD ^c	21.4	20.3	17.8	17.5	51.6	51.7	47.8	48.7	17.2	16.8	15.0	14.7	9.2	8.6	8.1	8.0
Brazil	..	18.8	..	..	..	37.6	..	..	..	14.7	..	..	..	6.5	..	..
Colombia	..	50.9	48.5	47.7	..	65.0	63.9	63.7	..	32.6	33.0	33.1	..	19.7	20.8	20.0
Costa Rica	..	..	25.8	27.9	..	..	51.1	53.3	..	..	22.3	24.7	..	..	13.5	16.6
Latvia	..	19.3	16.8	15.1	..	50.1	50.6	41.7	..	15.7	14.7	13.3	..	10.2	9.9	10.3
Lithuania	14.2	15.0	16.6	14.9	37.1	45.3	53.2	45.0	12.7	13.1	14.6	13.1	5.7	6.7	8.3	8.1

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Table K. Incidence of job tenure, less than 12 months (cont.)
As a percentage of male employment in each age group

	Men (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	..	22.2	18.2	..	..	45.6	40.6	..	..	19.0	15.9	..	..	9.9	6.6	..
Austria	..	14.7	14.6	14.1	..	39.8	36.3	37.2	..	11.6	12.3	11.8	..	5.0	5.3	5.1
Belgium	12.8	12.5	10.7	11.2	49.3	46.2	43.7	44.0	9.9	10.4	9.2	9.8	2.5	2.8	2.2	2.8
Canada	20.6	20.8	19.4	19.1	53.9	52.8	49.1	49.3	15.6	16.2	16.0	15.7	8.3	8.7	8.3	8.2
Chile	..	..	30.0	..	..	..	61.9	..	..	..	28.0	..	..	..	16.3	..
Czech Republic	9.9	9.5	7.9	8.5	27.6	34.3	31.3	34.1	7.7	7.5	6.6	7.2	3.2	6.0	4.7	4.4
Denmark	20.7	24.1	20.6	21.1	49.5	51.6	48.2	50.7	17.5	21.7	17.8	18.3	6.1	9.8	9.1	8.5
Estonia	..	14.6	15.4	15.2	..	39.2	46.9	49.5	..	11.9	13.0	12.9	..	7.7	9.7	9.2
Finland	19.5	18.9	16.8	16.5	62.5	60.2	56.8	56.8	15.3	15.2	13.6	13.4	5.8	6.9	6.4	5.7
France	15.7	15.2	11.9	12.1	56.7	53.2	47.7	47.2	12.4	12.0	9.6	9.9	4.1	4.5	3.7	4.1
Germany	13.8	14.4	12.7	12.7	37.9	39.7	37.3	37.5	12.0	12.4	11.2	11.4	4.1	4.9	4.3	4.6
Greece	8.6	7.6	7.9	9.3	29.0	26.5	31.2	33.8	7.1	6.8	7.6	8.9	2.5	3.2	3.0	4.2
Hungary	11.8	11.9	14.9	14.5	29.1	38.2	45.8	45.6	9.6	10.4	13.3	12.8	4.5	6.2	9.4	9.3
Iceland ^a	23.9	21.1	19.2	18.6	58.0	52.1	44.0	48.4	19.4	17.1	16.4	14.8	2.8	6.4	8.0	6.3
Ireland	17.1	16.3	13.7	14.2	44.0	40.8	45.6	45.1	12.2	13.2	12.2	12.9	4.9	4.2	4.3	4.8
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy ^a	9.6	10.4	8.1	8.7	36.2	38.7	33.7	37.1	8.0	9.0	7.6	8.3	3.2	3.5	3.3	3.4
Japan	..	9.7	..	..	..	39.6	..	..	..	7.1	..	..	..	6.3	..	..
Korea	..	34.0	28.5	27.8	..	81.1	81.0	79.3	..	30.0	24.0	23.1	..	40.2	33.9	32.4
Luxembourg	10.3	10.0	10.6	11.9	41.2	43.8	44.1	53.2	8.3	8.2	9.2	10.5	0.8	1.3	3.9	4.2
Mexico	..	33.0	20.3	20.1	..	58.5	39.3	39.9	..	27.3	16.6	16.3	..	14.9	8.5	8.0
Netherlands	..	9.3	13.6	14.3	..	31.5	39.8	40.5	..	8.1	10.4	11.2	..	2.6	3.9	4.2
New Zealand	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Norway ^a	15.9	20.2	15.1	14.3	43.0	51.1	39.7	40.5	13.3	17.9	13.2	12.3	3.2	5.1	4.6	3.6
Poland	14.6	15.8	11.3	12.0	40.3	45.5	35.6	40.4	12.2	13.1	10.1	10.3	6.2	7.6	5.4	6.0
Portugal	14.0	13.0	12.2	13.6	38.6	38.4	42.7	48.2	11.1	11.5	11.5	12.7	3.7	3.5	4.3	5.1
Slovak Republic	..	11.6	7.7	9.7	..	34.8	28.9	35.1	..	9.5	6.4	8.4	..	5.3	4.4	4.4
Slovenia	..	13.5	10.9	9.2	..	49.4	42.1	36.5	..	9.9	9.1	8.0	..	3.1	4.8	3.7
Spain ^a	19.4	20.4	13.9	15.8	52.8	53.2	48.9	53.9	16.3	18.6	13.6	15.7	6.2	5.7	4.8	5.4
Sweden ^a	16.0	20.3	18.0	18.4	46.2	62.7	54.8	56.9	14.7	17.3	15.4	15.4	4.7	7.3	6.9	7.4
Switzerland	15.2	13.8	14.3	14.5	41.8	39.2	39.2	37.1	12.6	11.3	12.3	12.9	4.2	3.6	3.9	4.1
Turkey	..	19.7	25.6	27.5	..	43.3	54.7	58.6	..	15.9	21.7	23.0	..	7.2	11.7	13.3
United Kingdom ^a	18.7	17.3	14.6	15.8	47.1	44.3	40.6	42.9	15.1	14.1	12.0	13.0	8.6	7.8	6.9	7.4
United States ^{a,b}	25.9	22.8	..	21.6	59.4	55.6	..	53.8	20.6	19.0	..	18.0	11.3	8.5	..	10.0
OECD ^c	19.7	19.2	17.2	17.2	49.7	50.3	46.3	47.4	15.7	15.9	14.5	14.5	8.9	8.4	8.5	8.2
Brazil	..	18.0	..	..	..	35.3	..	..	..	14.1	..	..	..	6.4	..	..
Colombia	..	48.4	45.9	45.1	..	62.1	60.6	60.3	..	30.7	30.1	30.2	..	19.5	18.6	18.6
Costa Rica	..	..	25.7	27.5	..	..	52.9	54.0	..	..	21.7	23.5	..	..	13.9	17.2
Latvia	..	20.8	17.8	15.9	..	47.7	50.8	42.5	..	16.9	14.6	13.3	..	12.3	13.1	12.5
Lithuania	16.4	16.7	20.3	17.6	36.4	45.7	56.8	44.8	14.9	14.4	17.8	15.5	7.8	8.5	11.0	10.4

StatLink  <http://dx.doi.org/10.1787/888933240370>

Table K. Incidence of job tenure, less than 12 months (cont.)
As a percentage of female employment in each age group

	Women (15-64)				Youth (15-24)				Prime age (25-54)				Older population (55-64)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	..	25.4	19.5	..	..	50.1	42.2	..	..	21.4	16.5	..	..	10.6	6.5	..
Austria	..	16.3	15.7	15.2	..	39.6	37.9	40.0	..	13.1	13.3	12.5	..	5.1	5.0	5.0
Belgium	13.8	13.6	11.2	11.6	52.7	52.0	48.5	49.5	10.4	10.9	9.4	9.8	2.2	2.7	1.8	2.3
Canada	22.3	21.2	18.5	18.3	54.2	53.6	48.5	48.6	16.9	16.1	14.8	14.4	7.7	7.8	6.4	6.8
Chile	..	..	29.2	..	..	..	61.8	..	..	..	27.0	..	..	..	14.7	..
Czech Republic	11.3	12.3	11.7	12.1	28.0	36.1	39.6	43.4	9.1	10.5	10.9	11.2	1.2	10.1	5.6	5.4
Denmark	24.6	28.2	21.9	22.8	58.1	61.7	50.8	50.3	20.4	24.9	18.7	20.1	7.2	10.7	8.0	8.1
Estonia	..	15.7	15.9	16.3	..	46.9	48.9	48.1	..	13.5	14.9	15.7	..	8.1	6.8	5.5
Finland	21.7	21.9	19.8	19.2	67.9	64.9	59.0	60.0	17.0	18.5	17.1	16.1	5.8	5.8	5.6	5.9
France	15.9	15.6	12.8	12.8	56.7	57.1	54.1	54.1	12.8	12.6	10.6	10.5	2.9	4.6	3.9	4.4
Germany	16.4	15.5	14.4	14.1	39.8	42.2	40.7	40.7	14.2	13.0	12.9	12.8	5.8	4.9	5.0	4.8
Greece	11.0	9.6	8.6	11.2	34.0	32.6	36.6	44.3	8.9	8.5	8.3	10.7	3.2	3.1	3.1	3.3
Hungary	11.5	11.5	14.5	15.0	30.4	40.3	47.4	46.9	9.0	10.2	13.8	13.8	4.5	4.2	6.0	8.6
Iceland ^a	27.1	24.2	20.6	19.8	60.1	54.2	48.9	45.0	20.7	19.7	16.5	16.0	10.1	8.2	5.1	8.2
Ireland	22.6	20.3	13.6	14.7	50.2	49.8	46.3	49.0	15.7	15.1	11.3	12.7	7.7	5.4	3.9	4.0
Israel	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Italy ^a	12.4	13.5	10.3	10.6	37.7	44.7	40.2	43.7	10.4	12.2	9.9	10.3	3.3	4.0	3.8	3.3
Japan	..	16.2	..	..	..	42.9	..	..	..	14.5	..	..	..	6.4	..	..
Korea	..	43.8	36.1	34.7	..	64.6	66.8	64.8	..	39.4	30.9	29.3	..	52.1	40.3	38.7
Luxembourg	13.6	11.4	13.1	14.4	39.4	44.4	54.5	57.4	11.5	10.1	11.4	13.1	-	2.6	3.7	3.3
Mexico	..	38.1	23.5	23.5	..	66.1	49.6	48.8	..	32.3	19.3	19.6	..	17.8	8.5	8.9
Netherlands	..	10.5	14.6	14.7	..	37.7	41.9	43.7	..	8.3	10.4	10.4	..	2.3	3.2	3.2
New Zealand	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Norway ^a	18.0	21.7	15.9	15.6	49.4	53.9	44.8	44.0	14.6	18.3	13.1	13.1	3.4	4.5	2.4	2.4
Poland	12.7	15.5	11.4	12.2	42.4	49.9	45.2	46.5	9.7	12.5	10.0	10.9	5.8	5.6	4.0	4.0
Portugal	14.2	13.3	12.3	13.8	39.9	42.1	50.5	55.8	11.8	11.8	11.2	12.4	2.5	3.7	3.8	4.7
Slovak Republic	..	12.1	8.9	10.1	..	37.0	36.0	36.4	..	9.5	7.8	9.2	..	8.6	4.6	4.9
Slovenia	..	14.3	11.5	9.5	..	53.5	45.2	42.3	..	11.1	9.8	8.1	..	2.3	5.2	2.6
Spain ^a	24.3	23.9	14.9	15.9	57.0	58.5	51.4	59.1	20.4	21.5	14.4	15.3	7.3	6.8	5.3	5.0
Sweden ^a	15.7	20.5	19.8	20.7	52.7	68.3	63.5	63.5	13.3	16.6	16.1	17.2	4.4	5.6	6.2	6.5
Switzerland	18.2	17.1	17.1	18.0	47.6	43.8	44.5	45.2	14.5	14.3	14.5	15.7	3.5	5.0	4.8	5.2
Turkey	..	19.5	25.5	27.3	..	38.2	49.0	52.2	..	15.1	21.7	23.0	..	4.3	11.7	12.5
United Kingdom ^a	21.1	18.6	15.7	16.6	49.9	47.6	43.3	43.3	17.3	14.9	12.7	13.7	7.3	6.3	5.6	6.9
United States ^{a,b}	28.4	24.0	..	18.9	64.2	57.7	..	55.5	22.9	19.7	..	14.8	11.2	10.3	..	8.8
OECD ^c	23.7	21.6	18.6	17.8	53.9	53.3	49.7	50.3	19.3	18.1	15.8	14.9	9.6	8.8	7.7	7.7
Brazil	..	19.7	..	..	..	41.0	..	..	..	15.5	..	..	..	6.7	..	..
Colombia	..	55.1	52.7	51.6	..	69.7	69.2	69.0	..	35.4	36.7	37.0	..	19.9	24.1	22.1
Costa Rica	..	..	25.9	28.5	..	..	48.0	51.9	..	..	23.3	26.5	..	..	12.5	15.5
Latvia	..	17.7	15.9	14.2	..	53.4	50.3	40.7	..	14.4	14.7	13.3	..	8.3	7.4	8.5
Lithuania	12.0	13.1	13.0	12.4	38.0	44.7	48.2	45.3	10.6	11.8	11.5	10.8	3.3	4.9	6.0	6.2

a) The lower age limit is 16 instead of 15 for Iceland up to 2008, Italy prior to 2009, Norway up to 2005 and Sweden up to 2006.

b) Data cover dependent employment and data for 2007 refer to 2008.

c) Weighted average.

Source and definition: OECD Online Employment Database : www.oecd.org/employment/database and www.oecd.org/els/emp/lfsnotes_sources.pdf.

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Table L. **Average annual hours actually worked per person in employment^a**

	Total employment								Dependent employment							
	1979	1983	1990	1995	2000	2007	2013	2014	1979	1983	1990	1995	2000	2007	2013	2014
Australia	1 834	1 791	1 780	1 793	1 779	1 711	1 663	1 664	..	..	..	..	..	..	..	..
Austria	..	..	..	1 783	1 807	1 736	1 629	1 629	..	..	..	1 455	1 509	1 526	1 445	1 440
Belgium	1 727	1 675	1 663	1 585	1 594	1 579	1 576	..	..	..	1 447	1 459	1 448	1 431	1 430	..
Canada	1 841	1 779	1 797	1 775	1 779	1 741	1 708	1 704	1 812	1 761	1 782	1 768	1 772	1 740	1 715	1 713
Chile	..	..	..	..	2 263	2 128	2 015	1 990	..	..	..	2 318	2 168	2 085	2 064	..
Czech Republic	..	..	..	1 858	1 896	1 784	1 763	1 776	..	..	..	1 987	2 018	1 914	1 825	1 826
Denmark	1 575	1 558	1 457	1 440	1 490	1 456	1 436	1 438	1 470	1 469	1 381	1 366	1 407	1 390	1 370	..
Estonia	..	..	..	..	1 978	1 998	1 866	1 859	..	..	..	..	..	2 055	2 019	2 008
Finland	1 869	1 823	1 769	1 776	1 742	1 691	1 643	1 645	..	..	1 666	1 672	1 638	1 594	1 568	1 572
France	1 832	1 712	1 665	1 605	1 535	1 500	1 489	..	1 666	1 555	1 536	1 489	1 428	1 407	1 401	..
Germany	..	..	..	1 528	1 452	1 424	1 363	1 371	..	..	..	1 442	1 360	1 346	1 291	1 302
Greece	..	2 186	2 084	2 111	2 108	2 111	2 060	2 042	..	1 760	1 761	1 785	1 818	1 780	1 727	1 733
Hungary ^b	..	..	..	2 006	2 033	1 979	1 880	1 858	..	1 829	1 710	1 765	1 795	1 778	1 803	1 809
Iceland	..	..	..	1 975	2 040	1 932	1 846	1 864	..	..	..	1 968	2 017	1 888	1 809	1 827
Ireland	..	..	..	..	1 933	1 865	1 815	1 821	..	1 678	1 689	1 632	1 574	1 530	1 460	1 485
Israel	..	..	..	1 995	2 017	1 931	1 867	1 853	..	..	..	..	..	..	..	..
Italy	..	..	..	1 856	1 851	1 818	1 733	1 734	..	1 630	1 603	1 570	1 570	1 552	1 478	1 481
Japan ^c	2 126	2 095	2 031	1 884	1 821	1 785	1 734	1 729	..	..	..	1 910	1 853	1 808	1 746	1 741
Korea	..	2 911	2 677	2 648	2 512	2 306	2 163	..	..	..	..	..	..	..	2 071	2 057
Luxembourg	..	1 805	1 794	1 747	1 690	1 544	1 649	1 643	..	1 669	1 691	1 640	1 626	1 543	1 622	1 622
Mexico	..	..	..	2 294	2 311	2 262	2 237	2 228	..	..	..	2 360	2 360	2 338	2 328	2 327
Netherlands	1 556	1 524	1 451	1 479	1 462	1 430	1 421	1 425	1 512	1 491	1 434	1 424	1 394	1 359	1 346	1 347
New Zealand	..	..	1 809	1 841	1 836	1 774	1 752	1 762	..	..	1 734	1 766	1 777	1 754	1 747	1 760
Norway	1 580	1 553	1 503	1 488	1 455	1 426	1 408	1 427	..	..	..	..	..	..	..	..
Poland	..	..	..	..	1 988	1 976	1 918	1 923	..	..	..	..	1 963	1 953	1 879	1 885
Portugal	2 017	1 970	1 959	1 893	1 917	1 900	1 852	1 857	..	..	1 830	1 778	1 729	1 731	1 693	1 719
Slovak Republic	..	..	..	1 853	1 816	1 791	1 772	1 763	..	..	..	..	1 768	1 774	1 736	1 729
Slovenia	..	..	..	1 645	1 605	1 551	1 550	1 561	..	..	..	..	..	..	..	..
Spain	1 954	1 848	1 763	1 755	1 753	1 704	1 699	1 689	1 864	1 769	1 696	1 686	1 705	1 662	1 648	1 638
Sweden	1 530	1 532	1 561	1 640	1 642	1 612	1 607	1 609	..	..	..	..	..	..	..	..
Switzerland ^d	..	..	..	1 686	1 674	1 633	1 576	1 568	..	..	..	..	..	..	..	..
Turkey	1 964	1 935	1 866	1 876	1 937	1 911	1 832	..	..	..	..	..	..	..	..	..
United Kingdom	1 813	1 711	1 765	1 731	1 700	1 677	1 669	1 677	1 747	1 649	1 700	1 695	1 680	1 654	1 655	1 663
United States	1 829	1 820	1 831	1 844	1 836	1 797	1 788	1 789	1 828	1 827	1 833	1 849	1 836	1 798	1 795	1 796
OECD (weighted)	1 944	1 916	1 883	1 866	1 843	1 802	1 770	1 770	..	..	..	..	..	..	..	..
Costa Rica	..	..	..	..	..	..	2 223	2 216	..	..	..	..	..	..	2 289	2 297
Latvia	..	..	..	..	2 209	1 878	1 928	1 938	..	..	..	..	..	1 869	1 706	1 752
Lithuania	..	..	..	..	..	1 904	1 839	1 834	..	..	..	..	..	1 908	1 839	1 842
Russian Fed.	..	..	..	1 891	1 982	1 999	1 980	1 985	..	..	..	1 886	2 000	2 020	2 002	2 003

a) Total hours worked per year divided by the average number of people in employment. The data are intended for comparisons of trends over time; they are unsuitable for comparisons of the level of average annual hours of work for a given year, because of differences in their sources and method of calculation. Part-time and part-year workers are covered as well as full-time workers.

b) Data for dependent employment refer to establishments in manufacturing with five or more employees.

c) Data for dependent employment refer to establishments with five or more regular employees.

d) OECD estimates on hours per worker are obtained by dividing total hours worked from the Federal Statistical Office (FSO) by SPAO-based average employment from the FSO website, both series referring to National Accounts domestic concept.

Source: The series on annual hours actually worked per person in total employment presented in this table for all 34 OECD countries are consistent with the series retained for the calculation of productivity measures in the *OECD Productivity Database* (www.oecd.org/std/productivity-stats). However, there may be differences for some countries given that the main purpose of the latter database is to report data series on labour input (i.e. total hours worked) and also because the updating of databases occurs at different moments of the year.

Hours actually worked per person in employment are according to National Accounts concepts for 23 countries: Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Korea, the Netherlands, Norway, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland and Turkey. OECD estimates for Luxembourg and Lithuania for annual hours worked are based on the European Labour Force Survey, as are estimates for dependent employment for Austria, Estonia, Greece, Ireland, Italy, Latvia, Portugal and the Slovak Republic. The table includes labour-force-survey-based estimates for the Russian Federation.

Country specific notes can be found at: www.oecd.org/employment/outlook and data at the *OECD Online Employment Database*: www.oecd.org/employment/database.

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Table M. Incidence of long-term unemployment,^a 12 months and over
As a percentage of total unemployment in each age group

	Total (15+)				Youth (15-24)				Prime age (25-54)				Older population (55+)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	28.3	15.4	19.1	21.8	17.1	9.9	14.2	17.6	33.5	17.2	19.7	22.7	48.2	30.5	34.0	31.9
Austria	25.8	27.2	24.6	27.2	12.7	13.4	14.8	13.5	25.5	30.2	25.5	29.3	49.7	58.1	47.5	50.6
Belgium	54.2	50.4	46.0	49.9	29.1	29.7	30.8	34.4	61.9	54.8	48.4	52.3	79.4	80.3	70.2	71.7
Canada	11.3	7.5	12.9	12.9	4.0	2.2	6.0	5.8	12.2	7.7	13.2	13.1	18.7	12.5	18.3	18.8
Chile	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	48.8	53.4	44.9	44.5	37.8	33.6	33.3	28.6	53.3	58.3	47.9	47.8	45.6	51.7	46.0	48.4
Denmark	21.7	16.1	25.5	25.2	2.1	4.2	10.1	8.9	24.7	16.6	29.8	29.9	41.2	38.3	40.4	41.8
Estonia	45.1	49.8	44.5	45.3	26.3	30.5	34.9	29.7	49.4	52.7	45.7	46.2	52.5	73.5	52.9	60.0
Finland	29.0	23.0	21.2	23.1	8.8	5.5	5.4	5.7	34.0	25.9	24.1	26.3	56.5	47.6	41.7	44.1
France	39.7	40.2	40.4	42.7	21.1	24.3	27.3	28.8	42.8	43.0	42.3	44.0	67.7	66.9	57.6	61.9
Germany	51.5	56.6	44.7	44.3	23.5	32.2	23.0	23.0	51.0	57.5	44.5	44.2	69.1	76.9	62.8	62.5
Greece	54.7	49.7	67.1	73.5	50.2	41.4	52.0	60.1	56.9	51.5	69.0	74.8	56.2	59.5	74.8	81.6
Hungary	48.9	47.5	49.8	48.9	37.8	36.6	33.2	34.4	52.6	49.6	52.1	50.6	57.9	54.3	63.8	63.0
Iceland ^b	(11.8)	(8.0)	(21.9)	(13.6)	-	-	(10.2)	(5.9)	(17.0)	(8.6)	(23.1)	(17.8)	(33.0)	(56.8)	(46.5)	(19.3)
Ireland	37.3	30.0	60.6	59.2	19.9	21.0	41.2	39.4	44.9	33.5	64.1	62.2	47.6	42.4	74.2	74.2
Israel	12.0	24.9	12.7	10.6	6.1	13.2	6.3	5.0	13.5	27.3	13.2	10.9	21.8	41.6	24.8	22.4
Italy ^b	61.8	47.5	56.9	61.4	57.5	41.1	53.2	59.7	63.8	49.4	57.6	61.3	63.7	53.4	61.5	67.8
Japan	25.5	32.0	41.2	37.6	21.5	20.0	32.4	25.8	22.5	33.1	42.2	39.9	36.0	39.6	43.9	38.0
Korea	2.3	0.6	0.4	-	1.0	0.4	0.2	-	2.8	0.7	0.4	-	3.0	-	0.9	-
Luxembourg	(22.4)	(28.7)	(30.4)	(27.4)	(14.3)	(23.0)	(23.0)	(14.0)	(24.9)	(29.9)	(30.5)	(28.4)	(26.4)	(43.7)	(45.9)	(57.9)
Mexico	1.2	2.3	1.4	1.2	0.9	1.0	1.2	0.4	1.2	3.1	1.5	1.5	4.3	4.3	2.5	3.5
Netherlands	..	39.4	35.9	40.2	..	12.6	17.0	19.0	..	44.1	38.5	42.4	..	74.4	56.5	59.6
New Zealand	19.9	6.0	12.2	13.6	9.8	2.4	6.6	7.5	23.1	8.6	14.6	15.5	44.8	15.8	21.7	29.5
Norway ^b	(5.3)	(8.8)	(9.2)	(11.8)	(1.3)	(2.6)	(2.6)	(4.0)	(7.3)	(11.8)	(11.5)	(14.0)	(14.1)	(19.5)	(26.2)	(24.9)
Poland	37.9	45.9	36.5	36.2	28.0	30.0	25.5	24.0	41.5	50.6	38.8	38.7	44.2	57.0	45.8	46.0
Portugal	42.2	47.2	56.4	59.6	21.2	27.4	36.3	36.3	47.9	49.6	58.2	61.8	68.5	67.8	74.7	78.8
Slovak Republic	54.6	70.8	66.6	66.8	43.1	53.9	57.6	53.9	59.9	74.5	68.0	68.8	60.1	82.6	73.2	74.1
Slovenia	61.4	45.7	51.0	54.5	42.4	29.2	39.4	37.5	67.9	49.8	52.1	56.0	86.2	57.4	63.5	68.9
Spain ^b	41.7	20.4	49.7	52.8	29.3	10.1	39.4	40.5	45.0	21.2	49.7	52.8	58.0	46.8	66.1	70.5
Sweden ^b	26.4	12.8	17.0	16.8	8.9	3.5	5.7	4.6	26.6	16.4	22.0	22.3	49.3	27.8	31.0	30.1
Switzerland	29.0	40.8	33.2	37.7	..	..	..	..	..	..	..	..	..	..	..	..
Turkey	21.1	30.3	24.4	20.6	19.8	26.6	19.0	14.4	21.8	32.2	26.0	22.5	31.4	41.0	40.0	34.7
United Kingdom ^b	26.7	23.7	36.2	35.7	12.3	15.7	28.8	27.9	32.9	28.5	39.5	39.3	43.4	35.4	47.9	47.2
United States ^b	6.0	10.0	25.9	23.0	3.9	6.5	15.9	13.9	6.6	11.1	28.7	25.2	11.9	14.3	34.7	32.9
OECD ^c	28.5	28.5	35.1	35.2	19.6	16.3	22.5	21.8	31.9	32.1	38.2	38.5	35.4	39.3	43.7	44.2
Colombia	..	18.4	13.6	14.6	..	13.7	8.9	9.9	..	21.1	15.7	16.7	..	25.3	21.6	23.0
Costa Rica	..	..	11.1	15.9	..	..	7.2	12.8	..	..	13.7	17.6	..	..	16.8	26.0
Latvia	58.6	27.1	48.5	43.1	43.4	11.1	29.4	24.1	61.3	30.6	53.2	46.7	67.5	38.4	50.4	46.1
Lithuania	49.8	32.4	43.0	44.7	43.1	21.1	19.9	22.6	51.4	33.0	45.7	46.9	52.0	45.6	55.0	57.4
Russian Fed.	46.2	40.6	31.0	28.1	32.6	28.6	20.0	17.3	50.2	45.9	34.5	31.2	62.8	44.2	36.8	34.5
South Africa	..	57.7	57.8	57.8	..	36.2	35.6	34.3	..	61.8	60.9	60.9	..	80.5	67.2	66.8

StatLink  <http://dx.doi.org/10.1787/888933240399>

Table M. Incidence of long-term unemployment,^a 12 months and over (cont.)
As a percentage of male unemployment in each age group

	Men (15+)				Youth (15-24)				Prime age (25-54)				Older population (55+)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	31.8	16.4	20.0	22.7	18.3	10.0	15.5	19.7	37.3	18.9	20.0	22.6	51.6	30.7	34.3	32.7
Austria	28.1	26.9	25.9	28.2	10.0	14.0	13.3	12.7	27.2	29.2	26.4	29.9	56.4	57.1	53.6	53.4
Belgium	54.1	49.3	46.5	51.9	27.2	30.1	29.8	38.6	62.8	53.0	49.8	53.6	75.1	80.2	68.1	72.1
Canada	12.3	8.4	13.1	13.1	4.4	2.3	5.7	5.4	13.7	9.4	13.9	13.7	20.0	13.4	18.5	19.1
Chile	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	47.5	51.7	43.3	45.0	37.2	35.4	33.9	33.2	53.3	56.5	46.7	49.0	45.2	54.9	43.3	44.6
Denmark	21.0	15.6	23.5	25.9	0.9	3.3	9.3	8.4	25.2	17.6	27.9	32.5	38.8	35.4	38.2	39.8
Estonia	47.1	53.3	46.6	50.2	31.3	33.8	35.8	32.4	51.2	55.2	49.3	53.6	51.3	80.4	47.3	62.3
Finland	32.2	26.5	23.6	25.1	8.8	5.9	7.4	8.0	39.1	30.2	26.5	28.8	58.3	52.4	45.2	43.7
France	38.4	40.4	40.8	44.1	19.8	28.6	28.1	31.7	41.8	42.0	43.1	45.6	66.3	66.2	55.1	60.9
Germany	50.1	56.7	45.4	46.2	23.7	33.5	23.8	26.1	49.1	57.9	45.6	46.2	69.0	76.2	62.2	63.0
Greece	48.0	41.5	66.0	72.8	42.9	32.8	53.6	61.2	49.9	42.5	67.4	73.5	55.8	58.0	73.6	81.1
Hungary	51.1	47.2	50.2	49.8	40.7	38.0	33.5	35.3	54.4	48.9	52.7	51.8	62.9	54.7	63.4	62.6
Iceland ^b	(8.7)	(9.5)	(22.4)	(13.5)	-	-	(10.9)	(4.7)	(17.1)	(14.3)	(25.9)	(15.7)	..	(59.3)	(42.7)	(34.8)
Ireland	46.7	35.4	67.2	65.2	21.5	24.8	48.7	44.5	56.1	39.6	70.4	68.2	58.5	44.8	77.3	78.6
Israel	13.5	28.9	13.8	11.9	8.1	15.7	6.6	5.7	13.7	31.0	14.2	11.4	25.5	44.4	24.3	25.8
Italy ^b	61.8	45.6	56.9	60.3	56.7	41.0	55.8	60.5	64.0	46.7	56.5	59.1	67.0	54.2	62.7	69.6
Japan	30.7	40.3	48.7	47.1	26.3	24.0	36.8	29.4	29.4	43.0	52.6	51.8	35.6	44.7	45.2	44.4
Korea	3.1	0.7	0.5	-	1.4	0.3	-	-	3.5	0.9	0.4	-	3.6	-	1.2	-
Luxembourg	(26.4)	(35.4)	(30.5)	(26.7)	(20.4)	(30.5)	(28.0)	(15.4)	(28.7)	(36.5)	(28.9)	(27.5)	(26.4)	(46.5)	(50.0)	(57.2)
Mexico	0.6	2.4	1.4	1.3	-	0.7	1.2	0.3	0.5	3.5	1.6	1.8	5.3	4.6	1.1	2.9
Netherlands	..	41.8	36.3	40.7	..	12.2	19.2	18.8	..	45.9	36.8	41.1	..	75.3	55.1	59.3
New Zealand	23.7	6.6	13.7	14.8	12.1	2.3	6.3	8.5	27.4	10.0	18.5	17.5	47.6	18.2	23.5	29.6
Norway ^b	(6.9)	(10.2)	(10.5)	(11.8)	(1.3)	(3.1)	(3.4)	(3.7)	(9.3)	(14.4)	(12.8)	(14.8)	(16.6)	(18.5)	(31.2)	(19.9)
Poland	34.1	45.8	35.9	36.3	25.5	31.0	26.4	24.9	37.3	49.9	37.7	38.8	43.3	57.2	45.0	44.8
Portugal	43.9	47.6	57.6	60.7	20.3	26.2	39.9	36.5	47.5	50.1	58.5	62.7	73.9	66.6	75.4	78.8
Slovak Republic	54.1	72.3	67.9	69.8	43.9	57.8	58.5	56.5	59.2	75.6	70.3	72.8	59.3	86.5	72.8	76.0
Slovenia	62.8	45.3	51.9	55.0	41.7	27.8	40.3	37.2	68.9	51.1	53.2	56.3	86.8	57.9	62.2	70.9
Spain ^b	35.3	17.4	48.9	52.0	25.5	8.6	41.6	42.2	35.9	17.4	48.2	51.1	58.9	42.3	65.3	70.0
Sweden ^b	29.3	14.2	18.7	17.9	11.0	3.3	5.9	5.2	30.1	18.9	24.9	23.1	48.6	28.1	31.3	32.5
Switzerland	28.2	37.9	29.9	35.5	..	..	..	..	..	..	..	..	..	..	..	..
Turkey	18.1	27.0	20.4	17.2	16.0	23.3	15.8	12.2	19.0	28.3	20.8	17.4	31.4	40.4	39.4	35.2
United Kingdom ^b	32.6	28.4	39.6	40.2	14.6	18.9	32.0	32.1	40.2	34.7	43.8	44.8	49.0	39.5	48.6	48.9
United States ^b	6.7	10.7	26.4	23.7	4.5	7.6	17.7	15.4	6.7	11.4	28.6	25.3	15.6	16.8	35.4	34.7
OECD ^c	27.5	28.5	35.1	35.3	18.6	17.0	23.7	22.8	30.3	31.6	37.8	38.1	37.0	40.3	43.4	45.0
Colombia	..	17.8	11.5	11.9	..	13.6	7.5	7.8	..	19.9	12.5	12.8	..	25.5	20.8	22.0
Costa Rica	..	..	7.6	12.3	..	..	5.6	10.2	..	..	8.7	11.0	..	..	10.8	28.1
Latvia	58.8	30.1	52.2	45.0	46.7	11.6	31.6	29.5	61.1	37.2	57.8	48.8	64.8	29.3	50.8	44.1
Lithuania	51.4	34.9	42.2	44.3	50.2	22.9	25.0	27.7	52.0	34.6	44.4	45.6	49.2	53.3	52.7	55.6
Russian Fed.	42.7	39.1	30.3	27.8	31.2	28.4	20.5	17.8	45.7	43.7	33.0	30.4	59.2	44.4	38.5	35.5
South Africa	..	52.6	53.7	53.9	..	34.2	31.2	31.6	..	55.5	56.5	56.7	..	80.7	63.5	65.5

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Table M. Incidence of long-term unemployment,^a 12 months and over (cont.)
As a percentage of female unemployment in each age group

	Women (15+)				Youth (15-24)				Prime age (25-54)				Older population (55+)			
	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014	2000	2007	2013	2014
Australia	23.6	14.4	18.1	20.8	15.5	9.9	12.7	15.1	28.3	15.6	19.3	22.9	38.3	30.2	33.6	30.6
Austria	22.8	27.6	23.1	25.9	16.5	12.8	16.5	14.5	23.5	31.1	24.4	28.5	31.7	59.6	36.5	44.0
Belgium	54.3	51.4	45.4	47.4	30.8	29.3	32.1	29.2	61.3	56.6	46.7	50.5	89.1	80.3	73.1	71.3
Canada	10.0	6.3	12.6	12.6	3.4	2.2	6.5	6.4	10.5	5.6	12.3	12.3	17.0	11.4	18.0	18.4
Chile	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	49.8	54.7	46.4	44.2	38.5	31.1	32.3	22.6	53.3	59.4	48.8	46.9	46.3	46.6	49.3	52.9
Denmark	22.4	16.6	27.5	24.4	3.5	5.3	11.0	9.5	24.4	15.8	31.5	27.4	43.9	41.0	43.1	44.4
Estonia	42.6	44.4	42.1	39.4	19.4	22.8	33.9	23.8	47.3	49.9	41.5	37.8	54.9	29.6	62.0	57.8
Finland	26.2	19.5	18.1	20.6	8.8	5.0	2.8	3.0	29.6	21.8	21.1	23.2	54.5	42.2	37.2	44.6
France	40.8	40.0	39.9	41.1	22.4	19.7	26.3	25.0	43.6	44.0	41.4	42.3	69.2	67.8	60.6	63.0
Germany	53.1	56.5	43.8	41.9	23.2	30.4	21.9	18.8	52.9	57.0	43.2	41.7	69.1	77.8	63.6	61.9
Greece	59.2	54.4	68.2	74.2	55.1	46.7	50.3	59.1	61.2	56.3	70.6	76.0	57.0	61.6	76.9	82.5
Hungary	45.7	47.9	49.4	47.9	33.1	34.7	32.9	33.1	50.1	50.3	51.4	49.4	37.5	53.6	64.4	63.6
Iceland ^b	(14.1)	(5.7)	(21.4)	(13.7)	-	-	(8.9)	(7.5)	(16.9)	(2.7)	(20.5)	(21.6)	(27.4)	(53.1)	(51.3)	(14.0)
Ireland	23.0	21.7	49.3	49.1	18.1	15.5	30.6	31.9	26.2	23.9	53.0	52.2	19.9	37.2	67.3	64.4
Israel	10.4	20.9	11.6	9.2	4.2	11.2	5.9	4.2	13.2	23.8	12.2	10.3	12.4	36.3	25.8	17.4
Italy ^b	61.8	49.2	57.0	62.7	58.3	41.1	49.8	58.6	63.6	51.5	58.9	63.7	56.1	51.6	58.4	63.9
Japan	17.1	19.4	29.3	23.7	14.8	15.0	26.7	21.4	13.8	20.6	27.5	24.6	37.5	20.0	40.0	21.4
Korea	0.8	0.3	0.2	-	0.5	0.5	0.3	-	0.9	0.2	0.2	-	1.1	-	-	-
Luxembourg	(18.8)	(22.3)	(30.4)	(28.2)	(8.4)	(14.8)	(10.5)	(11.4)	(21.9)	(24.0)	(31.9)	(29.4)	-	(39.1)	(40.8)	(59.0)
Mexico	2.0	2.0	1.5	1.1	2.1	1.4	1.1	0.7	1.9	2.5	1.4	1.0	-	1.7	10.5	6.0
Netherlands	..	37.1	35.3	39.5	..	13.0	14.7	19.2	..	42.7	40.8	44.0	..	72.8	59.1	60.3
New Zealand	14.9	5.4	10.8	12.6	7.0	2.4	6.9	6.6	18.1	7.5	11.9	14.2	37.5	12.5	19.7	29.5
Norway ^b	(3.3)	(7.1)	(7.5)	(11.7)	(1.4)	(2.0)	(1.6)	(4.3)	(4.4)	(9.2)	(10.1)	(13.0)	(9.3)	(21.4)	(17.2)	(33.4)
Poland	41.3	46.0	37.2	36.2	30.7	29.0	24.3	22.8	45.1	51.3	39.9	38.5	45.7	56.7	47.3	48.0
Portugal	41.0	46.9	55.0	58.5	21.8	28.3	32.6	36.1	48.2	49.3	57.9	61.0	58.6	69.6	73.6	78.8
Slovak Republic	55.1	69.4	65.0	63.2	42.0	48.5	56.1	49.7	60.5	73.5	65.5	64.4	63.3	75.8	73.8	72.0
Slovenia	59.8	46.1	50.0	53.9	43.0	31.1	38.5	37.9	66.9	48.9	51.1	55.7	82.9	56.7	66.1	65.1
Spain ^b	46.3	22.8	50.5	53.7	32.4	11.3	36.9	38.4	50.8	24.0	51.4	54.5	56.3	52.2	67.3	71.3
Sweden ^b	22.8	11.3	15.0	15.5	6.4	3.7	5.4	3.8	22.1	14.0	18.9	21.3	50.3	27.3	30.4	26.8
Switzerland	29.7	43.0	37.1	40.2	..	..	..	..	..	..	..	..	..	..	..	..
Turkey	29.8	38.9	30.9	26.7	28.5	32.9	23.6	17.8	31.3	43.8	34.5	30.9	..	50.0	43.8	31.3
United Kingdom ^b	18.1	17.6	31.7	30.1	9.4	11.2	24.4	22.0	22.6	21.5	34.3	33.1	28.3	25.7	46.8	44.5
United States ^b	5.3	9.0	25.3	22.2	3.1	5.1	13.6	11.9	6.4	10.7	28.8	25.1	7.4	11.2	33.9	30.7
OECD ^c	29.6	28.5	35.1	35.1	20.7	15.5	21.0	20.5	33.5	32.6	38.8	39.0	32.0	37.7	44.2	43.0
Colombia	..	18.8	15.2	16.6	..	13.7	10.0	11.6	..	21.9	17.9	19.3	..	24.6	23.2	25.0
Costa Rica	..	..	15.2	19.7	..	..	9.2	15.9	..	..	18.5	23.0	..	..	37.1	17.0
Latvia	58.3	23.4	44.5	40.8	39.3	10.4	26.9	17.2	61.5	22.8	47.9	44.2	72.0	47.2	50.0	48.4
Lithuania	47.7	29.9	43.9	45.2	31.4	19.3	11.9	15.3	50.7	31.5	47.3	48.5	58.0	36.3	58.3	60.1
Russian Fed.	50.0	42.4	31.8	28.4	34.2	28.7	19.4	16.7	55.1	48.3	36.3	32.0	67.4	43.9	34.4	32.9
South Africa	..	62.3	62.7	62.3	..	38.3	40.3	37.5	..	66.9	66.0	65.8	..	79.8	74.7	68.8

Note: For country details related to data on unemployment by duration of job search, see PDF in source below. Data in brackets are based on small sample sizes.

a) Persons for whom no duration of unemployment was specified are excluded from the total used in the calculation.

b) The lower age limit is 16 instead of 15 for Iceland up to 2008, Italy after 2009, Norway up to 2005 and Sweden up to 2006.

c) Weighted average.

Source and definition: OECD Online Employment Database: www.oecd.org/employment/database and www.oecd.org/els/emp/lfsnotes_sources.pdf.

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Table N. Real average annual wages and real unit labour costs in the total economy
Annualised growth rates, percentages

	Average wages in 2014 in USD PPPs ^a	Average wages ^b					Unit labour costs ^b				
		2000-07	2007-14	2007	2013	2014	2000-07	2007-14	2007	2013	2014
Australia	52 315	1.4	0.3	1.9	-1.2	-0.5	0.9	-0.2	2.0	-2.4	-2.5
Austria	45 890	0.9	0.3	0.6	-0.1	0.6	-1.0	0.4	-0.9	0.4	0.3
Belgium	48 077	0.3	0.4	-0.4	0.8	0.0	-0.3	0.5	-0.6	0.6	-0.9
Canada	48 279	1.5	1.4	2.4	2.0	1.2	1.0	0.6	1.7	0.3	-0.2
Chile ^d	..	..	..	..	..	..	0.3	2.1	2.1	..	..
Czech Republic	21 221	4.8	0.1	3.0	-2.7	1.6	0.7	-0.3	-0.1	-0.3	0.5
Denmark	49 484	1.8	0.9	0.6	-0.5	3.5	1.1	0.2	3.6	0.4	0.7
Estonia	21 120	7.7	0.8	15.7	3.1	8.6	1.8	0.4	7.1	3.2	4.3
Finland	40 587	2.0	0.2	1.5	-0.8	-0.8	-0.1	0.7	-1.5	-0.7	-0.7
France	40 917	1.2	1.0	0.4	0.7	0.6	0.1	0.6	-0.4	0.2	0.7
Germany	44 007	0.1	0.8	-0.1	1.0	0.4	-1.9	1.1	-2.2	1.3	1.1
Greece	27 403	3.0	-2.0	0.2	-4.5	..	1.0	-1.7	0.5	-5.6	-1.3
Hungary	21 425	4.4	-0.5	-1.2	1.1	2.0	0.9	-1.1	-0.2	1.2	1.5
Iceland	..	..	..	..	..	..	0.9	-1.8	-1.1	0.2	0.6
Ireland	53 472	2.5	1.5	2.9	-0.1	1.7	1.2	-0.1	1.6	1.8	-0.6
Israel	29 635	0.0	-0.4	2.2	0.2	0.9	-0.8	-0.8	-0.3	-0.5	1.0
Italy	35 442	0.3	0.3	-0.1	0.6	4.0	0.6	0.5	0.0	0.3	1.2
Japan	36 954	-0.5	0.7	-0.8	3.3	-0.2	-1.3	0.3	-1.7	-0.4	-0.5
Korea	38 150	2.4	1.5	1.6	3.1	0.4	0.5	-0.6	-0.1	0.2	-0.7
Luxembourg	60 607	1.3	0.7	2.7	3.4	0.4	1.2	2.3	0.9	3.3	1.1
Mexico ^{d, e}	12 850	1.5	-0.6	0.4	1.9	-0.8	1.4	-0.7	-0.9	..	..
Netherlands	51 207	1.5	0.8	1.4	0.4	0.3	-0.7	0.3	-0.3	-0.8	-2.4
New Zealand	..	..	..	..	..	..	0.3	0.7	0.4	0.0	1.7
Norway	51 531	3.2	1.7	4.3	1.2	0.5	2.3	2.5	6.8	2.2	0.3
Poland	23 681	0.4	1.8	2.3	2.0	0.3	-1.6	-0.3	1.0	-0.5	-0.1
Portugal	25 038	-0.4	0.3	0.9	2.1	-1.7	-1.1	-0.9	-2.3	1.7	-1.7
Slovak Republic	22 151	3.5	1.7	6.1	0.8	4.9	-2.6	-0.4	-2.8	-2.4	2.4
Slovenia	32 834	0.0	0.4	2.1	0.9	-0.5	-0.3	-0.1	-1.2	-0.7	-2.1
Spain	38 386	0.4	0.9	1.7	1.2	-0.5	0.5	-1.5	1.3	-2.0	-0.4
Sweden	40 995	1.9	1.2	3.2	0.7	1.4	0.2	1.1	2.7	0.5	0.9
Switzerland	56 069	1.0	1.0	1.5	0.7	1.2	0.1	1.2	-0.1	0.1	0.6
Turkey	..	..	..	..	..	..	..	..	..	..	..
United Kingdom	39 277	1.8	-0.8	2.6	-6.6	7.4	0.7	-1.1	0.6	-0.3	-1.6
United States	60 779	1.0	0.4	1.1	-0.7	1.1	-0.4	-0.5	0.9	-0.7	1.0
OECD ^e	46 533	1.0	0.5	1.0	0.2	1.2	-0.5	-0.2	0.0	-0.2	-0.1

Note: Average annual wages per full-time equivalent dependent employee are obtained by dividing the national-accounts-based total wage bill by the average number of employees in the total economy, which is then multiplied by the ratio of average usual weekly hours per full-time employee to average usually weekly hours for all employees. For more details, see: www.oecd.org/employment/outlook.

a) Average wages are converted in USD PPPs using 2014 USD PPPs for private consumption.

b) Average annual wages and unit labour costs are deflated by a price deflator for private final consumption expenditures in 2014 prices.

c) Aggregates are weighted averages computed on the basis of 2014 GDP weights expressed in 2014 purchasing power parities and include the countries shown.

d) For Chile and Mexico annualised changes of real unit labour costs for 2007-14 refer to 2007-12.

e) For Mexico, annualised real average wage changes for 2007-14 and 2011-12 refer to 2007-11 and 2010-11, respectively.

Source: OECD estimates based on *OECD National Accounts Database*; OECD (2015), *OECD Economic Outlook*, Vol. 2014, No. 2, OECD Publishing, Paris; OECD (2014), *OECD Economic Outlook*, Vol. 2013, No.1, OECD Publishing, Paris, for unit labour costs for Chile and Mexico (www.oecd.org/eo/outlook/economicoutlook.htm).

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Table O. Earnings dispersion and incidence of high and low pay

	Earnings dispersion ^a						Incidence of			
	9 th to 1 st earnings deciles		9 th to 5 th earnings deciles		5 th to 1 st earnings deciles		Low pay ^b (%)		High pay ^c (%)	
	2003	2013	2003	2013	2003	2013	2003	2013	2003	2013
Australia	3.07	3.48	1.88	2.00	1.64	1.74	13.4	15.8	..	..
Austria	3.23	3.31	1.90	1.94	1.70	1.71	15.2	15.9	19.7	20.7
Belgium	2.39	2.47	1.72	1.76	1.40	1.41	..	6.0	12.4	13.4
Canada	3.61	3.75	1.84	1.94	1.97	1.93	22.0	21.0	10.9	10.7
Chile	5.21	4.69	3.13	2.77	1.67	1.69	15.6	15.3	30.2	28.1
Czech Republic	3.28	3.46	1.78	1.84	1.85	1.88	18.9	20.1	..	..
Denmark	2.63	2.90	1.64	1.68	1.60	1.72	14.3	19.9	..	..
Estonia	5.88	4.40	2.35	2.11	2.50	2.08	28.3	24.0	23.1	23.4
Finland	2.43	2.55	1.72	1.73	1.41	1.48	6.4	9.1	15.9	15.9
France	3.03	2.97	2.00	1.99	1.51	1.50	..	..	..	..
Germany	3.00	3.37	1.70	1.85	1.77	1.82	17.5	18.8	15.8	18.6
Greece	3.44	3.01	2.00	1.86	1.72	1.62	20.0	13.9	22.1	18.4
Hungary	4.38	3.69	2.25	2.31	1.95	1.60	22.7	16.8	..	..
Iceland	3.15	2.98	1.72	1.74	1.83	1.71	18.7	16.9	15.8	17.9
Ireland	3.90	3.86	2.03	1.94	1.92	2.00	19.2	23.3	..	..
Israel	5.07	4.91	2.59	2.65	1.96	1.85	23.4	22.1	27.9	27.9
Italy	2.50	2.32	1.67	1.53	1.50	1.52	9.4	10.1	11.8	11.1
Japan	2.95	2.96	1.82	1.84	1.62	1.61	14.4	14.2	..	..
Korea	5.12	4.70	2.42	2.36	2.12	1.99	24.9	24.7	..	..
Luxembourg	3.03	3.18	1.90	2.03	1.60	1.56	20.8	14.8	18.0	22.7
Mexico	3.75	3.88	2.14	2.33	1.75	1.67	17.9	14.2	20.1	22.1
Netherlands	2.79	2.89	1.75	1.78	1.59	1.62	12.7	14.9	17.5	16.8
New Zealand	2.85	2.93	1.80	1.87	1.58	1.56	13.2	13.7	..	..
Norway	2.10	2.40	1.45	1.49	1.45	1.61	..	..	..	..
Poland	4.11	4.10	2.07	2.11	1.98	1.95	22.2	22.7	..	..
Portugal	4.65	4.08	2.84	2.57	1.64	1.59	14.1	19.4	27.5	27.9
Slovak Republic	3.37	3.65	1.94	2.00	1.73	1.82	18.0	20.0	..	..
Slovenia	..	3.26	..	2.05	..	1.59	..	..	..	..
Spain	3.55	3.08	2.10	1.88	1.69	1.64	16.3	14.6	23.3	20.6
Sweden	2.32	2.27	1.65	1.65	1.40	1.38	..	..	..	..
Switzerland	2.59	2.70	1.77	1.84	1.46	1.47	8.9	9.2	..	..
Turkey	..	4.85	..	2.90	..	1.67	..	..	..	..
United Kingdom ^d	3.54	3.55	1.95	1.97	1.81	1.80	20.6	20.5	..	..
United States	4.71	5.08	2.29	2.44	2.06	2.09	23.3	25.0	..	..
OECD ^e	3.49	3.46	1.99	2.02	1.73	1.70	17.6	17.1	19.5	19.8

Note: Estimates of earnings used in the calculations refer to gross earnings of full-time wage and salary workers. However, this definition may slightly vary from one country to another. Further information on the national data sources and earnings concepts used in the calculations can be found at: www.oecd.org/employment/outlook.

a) Earnings dispersion is measured by the ratio of 9th to 1st deciles limits of earnings, 9th to 5th deciles and 5th to 1st deciles. Data refer to 2002 for Estonia, Luxembourg and the Netherlands; to 2004 for Austria, Greece, Iceland, Italy, Poland, Spain and Switzerland; to 2005 for Mexico; and to 2006 for Korea. They refer to 2012 for Belgium, Italy, Poland, Spain and Sweden; to 2011 for Israel; and to 2010 for Estonia, France, Luxembourg, the Netherlands, Slovenia, Switzerland and Turkey.

b) The incidence of low pay refers to the share of workers earning less than two-thirds of median earnings. See note a for countries with different time periods.

c) The incidence of high pay refers to the share of workers earning more than one-and-a-half times median earnings. See note a for countries with different time periods.

d) For the Czech Republic, there are breaks in series in 2010 and 2012. For the United Kingdom, there are breaks in series in 1997, 2004, 2006 and 2011. In each case, data were spliced from *new-to-old* series.

e) Unweighted average for above countries.

Source: OECD Earnings Distribution Database, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm#earndisp.

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Table P. **Relative earnings: Gender, age and education gaps**
Percentages

	Gender ^a		Age ^b				Education/Skills ^c			
	Women / Men		15-24 / 25-54		55-64 / 25-54		Low / Medium		High / Medium	
	2003	2013	2003	2013	2003	2013	2003	2012	2003	2012
Australia	13	18	39	39	3	-2	18	17	-34	-35
Austria	21	18	35	36	-54	-35	29	33	-52	-63
Belgium	15	6	34	35	-27	-27	11	18	-30	-56
Canada	23	19	43	41	-4	-3	19	16	-38	-34
Chile	..	15	49	42	-12	-5	..	..	..	..
Czech Republic	15	16	35	37	-8	-1	27	27	-82	-76
Denmark	11	8	35	40	0	-2	18	19	-27	-28
Estonia	24	27	..	..	..	..	..	6	..	-34
Finland	20	20	32	37	-11	-2	6	3	-48	-32
France	15	14	..	..	..	..	15	18	-47	-54
Germany	20	13	43	40	-7	-11	12	17	-53	-70
Greece	14	11	42	37	-23	-23	..	21	..	-52
Hungary	1	9	32	37	-25	-2	27	25	-117	-100
Iceland	19	15	43	42	5	1	..	..	..	..
Ireland	20	13	44	55	-4	-4	21	16	-74	-76
Israel	25	22	52	54	-19	-19	21	29	-51	-52
Italy	7	11	..	16	..	14	21	23	-65	-47
Japan	32	27	43	41	-2	2	..	..	..	..
Korea	40	37	45	43	10	7	8	12	-34	-37
Luxembourg	16	6	..	26	..	27	..	31	..	-66
Mexico	17	15	20	23	7	11	..	..	46	-99
Netherlands	19	20	..	..	..	..	15	17	-53	-56
New Zealand	7	6	38	41	4	-4	23	20	-23	-19
Norway	10	7	30	36	-3	-6	22	23	-31	-27
Poland	11	11	41	33	-23	-3	18	16	-79	-71
Portugal	13	17	44	38	-16	-30	33	30	-78	-69
Slovak Republic	21	14	..	32	..	5	..	33	..	-73
Slovenia	..	12	..	..	..	..	27	22	-98	-80
Spain	13	6	..	37	..	-19	21	20	-28	-41
Sweden	16	14	30	31	-6	-8	13	20	-28	-25
Switzerland	20	19	..	..	..	..	26	24	-57	-57
Turkey	..	20	..	..	..	..	31	37	-62	-91
United Kingdom	23	17	43	43	9	1	35	30	-41	-56
United States	21	18	47	49	-9	-17	35	37	-72	-74
OECD ^d	17	15	39	38	-9	-5	21	22	-50	-56

a) See note to Table O. The gender wage gap is unadjusted and is calculated as the difference between median earnings of men and women relative to median earnings of men. Data refer to 2002 for Estonia, Luxembourg and the Netherlands; to 2004 for Greece, Iceland, Italy, Poland, Portugal, Spain and Switzerland; to 2005 for Mexico; and to 2006 for Korea. They refer to 2012 for Belgium, Italy, Poland, Spain and Sweden; to 2011 for Israel; and to 2010 for Estonia, France, Luxembourg, the Netherlands, Slovenia, Switzerland and Turkey.

b) Age wage gaps are calculated as the difference between mean earnings of 25-54 year-olds and that of 15-24 year-olds (respectively 55-64 year-olds) relative to mean earnings of 25-54 year-olds. Data refer to 55 year-olds and over for Hungary and Norway. Data refer to 2004 for Portugal; to 2005 for Iceland, Mexico and Poland; and to 2006 for Korea. They refer to 2011 for Israel and to 2012 for Norway, Spain and Sweden.

c) Earnings by skill (or education levels) refer to mean annual earnings of full-time full-year for 25-64 year-old employees. Earnings gaps by skill levels are calculated as the difference between mean earnings of medium-skilled employees and low- (respectively high-) skilled employees relative to mean earnings of medium-skilled employees.

The skill levels are based on the International Standard Classification of Education (ISCED, 1997). *Low (skills)* corresponds to less than upper secondary ISCED levels 0, 1, 2 and 3C short programmes. *Medium (skills)* corresponds to upper secondary and post-secondary non-tertiary ISCED levels 3A, 3B and 3C long programmes, and ISCED 4. *High (skills)* corresponds to tertiary ISCED levels 5A, 5B and 6. Data refer to 2004 for the Czech Republic, France, Germany, Hungary, Ireland, Italy, Portugal, Slovenia, Turkey and the United States; to 2005 for Australia, Austria and Israel; to 2006 for Korea and the Netherlands; and to 2007 for Japan. They refer to 2013 for Korea; to 2011 for Belgium, Canada, Chile, the Czech Republic, Ireland, Norway, Portugal and Spain; and to 2010 for France, Italy and the Netherlands.

d) Unweighted average for above countries.

Source: OECD Earnings Distribution Database, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm#earn disp for earnings gaps by gender and age; and OECD (2014), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, <http://dx.doi.org/10.1787/eag-2014-en> for earnings gaps by skills or education levels.

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Table Q. **Public expenditure and participant stocks in labour market programmes in OECD countries, 2012 and 2013**

	Public expenditure (% of GDP)								Participant stocks (% of labour force)			
	Total		Active programmes		of which: Active measures not including PES and administration		Passive programmes		Active measures not including PES and administration		Passive programmes	
	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013
Australia	0.84	0.87	0.27	0.23	0.11	0.08	0.57	0.64	1.67	1.85	6.42	6.71
Austria	1.97	2.16	0.72	0.76	0.55	0.59	1.25	1.40	3.67	3.83	6.48	6.79
Belgium	2.80	2.76	0.78	0.72	0.58	0.51	2.02	2.04	6.89	6.29	16.75	18.76
Canada	0.83	0.80	0.24	0.23	0.14	0.14	0.59	0.57	0.50	0.51	2.86	2.69
Chile	0.33	0.36	0.10	0.09	0.08	0.07	0.23	0.27	..	..	1.77	1.85
Czech Republic	0.48	0.55	0.25	0.30	0.14	0.19	0.23	0.25	1.02	1.05	1.99	2.22
Denmark	3.51	3.49	1.85	1.82	1.52	1.50	1.66	1.66	5.99	6.08	6.24	6.14
Estonia	0.72	0.68	0.28	0.23	0.18	0.13	0.43	0.44	0.95	0.70	2.36	2.45
Finland	2.39	2.63	0.99	1.01	0.84	0.87	1.40	1.62	4.35	4.41	9.17	10.37
France	2.28	..	0.87	..	0.63	..	1.41	..	5.11	..	9.65	..
Germany	1.62	1.67	0.67	0.67	0.34	0.32	0.95	1.01	3.32	3.07	6.71	6.79
Greece	..	..	..	..	..	..	..	..	..	..	..	..
Hungary	1.08	1.12	0.67	0.78	0.60	0.70	0.41	0.34	7.40	6.93	6.23	5.60
Ireland	3.31	3.09	0.90	0.88	0.73	0.72	2.41	2.20	4.53	4.72	19.19	18.07
Israel	..	..	..	..	..	..	..	..	..	..	..	..
Italy	2.02	1.99	0.46	0.41	0.34	0.32	1.56	1.58	5.14	4.65	6.45	6.96
Japan	0.54	0.47	0.21	0.16	0.16	0.11	0.34	0.31	..	..	..	..
Korea	0.57	..	0.29	..	0.27	..	0.27	..	..	..	..	..
Luxembourg	1.42	1.51	0.63	0.64	0.57	0.60	0.79	0.87	8.54	9.49	4.16	6.25
Mexico	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	..	..	..	..
Netherlands	2.51	2.91	0.88	0.94	0.61	0.59	1.63	1.97	4.19	4.08	8.24	9.59
New Zealand	0.64	..	0.28	..	0.18	..	0.36	..	2.33	..	2.18	..
Norway	0.87	0.83	0.53	0.50	0.40	0.37	0.34	0.33	2.18	2.06	1.98	1.99
Poland	0.76	..	0.44	..	0.36	..	0.32	..	3.23	..	2.92	..
Portugal	2.10	2.16	0.49	0.50	0.38	0.46	1.61	1.66	3.40	3.91	7.43	8.07
Slovak Republic	0.68	0.63	0.25	0.22	0.19	0.17	0.43	0.40	2.79	2.45	2.47	2.30
Slovenia	1.09	1.17	0.27	0.37	0.17	0.28	0.82	0.80	1.14	1.81	3.26	2.98
Spain	3.60	..	0.61	..	0.53	..	2.99	..	11.63	..	12.55	..
Sweden	1.91	2.03	1.28	1.35	1.01	1.07	0.63	0.68	4.97	5.34	5.46	5.44
Switzerland	1.10	1.19	0.54	0.56	0.44	0.45	0.56	0.63	1.15	1.20	2.51	2.57
United Kingdom	..	..	..	..	..	..	..	..	..	..	..	..
United States	0.52	0.35	0.12	0.11	0.09	0.09	0.40	0.24	..	..	..	..
OECD	1.47	1.48	0.55	0.56	0.42	0.43	0.92	0.91	4.00	3.72	6.22	6.41

Note: The data shown should not be treated as strictly comparable across countries or through time, since data at the level of individual countries in some cases deviate from standard definitions and methods and certain programmes or programme categories are not always included in the data for participants stocks. See <http://www.oecd.org/els/emp/employment-outlook-statistical-annex.htm> which provides a general introductory note about scope and comparability, tables for expenditure and participants in the main programme categories and subcategories, country-specific notes, and access to the online database.

Fiscal years for Australia, Canada, Japan, New Zealand, the United Kingdom and the United States.

Source: For European Union countries and Norway, European Commission (2015), *Labour Market Policy* (<http://ec.europa.eu/eurostat/web/labour-market/labour-market-policy/database>) and detailed underlying data supplied to OECD by the European Commission with certain Secretariat adjustments. For other countries: *OECD Database on Labour Market Programmes*, <http://dx.doi.org/10.1787/data-00312-en>.

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