Chapter 1

Moving Beyond the Jobs Crisis

This chapter updates the analysis in the 2009 Employment Outlook *of the labour market impact of the 2008-09 recession and policy responses to the resulting jobs crisis. The OECD area unemployment rate reached a post-war high of 8.7% in March 2010 and is probably near its peak, but is projected to decline only slowly. Total labour market slack exceeds conventional unemployment and a broader measure encompassing inactive persons who wish to work and involuntary part-time workers is more than twice as large. The extent to which falling output translated into higher unemployment has differed dramatically across the OECD depending on whether employers emphasised labour shedding or work sharing. The contribution of hours reduction to labour input adjustment is shown to have been unusually high in a considerable number of countries, due in part to public short-time work schemes, which preserved a significant number of jobs at least in the short run. Governments also continue to scale up income support and re-employment assistance for job losers in 2010, but now face difficult choices concerning how quickly to phase out these measures in the context of a still uncertain recovery and mounting fiscal pressures. A major priority going forward is to assure a job-rich recovery while limiting hysteresis effects in unemployment and participation.*

Introduction

OECD employment and labour ministers met in Paris on 28-29 September 2009 – together with their colleagues from a number of other countries – to discuss how best to tackle the jobs crisis created by the 2008-09 recession.[1] Ministers agreed that the severity of the recession called for decisive and comprehensive actions and endorsed a set of broad guidelines for the labour market and social policy responses that are intended to limit the social costs of the recession while also promoting a return to sound economic growth.[2] At the time of the meeting, ministers reported that their governments had taken many measures to support aggregate demand while also expanding social safety nets and re-employment services to assist unemployed workers. Since there was still a great deal of uncertainty about how the global economic situation would evolve and which policy measures would prove to be most effective, ministers requested that the OECD continue to monitor labour market developments and policy responses during the crisis and in the recovery phase, in order to assess the adequacy and effectiveness of the various measures taken in different areas. This chapter reports on this on-going monitoring exercise.[3]

The chapter is divided into five sections. Section 1 updates the analysis of the labour market impact of the 2008-09 recession that was published in the 2009 edition of the *OECD Employment Outlook* (OECD, 2009a). With the still fragile economic recovery in mind, it is also useful to assess the full extent of the labour market slack which has been created by the recession and needs to be reabsorbed as quickly as possible in the recovery. One pattern that emerges clearly in Section 1 is that national labour markets have reacted very differently to the 2008-09 recession. In part, this reflects differences in the severity of the negative shock to aggregate demand. However, job losses and the size of the increase in unemployment have also differed markedly in countries where the fall in real GDP has been similar, raising the possibility that the right package of policies and institutions can significantly reduce the vulnerability of workers to cyclical unemployment. Section 2 analyses this issue in detail, emphasising the different margins along which employers can adjust labour input in response to declining product market demand and draws comparisons with earlier recessions. Employers in a considerable number of countries are shown to have made greater use of employment smoothing following the latest cyclical contraction in demand (so-called "labour hoarding") than in earlier recessions. While increased employment smoothing dampens how sharply unemployment rises, Section 2 highlights that it also implies greater reductions in average hours worked and/or hourly labour productivity and hence has complex implications for the overall cost of recessions. The degree of labour hoarding also appears likely to have important implications for the distribution of recession costs across the workforce and the vigour of job creation during the recovery, but those questions lie outside the scope of this chapter.

Sections 3 to 5 turn to the labour market and social policy response to the 2008-09 recession, updating the analysis presented last year. Section 3 summarises responses from a new EC-OECD questionnaire to governments concerning their policy responses to the

recession and how they have evolved between 2009 and 2010.[4] To the limited extent possible at this point, the effectiveness of different policy measures is discussed, including how successfully income support and re-employment services have been up-scaled in response to often large and rapid increases in the number of job seekers requiring assistance. Section 4 analyses the impact of public short-time work schemes on the labour market impact of recessions, in light of their extensive use during the 2008-09 recession and the unusually large share of total labour input adjustment that took the form of average hours reduction in many countries. One of the key questions examined in this section is how effectively these measures preserved jobs that would otherwise have disappeared during the downturn. Section 5 analyses policies to reduce persistence effects in the labour market, including policy measures to increase net job creation in the early recovery period and to reduce hysteresis effects in unemployment and participation that would have negative implications for employment rates and potential output over the medium term.

Main findings

- *Starting from a 28-year low of 5.8% in late 2007, the OECD unemployment rate rose to a post-war high of 8.7% in the first quarter of 2010, corresponding to more than 17 million additional persons in unemployment.* The most recent OECD economic projections indicate that unemployment has peaked, but will decline only slowly and still be above 8% at the end of 2011.[5] Should these projections prove accurate, it would mean that the OECD average impact of the 2008-09 recession on unemployment would be comparable to the deepest earlier recession in the post-war period, namely, that following the first oil shock in 1973.

- *Unemployment has risen much more in some countries than in others and differences in how sharply real GDP fell leave much of this heterogeneity unexplained.* Job losses have been unusually large compared with the fall in output in a few countries where a boom-bust pattern in the housing market played an important role in causing the recession, notably Spain, the United States and, to a lesser extent, Ireland (where the fall in output was also especially large). By contrast, the employment response to declining output has been unusually muted in a larger number of countries, including Germany, Japan, Mexico, the Netherlands and the Slovak Republic, where a sharp decline in exports was a major driver of the downturn.

- *Job losses have been disproportionately large for certain workforce groups and industries.* In most cases, these differences conform to past recessions (*e.g.* employment losses have been far above average for construction, temporary and low-skilled workers, and youth). However, the 2008-09 recession has been unusual in that employment has fallen significantly more for men than for women, probably due to the sectoral profile of the recession (*i.e.* especially large employment losses in mining, manufacturing, and construction). Continued employment growth for older workers during the recession is also a break with the past.

- *The total labour market slack created by the recession substantially exceeds the increase in the conventional unemployment rate,* due to a recession-induced increase in the number of persons who are outside of the labour force despite wanting a job, because they believe none are available, and reduced hours for persons remaining employed. For the OECD area at the end of 2009, the sum of marginally attached and underemployed workers exceeded the number of unemployed.

- *Cross-country differences in the relative importance of labour demand adjustment along the employment and hours worked margins explain much of the heterogeneity in the rise of*

unemployment during the recession. Hours reduction has played a large role in Japan and a number of European countries such as Germany, the Slovak Republic and Austria. This pattern of so-called "labour hoarding" by firms has reduced the social costs associated with a recessionary upsurge in unemployment, but also raises concerns about the risk of a jobless recovery, particularly in countries where lower hours were associated with a substantial reduction in hourly productivity. For example, GDP in Germany and Japan could grow by more than 7% without any increase in employment, if hours worked per employee and hourly productivity were to rise back to their pre-crisis levels.

● *The relative importance of adjustment on the employment and hours margins reflects differences in the nature of the shock, the structure of the economy and labour market institutions.* Shorter and shallower downturns tend to be associated with relatively more hours adjustment. Moreover, differences in the mix of firms may explain some the observed adjustment patterns across countries as labour hoarding varies with firm size, debt leverage and technology intensity. Labour market institutions affecting the mix between hours and employment reductions include the regulations affecting employment protection and hours adjustments (*e.g.* rules applying to over-time work, hours averaging and short-time work).

● *Even though the economic recovery began in the second half of 2009 in the majority of OECD countries, most governments expect to expand or at least hold constant the resources devoted to unemployment benefits and re-employment assistance in 2010 compared with their spending in 2009, according to their responses to a new questionnaire in early 2010.* However, countries facing especially large government budget deficits or where an already high unemployment rate is projected to remain stable or decline are more likely to envisage beginning to trim back some of the increases in spending that were taken in response to the crisis. Many of the crisis measures are scheduled to expire, often at the end of 2010 or early in 2011. This is particularly common for expansions of unemployment benefit coverage or benefit generosity and measures to stimulate labour demand, including expansions of short-time work (STW) schemes.

● *Coverage of unemployment benefits has grown approximately in proportion with the number of unemployed persons, fulfilling its role as an automatic stabiliser.* OECD governments have also scaled-up spending and participation in a number of active labour market programmes (ALMPs), which are intended to assist the unemployed to find a new job or improve their employability, more strongly than in previous recessions. Public employment service (PES) staffing has increased significantly in a number of countries, with Japan increasing it by over one-third. Participation in STW schemes also increased sharply in a number of countries, including in Germany, Japan, Italy and Turkey. Despite these increases, the volume of ALMP services typically did not increase as rapidly as the ranks of the unemployed.

● *Public STW schemes have played an important role in preserving jobs during the crisis in a number of countries,* although significant hours reductions were also achieved *via* lower overtime hours, hours averaging arrangements and employer initiatives. New OECD estimates indicate that the jobs impact of STW schemes was particularly large in Germany and Japan, saving over 200 000 and nearly 400 000 jobs respectively by 2009 Q3, while the proportional impact on employment was also substantial in Belgium, Finland and Italy. These estimates are somewhat smaller than full-time equivalent participation

in short-time work, suggesting that STW schemes end up supporting some jobs that would have been maintained in the absence of the subsidy, although the implied rate of deadweight appears to be modest in comparison with that for other types of job subsidies. The positive impact of STW was limited to workers with permanent contracts, further increasing labour market segmentation between workers in regular jobs and workers in temporary and part-time jobs. As the OECD area is only just emerging from the crisis, it is not yet possible to assess how the intensive use of STW schemes will affect the vigour of employment growth in the recovery and economic restructuring in the longer run. In order to prevent such schemes from becoming an obstacle to the recovery, it is important for crisis measures to encourage short-time working to be phased out as the recovery takes hold.

● *A high priority should be assigned to minimising the persistence of high labour market slack during the recovery and beyond.* Marginal employment subsidies (MES), which are paid for *net* increases in jobs, appear to have the potential to increase job creation in the early stages of the recovery at a relatively modest cost as compared with broader employment subsidies. A number of countries have introduced such schemes in response to the current crisis (*e.g.* Hungary, Ireland, Portugal and Turkey), while several other countries have continued to operate existing schemes. It is also important to minimise hysteresis effects in the labour market, since previous severe recessions have raised the structural rate of unemployment and depressed trend participation rates. The labour market policy response to the crisis, in combination with pre-crisis structural reforms in many countries, holds out the hope that persistence effects from the 2008-09 recession may be less severe than those observed following deep downturns during the last three decades of the 20th century.

1. Overview of the labour market impact of the recession[6]

1.1. How bad has it been?

The overall labour market impact of the 2008-09 recession appears likely to end up being comparable to the deepest earlier recession in the post-war period, namely, that following the first oil price shock in 1973. Starting from a 28-year low of 5.6% in late 2007, the OECD area unemployment rate had risen to 8.5% by the first quarter of 2010, corresponding to 17 million additional persons in unemployment.[7] This represented an increase in the unemployment rate of just over 50%, with both the size of the overall rise and its time profile being very similar to the unemployment trajectory that was observed during the first nine quarters of the recession following the first oil shock (Figure 1.1). The proportionate increase in the unemployment rate for the OECD area as a whole was smaller and less rapid in other post-war recessions, including that following the second oil shock and the one beginning in 1990.[8] The most recent OECD projections, which date from May 2010, foresee that the number of persons unemployed will reach a peak of 8.6% in the third quarter of 2010 and then recede slowly remaining above 8% at the end of 2011. If those projections were to be realised, the impact of the 2008-09 recession on the average unemployment rate for the OECD area would approximately equal the worst previous post-war recession. While this outcome represents a major challenge for employment policy, particularly in the context of increasing pressures for fiscal consolidation, it is better than might have been expected given how sharply output fell (see Section 2).

Figure 1.1. **Comparing unemployment rate trajectories during this and previous recessions**[a, b]

Index base 100 = OECD area unemployment rate at the preceding business-cycle peak, quarterly data
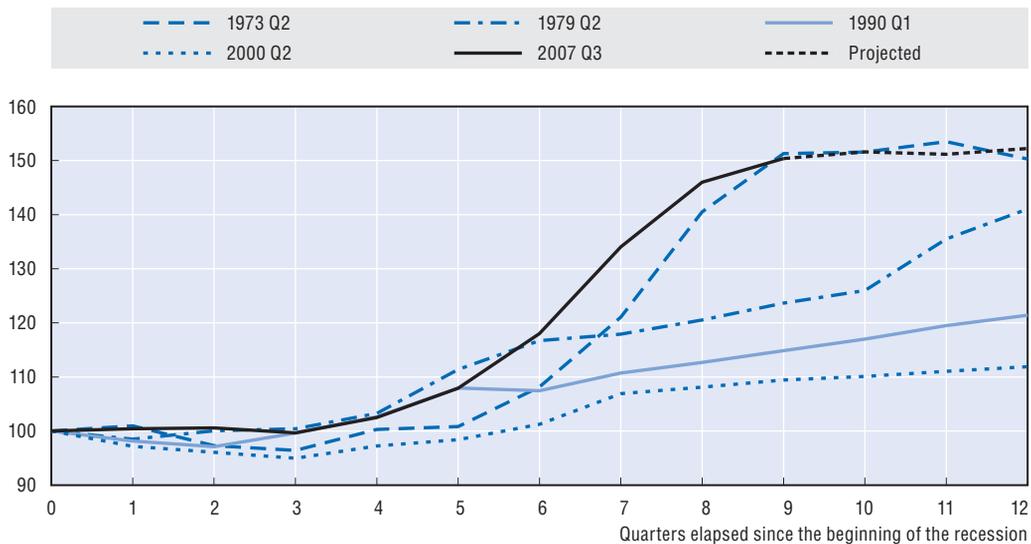
a) Unemployment data used in this figure are based on national definitions since that is the concept used in OECD economic projections. For certain countries, these may differ from the harmonised unemployment data used in Figure 1.2.
b) Recessions are defined to begin at the preceding business-cycle peak of the OECD area output gap.
*Source:* OECD calculations based on the *OECD Economic Outlook Database*.

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Even if unemployment has peaked, OECD projections indicate that the recovery is unlikely to be sufficiently vigorous to rapidly reabsorb quickly the currently high levels of labour market slack. Indeed, the level of slack exceeds the rise in unemployment because hours worked have been cut for workers who have remained employed, while other potential workers have withdrawn from (or remained outside of) the labour market in response to poor job-search prospects. Estimates of these other forms of slack are discussed later in this section, after a fuller analysis of the impact of the recession on conventional employment and unemployment measures.

The 2.9 percentage-point increase in the unemployment rate for the OECD area in the wake of the 2008-09 recession masks very divergent impacts on different national labour markets (Figure 1.2). The increase in unemployment has been especially sharp in Spain and Ireland, just over 10 and 8 percentage points, respectively. Denmark, Iceland, New Zealand, the Slovak Republic and the United States also experienced relatively large increases in unemployment. At the other extreme, the unemployment rate in Germany was 0.6 percentage point lower in March 2009 than in December 2007, although the unemployment rate in Germany did increase by 0.6 percentage point between December 2008 and June 2009, partially off-setting earlier and later declines. The unemployment rate rose in all other countries, but the increase was less than a percentage point in Austria, Belgium, Norway and Poland.[9] The reasons why unemployed has evolved very differently in different OECD countries will be studied in detail below. Before investigating that question, additional information will be provided about which workforce groups have borne the brunt of the recession and the different ways that the recessionary has affected workers.

Figure 1.2. **The unemployment impact has differed greatly across countries**

OECD harmonised unemployment rates as a percentage of labour force,[a] December 2007 to March 2010[b]
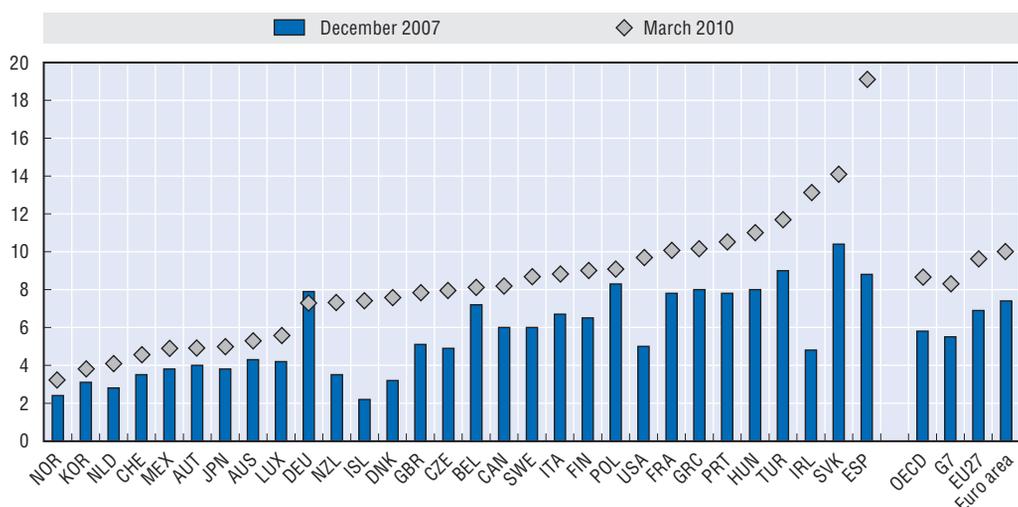
a) All data are seasonally adjusted.

b) December 2009 for Greece and Turkey; January 2010 for Norway and the United Kingdom; 2009 Q4 for New Zealand and Switzerland, and 2010 Q1 for Iceland (OECD harmonised unemployment rate data are not available on a monthly basis for the last three of these countries).
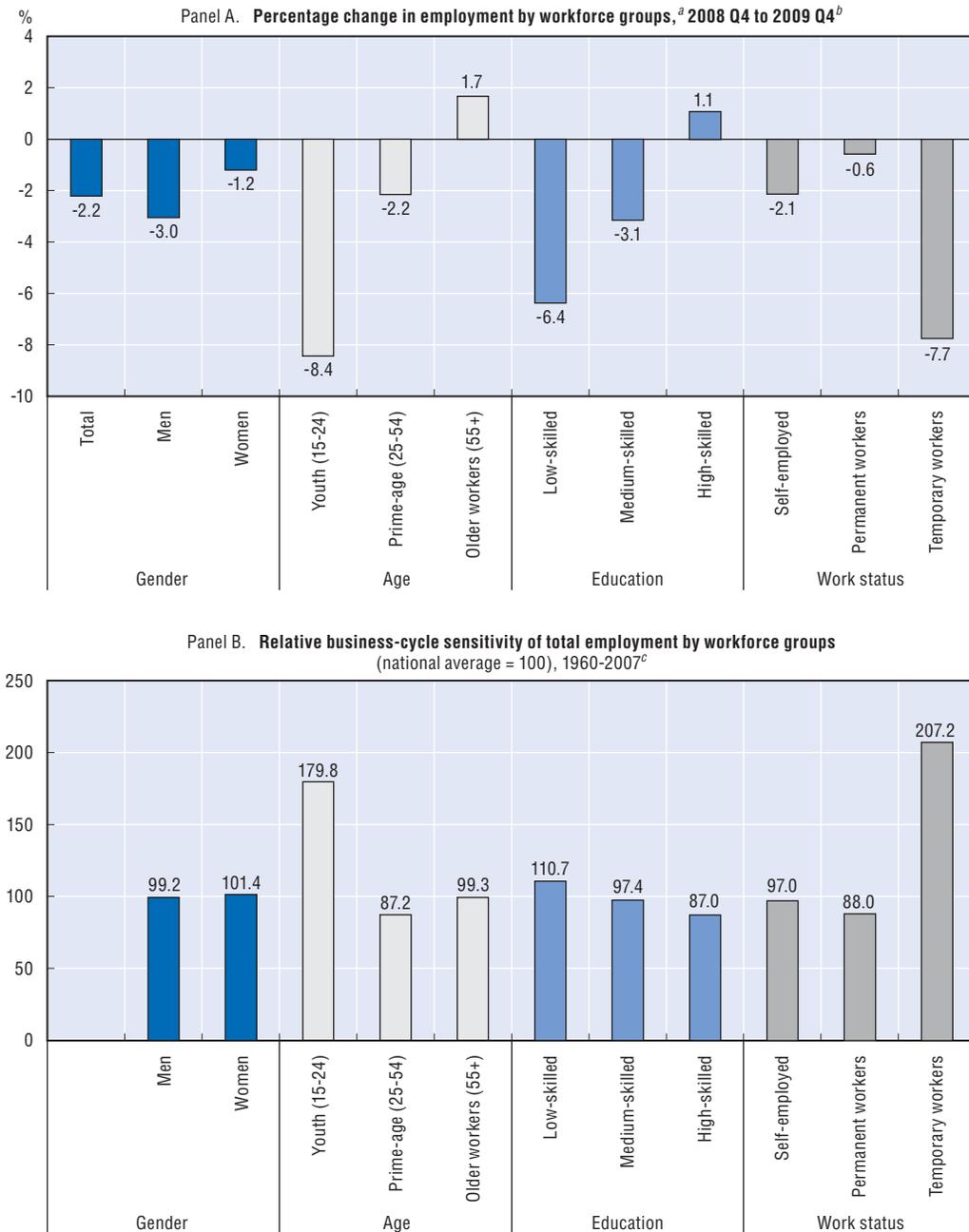
Source: OECD Main Economic Indicators.

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As in past recessions, job losses have been relatively larger for some workforce groups than for others.[10] Youth and workers with temporary employment contracts – groups that overlap to a considerable extent – have been hit particularly hard by the 2008-09 recession (Figure 1.3, Panel A). On average for the OECD area, employment for both of these groups fell by around 8%, nearly four times the decline in overall employment.[11] Youth unemployment rates always tend to be relatively high, but they have reached very high levels in some countries. For example, more than 40% of Spanish youth, who were active in the labour market in 2009, were unemployed. In marked contrast to the situation for youth, employment for prime-age workers fell by a little over 2% in the OECD area, while employment for older workers rose by nearly 2%. The difference in the risk of job loss between temporary and permanent workers was also very large, while employment for the self-employed fell by about as much as overall employment. Youth and temporary workers also have been disproportionately impacted by past recessions, showing cyclical sensitivities 80% and 107% greater than for total employment (Figure 1.3, Panel B). The employment of older workers was about as cyclical as overall employment in past recessions, so it is a notable departure from historical patterns that employment has increased for this group this time. This novel development may reflect, at least in part, labour supply responses in some countries to sometimes large losses in retirement savings consequent to the financial crisis (Coile and Levine, 2009; Gustman *et al.*, 2010; OECD, 2009g, h), as well as the lesser availability of early retirement options in national pension and social protection systems.

As in past recessions, employment fell most sharply for the least skilled workers (6.4%, nearly three times the overall rate). Employment losses were also above-average for medium-skilled workers and men, groups whose employment had previously been about as cyclical as overall employment. This probably reflects the sectoral composition of the

Figure 1.3. **Some workforce groups have been hit especially hard, while women,
older and high-skilled workers have fared better**

Panel A. **Percentage change in employment by workforce groups,[a] 2008 Q4 to 2009 Q4[b]**

Panel B. **Relative business-cycle sensitivity of total employment by workforce groups**
(national average = 100), 1960-2007[c]

a) Unweighted averages based on the following countries: Australia, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, the Netherlands, Portugal, Spain, Sweden, the United Kingdom and the United States for gender and age groups; Austria, Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Spain, Sweden, the United Kingdom and the United States for education; and Belgium, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain and the United Kingdom for work status.
b) Data on employment by work status refer to the period 2008 Q2 to 2009 Q2.
c) Shorter annual time series are used for some countries and workforce groups. See OECD (2009e) Annex 1.A3 for further details on sample coverage and the methodology.

Source: OECD estimates based on the European Union Labour Force Survey (EULFS) and national sources for Panel A; and OECD estimates based on the European Union Labour Force Survey (EULFS) for gender, age and work status and EUKLEMS database for education in Panel B.

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negative shock to aggregate demand, especially that associated with the unprecedentedly deep fall in world trade that began in late 2008 (Baldwin, 2009) and which particularly affected medium-skilled production workers in durables manufacturing, who also tend to be males. The sharp contraction of construction activity in countries where a housing price bubble burst likely reinforced the relative vulnerability of men to job loss. Employment also declined quite sharply in mining and quarrying, another sector where males are disproportionately employed.

Employment losses have been particularly large in mining and quarrying, manufacturing and construction (Figure 1.4, Panel A). Employment in these sectors has also been significantly more cyclical than total employment historically, but the relative impact on mining and manufacturing appears to be stronger during the 2008-09 recession than would have been predicted from previous recessions (Figure 1.4, Panel B).[12] As mentioned above, the greater-than-usual impact on jobs in manufacturing is probably related to the trade collapse. The relatively large employment losses in mining may reflect the commodity boom that peaked in the Summer of 2008 before prices tumbled. Perhaps surprisingly, considering the turbulence in the banking and real-estate sectors during the downturn, these sectors did not experience especially large employment losses across the OECD area, and employment in construction, while hit hard, conformed to historical patterns.

1.2. How bad has this crisis been according to less conventional measures of labour market slack?

In order to obtain a more complete portrait of how the 2008-09 recession has affected workers, it is useful to supplement conventional employment and unemployment statistics with additional measures of labour market slack. For example, a key question policy makers currently face is: how much employment and hours growth must be achieved during the recovery to restore labour market conditions to those prevailing prior to the crisis? In order to assess the scope of this challenge it is necessary to account for additional factors such as changes in average hours worked and participation rates.

Table 1.1 provides estimates of how much higher employment would have to have been in the fourth quarter of 2009 in order for the same proportion of the working-age population to be employed as was the case when the recession began. The "jobs gap" estimate for the OECD area is nearly 18 million or 3.3% of employment.[13] The jobs gap exceeds the increase in the number of unemployed by a modest 5% for the OECD area as a whole, due to a small average reduction in the labour force participation rate (discussed below) and a small increase in the size of the working-age population.[14] The jobs gap estimates modify somewhat country comparisons concerning the challenge facing policy makers. For example, the 17% jobs gap in Ireland is substantially higher than the 11% gap in Spain, even though the Irish unemployment rate rose somewhat less than the Spanish rate (*cf.* Figure 1.2). As will be discussed below, this largely reflects differences in how labour force participation rates have responded to worsening economic conditions, namely, declining in Ireland but rising in Spain. It probably also reflects the impact of the economic downturn on migration patterns for Ireland.[15]

Is the recovery likely to generate sufficient (net) job creation to quickly close these jobs gaps? According to the most recent OECD projections (released in May 2010), the recovery is likely to be too timid to restore pre-crisis employment performance levels quickly in most countries. As shown in the final column of Table 1.1, the current projections imply that the OECD area jobs gap in the fourth quarter of 2011 will be 2.7% of employment.

Building on the work (and terminology) of the US Bureau of Labor Statistics, Figure 1.5 juxtaposes the changes in the standard unemployment rate (UR3) in the two years to the fourth quarter of 2009 with the contemporaneous evolution of three additional measures of labour market slack.[17] The first of these measures (UR1) corresponds to the sub-set of the unemployed who have been jobless for at least one year. This long-term unemployed group is of particular concern since they tend to have pressing needs for income support and are at an elevated risk of experiencing large earnings losses when they become re-employed or permanently disconnecting from the labour market. Two broader measures of labour market slack are also considered. UR5 augments the conventional definition of the unemployed by adding persons who are marginally attached to the labour force, that is, persons who want a job and are available to work, but are not actively seeking a job.[18] Finally, UR6 broadens UR5 by also including underemployed persons, defined as persons wanting to work full-time but working less than full-time for economic reasons (*e.g.* because they cannot find a full-time job or their hours have been temporarily reduced by their employer).

Figure 1.5. **The increase in unemployment was accompanied by growth of other forms of unemployment and underemployment**

Alternative measures of labour market slack, 2007 Q4-2009 Q4[a]
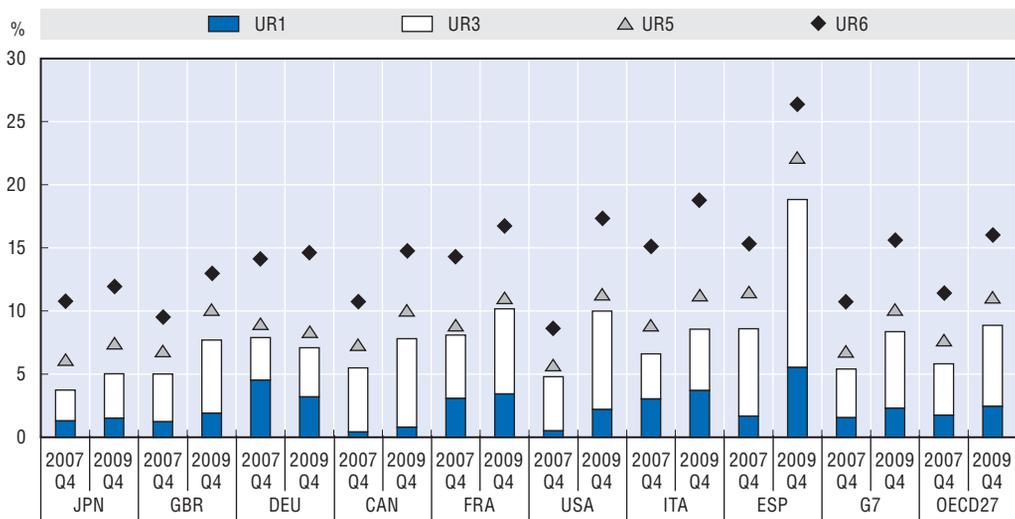
UR: Unemployment rate.
Alternative measures of labour market slack:
UR1: Long-term unemployed (one year or more) as a percentage of the labour force.
UR3: Unemployment rate (ILO definition).
UR5: Unemployed plus persons marginally attached to the labour force, as a percentage of the labour force plus persons marginally attached to the labour force.
UR6: Unemployed plus persons marginally attached to the labour force plus underemployed workers, as a percentage of the labour force plus persons marginally attached to the labour force.
Underemployed persons: defined as persons who are either: *i)* full-time workers working less than a full-week (less than 35 hours in the United States) during the survey reference week for economic reasons; or *ii)* part-time workers who want but can not find full-time work.
Persons marginally attached to the labour force: refers to persons not in the labour force who did not look for work during the past four weeks, but who wish to work, are available to work and – in the case of Australia, Canada, Italy, Japan, New Zealand and the United States – have looked for work sometime in the past 12 months. Discouraged workers are the sub-set of marginally attached workers who are not currently searching for a job because they believe none are available.
a) Countries shown in ascending order of UR6 in 2009 Q4. Seasonally unadjusted data, except for the United States. OECD27 and G7 are weighted averages. The OECD area excludes the following countries: Korea, Mexico and Switzerland.
Source: OECD estimates for European countries based on the European Union Labour Force Survey (EULFS) and national labour force surveys for non-European countries.

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Comparing the levels of the four measures in 2007 Q4, before the crisis had affected labour market conditions, provides several insights. First, the share of the long-term unemployed varies from around 10% of total conventional unemployment in Canada and the United States to approximately 50% in Germany and Italy, suggesting that the re-employment prospects of job losers differ significantly across countries due to structural factors affecting labour market flows (see Chapter 3 in this publication). Nonetheless, the unemployed face a significant risk that the return to employment will be difficult in all of the countries analysed, especially if account is also taken of the possibility that long-term unemployed will give up on job search. Indeed, the values for UR5 are about one-third larger than UR3 on average, indicating that a significant number of potential workers are discouraged from actively seeking a job by the perception that it would be difficult or impossible to find one. If underemployed workers are also considered, as in UR6, then labour market slack affects more than twice as many workers as are included in conventional unemployment statistics.

Of most interest for assessing the impact of the 2008-09 recession, the two measures of labour market slack that are broader than the conventional unemployment rate grew at a similar rate as the conventional measure during the past two years. This suggests that the additional labour market slack that has been created by the recession exceeds significantly the increase in the conventional unemployment rate. Indeed, the broadest measure of labour market slack (UR6) even increased in Germany, where the three narrower measures declined.[19] During the period considered, long-term unemployment grew slightly less rapidly than total unemployment, but is likely to continue growing for some time even after total unemployment has begun to decline. Whereas the number of recent job losers rises quickly following the onset of a recession but already begins to taper off even before the trough is reached, the pool of long-term unemployed only gradually builds up and then is very slow to recede during the recovery. Indeed, it is notable that the share of long-term unemployment in total unemployment has already grown sharply in Spain and the United States.

Figure 1.6 provides another look at underemployment in the form of reduced hours of work. The change in weekly hours worked in the two-year period to the fourth quarter of 2009 is estimated based on responses to labour force surveys, with the total change being decomposed into changes in workers' usual weekly hours and changes in the "hours gap", defined as the gap between usual hours and the hours actually worked in the survey reference week.[20] Average hours worked for persons remaining employed fell in all of the countries included in the analysis except for Belgium and Spain, where they were essentially unchanged. Weekly hours worked fell by over 3 hours in Estonia and Ireland, and by around two hours in Austria. The average reduction for the countries analysed was one hour. While that is a relatively small change, it should be borne in mind that it represents over 2% of average total hours worked and, hence, represents a significant reduction in labour input that is additional to that associated with the decline in employment (*e.g.* the 3.3% jobs gap presented in Table 1.1). Interestingly, the fall in weekly hours varies significantly across the countries that have made the greatest use of short-time work (STW) schemes to protect existing jobs, namely Belgium, Germany, Italy, Japan, Luxembourg and Turkey (see Section 3). That need not imply that STW has little impact in lowering hours on continuing jobs, since hours worked can also be reduced on continuing jobs not participating in STW schemes (*e.g. via* a reduction in overtime hours) or *via* increased numbers of workers who would prefer full-time jobs but have been forced

Figure 1.6. **Hours worked fell for those who remained employed
in almost all countries**

Changes in average hours worked decomposed into changes in usual weekly hours and changes
in the hours gap between actual and usual hours,[a] 2007 Q4-2009 Q4[b]
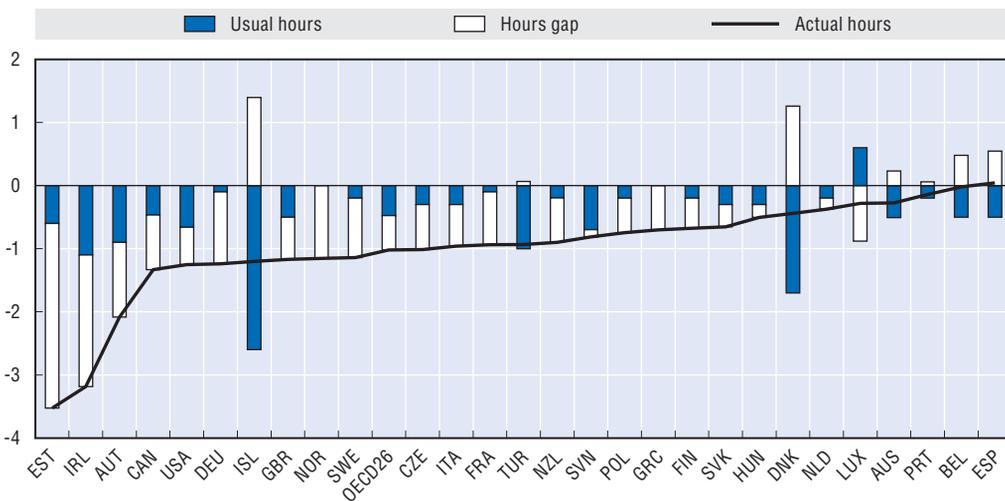
a) Actual hours worked during the survey reference week can differ from usual hours due to overtime hours, short-time work and absences from work. Countries shown in ascending order of the change in actual hours.
b) Seasonally unadjusted data. OECD26 is the weighted average of the countries shown in this figure except: Estonia and Slovenia.
Source: OECD estimates based on the European Union Labour Force Survey (EULFS) for European countries and national labour force surveys for other countries.

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to accept part-time jobs instead. The fact that the mix of hours adjustments between changes in usual weekly hours and changes in the hours gap varies considerably across the countries considered, also suggests that the overall fall in average hours is the combined effect of a number of different types of adjustments to work schedules.

1.3. *Why has the impact been so uneven across OECD countries?*

Among the notable features of the financial crisis that became acute in the fall of 2008 were its global reach and severity (OECD, 2009b). The resulting declines in GDP and trade were also notable for their high degree of synchronisation, as well the abruptness with which production and export demand fell. This pattern suggested that the 2008-09 recession would be unusually deep across the OECD and its impacts on employment and the labour market both widespread and severe. Consistent with this reasoning, the analysis of the jobs crisis in the 2009 issue of this publication concluded that unemployment was likely to rise sharply in virtually all OECD countries, even while noting that the initial hike had been muted in a number of countries (OECD, 2009a, Chapter 1). The data presented in Figure 1.2, show that it was still the case that unemployment had risen very little in a number of countries in March 2010, suggesting that it is timely to reconsider whether the unemployment impact of the recession might end up being relatively mild in some countries. If that should turn out to be the case, it would be important to understand whether the small increase in unemployment observed in some countries is largely due to a smaller negative shock to aggregate demand or is also the result of policy responses that allowed the national labour market to weather a period of recession without large job losses or a build-up of longer-term unemployment, although potentially at the cost of reduced working hours among the employed or hourly productivity.

Figure 1.7 compares the 2008-09 recession with four previous recessions in terms of how uneven the impacts on GDP growth and the unemployment rate have been across OECD countries. A first finding is that the cross-country standard deviation of the growth rate of real GDP was lower in the 2008-09 recession than in the four previous recessions, consistent with the view that the current recession has been highly synchronised. Shock heterogeneity, at least as regards differences in the size or timing of the impact on total output, has thus been unusually low. By contrast, the cross-country dispersion in the change of unemployment rates is relatively high, exceeding that for the two recessions associated with oil price shocks in the 1970s and the "dot com" recession in 2000-03, but moderately lower than was observed during the 1990-93 recession.[21] This suggests that the 2008-09 recession may have been characterised by an unusually high degree of heterogeneity in the response of labour markets, at least as captured by changes in the overall unemployment rate, to negative shocks in GDP. Indeed, the cross-country correlation coefficient between the changes in real GDP and unemployment was –0.70 in the 1990-93 recession, suggesting that output shock heterogeneity across countries accounted for most of the differences in how strongly unemployment rose, whereas the corresponding value in the 2008-09 recession is only –0.35, suggesting much more labour market response heterogeneity (*i.e.* that cross-country differences have been greater in the size of the Okun's law coefficient relating changes in GDP to changes in unemployment).

Figure 1.7. **The unemployment impact of the recession has been surprisingly uneven across countries**

Cross-country standard deviations of the percentage change in real GDP growth and the percentage-point change in unemployment rates, quarterly data[a, b]
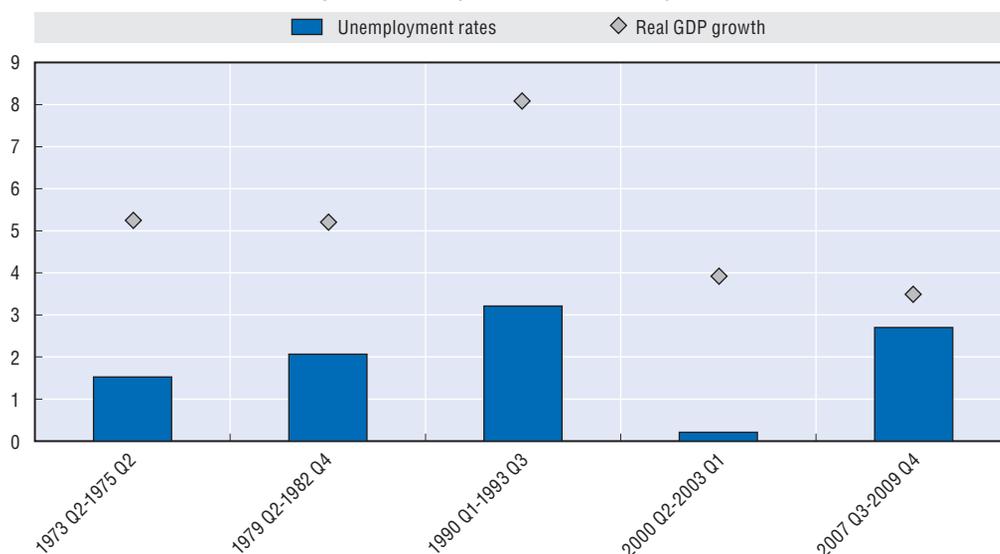
a) Dates of recessions are defined using the business-cycle peak and trough of the output gap of the OECD area.
b) Calculations based on the following countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, the United Kingdom and the United States.

Source: OECD estimates based on *OECD Main Economic Indicators Database.*

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Figure 1.8 examines cross-country heterogeneity in the response of the unemployment rate to the 2008-09 recession by juxtaposing percentage-point changes in the unemployment rate between 2007 Q4 and 2009 Q4 with contemporaneous changes in

Figure 1.8. **Recent unemployment developments reflect diverse impacts of the recession on real GDP, employment and participation**

Changes between 2007 Q4 and 2009 Q4

Panel A. **Percentage change in real GDP**

Panel B. **Percentage change in employment**

Panel C. **Percentage-point change in the participation rate**
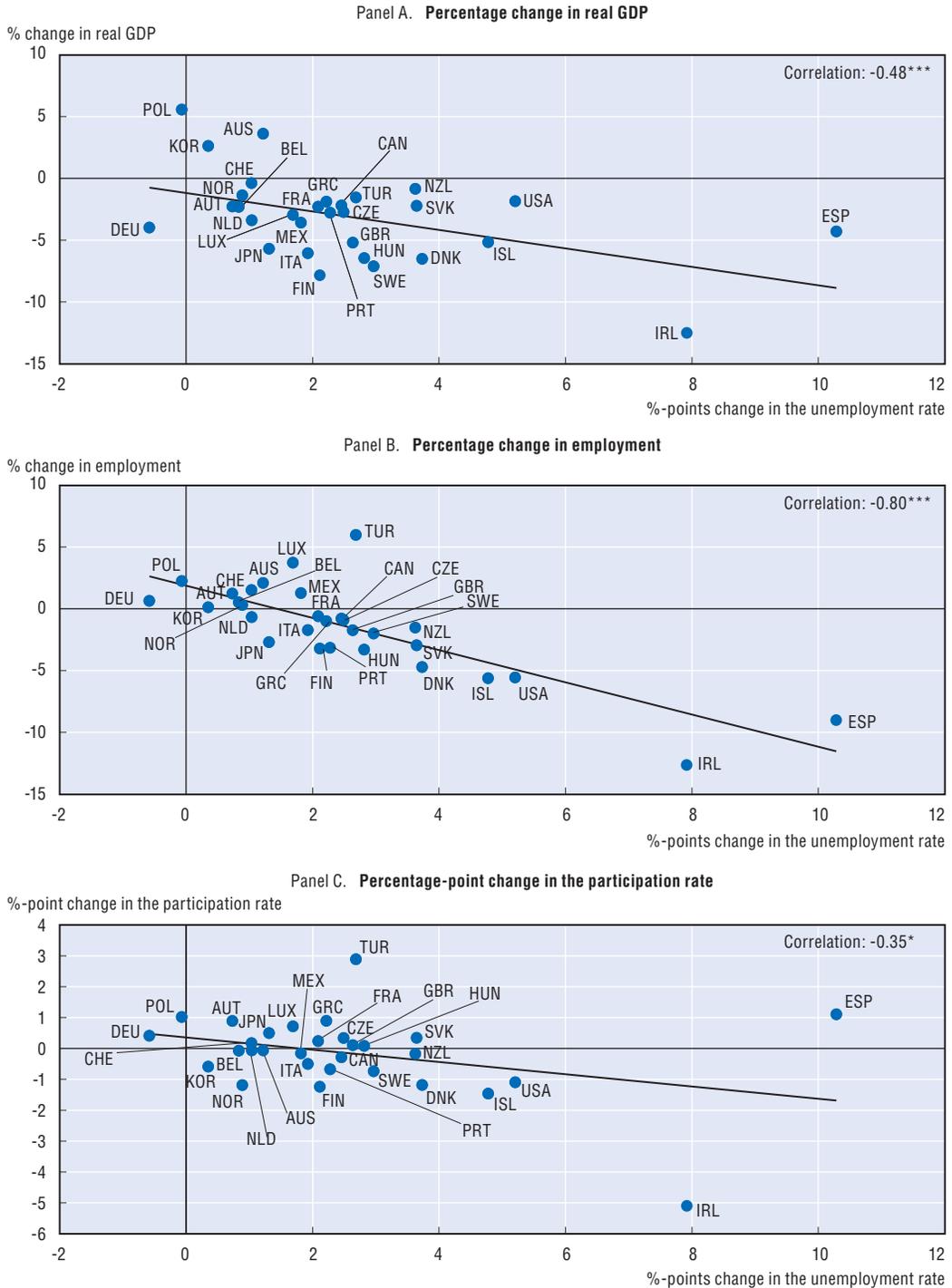
*, **, ***: Statistically significant at the 10%, 5% and 1% level, respectively.

Source: OECD Economic Outlook Database.

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real GDP,[22] employment and participation rates. Panel A shows that the average relationship across OECD countries was for the unemployment rate to increase by one-half of a percentage point for each additional percentage reduction of real GDP. While there is a highly significant negative association between real GDP growth and changes in the unemployment rate, there is also considerable dispersion of the countries around the regression line.[23] Countries that are far above and to the right of the regression line have been characterised by unusually large increases in unemployment relative to the size of the fall in output. Spain and the United States stand out in this respect. Conversely, the increase in unemployment has been unexpectedly low in Germany, as well as Finland, Italy and Japan, all countries that are substantially below and to the left of the regression line.[24] One of the key questions for policy analysts that has emerged from the 2008-09 recession is whether the relatively limited rise in unemployment in this latter group of countries is attributable to particular labour market policies or institutions. A closely related question is whether the relatively modest response of unemployment reflects success at keeping the economic and social costs of the recession below the levels that would normally be associated with negative GDP shocks of the sizes that they experienced.

Panels B and C of Figure 1.8 help to explain why the link between declining GDP and rising unemployment has been much stronger in some countries than in others. Panel B shows that much of the explanation lies in differences in how strongly employment has reacted to changes in output, an issue that will be analysed in-depth in Section 2.[25] Whereas the correlation between real GDP growth and the increase in unemployment was only –0.48, the correlation between employment growth and unemployment is a much stronger –0.80. Nonetheless, decreases in employment do not map one-for-one into increases in unemployment. One of the reasons this is so is that the labour force participation rate can change in response to deteriorating labour market conditions.[26] Panel C shows that participation rates have both risen and fallen during the 2008-09 recession depending on the country, with a weak overall tendency for participation rates to decline more in countries where unemployment rose more sharply. However, Ireland and Spain, the two countries that have experienced the sharpest decreases in employment and the largest increases in unemployment, illustrate well that there is no mechanical relationship between participation rates and labour market conditions: participation rose significantly in Spain, even as it fell in Ireland.[27]

Table 1.2 provides a classification of OECD countries in terms of the labour market impact of the 2008-09 recession. The classification of countries into three rows is intended to highlight the importance of a key dimension of shock heterogeneity, namely whether the negative shock to output was small, medium or large. The three columns provide an analogous classification of countries according to how much unemployment has risen. Countries assigned to the three boxes located along the principal diagonal conform, at least approximately, to Okun's law which posits that a negative output shock of a given size increases unemployment by about one-half as much (Okun, 1962). The off-diagonal cases correspond to countries where the unemployment rate either responded particularly strongly to the output shock (countries in boxes above the diagonal) or particularly weakly (countries in boxes below the diagonal). Additional aspects of shock heterogeneity are captured by the letters C, X, L and H, which denote, respectively, unusually large concentrations of the decline in output in the construction and export sectors, a relatively long duration of the recession, or a sharp fall in housing prices. The letter P denotes a large decline in output per worker and is intended to indicate that employers may have strongly hoarded labour (*i.e.* that the employment reduction

Table 1.2. **Cross-country differences in the impact of the recession
on real GDP are only one of the factors
determining how sharply unemployment rose**[a]

		Change in unemployment rates from peak to trough[b]		
		No/small unemployment impact (Less than a 1.5 pp increase)	Medium unemployment impact (At least a 1.5 pp increase but less than a 3.5 pp increase)	Large unemployment impact (At least a 3.5 pp increase)
Change in GDP from peak to trough[b]	No/small GDP shock (Less than a 3 pp decline)	Australia Norway Poland Switzerland (X, S)	New Zealand (H)	
	Medium GDP shock (At least a 3 but less than a 7 pp decline)	Austria (X) Belgium (X, S) France Germany (X, P, S) Italy (X, P, S) Korea (X) Netherlands (X) Slovak Republic (X, P)	Canada (X, L) Czech Republic (X, S) Greece (L) Hungary (X) Portugal (X) United Kingdom (H)	Spain (L, H) United States (H)
	Large GDP shock (At least a 7 pp decline)	Japan (X, P, S) Luxembourg (X, P) Mexico (X)	Denmark (X, L, H, P) Finland (X, P, S) Sweden (X, L)	Iceland (L, P) Ireland (C, L, H) Turkey (C, P, S)

pp: Percentage point.

a) Letters in parentheses following countries names indicate that the recession has been characterised by: **C**: A decline of at least 1 percentage point in the share of construction in total value added; **H**: A decline of housing prices of at least 10%; **L**: At least six quarters between the prior GDP peak and the trough; **P**: A decline of labour productivity of at least 5 percentage points; **S**: At least 1% of total employees participating in short-time work schemes during 2009; **X**: A decline in exports as a share of GDP of at least 5 percentage points.

b) Peak and trough defined in terms of real quarterly GDP.

Source: OECD calculations based on *OECD Economic Outlook* and *OECD Quarterly National Accounts Databases* and national sources.

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was small relative to the fall in output), while S denotes that at least 1% of total employees was participating in a short-time work scheme on average during 2009.

New Zealand, Spain and the United States are the only three countries above and to the right of the diagonal in Table 1.2, indicating that employers were particularly aggressive about shedding labour in response to deteriorating business conditions. Even though the fall in GDP was not especially big in these countries, a sharp increase in unemployment occurred, especially in Spain, where the decline in employment was more than double that in GDP (*cf.* Figure 1.8). Negative product market shocks will tend to result in stronger employment contractions when employers view the decline in demand as unlikely to reversed quickly or even as permanent. In particular, all three countries where the intensity of labour shedding was relatively high appear to have experienced a significant boom-bust cycle in housing prices (H) which could imply that a substantial part of the contraction in output is thought to represent a structural decline in the relative size of the construction sector, rather than a purely cyclical decline. The decline in GDP has also been relatively long in Spain (L).

As has been widely noted, employers have been restrained about shedding workers in a number of OECD countries. These countries can be found below and to the left of the

diagonal in Table 1.2. Japan, Korea and Mexico are in this group along with eleven European countries, including Germany, Finland and the Slovak Republic. Consistent with employers engaging in significant labour hoarding, output per worker fell significantly in half of these countries (P), as compared to none of the countries above the diagonal. It is also notable that all of these countries except France experienced a very steep fall in export demand which might plausibly have been viewed as being a largely transitory phenomenon, since the reduction in demand reflected global conditions rather than structural imbalances in the domestic economy.[28] Along with differences in the composition and expected duration of the negative shock to product demand, it is likely that labour market policies and institutions also played an important role in determining the strength of the employment response to the negative output shock, as well as their choice of how much to rely on labour shedding *versus* average hours reductions when adjusting to lower product demand. Consistent with this conjecture, participation in STW schemes was high during 2009 (S) in five of the 14 countries below the diagonal. Labour demand adjustment along the employment and hours dimensions is analysed in detail in Section 2 while Section 4 considers the impact of STW schemes on labour adjustment.

2. Comparisons of labour demand adjustment across countries, recessions and types of firms

This section takes a closer look at cross-country differences in how labour demand has adjusted to the fall in aggregate demand during the 2008-09 recession – particularly, the relative importance of labour shedding *versus* hours reductions – and how the patterns of adjustment compare to those observed during previous recessions.[29]

2.1. Most OECD economies have suffered large negative shocks with highly variable impacts on employment, unemployment and labour productivity

Judged in terms of its impact on output, the 2008-09 recession was large by historical standards in nearly all OECD economies (Figure 1.9).[30] Twenty-eight out of the 30 OECD countries analysed, with the exception of Australia and Poland, suffered a recession.[31] Furthermore, the recession was larger than the average historical experience in all of them except the Czech Republic, Greece, Korea, New Zealand and Switzerland.[32] As noted above, the downturn had a highly varied impact on unemployment rates across the OECD (Panel A of Figure 1.10) and this pattern is not fully explained by the variance in the size of the negative output shock across countries. For example, although the decline in output in Spain and the United States during the recession was smaller than the OECD-average, the rise in unemployment has been above-average, while in Germany, where output declined by more than in both these economies, the unemployment rate actually fell slightly during the recession.

The response of labour markets to the shock – as summarised by the Okun's coefficient (*i.e.* the ratio of the percentage-point increase in the unemployment rate to the percentage fall in real GDP) – has not only varied across countries but also marks a strong break with past patterns in a number of cases (Panel B of Figure 1.10). Whereas an Okun's coefficient value of approximately one-half has often been observed, the values for the United States and Spain were much higher in the 2008-09 recession, at around 1 and 2, respectively. The extremely strong reaction in Spain meant that the climb in its unemployment rate was even larger than that observed in Ireland, which suffered an output shock that was nearly three times larger. The Okun coefficient was smaller, but still

Figure 1.9. **Change in output in the 2008-09 recession in historical comparison: a deep recession in most countries**[a, b]

Percentage decline in real GDP from peak to trough
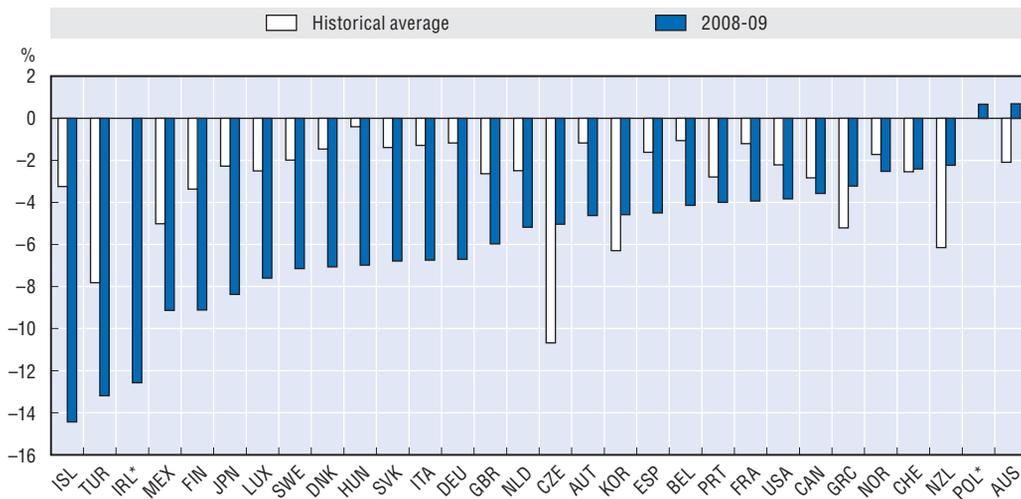
*: Historical average not available.

a) Australia and Poland did not have a recession in the 2008-09 period but are shown for comparison purposes over the period 2008 Q3 to 2009 Q2.

b) The number of recessions used to calculate the historical average varies across countries depending on data availability and the frequency of recessions. Recessions that occur in the period from approximately 1960 until 2006 are included.
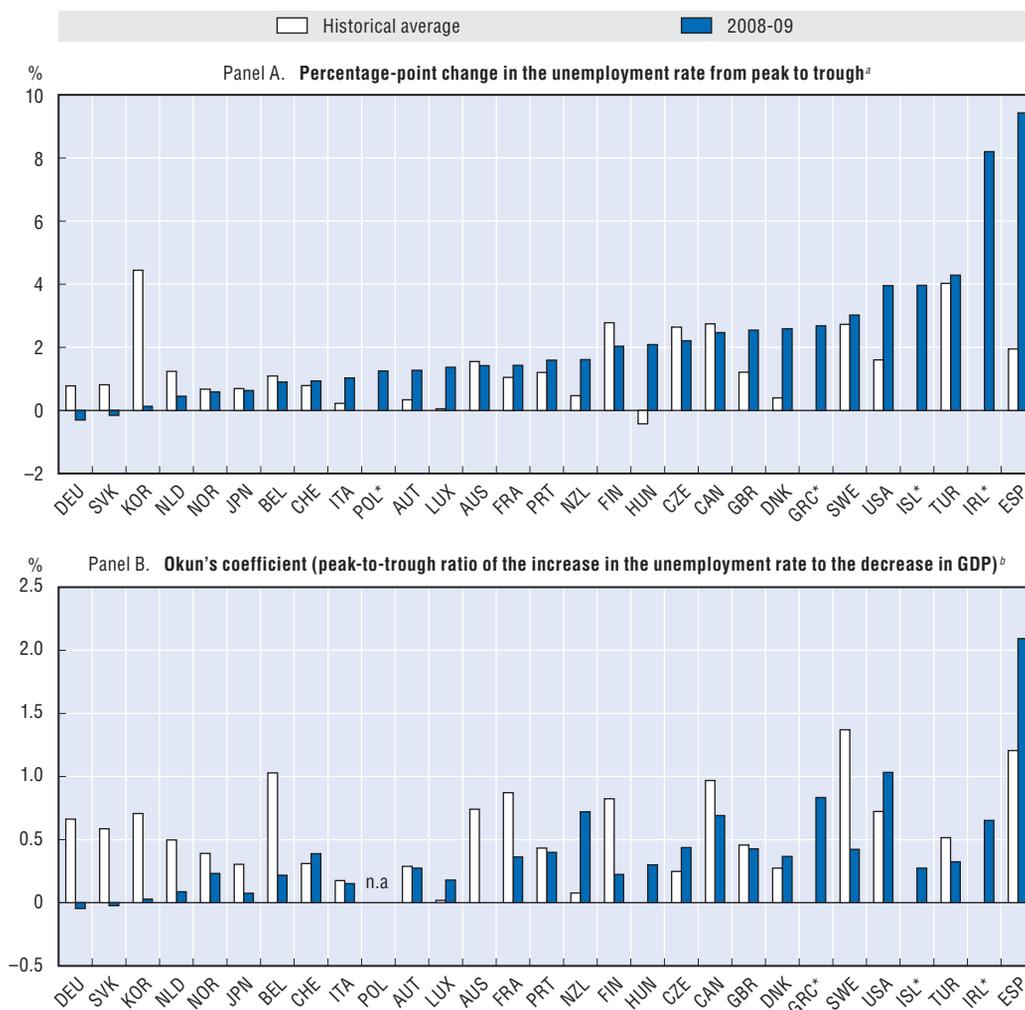
Source: OECD Economic Outlook Database.

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exceeded 0.5 in Canada, Greece, Ireland and New Zealand. By contrast, the unemployment response in the 2008-09 recession was muted in most European countries (including Belgium, Finland, Germany, Italy, the Netherlands, Norway and the Slovak Republic), as well as in Japan and Korea. The responsiveness of unemployment to the decline in GDP was small by comparisons to earlier recessions in the majority of countries for which the Okun's coefficient could be calculated for at least two earlier episodes.[33]

The employment response to the fall in GDP has also been smaller in most countries during this recession than in previous episodes, resulting in faster declines in labour productivity on a per employee basis (Figure 1.11). Some exceptions to this include the United States, New Zealand, Portugal and Spain, where the employment declines relative to output have been faster than historical norms (see Box 1.1 for a discussion of the US case). In the case of Spain, labour shedding has been so great relative to the fall in output that productivity, which typically falls during a recession, actually rose sharply, while it was essentially constant in the United States. Although the link between a smaller employment response to recessionary shocks and a larger fall in labour productivity is purely algebraic, it does provide a useful reminder that measures to preserve existing jobs in a recession are likely to imply significant costs and need to be subject to careful benefit-cost assessments. Who bears the costs resulting from productivity declines during recessions is also important and depends in large part on how real wages adjust (see discussion below).

Figure 1.10. **Change in unemployment in the 2008-09 recession
in historical comparison: an unusually large increase in some countries,
but a muted impact in others**

| Historical average | 2008-09 |

Panel A. **Percentage-point change in the unemployment rate from peak to trough**[a]

Panel B. **Okun's coefficient (peak-to-trough ratio of the increase in the unemployment rate to the decrease in GDP)**[b]

*: Historical average not available.

n.a.: Not available.

a) Australia and Poland did not have a recession in the 2008-09 period but are shown for comparison purposes over the period 2008 Q3 to 2009 Q2.

b) Since real GDP rose between 2008 Q3 and 2009 Q2 in Australia and Poland, the Okun's coefficient value would be negative (not shown).
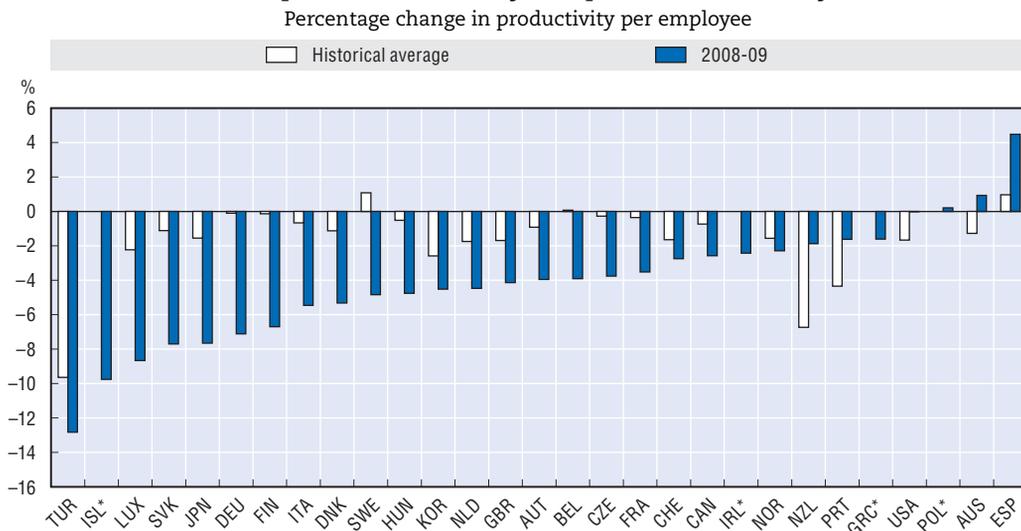
Source: OECD Economic Outlook Database.

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2.2. The choice between employment and hours adjustment underlies many of these patterns

The variation of employment responsiveness to the output decline reflects in large part the different ways total labour input (measured as average hours multiplied by employment) has adjusted downwards across OECD countries (Figure 1.12).[34] With very few exceptions – Spain where average hours rose slightly, and Germany and the Slovak Republic where employment rose – the reduction in labour input during the recession was accomplished *via* a combination of employment shedding and hours reductions. However, the share of the adjustment coming from a reduction of average hours ranged widely from under 20% in Denmark, Portugal and Spain to over 95% in Korea, Norway, Australia,

Figure 1.11. **Change in labour productivity in the 2008-09 recession in historical comparison: unusually steep declines in many countries**[a]

Percentage change in productivity per employee

* Historical average not available.
a) Australia and Poland did not have a recession in the 2008-09 period but are shown for comparison purposes over the period 2008 Q3 to 2009 Q2.
Source: OECD Economic Outlook Database and OECD calculations.

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Box 1.1. **Why did Okun's law break down in the United States during the 2008-09 recession?**

Okun's law refers to the tendency for cyclical fluctuations in GDP growth to translate into smaller fluctuations in the unemployment rate (Okun, 1962). While this is a purely statistical relationship, it has been quite stable over time in the United States and widely relied upon for making forecasts. Using quarterly US data for the period 1949-2009, Daly and Hobijn (2010) show that percentage changes in the output gap have been about twice as large as the associated percentage-point changes in the cyclical unemployment rate. This relationship has fit the data relatively well at all points of the business cycle and over the entire post-war period up until the 2008-09 recession. During the early phase of the recession (2008 Q1-2009 Q1), the rise in the unemployment rate was about half of decline in the output gap, but unemployment subsequently increased much more than would have been predicted based on the evolution of GDP. As of the fourth quarter of 2009, the unemployment rate was about 1.5 percentage points higher than the level implied by Okun's law. Panel B of Figure 1.10 confirms that unemployment has responded more strongly to the decline in output in the United States during the 2008-09 recession than in past recessions, even as the unemployment response has been weaker than in the past in the large majority of OECD countries.

In order to understand the reasons for the recent departure from Okun's law in the United States, it is instructive to examine how each of the major factors explaining the less than one-for-one response of unemployment to cyclical fluctuations in output have evolved during the 2008-09 recession. Okun (1962) highlighted two such factors, namely, procyclical variations in labour force participation and labour productivity. The strong response of unemployment to the recent decline in GDP suggests that either participation or labour productivity fell less during this recession than would have been expected. Daly and Hobijn (2010) examine the evidence and find that:

Box 1.1. **Why did Okun's law break down in the United States during the 2008-09 recession?** *(cont.)*

- Although the *participation rate* was somewhat slow to fall during 2008-09 recession, the decline became quite steep during 2009 as long-term unemployment rose sharply. By the end of 2009, the cumulative fall in participation was somewhat stronger than the historical average. Accordingly, the particularly sharp rise in US unemployment cannot be ascribed to an unusual labour supply response to the recession.

- In a break with the historical procyclicality of productivity, *output per hour* has increased sharply during the 2008-09 recession. This unusual surge in productivity was concentrated in the second half of 2009 and was only partly offset by a steeper than usual decline in average hours worked. The combination of rising hourly productivity and declining output implied a sharper that normal fall in employment during the recession, despite the reduction in average hours.

In an accounting sense, Okun's law broke down in the United States due to the unusually vigorous labour shedding that was associated with strong growth in hourly labour productivity. It is not straightforward to explain why US firms shed jobs more aggressively during the 2008-09 recession than in earlier recessions, even as the opposite pattern is observed in most other OECD countries. Nonetheless, some possible explanations can be suggested:

- One possible explanation is that the nature of the negative demand shock in the United States was different from that during previous downturns or in other countries in ways that encouraged aggressive labour shedding. To the extent that *financial stress* was particularly acute in the United States, this may have a played a role. Several studies have shown that economic downturns that are associated with financial crises tend to have a larger impact on unemployment (Reinhart and Rogoff, 2009; IMF, 2010). In part, this reflects the fact that financial crises have a larger impact on GDP than other recessions. Financial crises also appear to increase the response of unemployment to output by reducing the ability of firms that are heavily dependent on external finance to retain workers (Sharpe, 1994). The discussion of the role of shock heterogeneity in Section 1 (*cf.* Table 1.2) further indicates that countries, such as the United States, where the 2008-09 recession was associated with a significant *boom-bust cycle in housing prices* also tended to experience a larger than average unemployment response to the decline in output. IMF (2010) shows that house price bursts tend to raise Okun's coefficient more strongly than financial crises that are not associated with house price bursts.

- A second explanation may be that structural changes in the US labour market are changing how labour demand adjusts to aggregate demand shocks. The table below compares the percentage changes in employment and average hours, along with the relative contribution of employment shedding to total labour input adjustment, during the five most recent recessions. These data suggest that US firms have come to rely increasingly upon labour shedding during recessions. Gordon (2010) documents that US labour productivity has also evolved in recent decades, ceasing to be procyclical since the mid-1980s. It is not clear what explains these developments, though Gordon identifies a number of possible factors, including evolving human resource practices, changes in labour and product market regulations or the increasingly competitive nature of the US labour market as a result of globalisation and technological change.

Box 1.1. **Why did Okun's law break down in the United States during the 2008-09 recession?** *(cont.)*

A growing role for employment adjustment in US recessions?
From peak to trough

	Change in total employment (%)	Change in average hours worked (%)	Employment share of total labour input adjustment
1973 Q4-1975 Q1	−1.02	−2.45	0.29
1980 Q1-1980 Q3	−0.96	−1.13	0.46
1981 Q3-1982 Q1	−0.77	−1.14	0.40
1990 Q2-1991 Q2	−1.02	−0.58	0.64
2008 Q2-2009 Q2	−3.82	−1.78	0.68

Source: OECD Economic Outlook Database.

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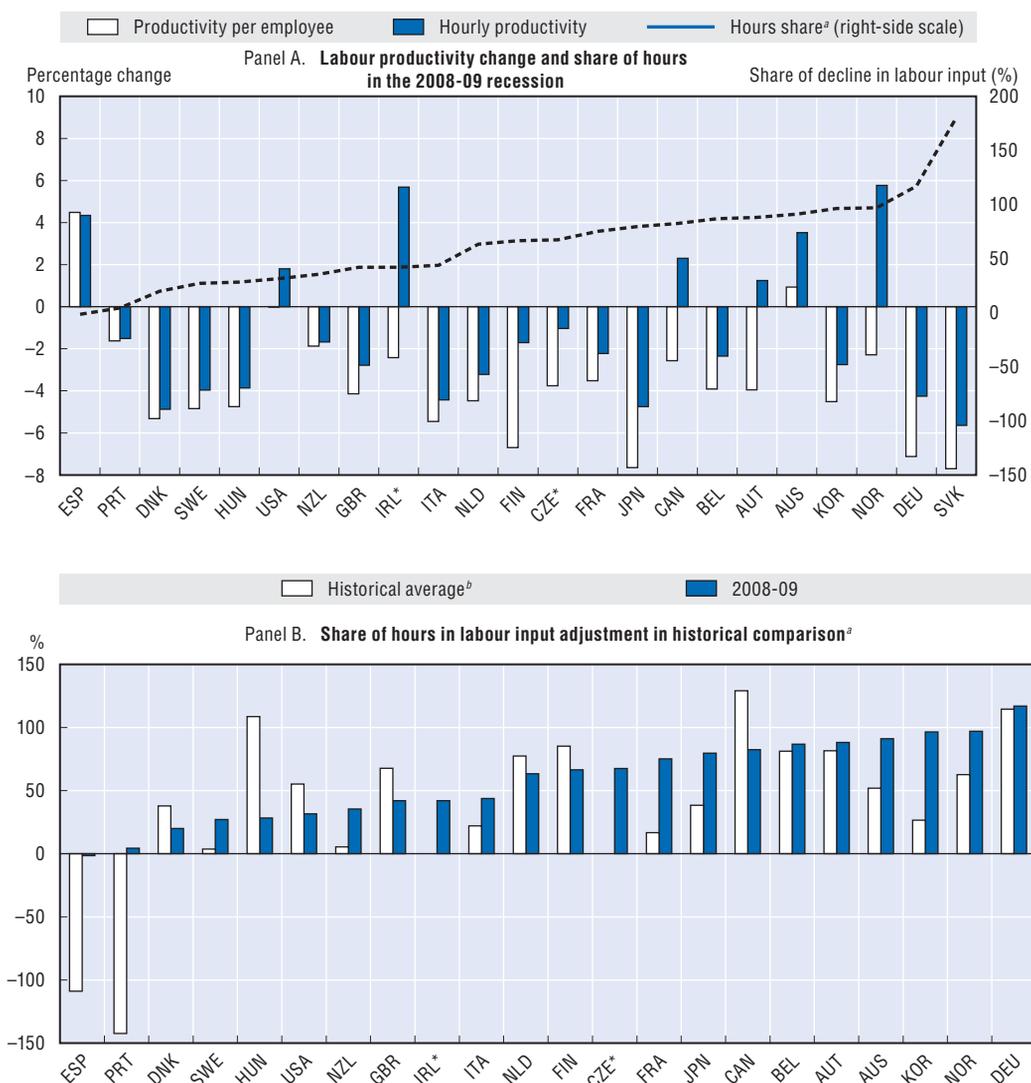
Germany and the Slovak Republic. Employers in countries where the rise in unemployment has been muted relative to the fall in GDP relied relatively heavily on hours reductions, so that the correlation between the Okun's coefficients reported in Figure 1.10 and the hours share was –0.59. This underlies how labour hoarding need not imply that total labour input is inflexible. The decline in labour productivity also has been considerably less severe on a per hour basis than on an employee basis in countries where the hours share of the adjustment was relatively high. Nonetheless, there is still a tendency for greater reliance on hours adjustment to be associated with a greater decline in hourly productivity.[35] Among the 20 countries with data for several previous recessions available for comparison, the share of hours adjustment was lower in this recession in seven countries, including Canada, Hungary, the United States and the United Kingdom; higher in twelve, including France, Japan, New Zealand and Norway; and essentially the same in Germany.

Some of the current differences in the share of hours worked in labour input adjustment observed across OECD countries may reflect varying lengths of labour adjustment. For example, driven by a decline in hours, labour input began to decline in the United States in the autumn of 2007, perhaps a leading indicator of a weakening economy, whereas in Germany labour input only started declining a year later.[36] With the passage of time one might expect more convergence in the duration of adjustment and therefore in these shares. Indeed, an examination of labour adjustment across 68 recession episodes in 18 OECD countries reveals that adjustments in hours, such as cutting back on overtime, tend to make the greatest contribution to changes in overall labour input at the start of a downturn. As the recession progresses, the scope for further adjustments of working time diminishes, employers increasingly cut employment and the contribution of hours to adjustments of labour input typically falls (Figure 1.13). This suggests that countries where the hours share of the adjustment has been high could see a large wave of layoffs should the recovery falter.

Simple panel regressions explaining the contribution of hours to total labour input adjustment tentatively suggest that some countries including Austria, Germany and Norway rely more on adjusting hours during recessions.[37] In other countries, including New Zealand, Spain and the United States, employment has played a stronger role in adjusting labour input.[38] While cross-country differences were even larger that usual in

Figure 1.12. **Labour productivity growth and contribution of hours
worked to overall labour adjustment**

□ Productivity per employee   ■ Hourly productivity   — Hours share[a] (right-side scale)

Panel A.   **Labour productivity change and share of hours
in the 2008-09 recession**

Percentage change

Share of decline in labour input (%)

□ Historical average[b]   ■ 2008-09

Panel B.   **Share of hours in labour input adjustment in historical comparison[a]**

%

* Historical average not available.

a)   The hours share is equal to the percentage of total net change in labour input from the peak to trough in GDP that
is attributable to reduced hours per worker. A negative share arises when average hours worked rose during the
recession.

b)   In some cases (Austria, Finland, Hungary, Italy, the Slovak Republic, Spain and Sweden), there is only one previous
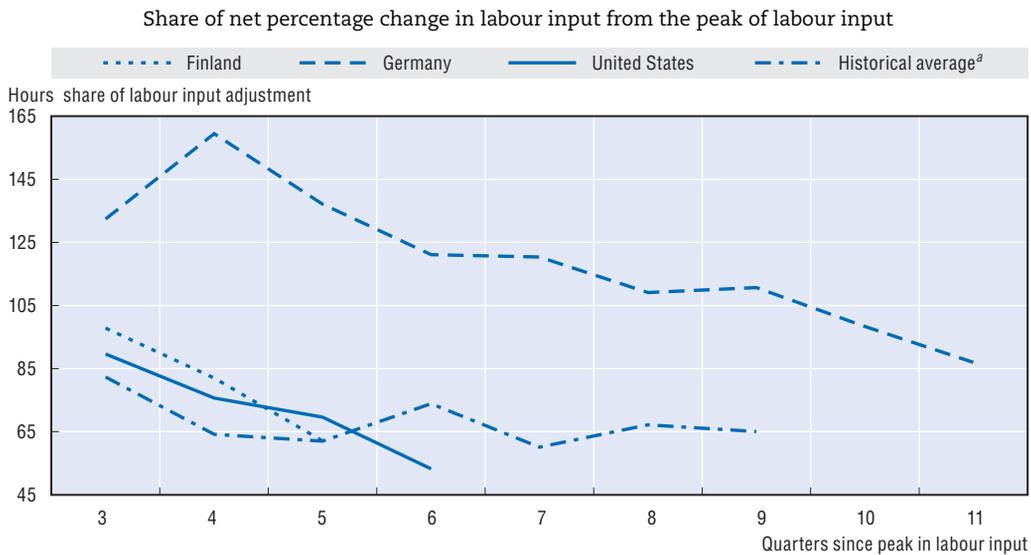episode with declining labour input available for comparison.

Source: OECD Economic Outlook Database, national statistical authorities and OECD calculations.

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this recession, the *average* contribution of hours across the OECD was in line with past
recessions, although it was higher than during the early 1990s recessions.

Box 1.2 reports analysis based on firm-level data which illustrates the role of structural
factors in influencing the share of hours worked in labour input adjustment. It shows that
the propensity to hoard labour and concentrate adjustment along the hours margin varies
with a number of firm characteristics such as size, debt leverage and technology intensity.
Differences in the mix of firm types could thus explain some of the differences in the hours
share of adjustment, both between countries and over time within countries. National

Figure 1.13. **The share of hours worked in total labour input adjustment tends to fall over the course of a recession**

Share of net percentage change in labour input from the peak of labour input

a) Historical average based on 68 recession episodes in 18 OECD countries.

Source: OECD Economic Outlook Database, national statistical authorities and OECD calculations.

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labour market policies and institutions, including short-time work schemes, could also account for some of these differences, as is discussed in Section 4.

2.3. Implications for total labour input adjustment and wages

The combined response of employment and average hours worked can be measured by the elasticity of labour input (total hours worked) to the output shock. This shows that the overall response to the shock was highest in Austria, Canada, Ireland, Norway, Spain and the United States during the current recession, where the elasticity of labour input to GDP exceeded unity (Figure 1.14). This group includes countries with both high and low contributions of hours adjustment, revealing that a high response of labour input to output shocks is not limited to countries where employment adjusts sharply. By contrast, the elasticity was below 0.5 in twelve of the 21 countries analysed, including Germany, where the low overall adjustment of labour input to the output shock reflected offsetting movements in employment and hours. The correlation between the hours share of the reduction in labour input with the elasticity of labour input to the output shock is very small (–0.07), implying that there is no strong link between the form that labour input adjustment takes and how

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Box 1.2. **Labour hoarding across different types of firms**

Understanding how labour hoarding varies across different types of firms is important from a policy perspective as it sheds light on the capacity and the incentives of firms to retain workers during periods of reduced output demand. In the present analysis, labour hoarding is proxied by the standard deviation of labour productivity over time within firms. This measure provides for a broad interpretation of labour hoarding as it captures cases where the cost of smoothing employment over time is entirely borne by employers, as well as cases where the cost is shared with employees through work-sharing arrangements.

Box 1.2. **Labour hoarding across different types of firms** (*cont.*)

One possible determinant for explaining the capacity of firms to retain workers during periods of reduced output demand is credit constraints; a determinant of the incentives of firms to hoard labour is hiring and firing costs that depend on the production technology of firms and the skill-intensity of the workforce. The analysis below looks at these issues by comparing the tendency to hoard labour across different types of firms according to their debt leverage, employment size, the technology-intensity of industries and the skill-intensity of firms.[1] The analysis is based on a sample of over 230 000 firms across ten European countries. The results are reported in the figure below. See Annex 1.A4 of OECD (2010b) for details on the methodology and some further background statistics.
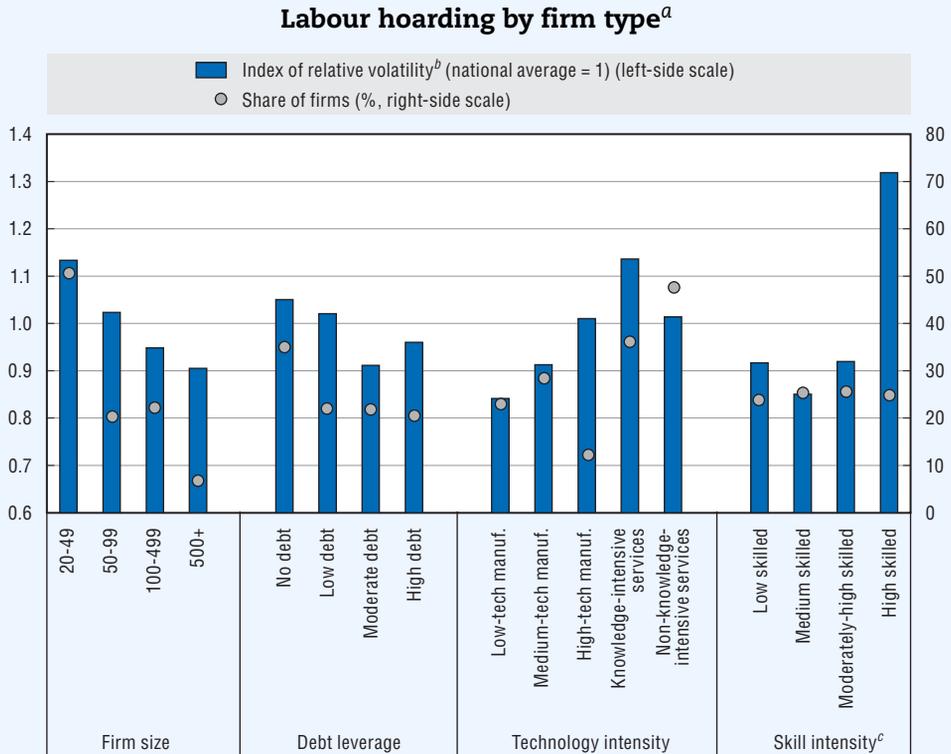
- *Debt leverage.* Labour productivity is more volatile in firms without external debt than in firms with at least some debt. This provides suggestive evidence that firms without debt have a greater capacity to hoard labour. This is broadly consistent with Sharpe (1994) who, using firm-level data for the United States, finds that leverage has a significant impact on the response of employment to the business cycle.[2] There is no strong evidence to suggest that labour hoarding decreases with the level of external debt to total assets.

- *Firm size.* Labour productivity is less volatile in large than in small firms suggesting that the degree of labour hoarding decreases with firm size. It is not straightforward to interpret these results as firm size may be related to different factors that affect labour hoarding. Traditionally, firm size has often been treated as an inverse proxy for credit constraints because informational frictions tend be more pronounced for small firms.[3] However, Moscarini and Postel-Vinay (2009) suggest that firm size may also affect the incentives for firms to retain workers during a downturn. Larger firms tend be more productive and offer higher wages and as a result may find it easier to recruit new workers during the recovery. The authors provide evidence for a number of countries that employment in large firms is more sensitive to the business cycle than employment in small firms.

- *Technology-intensity.* The technology-intensity of production in the industry is positively related to the tendency to hoard labour. Since firms in such industries tend to make more intensive use of highly qualified employees and employees on permanent contracts, and hiring and firing costs for such workers tend to be greater, firms in such industries may be expected to face stronger incentives to hoard labour. Indeed, OECD (2009a) shows that young workers (*i.e.* workers with low levels of experience), workers with low skills and workers on temporary contracts are more sensitive to changes in the economic cycle than other types of workers. In this context, the relative importance of technology-intensive manufacturing in Germany may help to explain the modest response of employment to the decline in output.

- *Skill-intensity.* The results with respect to skill intensity suggest that firms with relatively high levels of average skill intensity tend to smooth employment more than other firms. This is likely to reflect the possibility that more skilled workers possess higher levels of firm-specific human capital.

1. The role of export status was also considered but did not yield any conclusive results.
2. Sharpe (1994) suggests that the response elasticity of high-leverage firms may be interpreted as an indication of the short-run returns to labour (*e.g.* labour productivity). The difference between high-leverage and low-leverage firms may then give an indication of the degree of labour hoarding in low leverage firms.
3. This is because small firms tend to have shorter credit histories, tend to be subject to higher levels of idiosyncratic risk and are less likely to have adequate collateral (Gertler and Gilchrist, 1994).

Box 1.2. **Labour hoarding across different types of firms** (cont.)

Labour hoarding by firm type[a]

- ■ Index of relative volatility[b] (national average = 1) (left-side scale)
- ○ Share of firms (%, right-side scale)

a) "Debt leverage" is based on the distribution of the share of debt leverage over operating revenue across firms where "No debt" refers to zero debt, "Low debt" refers to the first tercile, "Moderate debt" to the second tercile, and "High debt" to the third tercile; "Technology intensity" is based on the industry affiliation of the firm. The industry aggregation is based on *OECD Science, Technology and Industry Scoreboard* (2005). "Low-tech manufactures" corresponds to food, beverage and tobacco; textiles, clothing and leather; wood and wood products; publishing, printing and reproduction of recorded media; and other manufacturing. "Medium-tech manufactures" corresponds to coke, petroleum products and nuclear fuel; rubber and plastic products; non-metallic mineral products; metal and metal products; and machinery and equipment. "High-tech manufactures" corresponds to chemicals and chemical products; electrical and electronic equipment; precision instruments; and motor vehicles and other transport equipment. "Knowledge-intensive services" corresponds to transport, storage and communications; finance; business activities. "Non-knowledge-intensive services" corresponds to electricity, gas and water supply; construction; trade; hotels and restaurants. "Skill intensity" is based on the distribution of average wages across firms where "Low skilled" refers to the first quartile, "Medium skilled" to the second quartile, "Moderately-high skilled" to the third quartile and "High skilled" to the fourth quartile.

b) Volatility is measured as the standard deviation of first-differences of log labour productivity. Standard deviations are first averaged within each group and country, and subsequently averaged across the following countries: Belgium, the Czech Republic, Finland, France, Germany, Italy, the Netherlands, Spain, Sweden, and the United Kingdom. Using weights by firm size category and industry within each country does not qualitatively change the results. Instead of first-differencing, the analysis was also conducted in terms of within differences (*e.g.* deviations from the mean). This also led to very similar results.

c) Unweighted average of the following countries: Belgium, the Czech Republic, Finland, France, Italy, the Netherlands, Spain, Sweden, and the United Kingdom.

Source: OECD estimates based on *Amadeus Database*. See Annex 1.A4 in OECD (2010b) for further details on sample and methodology.

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Figure 1.14. **Response of labour input to GDP from peak to trough in historical comparison: high variability across countries and recessions**[a]

Ratio of percentage change in total hours worked to percentage change in real GDP
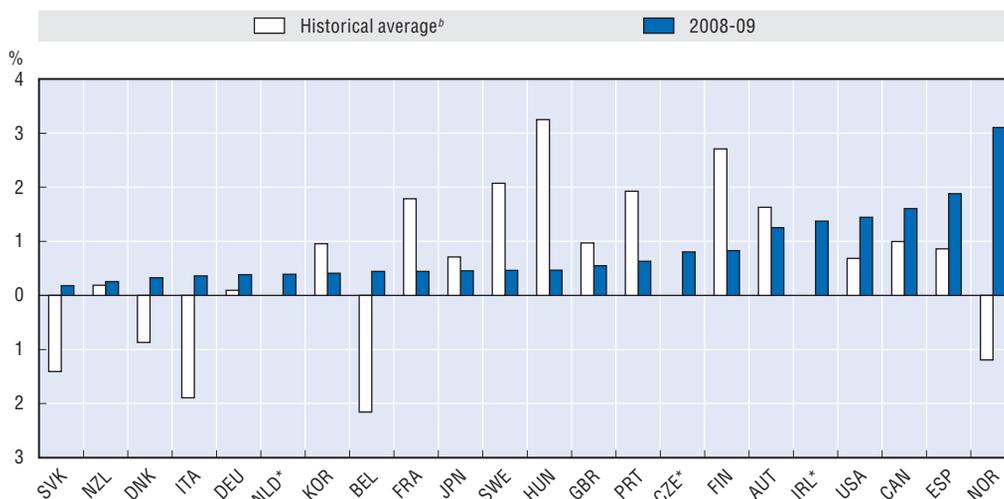
* Historical average not available.
a) Peaks and troughs are determined using real GDP series in levels.
b) "Historical average" is the average of previous recession episodes. In some cases (Austria, Belgium, Finland, Hungary, the Slovak Republic, Spain and Sweden), there is only one previous episode available for comparison.
*Source:* *OECD Economic Outlook Database*, national statistical authorities and OECD calculations.

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strongly labour input reacts to cyclical changes in production. Among countries with several previous episodes available for comparison, the response of labour input in Canada, Spain and the United States was stronger this time around. By contrast, Korea, Japan and a considerable number of European countries, including France, Portugal and the United Kingdom, all experienced a more muted response of labour input in this recession.[39]

Figure 1.15 juxtaposes changes in the real hourly wage during the 2008-09 recession with the changes in unemployment and hourly productivity in 17 countries for which the necessary data are available, with all of these variables expressed relative to pre-crisis trends so as to zero in on how wage setting adjusted to unexpected changes in labour market conditions. A first observation is that there is a lot of cross-country heterogeneity in how real hourly wages have reacted to the recession, with wage growth rising relative to trend in about one-half of the countries while it is stable or declining in the others. There is a weak positive association between the rise in unemployment and wage growth (correlation of 0.24), contrary to the negative relationship posited by the Phillips Curve. This may reflect composition effects, with the average hourly wage tending to rise in countries where large numbers of youth, low-paid and temporary workers have been laid off. There is some tendency for wage growth to be more restrained where hourly productivity was weaker, as reflected in the 0.67 correlation between between wage and productivity changes. While this suggests some sensitivity of wage setting to cost concerns, it is notable that wage growth accelerated relative to productivity growth in all of these countries except Australia suggesting that upward pressure on unit labour costs may be squeezing profit margins.[40] This quick look at wage developments makes it clear that the impact of the recession on average wages, like its impact on average hours, reflects a complex combination of adjustments along different margins, as well as compositional effects (*e.g.* whether low-paid workers are hardest hit by layoffs). Box 1.3 uses a Japanese

Figure 1.15. **Changes in unemployment, real wages and productivity relative to trend during the 2008-09 recession**[a]

Percentage changes
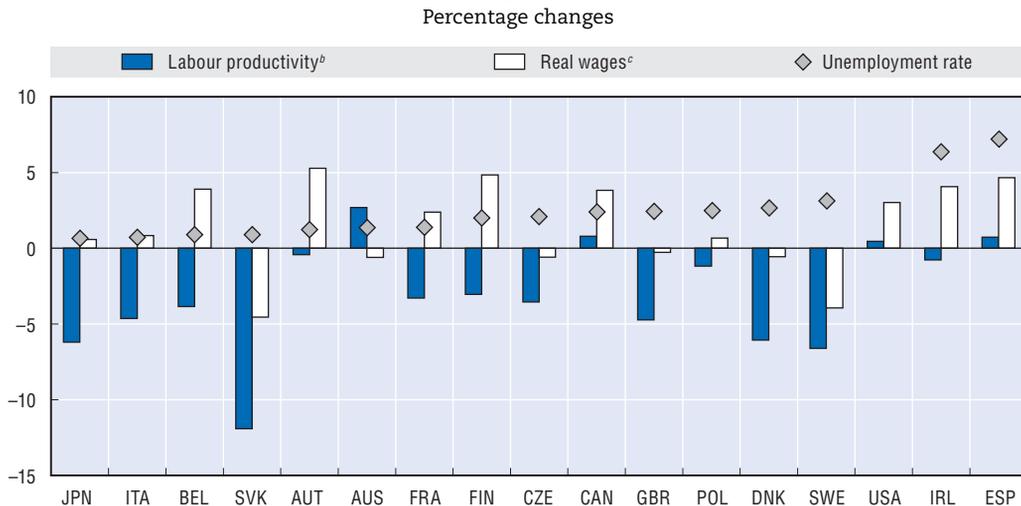
a) Trends based on the five years prior to the crisis.
b) Labour productivity is defined as real gross output divided by total hours worked.
c) Real wages are nominal hourly compensation per employee in the private sector deflated by the private consumption deflator.

Source: OECD Economic Outlook Database and OECD calculations.

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Box 1.3. **Hours and pay reductions in Japan reflect adjustments along many different margins**

The economic impact of the global crisis in Japan has been large, with GDP declining from peak to trough by more than 8%, yet the unemployment rate increased only modestly by 0.6 percentage points. The weak response of unemployment to the decline in aggregate demand reflects the high degree to which Japanese firms have held on to their workers during the downturn. To an important extent this can be explained by the relative flexibility of hours and wages in Japan.

According to the Monthly Labour Survey, average hours worked fell by 3.3% from 2008 to 2009 (almost 6% in manufacturing). The total reduction in working time can be decomposed approximately into adjustments along the following three margins:

● One sixth of the reduction in working time is accounted for by *the reduction in working time among part-time workers*. Part-time employment accounts for about one-fourth of total employment and the proportional reduction in the working hours of part-time workers is similar to that of full-time workers. The role of working-time reductions among part-time workers is much smaller in manufacturing, accounting for just 4% of the total reduction of working time. This reflects the lower incidence of part-time work in manufacturing (14%) and the smaller proportional reduction in hours worked during the crisis.[1]

● One-third of the reduction in average hours worked is accounted for by *the reduction in overtime among full-time workers*. In part, this was made possible by the marked increase in the use of overtime in the period immediately before the crisis. In manufacturing, the role of overtime has been even more important accounting for about half of the reduction in working time.[2] This reflects both the greater incidence of overtime in manufacturing before the crisis (almost one in ten hours) and the concentration of the decline in output demand in the manufacturing sector.

Box 1.3. **Hours and pay reductions in Japan reflect adjustments along many different margins** (cont.)

- One half of the reduction in working time represents *the reduction in standard hours for full-time workers*. The relative importance of reductions in standard hours reflects the limits of the overtime margin in the context of a severe decline in aggregate demand. Reductions in standard hours have been achieved through both short-time work schemes and employer-initiated reductions in working time, but it is difficult to pin down the relative contributions of these two types of hours adjustments:

  - ❖ Employment adjustment subsidies which are intended to preserve existing jobs by encouraging *short-time work* (Koyo-chosei-jyosei-kin) appear to account for between one-sixth and one-third of the total reduction in working time, and a considerably larger share of the adjustment in the manufacturing sector (35% to 45%). It is not possible to put precise figures on the role of short-time work as comprehensive data on the total number of hours subsidised are not publicly available, but a plausible range of impacts could be estimated by making alternative assumptions.[3]

  - ❖ The remaining one sixth to one-third of the overall reduction in working time is likely to reflect *employer-initiated reductions in working time*. Such reductions do not automatically translate in reductions in monthly earnings, but instead have to be negotiated separately from wages and usually at a different point in time. This means that employer-initiated average-hours reductions may result in higher average hourly wages.

The reduction in working time in Japan has coincided with a similarly sized reduction in real monthly earnings. While this appears to have been driven to a considerable extent by the reductions in working time discussed above, real hourly wage reductions are also likely to have played a significant role. Data from the Basic Survey of Wage Structure can be used to provide an approximate decomposition of the reduction in real monthly earnings in the manufacturing sector:

- About two-thirds of the reduction in average real earnings can be attributed to *the reduction in overtime hours and hence overtime pay*. The overtime premium helps to explain why overtime accounts for a larger share of the reduction in monthly earnings than of the reduction in average hours (about one-half). A second likely reason for the disproportionate impact of the reduction in overtime is that employer-initiated reductions in standard hours are associated with less than proportional reductions in monthly earnings.

- About one quarter of the reduction in real average earnings can be ascribed *to the reduction in standard monthly pay*. If it were assumed that standard-hours reductions translate one-for-one into lower standard earnings, it would follow that 60% of the reduction in standard monthly pay is due to reduced standard hours and 40% to real hourly wage reductions. However, reductions in standard working time are likely to translate only partially into lower monthly earning, implying that the role of real hourly wage reductions is likely to be greater in practice.[4]

- Only about 5% of the reduction in real average earnings is due to lower bonuses. The reason for this small figure is that bonuses paid in 2009 reflected business conditions during the entire year of 2008, while the economic crisis only erupted towards the end of 2008.

1. Full-time workers switching to part-time jobs can play an important role in reducing average hours during a recession. However, the impact of this channel has been negligible in Japan during the 2008-09 recession, because the incidence of part-time work has remained fairly stable during recent years at around 26%, after having increased sharply from the early 1990s to the mid-2000s.
2. This corresponds to a reduction in overtime hours of about one-third.

Box 1.3. **Hours and pay reductions in Japan reflect adjustments along many different margins** (*cont.*)

3.   In the absence of publicly available data on the number of hours subsidised, the total number of subsidised hours were estimated using information on total public expenditure on short-time work (*Koyo-chosei-jyosei-kin*) and the average hourly wage. Two scenarios were considered based on different modeling assumptions with respect to the co-financing of short-time work by firms and the replacement rate: a high-cost low-impact scenario and a low-cost high-impact scenario. The *high-cost low-impact scenario* assumes that the cost of one hour of short-time work to the government equals 90% of the average hourly wage. This value is derived from information in Annex 1.A1 which specifies that firms have to share at least 10% of the cost and the replacement rate can be as much as 100%. Under this assumption, short-time work would account for a sixth of the total reduction in working time (or one-third of the reduction in average standard hours) and 40% in manufacturing (or 75% of average standard hours). The *low-cost high-impact scenario* assumes that the cost of one hour of short-time work to the government equals 40% of the average hourly wage. This value is derived from information in Annex 1.A1 which specifies that firms share up to one-third of the cost and the replacement rate is at least 60% of the previous wage. This alternative assumption implies that short-time work accounts for about 35% of the total reduction in working time (or 70% of the reduction in average standard hours) and 90% in manufacturing (or 170% of the reduction in average standard hours). The true impact of short-time work probably lies between the estimates based on these two scenarios. As it seems unlikely that standard hours would have increased substantially in the manufacturing sector in the absence of the short-time work subsidy, the estimates based on the high-cost low-impact scenario is likely to be somewhat closer to the true values.

4.   If job losses during the crisis are concentrated among low-earning workers than a composition effect would tend to raise average hourly wages, implying a larger role for real hourly wage reductions in explaining overall changes in the average wage. As the impact of the crisis on employment has been relatively weak in Japan, this possibility is ignored here.

case study to illustrate the complex interaction of the institutional arrangements affecting both hours worked and compensation adjustments during the recession.

3. The policy response to the jobs crisis in OECD countries: an update

3.1. *The policy stance in 2010*

OECD (2009a) surveyed the early response of countries to the jobs crisis, noting that most countries were undertaking measures across a broad range of labour market policy areas. New information collected in a joint questionnaire by the OECD/European Commission in early 2010 shows that few countries intend on cutting back on the resources devoted to labour market policy in 2010 at that time (Figure 1.16).[41] Indeed, half or more expect to put more resources into some active labour market programmes and unemployment benefits, and a large minority will put more resources into job-search assistance, job subsidy schemes and public sector job creation. Resources devoted to short-time work schemes and reductions in social security contributions are set to remain fairly constant, and even decline in several countries as these schemes are wound back and temporary measures expire.

The relative policy stance depends to a large extent on how labour market conditions have evolved during the downturn and early phase of the recovery and governments' budget situation (Table 1.3). Countries which expect to see a sizeable (further) increase in the unemployment rate over the next two years have a more expansionary stance on job-search assistance and active labour market programmes than the country average. They are also less expansionary when it comes to resources devoted to short-time work schemes. Countries with current unemployment rates of over 8% but where the unemployment rate is expected to decline or remain stable over the next two years are channelling above-average resources into measures to create new opportunities for the large pool of unemployment through work-experience and public sector job creation

Figure 1.16. **Anticipated change in resources devoted to labour market policy, 2010 compared with 2009**
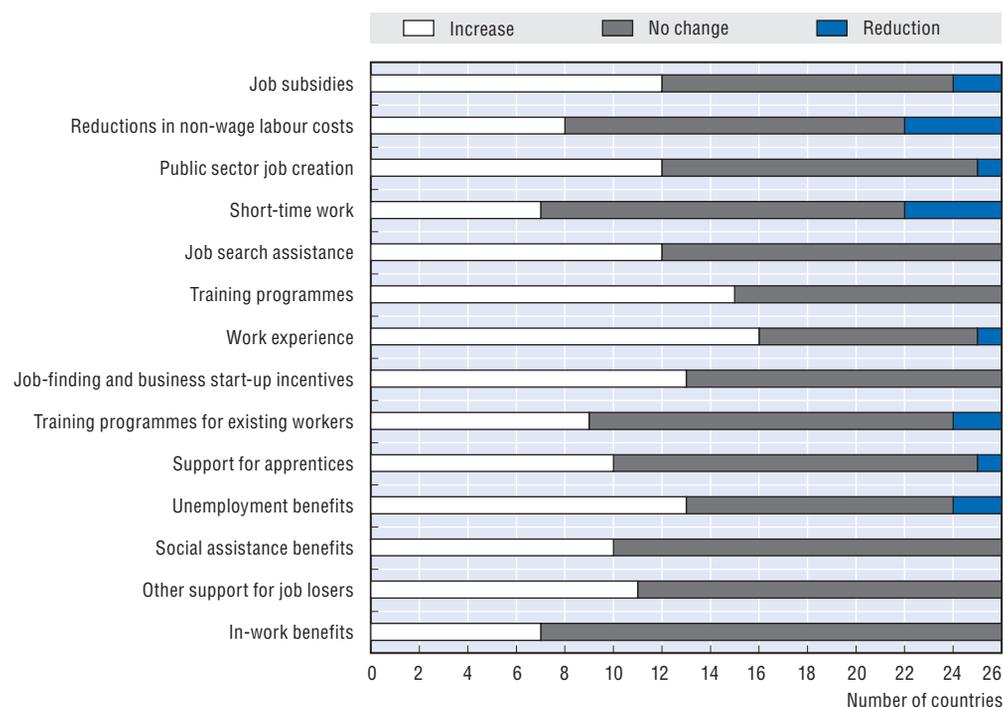
| | Increase | No change | Reduction |

Source: OECD calculations based on responses to OECD/EC questionnaires on labour market policy response to the economic downturn.

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programmes. Spending on unemployment benefits and social assistance is expected to increase on average, as is spending on in-work benefits. Countries with large government deficits are typically less expansionary than average on active labour market measures (with the exception of work-experience programmes), but slightly more expansionary on labour demand measures such as short-time work schemes and job subsidies.

While few countries are cutting back on resources devoted to labour market policy during 2010, the current timetable for withdrawal of temporary, crisis-related measures in the major OECD economies shows that the situation will be quite different in 2011. Many measures to stimulate labour demand and provide extended unemployment benefits for jobseekers are due to be withdrawn at the end of 2010 or early in 2011 as employment starts to increase and fewer people move into unemployment. Other temporary measures designed to help jobseekers find new work are likely to be in place longer, as countries try to help the large stock of unemployed people move back into work. Of course, these timetables are subject to change as the unfolding labour market and fiscal situation becomes clearer. Many governments have already extended crisis-related discretionary measures during 2009 and early 2010, notably those related to unemployment benefit duration and generosity.

3.2. Measures to stimulate labour demand
Job subsidies and public sector job creation

Many OECD countries implemented new job or hiring subsidy schemes during 2009 in response to the crisis, often targeting vulnerable jobseekers such as youth, older workers or the long-term unemployed. A number of countries extended existing public-sector job

Table 1.3. **Relative policy stance by labour market
and government budget situation, 2010 compared with 2009**

Compared with average for all countries

	Countries with high projected unemployment growth	Countries with high but stable/falling unemployment	Countries with large government budget deficits
Job subsidies	0	–	+
Reductions in non-wage labour costs	0	0	0
Public sector job creation	+	+	0
Short-time work	–	–	+
Job search assistance	+	–	–
Training programmes	0	–	–
Work experience	+	+	+
Job-finding and business start-up incentives	+	0	–
Training programmes for existing workers	0	–	–
Support for apprentices	+	0	–
Unemployment benefits	0	+	+
Social assistance benefits	0	+	–
Other support for job losers	0	0	0
In-work benefits	–	+	–

Note: "+" means more expansionary than the average for all countries; "–" means less expansionary; "0" means about the same.
Countries are classified using December 2009 data from the *OECD Labour Force Statistics Database* and European Union Labour Force Survey (EULFS), and OECD (2009c) projections that date from November 2009.
High projected unemployment growth: Belgium, Finland, Germany, the Netherlands, Sweden and Turkey.
High but stable/falling unemployment: Canada, France, Hungary, Italy, Portugal, the Slovak Republic and the United States.
Large government budget deficit: France, Ireland, Japan, the United Kingdom and the United States.
Source: OECD calculations based on responses to OECD/EC questionnaires on labour market policy response to the economic downturn.

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creation schemes to private-sector firms or announced additional public-sector job placements (see OECD, 2009i, for full details). Since mid-2009, hiring subsidies were introduced or scaled-up in a number of countries or targeted more clearly at specific groups. For example, hiring subsidies for the long-term unemployed were introduced (Austria, Korea, Portugal) or made permanent (Sweden). Disabled people (Korea), youth (Austria, Finland, Portugal, Switzerland) and older workers (Korea) were targeted by additional hiring subsidies. Furthermore, wage subsidy programmes were scaled-up for youth (United Kingdom, Finland, New Zealand, France, Greece) and older workers (France). New job subsidies were made available to save jobs which are under specific threat of being terminated (Ireland) or for employers moving to or expanding employment in regions with deteriorating employment conditions (Korea). Japan expanded public-sector job creation for nursing, medical care, agriculture, environment, energy, tourism and the local community. Mexico strengthened the targeting of public-sector job creation at districts with higher job loss. Switzerland will enact a public-sector job creation scheme if the national unemployment rate reaches 5% (currently at 4.6%).

Reductions in non-wage labour costs

Reductions in non-wage labour costs enacted in response to the downturn fall into two distinct groups: *i)* general reductions in employer social security contributions that apply to both continuing workers and new hires (and which may or may not be targeted at particular groups of new and continuing workers); and *ii)* those targeted solely at new hires. Some examples of general reductions in employer social security contributions for new and continuing workers implemented since the start of the downturn are shown in

Figure 1.17. **Reductions in employer social security contributions for continuing and new workers in selected countries**

Employer social security contributions as a percentage of labour costs by gross earnings level
(as a percentage of average wage)
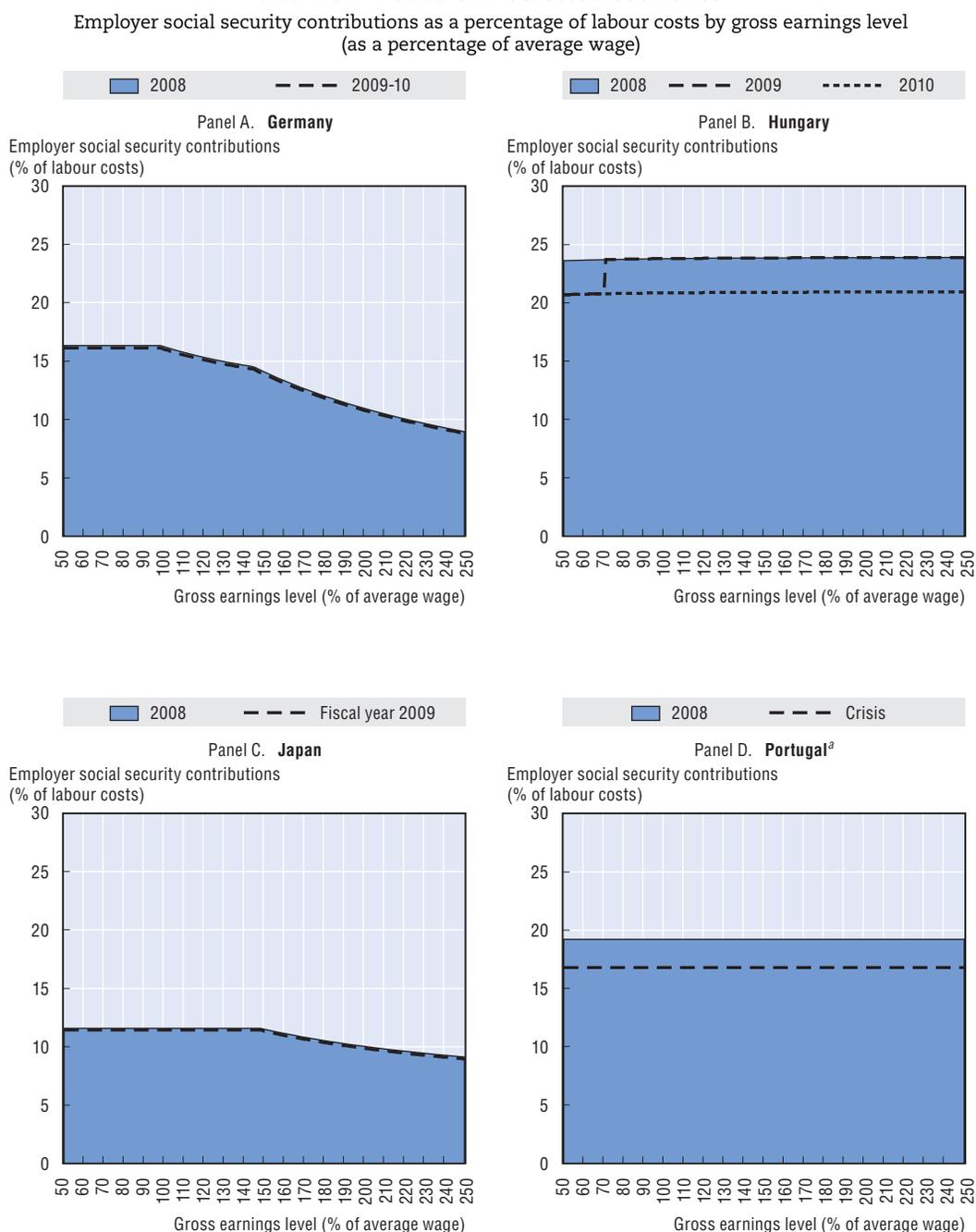
a) Workers aged 45 years or more in firms with less than 50 employees.

Source: OECD (2008), *Taxing Wages* 2008, and OECD calculations based on responses to OECD/EC questionnaires on the labour market policy response to the economic downturn.

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Figure 1.17. In Germany and Japan, temporary reductions in employer contributions to unemployment insurance schemes have resulted in very little change in average labour costs (–0.2 percentage points in both countries at the level of the average wage), mainly because unemployment insurance contributions make up a relatively small proportion of total labour costs in both countries, compared with other social security contributions.

Employer social security contributions fell more substantially – from 24% to 21% of total labour costs – in Hungary as part of a permanent restructuring of the tax system implemented in 2009 for employers of low-wage workers and in 2010 more broadly. Employer social security contributions for continuing workers also fell in Portugal – from 19% to 17% of labour costs – but only for employers with less than 50 employees for continuing or new employees aged 45 years and over.

In other countries, reductions were targeted at new hires (Figure 1.18). For example in Portugal, in addition to its overall cut in employer social security contributions (discussed above), employer social security contributions were eliminated for the first three years of employment (or for the first two years in addition to a EUR 2 000 hiring subsidy) for new hires on permanent contracts of certain groups of disadvantaged jobseekers. Firms must have net hiring over a three-year period. A 50% reduction in employer social security contributions applies for new hires of people aged 55 years and over who have been unemployed for at least six months. In this case, there is no requirement for a permanent contract or net hiring; although, under the scheme, employers cannot rehire their former employees (those with whom they have had an employment relationship in the previous three years).

Ireland has eliminated employer social security contributions for one year for new hires (in addition to existing staff) of people unemployed for six months or more. France and Spain have also reduced employer social contributions for new hires, with larger relative reductions for employers of low-wage workers. In France, small firms are fully exempted from employer social security contributions for new hires at the minimum wage and contributions are progressively increased to reach the standard rate at 1.6 times the minimum wage. In Spain, a EUR 1 500 per year social contribution rebate applies for two years to new hires of workers with family responsibilities on permanent contracts. In all cases, these reforms have significantly reduced labour costs for the targeted groups, although in some cases, the target groups are likely to be relatively small.

Over the past year, a number of countries have implemented additional measures to reduce non-wage labour costs. In addition to the changes in France, Portugal and Ireland discussed above, measures to reduce employer social contributions for all new hires were introduced or extended focusing on groups such as mid- to longer-term unemployed (Hungary, Turkey) and peripheral regions (Finland). In the United States, firms making new hires from February to December 2010 of people who have been unemployed for at least two months will be exempted from payroll taxes. Public finance issues have forced the Czech Republic to terminate temporary reductions in non-wage labour costs targeted at low-wage workers.

Short-time work arrangements

Countries that have short-time work or partial unemployment schemes, or have introduced them in response to the crisis, have seen participation in such schemes escalate dramatically since 2007 (Figure 1.19). Take-up has been highest in Belgium, Turkey, Italy, Germany and Luxembourg, accounting for over 3 to almost 6% of all employees. With the exception of Belgium, few employees were participating in short-time work schemes prior to the onset of the crisis. Participating in training is compulsory for workers on short-time work in the Czech Republic, Hungary, the Netherlands and Portugal.[42] While training is not compulsory, it is publicly-subsidised for short-time workers in Finland, Belgium, Austria, Portugal, Poland, Germany, Hungary, Japan, Norway and Switzerland. In general, however, few short-time workers have participated in training during the current

Figure 1.18. **Reductions in employer social security contributions for new hires in selected countries**

Employer social security contributions as a percentage of labour costs by gross earnings level
(as a percentage of average wage)
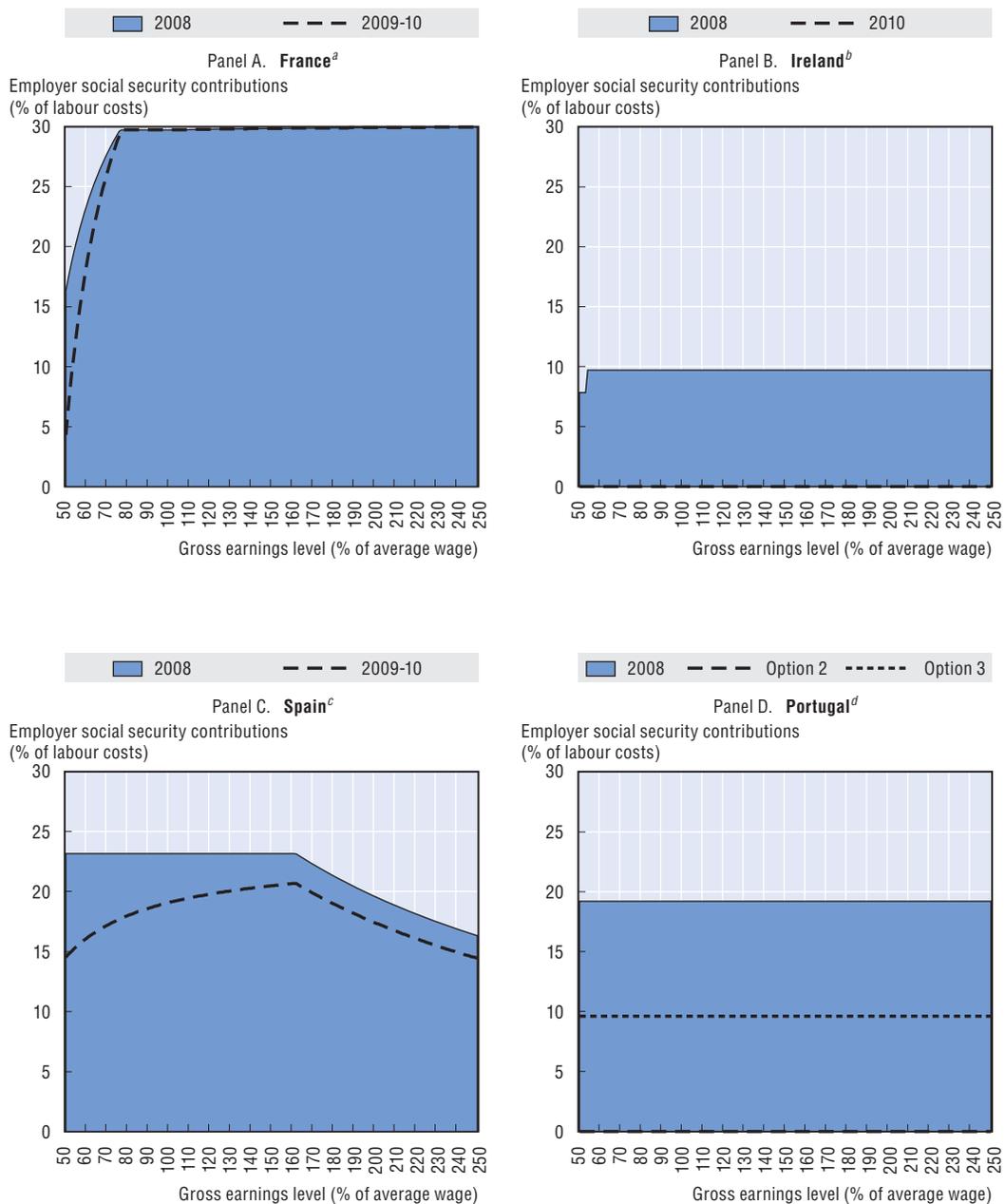
a) New hires by firms with less than ten employees, applies until December 2010.
b) New hire must be unemployed for at least six months, applies for one year.
c) New hires of workers with family responsibility on permanent contracts, applies for two years.
d) Option 2: new hires of long-term unemployed on permanent contracts with net hiring during three years, applies for two or three years. Option 3: new hires of unemployed at least six months, aged 55 or more years on fixed-term contract.

Source: OECD (2008), *Taxing Wages* 2008, and OECD calculations based on responses to OECD/EC questionnaires on the labour market policy response to the economic downturn.

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Figure 1.19. **Annual average stock of employees participating in short-time work schemes as percentage of all employees**[a]
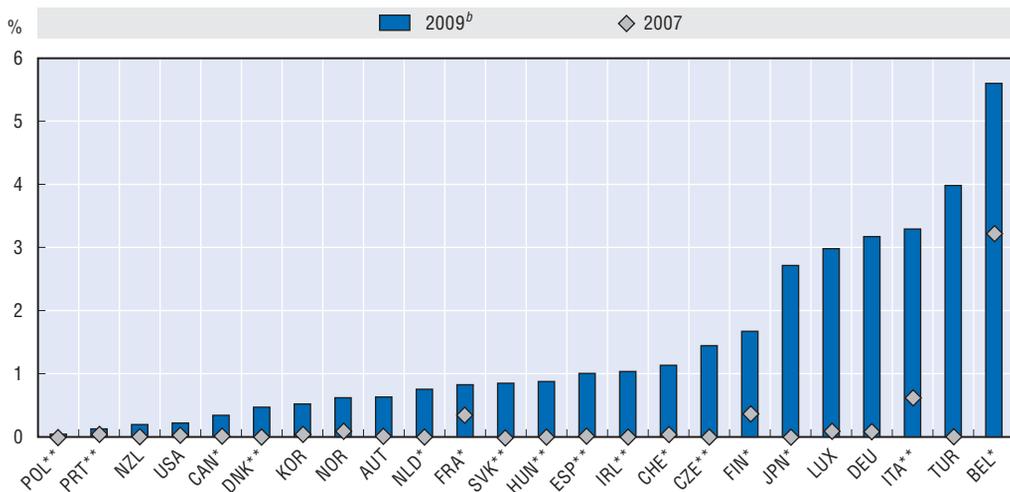
a) Countries shown in ascending order of the share of participants in short-time work schemes in 2009.
b) Until 2009 Q3 for Austria and the Netherlands; August 2009 for Portugal and Spain; September 2009 for the Slovak Republic; and October 2009 for Luxembourg and New Zealand.

Source: Data on short-time workers are from the OECD-EC questionnaire, except in the following cases: * indicates that data are from national sources; ** indicates that data are OECD estimates using flows data from the OECD-EC questionnaire or from national sources. Data on employees are from *OECD Main Economic Indicators Database*.

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crisis where it is not compulsory: less than 10% in Belgium, Denmark, Finland, Italy, Korea, Germany and Switzerland; and 10-25% in Austria and Japan.

Over the past year, a number of countries have extended existing programmes. Replacement rates have been increased (Finland), durations extended (France, Switzerland, Turkey), eligibility criteria relaxed (Canada, Japan) or additional groups of firms (Belgium, Korea) given access to short-time work arrangements. In other countries, support for short-time work schemes is being wound back. In Germany, the first temporary extension of duration of short-time work subsidies from six to 24 months expired at the end of 2009, and was replaced by another temporary extension of duration from six to 18 months during 2010. Hungary suspended applications to two of its three short-time work schemes at the end of 2009. No other countries have reported termination of short-time work arrangements to date. However, many additional measures introduced during the crisis (such as extended duration, eligibility or generosity of subsidies) are due to finish at the end of 2010.

3.3. Re-employment measures and training

Job-search assistance and activation measures

The economic crisis has placed much greater demands on public employment services (PES).[43] The number of jobseekers registered with the PES began increasing quickly in 2008 in Greece, Mexico, Turkey and the United States, and then surged in most countries in 2008-09 (Figure 1.20). Most countries responded by increasing PES staff levels, with net increases of 10% or more over the past three years in Germany, Hungary, Japan, Mexico, Poland and Turkey.[44] Despite these additional resources, the average staff caseload increased in most countries, more than doubling between 2007 and 2009 in Turkey and increasing by around 50% or more in the United Kingdom, Czech Republic, New Zealand

Figure 1.20. **Percentage change in PES workload, staffing and outcomes, 2007-09**[a]

Annual change as a percentage of 2007 level
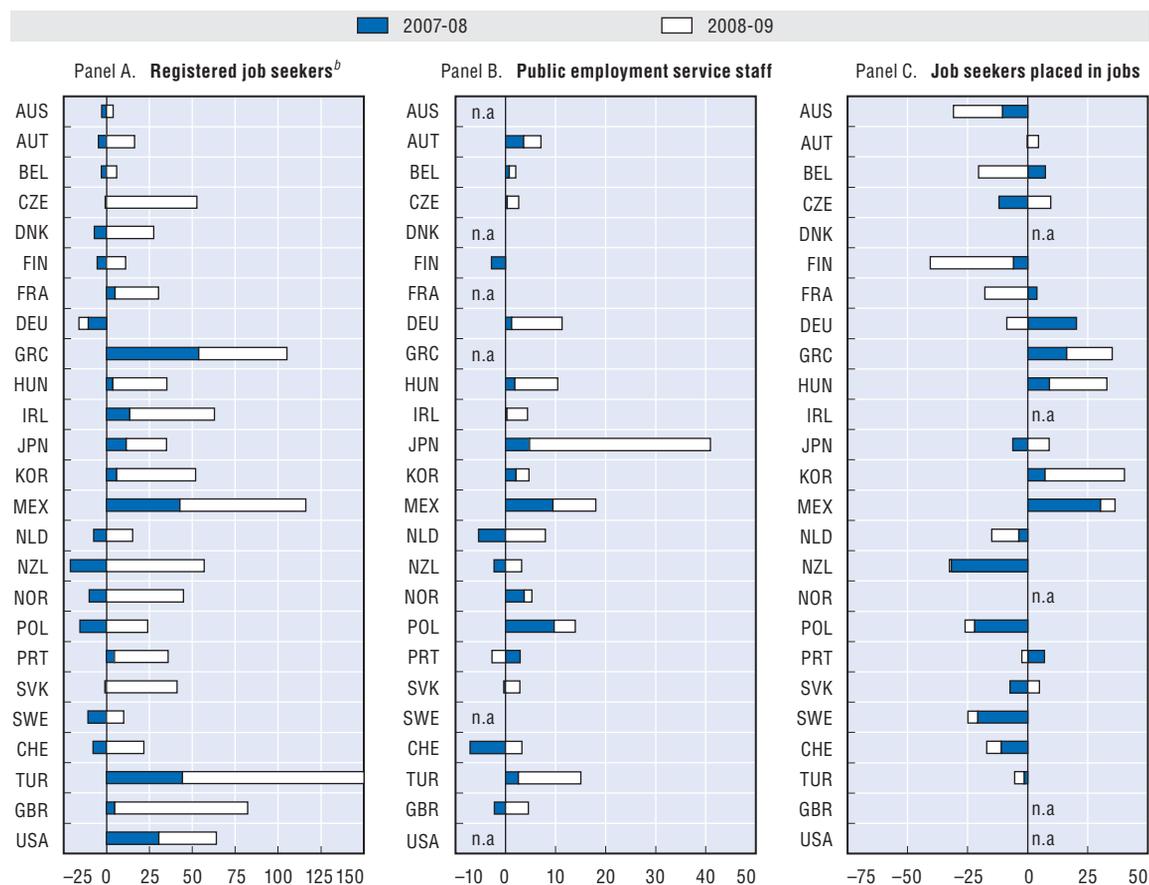
n.a: Not available; PES: public employment service.
a) No data on PES staffing in 2009 are available for Finland.
b) Registered unemployed for the Czech Republic and Poland.

Source: OECD calculations based on responses to OECD/EC questionnaires on labour market policy response to the economic downturn.

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and Mexico.[45] In contrast, caseloads fell slightly in Germany and Japan where an increase in staffing accompanied a decline (Germany) or a small increase (Japan) in registered jobseekers.

Since mid-2009, additional PES resources have been allocated to provide job-search assistance to particular groups such as youth (Finland, Austria, Japan, New Zealand), immigrants (Finland), people with short-term contracts (Belgium) or people not receiving benefits (France). Several countries have expanded the role of private employment agencies to provide much-needed additional capacity (Italy, Poland, France, Korea). A number of PES organisations have been reorganised, for example into centres merging several actors involved in providing re-employment or other support services (Finland, Netherlands, Japan). However, given the sharp declines in registered vacancies – by 6% from 2007-08 and a further 16% from 2008-09 on average – high caseloads resulted in a reduction in the number of jobseekers being placed in jobs from 2008-09 in several countries, with the largest percentage declines in placements in Finland, New Zealand, Australia, Poland and Sweden.

Over the past year, several countries have implemented additional measures to reflect the need for earlier interventions and to put greater emphasis on job seekers' responsibilities. Assessment and intake procedures for job-search assistance have been brought forward in the unemployment spell (Finland), even helping some workers into new jobs before they have lost their current job (United Kingdom). Furthermore, job search services are being delivered in phases with increasing levels of commitment required from job seekers (United Kingdom). Regarding activation requirements, job seekers have been required to take more responsibility in some countries. Jobseekers are now denied benefits if, for no justified reason, they refuse to accept a suitable job (Poland) and they are required (Finland) to look for jobs in wider geographical areas. Elsewhere, obtaining certificates showing qualification levels is being subsidised in order to stimulate mobility (Austria, Netherlands). Immediate activation into training or work-experience places is implemented for youth directly upon registering for social assistance (Netherlands, Denmark for 18-19-year-olds). Australia has introduced a new requirement for unemployed early school-leavers aged under 21, who must undertake education and/or paid employment or voluntary experience to qualify for unemployment benefits.

### Training and work-experience programmes and business start-up incentives

In the first OECD/EC questionnaire, most countries reported an increase in resources devoted to active labour market measures including training, work experience and business start-up incentives. Several also reported measures to provide training to existing workers at risk of job loss or support for apprentices. Many measures were focused on the most disadvantaged groups of jobseekers – youth, the low-skilled and workers in industries most affected by the downturn (see OECD, 2009i, for full details). Training measures have been further intensified over the past year. Among others, these are taking the form of subsidising more training places (Poland, Sweden, Ireland), creating quicker access to training slots after being registered as a job seeker (United Kingdom, Finland) or in the shape of pre-employment training. In some countries, new training places are aimed more specifically at those at risk of being laid off or indigenous people (Australia) or youth (Austria, United Kingdom, Portugal, New Zealand, Switzerland), while in France, firms are required to provide career plans, including training activities, for older workers. Training measures have also been focussed more on sectors with potential high-growth prospects, such as health and social care (Belgium, Austria, United Kingdom) or energy-efficient construction or green industries (Switzerland, Greece, Australia).

Since mid-2009, additional work-experience, internship and/or apprenticeship places have been created through subsidy measures or other financial incentives for employers such as hiring or completion grants (Poland, France, Germany, Greece, Denmark, Australia, Canada, Japan, Korea, New Zealand, Norway, Turkey). Also, more sectors of the economy are eligible to supply these subsidised places (Ireland). Some countries have focused in particular on creating apprenticeship places in the social and health sectors (United Kingdom) or other industries that have not traditionally used apprenticeship (United States). These subsidised places have been made available sooner after registering as job seeker (Ireland, United Kingdom) and are allowed to last longer – up to nine months in Ireland. Business start-up incentives for job seekers and encouragement to take up self-employment have been brought forward in time (United Kingdom) or increased in value (Poland).

3.4. Income support for job losers and low-income earners

In most countries, spending on unemployment benefits and social assistance increases automatically during economic downturns as a response to the increase in unemployment and low-income households. The increase in spending is likely to have been accelerated by discretionary measures adopted during 2009 in many countries that increased generosity or duration of benefits or extended eligibility to groups of job losers not usually covered by benefits, notably temporary or irregular workers. Measures were also adopted in many countries to provide additional support for job losers through social assistance, housing, health or childcare (see OECD, 2009i, for full details). Not surprisingly, the number of people receiving unemployment benefits has grown in most countries since 2007 (Figure 1.21). Growth was strongest in Turkey, New Zealand, Norway, Spain and the United States. However, expanding benefit recipiency has failed to match the pace of growth of unemployment in some countries, suggesting that coverage of the unemployed by benefits may have fallen. In contrast, several countries experienced an increase in the number of benefit recipients that outpaced the growth in unemployment (Czech Republic, Hungary, Korea, New Zealand, Norway, Poland, Portugal, Turkey, United Kingdom, United States). In some cases, this may have been the result of measures designed specifically to increase benefit coverage or eligibility (*e.g.* United States, Korea) or to extend benefit duration or generosity (*e.g.* Turkey, United States).

Figure 1.21. **Growth in unemployment benefit recipients and unemployment**
As a percentage of 2007 level
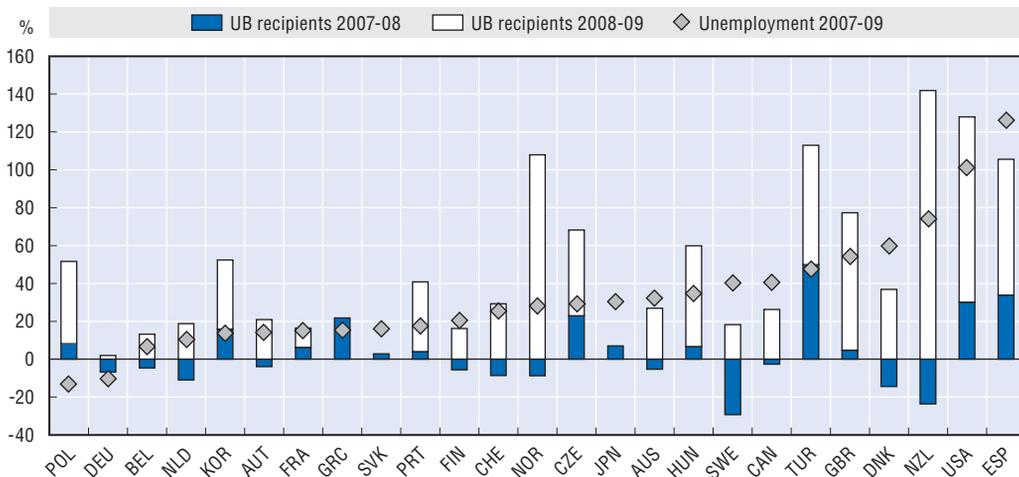
Note: "UB recipients" is the sum of recipients of unemployment insurance (UI) and unemployment assistance (UA), but does not include social assistance or workers in receipt of partial unemployment benefits for reduced working time. It is possible that some people could receive both UI and UA in a single year and so be counted twice. Annual unemployment data for 2007 and 2009 are used, except for New Zealand, the Slovak Republic, Switzerland, Turkey and the United Kingdom, which use data for 2009 Q3. Data on unemployment benefit recipients are not available for 2009 for Japan and the Slovak Republic.

Source: OECD calculations based on responses to OECD/EC questionnaires on labour market policy response to the economic downturn. Unemployment data from the European Union Labour Force Survey (EULFS) and *OECD Main Economic Indicators Database*.

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Over the past year, further changes have been made to income support policies to assist job losers. Benefit eligibility has been expanded: among others to improve access for young people (Finland) and parents (Slovak Republic). Benefit levels have been increased in

general terms (Austria) or specifically for lay-offs (Finland, Belgium). Benefit duration was extended in several countries (Switzerland, United States and Canada). Greece made lump-sum payments to job losers, low-income families and other vulnerable groups. The Czech Republic cancelled plans to temporarily increase duration and replacement rates for some unemployed because of pressure on public finances. Poland continued with a reform to improve the effectiveness of activation by increasing benefit levels in the first three months of receipt (a change in early 2009 reduced duration from 18 to 12 months). Since mid-2009, income support specifically targeted at workers receiving training was introduced or extended in several countries (Australia, Japan, Turkey and the United States). Housing support for job losers have been expanded, either through a housing allowance (Japan) or postponement of mortgage payments (Poland, Hungary, Slovak Republic). Free health insurance was provided for some social benefit recipients in Austria. New initiatives to make work pay have been reported only sporadically. For example, Sweden has increased in-work benefit incentives.

4. The role of short-time work schemes in limiting job losses during the 2008-09 recession

During the current downturn, the majority of OECD countries have taken steps to create or expand public short-time work (STW) schemes as a way to limit job losses (see Section 3). The aggregate analysis in Section 2 showed that the decline in employment has been small in many countries compared with what would have been expected given the size of the decline in output, due in large part to reductions in average hours having accounted for an unusually high share of the total adjustment in labour input. Not surprisingly, a number of observers have conjectured that the vigorous promotion of work sharing *via* STW schemes deserves much of the credit for keeping the rise in unemployment from being even more dramatic. Whether that is in fact the case remains uncertain, because there has been little systematic evaluation of the effectiveness of STW schemes in preserving jobs during the crisis.

This section attempts to begin to fill this evidence gap by estimating the impact of STW schemes on employment, average hours and wages during the 2008-09 recession. As a preliminary to that econometric analysis, the main features of short-time work schemes in 22 OECD countries are reviewed. It is shown that national practices vary widely and that these differences probably play an important role in explaining the wide variation in STW take-up rates during the recession (*cf.* Figure 1.19) and may also influence how effectively take-up translates into net jobs saved. The impact of STW schemes is then assessed by relating cross-country variation in take-up rates during the crisis to variation in the strength of employment, hours and wage responses to the decline in output. A key aspect of the analysis is that it makes use of an explicit and economically realistic counterfactual, against which the role of STW schemes can be assessed. This is essential for drawing reliable inferences about the causal impact of these schemes. As the OECD area is only just starting to emerge from the crisis, it is still too early to assess the impact of STW schemes in the longer term, which is also crucial for an overall assessment. Indeed, the main concerns about short-time work schemes relate to their potentially adverse impacts on the vigour of employment growth during the recovery and economic restructuring in the longer run.

4.1. Overview of short-time work schemes in OECD countries and previous evidence on their effectiveness

Short-time work programmes are public schemes that are intended to preserve jobs at firms experiencing temporarily low demand by encouraging work sharing, while also providing income-support to workers whose hours are reduced due to a shortened workweek or temporary lay-offs. More precisely, the purpose of STW schemes is to avoid "excessive" layoffs, that is, the permanent dismissal of workers during a business downturn whose jobs would be viable in the long-run. In principle, a well-designed STW scheme can promote both equity and efficiency: *i)* equity, by sharing the burden of adjustment more equally across the workforce; and *ii)* efficiency, by preventing transitory factors from destroying valuable job matches (OECD, 2009a). A crucial aspect of all STW schemes is that the contracts of participating employees with their firms are maintained during the period of short-time work or the suspension of work.

The design of short-time work schemes has important implications for their effectiveness

STW schemes are a particular type of a job subsidy and they are also subject to *deadweight* and *displacement* effects that reduce their cost effectiveness. Deadweight occurs when STW subsidies are paid for jobs that employers would have retained even in the absence of the subsidy, implying that this spending is a pure transfer which does not limit total job losses. Displacement effects can be said to occur when STW schemes preserve jobs that are not viable without the subsidy, even after business conditions recover. If these subsidies are maintained they lock workers in low productivity job matches and thus represent a barrier to job creation by firms with the potential to grow and efficiency enhancing labour mobility (see Chapter 3 of this publication). These potential efficiency costs are likely small during a recession, but they become more of a concern as the recovery takes hold. As is the case with conventional job subsidies, STW schemes confront a trade-off between cost-effectiveness, on the one hand, and scale on the other (Martin and Grubb, 2001). For example, tight eligibility requirements and relatively low subsidies can reduce deadweight and displacement effects, but are also likely to discourage take-up by some firms where it would be socially efficient.

The majority of OECD countries operate a public short-time work scheme, but there are important differences in their design. Annex 1.A1 presents an overview of the main features of these STW schemes in 22 OECD countries, organised around work-sharing requirements, eligibility requirements, conditionality requirements and generosity. Considerable diversity is present in all of these areas and these differences in national practice appear to reflect different strategies for balancing concerns about assuring adequate take-up and limiting deadweight and displacement effects:

● *Work-sharing requirements* specify how working-time reductions are to be distributed across the workforce of participating firms, including by setting a minimum number or share of workers who must participate, or limits on the minimum or maximum hours reductions. Fifteen of the 22 countries set a minimum hours reduction limit which ranges from 40% in Norway to 10% or less in Austria, Germany, Switzerland and the Slovak Republic. Relatively high minimum reductions, together with the requirements that a minimum number or proportion of workers participate in six countries, are probably intended to limit STW participation to firms experiencing a significant deterioration in business conditions. However, minimum participation requirements, along with

maximum limits on hours reductions, can also be justified as encouraging broader sharing of the hours reduction across the workforce. In the majority of countries, there is no maximum hours reduction per worker, implying that short-time work can take the form of temporary layoffs (*i.e.* actual hours are reduced to zero), as well as partial reductions in working time.[46] Austria, Canada, Luxembourg, the Netherlands, New Zealand and some US states have placed limits on the maximum reduction in working time in order to exclude the possibility of temporary layoffs. This may be motivated by the desire to encourage work sharing and thereby spread the burden of adjustment across a larger group of workers. Denmark and Switzerland promote this goal directly by requiring that short-time work apply to at least an entire production unit. In countries where the maximum duration of STW participation is relatively long, work-sharing requirements may also reflect concerns about the impact of long temporary layoffs on future employability, since valuable work experience may be lost. The implications of work-sharing requirements for take-up are not clear *a priori*. While restrictions on working-time reductions may reduce take-up by employers, encouraging work-sharing across a larger group of workers within participating firms may raise take-up as measured by the number of workers affected, if not in terms of the total reduction in hours worked.

- *Eligibility requirements* set conditions that employers or workers must meet in order to participate in the programme. In most countries with a STW scheme, firms must provide proof of economic need, such as a minimum reduction in production and/or sales. An explicit agreement between the social partners is also often a requirement. Both requirements are likely to reduce deadweight losses. When business activity declines sharply, firms are less likely to be capable of preventing job losses by themselves. Similarly, trade unions and other worker representatives are more likely to agree to short-time work, despite the loss in income that this typically entails for workers, when the only alternative for the firm is to dismiss workers. Requirements for firm eligibility thus limit take-up in a way that is intended to increase cost-effectiveness.[47] However, to the extent that eligibility requirements create important administrative costs, there is also a risk that they deter some firms from participating in STW schemes even though doing so would allow viable jobs to be preserved. Worker eligibility for STW is sometimes conditional on meeting the eligibility requirements for regular unemployment benefits, typically minimum social security contribution thresholds. Where they apply, these requirements are likely to limit the eligibility of workers in temporary or part-time jobs for STW programmes.[48]

- *Conditionality requirements* set behaviour requirements for employers and workers participating in STW schemes. Behavioural requirements for firms include prohibitions of dismissals during or, in some cases, for a short period after participation in STW schemes (Austria, France, Hungary, the Netherlands, New Zealand and Poland) and the development of recovery plans (Italy, Luxembourg, Poland, Spain and for white-collar workers in Belgium).[49] Behavioural requirements for workers most frequently take the form of job-search requirements, particularly in countries where STW is, in effect, a partial benefit administered by the UB system. During the 2008-09 recession, the Czech Republic, Hungary, the Netherlands and Portugal introduced a requirement that workers participate in training during their idle hours. These conditionality requirements on workers may help to reduce *displacements effects* that arise when short-time work schemes support unviable jobs, since they have the potential to enhance either the viability of the current jobs (*via* up-grade training) or worker mobility (*via* job search or

general training). However, there would appear to be an inherent tension between targeting STW subsidies to preserve the most valuable job matches, where it is presumably the case that the workers' skills already correspond well to job requirements, and requiring further training or job search.[50] More generally, conditionality requirements risk excessively reducing take-up, by increasing the costs to firms of programme participation. To minimise this risk, most of the countries that have made training compulsory during periods of short-time work, provide additional subsidies for training (Czech Republic, Hungary and Portugal), as have a larger number of countries in which training is not compulsory.

- The *generosity* of a STW programme determines the cost of participation for both firms and workers, as well as the maximum duration for which income support is available. The extent to which firms share in the cost of short-time work differs considerably across countries. Even though requiring firms to share in the cost of short-time work appears to be an effective way of reducing deadweight loss, firms do not bear any part of the cost of STW in Belgium, Canada, Denmark, Finland, Ireland, Spain and Turkey.[51] In all other countries, firms bear a part of the wage costs for hours not worked (France, Hungary, Japan, Korea, Poland, Portugal, Slovak Republic) or pay full wages for an initial period of short-time work (Norway, Switzerland). Many countries also require firms to pay at least part of normal social security contributions for hours not worked.[52] Income replacement rates for workers also vary considerably across countries. The generosity of income support to workers on short-time work is likely to be an important factor in explaining the relative ease with which social partners are willing to accept a short-time working agreement in countries where this is required. The maximum duration for which STW subsidies are available is also likely to be an important determinant of take-up, in particular in countries where the administrative costs associated with programme entry are relatively high.

Expanding take-up in a recession probably makes sense, but only up to a certain point

The discussion above makes it clear that eligibility and conditionality requirements, and programme generosity are likely to have an important impact on take-up. While higher take-up is not necessarily better, excessively low take up is a concern, particularly in the context of a deep recession. Most STW schemes contain specific design requirements that directly (through eligibility requirements) or indirectly (through conditionality requirements) reduce take-up, in order to increase cost-effectiveness. More specifically, eligibility requirements seek to lower the unit cost per viable job saved, but are likely to do so at the expense of some desirable take-up. This may mean that in countries with strict eligibility conditions, the proportional impact of short-time work on jobs may be larger, but that its absolute impact may be smaller. Conditionality requirements are likely to reduce take-up and, therefore, reduce the direct impact of short-time working in preserving jobs. However, by enhancing the viability of some continuing jobs and worker mobility, the medium-term impact of short-time working on employment and economic restructuring may be more positive. Finally, greater generosity is likely to increase take-up and, as a result, strengthen the absolute jobs impact of short-time working in the short run. However, this may come at the expense of a lower cost effectiveness in the short run and lower employment and job reallocation in the medium run, especially if support for short-time work is maintained for too long into the recovery.

During the 2008-09 recession, most OECD countries that already had a short-time work scheme at the start of the crisis made temporary adjustments to their schemes intended to encourage greater take-up, including by weakening eligibility and conditionality requirements and increasing generosity (see Section 3 and OECD, 2009i for details). This suggests that governments judged that the correct balance between assuring adequate take-up and avoiding deadweight and displacement effects had temporarily shifted towards placing a greater emphasis on expanding STW participation. This seems reasonable *a priori* since many more viable jobs are at risk in a steep recession, especially one in which firms' access to credit is limited, while the social cost of locking workers in unviable jobs is temporarily lower since there is little prospect they could move quickly into more productive jobs. The same reasoning suggests that these crisis measures should be phased out during the recovery, as firms become better able to retain viable jobs without public subsidies and the efficiency cost of retaining workers in non-competitive jobs increases. The increasingly tight fiscal constraints confronting many OECD governments provides an additional reason to shift progressively towards emphasising greater cost-effectiveness. While adapting the design of STW schemes over the course of a recession and early recovery in this manner appears desirable *a priori*, empirical evidence about the actual effectiveness of such a policy stance is lacking.

There is considerable uncertainty how many viable jobs short-time work schemes can save

A limited number of studies have used firm-level data from administrative sources to assess the impact of STW schemes on different outcome variables of interest, including their potential for preserving jobs. The main challenge confronting such studies is the selection bias that arises due to participating firms tending to be less competitive than other firms that can serve as a control group. If the selection pattern is not appropriately addressed, it may be falsely concluded that short-time work subsidies result in lower job stability and employment. Calavrezo *et al.* (2009) make use of firm-level data to analyse the impact of the French system of *chômage partiel* on layoffs. They find that *chômage partiel* tends to increase layoffs. This may indicate that despite the use of sophisticated econometric methods, the problem of selection bias has not been entirely removed. Berkeley Planning Associates & Mathematica Policy Research, Inc. (1997) provide a comprehensive assessment of short-time compensation programmes in the United States using a variety of methods and conclude that the available firm-level data do not allow one to reliably attribute differences in outcomes between participating and control firms to short-time compensation.

The aggregate approach taken by Abraham and Houseman (1994) and other studies that they cite provides a potentially fruitful alternative to micro studies based on comparisons between participating and non-participating firms. Abraham and Houseman compare aggregate adjustment patterns in employment and hours worked across countries and over time using quarterly time-series data for Belgium, France, Germany and the United States. They show that adjustment in total hours worked is fairly similar across the four countries, even though employment adjustment is much slower in the three European countries. This suggests that average hours worked adjust more strongly in the three European countries than in the United States. In order to obtain an indication of the role of short-time work, Abraham and Houseman estimate adjustment speeds based on total hours worked and show that the speed of adjustment is substantially higher in the

presence of short-time work, which suggests that STW schemes make an important contribution to hours flexibility in Belgium, France and Germany. While very instructive, this study provides little insight into how effectively STW schemes preserved jobs in the 2008-09 recession. One limitation is that Abraham and Houseman do not assess the quantitative impact of STW schemes on labour market outcomes, nor do they explicitly relate short-time work to employment stability. The fact that the analysis is limited to a small number of countries also means that disentangling the impact of STW schemes on labour demand adjustment from other factors that differ across countries is very difficult. Finally, Abraham and Houseman's evidence is now rather dated since STW schemes and labour market structures more generally have evolved significantly since the 1980s and early 1990s.

A first indication of the potential job saving impact of STW schemes, as they operated during the 2008-09 recession, can be derived from a simple accounting exercise: using information on the number of workers participating in STW schemes and the average reduction in hours worked, the total subsidised reduction in hours worked can be calculated and converted into full-time equivalent workers. For example, of calculations of this type suggest that about 60 000 and 350 000 jobs could have been saved during the current downturn in France and Germany, respectively.[53] However, this exercise should be considered as yielding an upper limit on the number of jobs potentially saved, because it takes no account of the fact that subsidies may support jobs that would have been maintained anyway (deadweight) or that some of the jobs supported by short-time work subsidies may be terminated during the programme or soon after its completion. These leakages may be quite large. For example, an evaluation of the Canadian *Work Sharing Programme* shows that about half of the jobs that were initially maintained by the programme were lost soon after its termination (HRDC, 2004). Similarly, an *ex ante* evaluation of the new Dutch scheme (CPB, 2009) suggests that deadweight cost could amount to 50% of the total cost.[54]

The fundamental limitation of the accounting exercises just discussed is that they do not rely upon a realistic no-STW counterfactual, against which observed outcomes in employment and hours can be assessed.[55] In order to draw reliable conclusions about the effectiveness of short-time work programmes in preserving jobs during an economic downturn, it is essential to construct a realistic counterfactual. The next sub-section attempts to do so for the operation of STW schemes during the 2008-09 recession.

4.2. New OECD evidence

This section presents new OECD evidence on the impact of STW schemes on employment, hours and wages during the 2008-09 recession. The analysis makes use of quarterly data for the period 2003 Q1 to 2009 Q3 for 19 countries and four industries (manufacturing, construction, distribution and business services). The agricultural and non-market sectors are excluded from the analysis.[56] Of the 19 countries included in the analysis, 11 countries operated a short-time work scheme during the entire period, five countries introduced a new scheme during the crisis period and three countries never had a short-time work scheme.

The basic idea underlying this analysis is to relate differences in labour-adjustment patterns across countries to differences in the intensity with which STW schemes are used. This involves making comparisons across countries with and without short-time work schemes, as well as across countries with short-time work schemes that differ in economic scope.[57] It is assumed that conditional on economic conditions, the STW take-up rate provides a proxy for the attractiveness of participating in a country's short-time work

scheme, which is effectively exogenous to labour demand adjustment patterns during the downturn. Consequently, the cross-country variation in take-up rates can be used to analyse the causal impact of STW schemes on the labour market response to the global crisis.[58]

This appears to be the first study to exploit the cross-country variation in take-up rates to analyse the quantitative impacts of STW schemes on labour market outcomes. Exploiting the variation in the intensity of the use of short-time work across countries has a number of advantages. First, it allows one to construct a realistic counterfactual against which the role of STW schemes can be assessed. Second, exploiting the variation across countries, rather than between participating and non-participating firms within countries, avoids the selection problem that characterises firm-level studies. Third, the approach used here focuses on the *net* effects of short-time working on labour market outcomes, after taking account of its effects on both participating and non-participating firms. To the extent that short-time working also affects labour market outcomes in non-participating firms, for example, by reducing labour mobility, this could be potentially important.[59]

Using cross-country variation to identify the causal impact of STW schemes also raises a number of difficulties. Most fundamentally, countries differ in many ways that affect labour-demand adjustment in addition to whatever impact STW schemes may have. Regulations affecting dismissals and hours flexibility are of particular concern in this respect. Box 1.4 provides an overview of policies that affect the relative ease of making adjustments along the employment and hours margins in OECD countries. National practices differ substantially and there is also a tendency for strict employment protection (EP) to be associated with both STW schemes and alternative arrangements that provide additional flexibility on the hours margin such as hours averaging and the use of overtime. This probably reflects the greater perceived need to enhance internal flexibility when external flexibility is discouraged by relatively strict EP. To the extent that short-time work programmes tend to be more important in countries with strict EP legislation and more flexible hours regulations, this may lead to an upward bias in the estimated impact of short-time work in encouraging greater work sharing during a recession. Since EP and working time flexibility regulations tend to be fairly stable over time and are difficult to adjust rapidly in response to changes in the business cycle, this potential bias may be avoided in the econometric framework used here since the baseline specification includes country fixed effects that control for country-specific factors that have been constant during the 2008-09 recession. The OECD indicator for EP is also added to the model as a robustness check.

Another important feature of the analysis is that it distinguishes between permanent and temporary workers. Temporary workers are typically the first to lose their job in an economic downturn and adjustments in temporary employment in terms of overall employment have been substantial in a number of OECD countries (*cf.* Figure 1.3). Despite their elevated risk of job loss in a recession, temporary workers appear to participate very little in STW schemes. One reason for this is that some countries limit eligibility to workers meeting social security contribution thresholds few temporary workers meet (Annex 1.A1). While several countries have temporarily extended the coverage of STW schemes to temporary workers (*e.g.* France), this remains rare. Moreover, even if temporary workers are eligible for short-time work, in principle, the incentive for firms to place temporary workers on short-time work are likely to be considerably weaker than for their core workforce. Participation in these schemes tends to be costly for employers, while hiring and firing costs tend to be low for temporary workers. As a result of these differences in

Box 1.4. **Policies affecting the choice between the internal and external margin of labour input adjustment**

Along with the STW schemes, the relative stringency of regulation of hiring and firing ("employment protection") and working time adjustments is likely to affect how much firms adjust along the internal or external margins during a downturn (*i.e.* whether employers rely principally on reductions of average hours worked or labour shedding). There is some evidence of a cross-country trade off in regulations affecting internal and external flexibility (see Table below). Many countries with strict employment protection have relatively flexible rules for hours adjustment, notably the Czech Republic, France, Germany, Greece, Italy and Spain. Everything else equal, hours reductions are likely to play a more important role than dismissals in these countries when firms need to reduce their labour inputs. In contrast, Korea, Hungary and Iceland are less strict when it comes to employment protection, but relatively inflexible on hours adjustment. There is also evidence of a trade-off between different types of hours flexibility. In Belgium, Denmark, Finland, Norway, Sweden, the United States and most Canadian jurisdictions, overtime premia are relatively high, but normal hours can be averaged over a long period. In Australia, Ireland, Luxembourg, the Netherlands, New Zealand, Switzerland, Turkey and the United Kingdom, averaging is more difficult, but overtime premia lower. In general, STW schemes are more developed in countries with stricter employment protection regulation. However, during the current recession, a number of countries with relatively weak employment protection, including the Slovak Republic, Hungary and New Zealand, introduced such schemes.

Regulation of internal and external adjustment

		Employment protection ←— Internal margin/External margin —→	
		Stricter employment protection[a]	Less strict employment protection
Working-time regulation ←— External margin/Internal margin —→	Low overtime premium[b] AND long averaging period[c]	Czech Republic France Germany Greece Italy Spain	Japan Slovak Republic
	Low overtime premium OR long averaging period	Long averaging period: Belgium Finland Norway Low overtime premium: Luxembourg Turkey	Long averaging period: Canada Denmark Sweden United States Low overtime premium: Australia Ireland Netherlands New Zealand Switzerland United Kingdom
	High overtime premium AND short averaging period	Austria Mexico Poland Portugal	Hungary Iceland Korea

a) Employment protection is measured using the OECD Summary Indicator of Employment Protection (see *www.oecd.org/employment/protection* for details). Stricter employment protection is defined as above the OECD median.

b) Overtime premium is measured as average hourly overtime compensation as a percentage of the normal hourly wage for an employee working an additional hour of overtime per day for five weekdays (additional five hours per week in total). Where data on overtime compensation in collective agreements are available, the average of statutory and collectively-bargained overtime compensation is taken, weighted by collective bargaining coverage. Low overtime premium is defined as below the OECD median.

c) Averaging period is the maximum number of weeks over which an increase in weekly hours of ten hours per week can be averaged. Where averaging periods differ depending on whether averaging takes place inside or outside collective bargaining, the average of periods is taken, weighted by collective bargaining coverage. Long averaging period is defined as above the OECD median.

Source: Employment protection: Venn (2009); Working-time regulation: Annex 1.A5 in OECD (2010b).

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eligibility and hiring-and-firing costs across, short-time work schemes may have a tendency to increase labour market segmentation by raising employment stability among permanent workers while leaving it constant or even reducing it among temporary workers.[60] Given their differential participation in STW schemes, it is important to distinguish, as much as possible, between temporary and permanent workers when analysing how these schemes affect labour demand adjustment.

A first look at the data

In order to provide a first look at the possible role of short-time work schemes in shaping labour market adjustment during a recession, Figure 1.22 presents a scatter plot of the percentage changes in employment and average hours of permanent workers against those in output during the period 2008 Q3 and 2009 Q3, differentiating between countries that already operated a short-time work scheme at the onset of the crisis, countries that established a new short-time work scheme in response to the crisis and countries that do not operate a STW scheme. These data suggest that countries with STW schemes experienced smaller reductions in permanent employment in response to the decline in aggregate demand than other countries, but larger reductions in average hours, although these scatter plots clearly indicate that many other factors influence the strength of these responses:

● Panel A of Figure 1.22 shows that the response of permanent employment to the decline in output tended to be weakest in countries that operated a STW scheme at the onset of

Figure 1.22. **Did short-time work schemes affect labour market adjustment during the 2008-09 recession?**

Percentage change between 2008 Q3 and 2009 Q3[a]
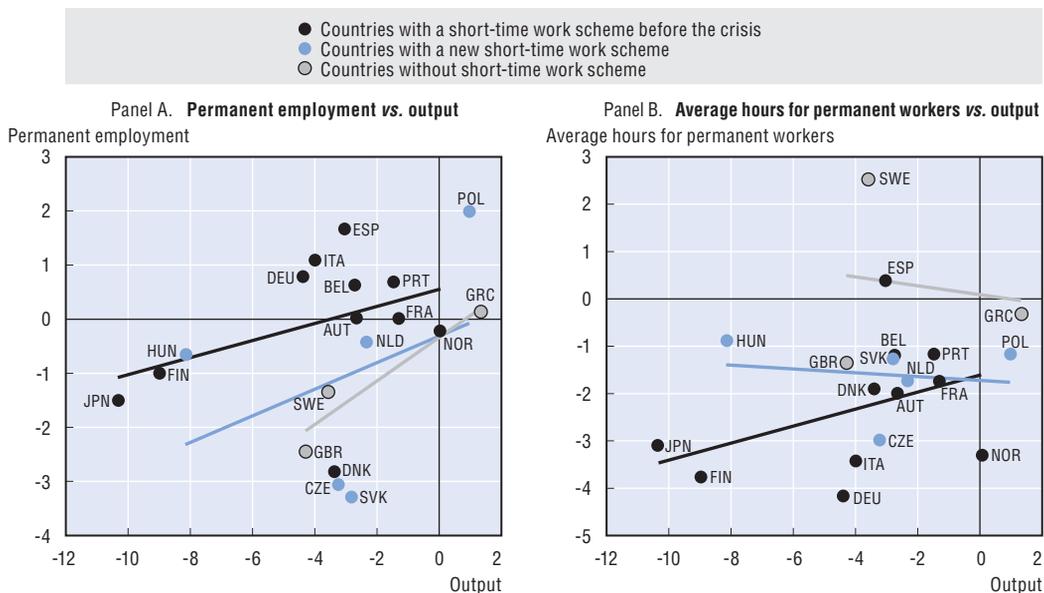
a) Based on 19 countries of which 16 with short-time work schemes. Agriculture and non-business services are excluded.

Source: OECD estimates based on the European Quarterly National Accounts and the European Union Labour Force Survey (EULFS) for the European countries and the Ministry of Economy, Trade and Industry (METI) and the national labour force survey for Japan.

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the crisis, somewhat stronger in countries that established a short-time work scheme in response to the crisis and strongest in countries without such schemes.

● Panel B shows that the average hours response to the decline in output tended to be strongest in countries that already operated a STW scheme before the start of the crisis and that average hours also tended to fall during the recession in countries that established such a scheme during the downturn, although the size of the hours reduction was not systematically related to the size of the fall in output. Average hours evolved erratically in the three countries without a STW scheme, but were approximately unchanged on average.

Short-time work schemes helped preserve permanent jobs during the 2008-09 recession

The simple associations highlighted in Figure 1.22 could reflect the causal impact of short-time work schemes, but it is also possible that countries where STW schemes operate also have other labour market institutions that favour adjustment along the intensive margin. The remainder of this section discusses the results from an econometric analysis that is better suited to identify the causal impact of STW schemes on labour market adjustment during the recent downturn. The following outcome variables are considered: employment, average hours and average hourly wages. When looking at employment and average hours, the analysis consistently distinguishes between permanent and temporary workers. This is not possible in the case of hourly wages due to data limitations. Box 1.5 presents the data and the methodology in greater detail, while key

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Box 1.5. Assessing the role of short-time work schemes during the 2008-09 recession

In order to estimate the impact of short-time work schemes on employment, average hours and average hourly wage adjustments during the 2008-09 recession, a model of labour market adjustments is estimated that allows the responsiveness of outcomes to declines in output to vary across countries according to differences in the intensity with which STW schemes are used within the same broad industry. The empirical model can be represented as follows:

$$\Delta ln l_{ikt} = \alpha_0 + \alpha_1 \Delta ln y_{ikt} + \alpha_2 \Delta ln y_{ikt} * D_{kt}^{crisis} + \alpha_3 \Delta ln y_{ikt} * D_{kt}^{crisis} * T_{kt}^{stw} + \alpha_4 D_{kt}^{crisis}$$

$$+ \alpha_5 T_{kt}^{stw} + \beta_{it} D_{it} + \gamma_k D_k + \varepsilon_{ikt} \tag{1}$$

where subscripts i, k, and t refer to industry, country and time, respectively; l refers to the outcome variable of interest, which may be permanent or temporary employment, average hours worked of permanent or temporary workers, or the average real hourly wage (for permanent and temporary workers together); and y refers to gross real output. The model, thus, treats output as exogenous. While this assumption would be inappropriate in many contexts, it appears to be reasonable in the context of a deep economic downturn, when changes in aggregate demand conditions drive the variation in output and hence labour demand. In order to allow for the possibility that the impact of output differs during the crisis period, output is interacted with a country-specific crisis dummy, D_{kt}^{crisis}, which equals one from the last peak in quarterly GDP to the end of the sample (2009 Q3). T_{kt}^{stw} is the country-specific STW take-up rate averaged over the period of the crisis during which the short-time work programme operated. It lies between zero and one in countries with a STW scheme and equals zero in countries without a scheme. Conditional on the change in

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Box 1.5. **Assessing the role of short-time work schemes during the 2008-09 recession** (*cont.*)

output, the intensity of short-time work may be interpreted as a proxy for the attractiveness of participating in a country's STW scheme. The attractiveness of a short-time work scheme may reflect its relative generosity in terms of the level and maximum duration of compensation for reduced working time, as well as administrative features that affect the ease with which firms can enter and exit the program (see discussion in main text). D_{it} represents a full set of industry-by-time dummies, D_k a full set of country dummies and ε_{ikt} an idiosyncratic error term. The industry-by-time dummies control for technology differences within industries and over time that are common across countries. Their inclusion implies that identification is achieved by making comparisons within industries across countries. The inclusion of country dummies controls to some extent for the role of common factors within countries across industry-and-time groups such as employment and hours regulations.

The impact of STW schemes on the responsiveness of labour market outcomes to output shocks during the crisis period is captured by the interaction term of the change in output, the crisis dummy and the short-time take-up rate. Countries without STW schemes provide the counterfactual against which the impact of short-time work is assessed. More precisely, the average marginal effect of a change in output during the crisis period on the outcome variable of interest in countries without a STW scheme can be obtained by taking the sum of the coefficients on the change in output and the interaction term of the change in output and the crisis dummy. The average marginal effect of a change in output during the crisis period in countries with a STW scheme is given by the sum of the coefficient on the change in output, the coefficient on the interaction term of the change in output and the crisis dummy, and the coefficient on the interaction term of the change in output, the crisis dummy and the take-up rate multiplied by the average take-up rate in the sample during the crisis period. Country-specific marginal effects can be obtained by using the average take-up rate within a country during the crisis period instead of the sample average. The total proportional impact of the change in output during the crisis period within a country can be obtained by multiplying the country-specific marginal effects with the corresponding changes in output during the crisis period. In countries that have newly introduced a short-time work scheme during the crisis, the change in output during the period in which the scheme was operational is used. The absolute impact of short-time work can be obtained by multiplying its proportional impact by the actual level of the outcome of interest at the start of the crisis.

The analysis is based on an unbalanced panel of quarterly data across 19 countries and four industries for the period 2003 Q1 to 2009 Q3. The core database on employment, hours, wages and output is derived from Eurostat's Quarterly National Accounts and the European Labour Force Survey for the European countries and the Ministry of Economy, Trade and Industry (METI) and the national labour force survey for Japan. A country is considered to have a short-time work scheme when it has a programme of partial unemployment benefits for economic reasons where partial unemployment benefits refer to benefits that are paid to compensate for the loss of wage or salary due to formal short-time working arrangements, intermittent work schedules or temporary layoffs. Countries that only have a partial unemployment benefit programme to compensate shortfalls in the demand for seasonal or exceptional reasons are not considered as having a short-time work scheme here (*e.g.* Greece). Five countries included in the analysis established new short-time work schemes in response to the economic crisis (dates of entry into force in brackets): the Czech Republic (2008 Q4), Hungary (2009 Q2), the

Box 1.5. **Assessing the role of short-time work schemes during the 2008-09 recession** (*cont.*)

Netherlands (2008 Q4), Poland (2009 Q3) and the Slovak Republic (2009 Q2). Countries that have modified their STW schemes as a response to the crisis are Belgium, Germany, Finland, France, Italy (all 2009 Q1), the Netherlands and Norway (2009 Q2). Data on participation in short-time work schemes are obtained partly from Eurostat and partly from national sources. Take-up of short-time work is measured as the ratio of the average number of participants to the number of employees during the crisis period or, in the case of schemes that were established in response to the crisis, during the period when the scheme was operational. Considerable efforts were made to render take-up rates comparable across countries. For details on take-up rates and their definitions across countries, see Annex 1.A6 of OECD (2010b).

In order to account for the seasonality in the data differences in the model refer to year-on-year differences rather than quarter-on-quarter differences. Standard errors are clustered within countries in order to correct for the possibility that standard errors are downward biased due to the cross-sectional correlation that arises from the inclusion of variables at the country level (Moulton, 1990). Ireland was excluded from the analysis. The reasons for doing so are discussed in detail in the main text.

estimation results are highlighted in Figure 1.23 which reports the average marginal effects of a 10% decline in output during the crisis period for typical countries with and without STW schemes. Table 1.4 reports the full results for the baseline model and several alternative specifications.

Figure 1.23. **Short-time work schemes reduced the output sensitivity of employment, but increased that of average hours**

The impact of short-time work schemes on the responsiveness of employment, hours and real wages to a 10% reduction in output[a]
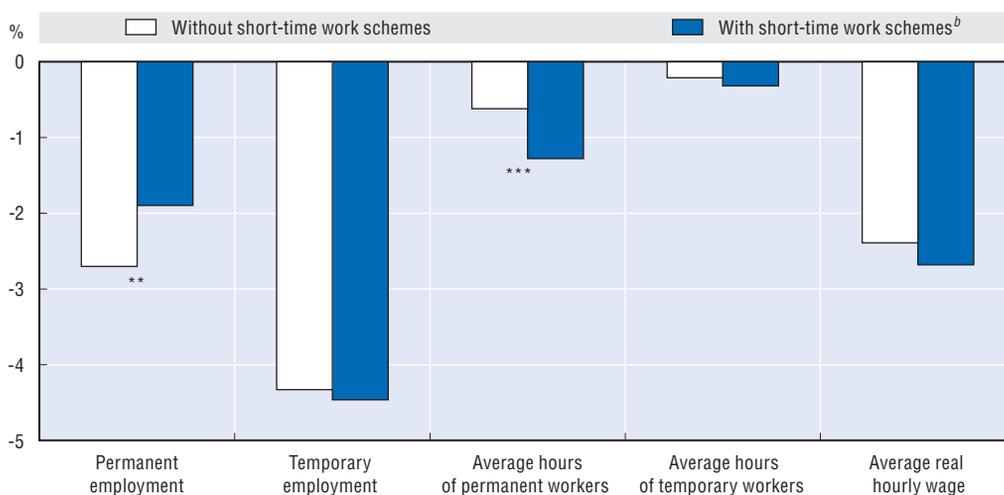
, * Difference statistically significant at the 5% and 1% level, respectively.

a) Based on 19 countries of which 16 with short-time work schemes. Estimates over four industries: manufacturing, construction, distributive services and business services (agriculture and non-business services are excluded).

b) Take-up rate assumed to equal the average across countries operating a short-time work scheme during the 2008-09 recession.

Source: OECD estimates based on Panel A of Table 1.4.

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Table 1.4. **The impact of short-time work schemes**

OLS estimates, dependent variable expressed in year-to-year percentage change[a]

	Employment of permanent workers	Employment of temporary workers	Average hours for permanent workers	Average hours for temporary workers	Average real hourly wage
	Panel A. **Baseline specification**				
Output[b]	0.114**	0.054	0.016	0.069	0.325***
Crisis dummy	−0.015	−0.042	−0.003	−0.004	0.012
Average take-up rate	0.148	2.284	−0.305	−0.500	−2.913
Interaction term of output[b] and crisis dummy	0.156***	0.379	0.046	−0.048	−0.086
Interaction term of output,[b] crisis dummy and average take-up rate	**−8.628****	**1.422**	**7.050*****	**1.164**	**3.098**
Observations	1 724	1 724	1 724	1 632	1 564
R-squared	0.43	0.21	0.32	0.11	0.29
	Panel B. **Baseline specification with take-up rate defined at industry level**				
Output[b]	0.092***	0.039	0.012	0.063*	0.342***
Crisis dummy	0.013**	−0.092***	−0.003	−0.004	0.003
Average take-up rate	−0.107	0.789	0.001	−0.315*	0.209*
Interaction term of output[b] and crisis dummy	0.117*	0.865***	0.071	0.061	−0.413***
Interaction term of output,[b] crisis dummy and average take-up rate	**−3.911*****	**13.958**	**2.428*****	**−1.703**	**1.099**
Observations	988	988	988	988	1 012
R-squared	0.55	0.28	0.37	0.16	0.35
	Panel C. **Baseline specification plus EP interaction**				
Output[b]	0.113**	0.055	0.016	0.069	0.326***
Crisis dummy	−0.015	−0.041	−0.003	−0.004	0.012
Average take-up rate	0.191	1.487	−0.270	−0.500	−2.884
Interaction term of output[b] and crisis dummy	0.210	−0.606	0.090	−0.048	−0.026
Interaction terms of output,[b] crisis dummy and					
average take-up rate	**−8.690****	**2.562**	**7.000*****	**1.163**	**3.120**
average EP	−0.031	0.562	−0.025	0.000	−0.035
Observations	1 724	1 724	1 724	1 632	1 564
R-squared	0.43	0.22	0.32	0.11	0.29

*, **, *** statistically significant at the 10%, 5% and 1% level, respectively.

EP: employment protection.

a) Regressions include a full set of country dummies along with a full set of industry-by-time dummies, based on 19 countries of which 16 with short-time work schemes. Estimates over four industries: manufacturing, construction, distributive services and business services (agriculture and non-business services are excluded).

b) Year-on-year percentage change of log real gross output.

Source: OECD estimates based on the European Quarterly National Accounts and the European Union Labour Force Survey (EULFS) for the European countries and the Ministry of Economy, Trade and Industry (METI) and the national labour force survey for Japan.

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The estimation results for the baseline specification provide the following insights into the impact of STW schemes during the 2008-09 recession:

● The results provide clear evidence that short-time work schemes helped preserve permanent jobs during the economic downturn, while also increasing average hours reductions among permanent workers. This is indicated in Figure 1.23 by the smaller (in absolute value) average marginal effect for permanent employment of a 10% reduction in output during the crisis period in countries with short-time work schemes relative to countries without such schemes and the larger (in absolute value) average marginal effect for the average hours of workers with a permanent contract. In Panel A of Table 1.4, this can be seen by looking at the significant coefficients of the interaction

terms for the change in output, the crisis dummy and the take-up rate (in bold) in the columns for the employment and average hours of permanent workers.

- There is no evidence that STW schemes had a significant impact on the employment and average hours of temporary workers.[61] However, the results indicate that even in the absence of short-time work, temporary employment is much more sensitive to economic downturns relative to workers with a permanent or open-ended contract and average hours much less sensitive. This is a clear sign that the labour markets of temporary and permanent workers tend to be segmented. By helping to preserve the jobs of workers with permanent or open-ended contracts, without providing additional job stability to temporary workers, STW schemes have a tendency to enhance the position of insiders relative to outsiders and may thereby further increase the degree of labour market segmentation.

- Short-time work does not have a significant effect on the responsiveness of average wages to output, although the point estimate that real hourly wages are more strongly downward responsive to output declines in the presence of STW schemes is plausible. Any impact of STW on average wage adjustment is likely to operate through a composition effect. For example, Vroman and Brusentsev (2009) argue that the alternative to work sharing supported by short-time compensation is likely to be layoffs of relatively junior and low-paid workers which would tend to raise average wages for the part of the workforce remaining employed. Although their argument referred to US institutions, the relatively high vulnerability of low-skilled workers to layoffs in a recession (*cf.* Figure 1.3) probably means that the additional work sharing induced by STW schemes disproportionally preserves the jobs of workers with below-average wages in their industry, if not the lowest wage workers.

Sensitivity analysis

The results for the baseline specification raise two concerns. First, it is possible that the statistically significant results are driven by cross-industry correlations within countries that arises due to measuring STW take-up at the country level. A second concern is that the analysis does not take sufficient account of the role of employment protection and hours regulations in influencing employers' choices between adjusting employment and average hours. In principle, both concerns have been addressed in the econometric framework described in Box 1.5, respectively, by clustering standard errors within countries and through the inclusion of country-fixed effects. However, these concerns are addressed more directly in the specifications that are reported in Panels B and C of Table 1.4. These supplementary estimation results suggest that the baseline estimates are qualitatively robust:

- In the specification in Panel B of Table 1.4, take-up is defined at the industry-level rather than at the country level. This directly addresses concerns about the statistical significance of the results being driven by the cross-sectional correlation of take-up rates across industries within countries. The main drawback to defining take-up at the industry-level is that the necessary data are only available for eight countries,[62] thus greatly reducing the generality of the results. Nonetheless, the qualitative results are very similar to those reported in Panel A, even though the quantitative impact of short-time working on the employment and the average hours of permanent workers is substantially reduced. While the statistical significance of the baseline results does not appear to be spurious, there is considerable uncertainty about the quantitative impact of short-time working.[63]

● In the specification that is reported in Panel C of Table 1.4, an interaction term between the change in output, the crisis dummy and the average level of employment protection is added to the baseline model, which is intended to control for how employment protection influences the impact of a change in output during the crisis period on the outcome variable. Country-fixed effects continue to account for the general effect of cross-country differences in employment protection – as well as other time-invariant features of the institutional environment – on the output variable. The results in Panel C do not suggest that employment protection had a significant impact on the pattern of labour demand adjustment during the downturn. Moreover, the results with respect to the intensity of STW are qualitatively and quantitatively similar to those reported in Panel A.

Ireland was excluded from the entire analysis because it proved to be a strong outlier that affected estimation results in an erratic manner. For example, including Ireland in the estimation sample used to generate the baseline results substantially increases the estimated impact of short-time work on permanent employment, but the opposite is true for estimates based on industry-level take-up rates where including Ireland leads to STW having no discernable effect on permanent employment. This instability probably indicates that the empirical model used here fails to account satisfactorily for the specificities of the Irish jobs crisis which were noted in Sections 1 and 2 of this chapter. In particular, the size and persistence of the decline in real GDP experienced in Ireland is significantly greater than that in the 19 countries retained in the estimation sample. It may well be that the severity of the Irish recession was such as to overwhelm the normal capacity of STW schemes to encourage employers to make greater use of work sharing in the context of declining demand.

The contribution of short-time work to preserving jobs differed importantly across countries

The results presented so far provide evidence that short-time work schemes helped to preserve permanent jobs during the 2008-09 recession by inducing firms to reduce average hours worked. However, they do not provide much insight in the quantitative importance of STW schemes. Figure 1.24 uses the regressions coefficients in Panel A of Table 1.4 to provide estimates of the additional permanent employment in 2009 Q3 that may be attributed to the operation of STW schemes during the crisis period. Both proportional and absolute job impacts are reported. The proportional job estimates are obtained by the product of three terms: *i)* the coefficient of the interaction term for the change in output, the crisis dummy and average take-up rate in Table 1.4, Panel A; *ii)* the total change in output during the crisis period; and *iii)* the average level of the STW take-up rate over the same period. Differences in the proportional impact of short-time work across countries reflect both differences in the size of the decline in output during the crisis period and differences in the average take-up rate. The absolute number of permanent jobs saved is calculated by multiplying the proportional change in permanent employment by the level of permanent employment at the onset of the crisis. Cross-country differences in the absolute jobs impact of short-time thus reflect differences in country size in addition to differences in the size of the shock and the intensity of short-time work. In countries where short-time work schemes were only established after the start of the crisis, the impact of short-time work programmes is calculated from the time after the scheme became operational. The following patterns emerge:

● The Belgian short-time work scheme is estimated to have had the largest proportional impact on permanent employment during the recession. The estimates suggest that the decline in permanent employment from the start of the crisis to the end of 2009 Q3 was

Figure 1.24. **Short-time work schemes helped to preserve permanent jobs in the 2008-09 recession**

Proportional and absolute impact on permanent employment due to short-time work schemes from the start of the crisis to 2009 Q3
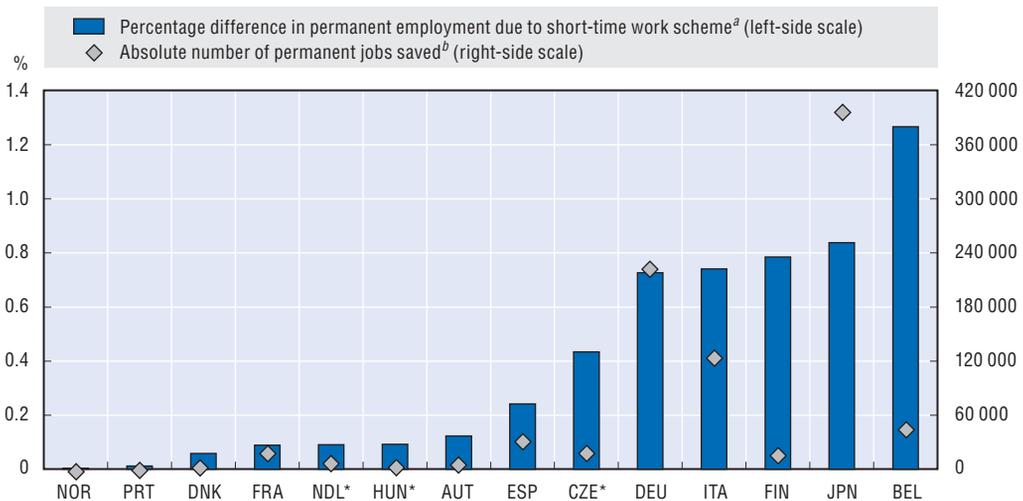
* indicates countries that introduced a new short-time work scheme in response to the crisis. The estimated jobs impacts refer to period from which the short-time work scheme became operational until the end of 2009 Q3.
a)   The proportional impact of the crisis due to short-time working is calculated by multiplying the coefficient on the interaction term of the change in output, the crisis dummy and average take-up rate in Panel A of Table 1.4 by the total change in output and the average national take-up rate during the crisis period.
b)   The absolute number of jobs saved due to short-time working is calculated by multiplying the proportional impact of the crisis due to short-time working by the level of permanent employment at the onset of the crisis.
Source: OECD's calculations based on Panel A of Table 1.4.

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1.3 percentage points smaller than what it would have been in the absence of the STW scheme. However, this estimate is based on the implicit assumption that short-time work is used exclusively as a crisis measure, so that the counterfactual take-up rate is zero. Since the pre-crisis take-up values was low or zero in most countries, that appears to be the appropriate baseline for judging the impact of STW schemes during the recession (see Figure 1.19). However, Belgium is an exception because short-time work was already being used quite extensively prior to the start of the crisis. This means that the jobs impact of crisis-related short-time work in Belgium may be overestimated substantially. Unfortunately, it is not straightforward to correct for this as this would require detailed data on take-up during the pre-crisis period which are not available for most countries.

● Short-time work schemes in Finland, Germany, Italy and Japan are also estimated to have substantially reduced the proportional impact of the crisis on permanent employment. The reduction in permanent employment is likely to have been about 0.75 percentage points smaller than it would have been in the absence of short-time work. In Finland, the relatively large proportional impact of STW is primarily attributable to the large reduction in output during the crisis period. The fall in output and the STW take-up from the start of the crisis to the end of 2009 Q3 are quite similar in Germany, Italy and Japan with the fall in output amounting to about 5% and the average take-up rate being about 1.7%. Among the countries that established a new STW scheme during the crisis period, the proportional impact is estimated to have been largest in the Czech Republic.

● The absolute jobs impact is estimated to have been particularly large in Germany and Japan, a reflection of their large populations and moderately large proportional impacts

of STW schemes in preserving permanent employment. Short-time work is estimated to have reduced the loss of permanent employment by over 200 000 in German and by almost 400 000 in Japan.

These estimates support the conclusion that short-time work schemes had an economically important impact on preserving jobs during the economic downturn. Comparing these estimates of the net effect of STW schemes in preserving permanent jobs with the potential number of jobs preserved, as indicated by translating the total hours reductions that were subsidised (*i.e.* using the accounting calculation introduced above), provides an indication of the size of deadweight effects. The accounting calculation for Germany suggests that the potential employment impact from STW in 2009 Q3 was 350 000.[64] Comparing this value with the estimate for Germany in Figure 1.24 suggests that deadweight losses accounted for about a third of the subsidy.[65]

In addition to the specification issues discussed above, two additional caveats apply to the country-specific estimates of the jobs saved by STW schemes. First, country-specific jobs estimates are based on estimates of the *average* impact of short-time work across countries. The cross-country differences in the jobs impact of short-time work shown in Figure 1.24 reflect differences in the size of the decline in output and the intensity of short-time work, but no account is taken of how the effectiveness of any particular country's STW scheme is affected by the design choices discussed above and documented in Annex 1.A1. A second caveat relates to the definition of the STW take-up variable in terms of the number of participating workers rather than the number of full-time equivalent participants. A bias in the country-specific estimates of the impact of short-time working may thus be introduced to the extent that the average reduction in working time, as a result of short-time work, differs across countries. More specifically, the estimated jobs impact is likely to be underestimated in countries where the average reduction in working time per worker is relatively large (*e.g.* in countries where short-time work tends to take the form of temporary layoffs such as Finland and Norway) and overestimated in countries where the average reduction in working time is relatively small (*e.g.* Germany and Japan).

The effectiveness of new and modified STW schemes in the crisis

A particularly interesting question in the context of this chapter is whether it is effective to introduce a new STW scheme in response to a deep recession or to make temporary changes that are intended to encourage greater take-up. In order to assess whether the effectiveness of new or newly modified STW schemes differs from existing schemes that are not modified, the baseline empirical model was generalised to allow the impacts of STW schemes to differ across these three cases (albeit *via* pair-wise comparisons). The supplementary regressions ask a lot of the limited data available and should be considered highly preliminary. The following patterns emerge (see Annex 1.A6 of OECD, 2010b, for the full results):

● Existing STW schemes helped to limit the reduction in permanent employment while increasing the reduction in average hours, but no such effects were found for the new schemes introduced in three countries. The negative finding for newly established schemes may simply reflect the very small country sample for newly introduced schemes. Nevertheless, the finding that having a programme already in place before the crisis is more effective in preserving jobs than a newly introduced scheme may indicate real difficulties in quickly setting up a STW scheme after a recession has started. Timing is likely to be critical because short-time work is probably most effective in the early

phase of an economic downturn, when the rate of layoffs tends to be highest (see Figure 1.25 in Section 5). The fact that take-up was quite low in newly introduced schemes (Figure 1.19) also suggests that it may have proven difficult to get them set up and running quickly enough to be fully effective.[66]

● A comparison of the impacts of pre-existing STW schemes before any modifications with their impacts after changes were made in response to the crisis suggests that both helped to preserve permanent jobs by reducing average hours, both before and after any modifications, although not all coefficients are statistically significant. The quantitative differences in the estimated effectiveness of these schemes in their original and modified forms are rather small and should be interpreted with caution.[67] If anything, these results suggest that the proportional impact of the pre-existing STW schemes on employment was somewhat larger after they were modified, but their impact on hours was somewhat smaller, suggesting that changes to encourage greater take-up may have made the schemes somewhat more effective at preserving permanent jobs. This suggests that relaxing eligibility requirements and increasing generosity may have encouraged greater participation while having little impact on deadweight in the short-run.

While this econometric evidence on the effectiveness of introducing a new STW scheme in a recession or modifying an existing scheme should be considered as highly preliminary, it does raise interesting questions about the optimal use of STW schemes over the course of the business cycle. For example, is it preferable to maintain a small scheme during growth periods in order to reap maximal benefit during an economic downturn or is it preferable to set up temporary STW schemes in the event of a particularly severe recession, while avoiding the risk that operating a scheme during growth periods when they are more likely to interfere with efficiency enhancing job reallocation? If it is decided to maintain a STW scheme over the course of the business cycle, the question then becomes how optimally to vary the programme rules in response to the onset of a severe recession and then again as the recovery commences and gathers strength. In order to address these questions properly it is not sufficient to have an understanding of the short-run impact of STW schemes on labour market adjustment, such as those presented above. It is also necessary to understand how STW schemes function during a recovery, including how optimally to scale down STW schemes as labour market slack is absorbed. The implications of STW schemes for job reallocation and economic growth in the longer term would also have to be incorporated into the analysis. In sum, the econometric evidence presented above suggests that STW schemes can limit job losses during a recession, but falls far short of providing either an overall assessment of the benefits and costs of these schemes in a recession or an evaluation of their optimal use over the full business cycle.

Other institutional arrangements also play a significant part in explaining the reduction in average hours

In addition to short-time working, other institutional arrangements appear to have contributed to the flexibility in average hours that was observed in many countries during the 2008-09 recession. A recent study by the Federal Employment Agency in Germany (IAB) suggests that *Kurzarbeit*, the German STW scheme only accounts for about 20% in the total reduction in average hours during the crisis, while employer-initiated reductions in working time account for about 40% of the decline in average hours and reductions in overtime and reduced working time through hours averaging for 20% each. (The German example is discussed in detail in more detail in Box 1.6). Policies intended to encourage employers to make increased use of hours adjustments to vary labour input over the business cycle should not focus exclusively on STW schemes.

Box 1.6. **The reduction in average working time in Germany**

In Germany, average hours worked fell by about 3.5% during the period 2007 Q3 to 2009 Q3, while employment rose by 1.2%. Even if attention is focused on developments since 2008 Q3, when the full force of the recession hit Germany, it is still the case that the decline in employment has been very limited by comparison with the decline in total hours worked. This apparent success in preserving jobs in Germany is often attributed to *Kurzarbeit*, the German short-time work scheme. With 1.5 million workers participating in this scheme at its peak in mid-2009, *Kurzarbeit* indeed played a significant role in cushioning the extent to which an approximately 5% fall in GDP translated into higher unemployment. However, the large role that has been played by average hours reductions in Germany also results from other institutional arrangements that encourage "internal adjustment" over employment adjustment in response to cyclical shocks.

A recent study by the Federal Employment Agency in Germany (IAB) analyses the different sources behind the overall reduction in working time between 2008 and 2009. The overall decline in total hours worked during the period amounted to 4%, and only 0.3% of that was due to lower employment. The rest of the reduction in total hours worked reflects lower average hours of work which can be decomposed along four different margins: *Kurzarbeit*, employer-initiated reductions in working time, reduced over-time and debiting individual working-time accounts. Adjustments along all four margins played a significant role (see also the table below):

- *Kurzarbeit* accounts for only 25% of the total reduction in average hours. Consequently, short-time work alone does not account for all of the difference between countries such as Germany and Japan – where most of the reduction in the demand for labour input has been achieved *via* reductions in average working time – and countries such as Spain and the United States – where most or all of the adjustment has occurred *via* reductions in employment.

- The largest source of flexibility in average hours has been employer-initiated reductions in working time which can be implemented within many collective agreements in Germany. These reductions appear to account for approximately 40% of the recent reduction in working time. In general, these reductions in working time are associated with proportional reductions in pay, at least for hourly workers. According to Bosch (2009), the most influential model for these contract provisions was Volkswagen during the early 1990s recession, which used working-time reduction tied to lower pay to avoid redundancies. Since that time, it has become standard practice in Germany for collectively negotiated employment contracts to specify an hours' band, around the standard working week, within which employers can vary working hours while adjusting pay according to the standard hourly wage rate. This is intended to provide employers with an improved ability to adapt to temporary variations in product demand while providing a high level of employment security.

- Even before having recourse to *Kurzarbeit* or a shortened working week, German employers achieved substantial reductions in average hours by reducing the volume of paid over-time work (20% of the total reduction) and encouraging employees to run down the positive balances in their individual working-time accounts (another 20%). These two types of adjustments were initially quite effective for adjusting to the negative demand shock since employers had relied quite heavily on over-time (both paid and that giving rise to credit hours in working-time accounts) in the years immediately preceding the crisis.

It is still too early to assess whether a heavy reliance upon average hours adjustments will prove to be an overall advantage for Germany and other countries where the labour market has responded similarly to the economic crisis. There appear to be clear gains thus

Box 1.6. **The reduction in average working time in Germany** *(cont.)*

far in terms of lower unemployment and the success of firms in retaining their workforce intact in anticipation of a recovery. However, Germany also experienced its first reduction in hourly labour productivity observed since data first were collected in 1970 and a steep rise in unit labour costs. Should product demand not recover strongly soon, a large wave of delayed layoffs could occur. There is also the risk that too heavy a reliance on protecting existing job matches will become a brake on efficiency-enhancing labour mobility (see Chapter 3).

Average hours reductions in Germany, 2008-09

Proportion of average hours reduction due to:	
Increased short-time work (*Kurzarbeit*)	25%
Employer-initiated reductions in working time	40%
Reduced over-time	20%
Debiting working-time accounts	20%

Note: As not all factors that affect working time are taken into account the decomposition is not exact.
Source: IAB (2009).

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## 5. What can be done to minimise the persistence of high labour market slack?

The analysis in Sections 1 and 2 shows that the 2008-09 recession has left a high level of labour market slack in most OECD countries which takes multiple forms (*e.g.* unemployment, reduced hours of work and labour force withdrawal) and threatens to persist far into the economic recovery if job growth is less than vigorous. Consistent with this diagnosis, the overview of the actions governments have taken in Section 3 reveals that, at the beginning of 2010, many countries anticipated further expansion of passive and active measures to assist the unemployed in 2010, even though the economic recovery appears to have begun already in late 2009 in many cases. This section analyses the risk that labour market slack will persist, as well as various labour market measures which may be able to foster a faster or more complete labour market recovery, whether by accelerating job creation and hiring in the economic recovery or by reducing hysteresis effects in unemployment and labour force participation.

It is too soon to know how persistent the labour market slack created by the 2008-09 recession ultimately will prove to be or to evaluate how successfully different measures that countries have taken in response to the recession will be at speeding recovery in labour markets. Accordingly, the discussion that follows relies largely on historical evidence. It should be emphasised at the outset that care needs to be taken in applying historical evidence to the current crisis for a number of reasons. First, labour market slack is exceptionally large in many countries and thus outside of most recent experience. Another difficulty in applying historical evidence to the current recovery period is the very different composition that it takes in different countries. Whereas massive labour shedding led to large increases of unemployment and inactivity in some countries, an unusually high share of the total decline of labour input has been achieved through hours reductions in a larger number of countries (*cf.* Section 2). The need for vigorous employment growth is evident for the former group of countries. However, the risk that job creation will be particularly weak during the early recovery period (a so-called "jobless recovery") is also a concern for the latter group. Box 1.7 shows that there is some

Box 1.7. **Is labour hoarding during the recession likely to imply jobless recoveries?**

A simple comparison of cyclical productivity developments during 85 historical recession and initial recovery episodes across 24 OECD countries suggests that in the more extreme cases of labour hoarding, the risk of a jobless recovery may be higher (Figure 1.1).[*] In particular, countries that experienced significant labour hoarding and a sharp fall in labour productivity during a recession (*i.e.* were on the far left of the chart) generally recorded a high rate of labour productivity growth in the recovery period, implying relatively jobs-poor growth. In 5 out of 6 historical episodes with the falls in cyclical labour productivity greater than 6%, cyclical labour productivity was high in the subsequent recovery. The remaining episode involved a supply shock (the first 1970s oil shock) where the large fall in labour productivity was due in part to a permanent fall in labour productivity and incomes, rather than cyclical labour hoarding. This conclusion is tempered by the limited number of observations but it may well be very relevant to the current recession where many countries, including Germany, Japan, the United Kingdom and Turkey, have experienced a similar sharp drop in labour productivity. Indeed, there are more episodes of such a sharp fall in this recession than in the entire historical sample. More generally, cross-country experience is highly heterogeneous in this recession with other countries, including Spain and the United States, experiencing no or very little hoarding. For these countries, history provides less of a guide to future hiring patterns because for smaller falls in labour productivity during the recession (below 4%), productivity growth in the recovery and the recession appear to be largely independent.

Cyclical labour productivity during recessions and the recoveries that followed[a, b]

Change in cyclical labour productivity[c] in the recovery (percentage)

Change in cyclical labour productivity[c] in the recession (percentage)
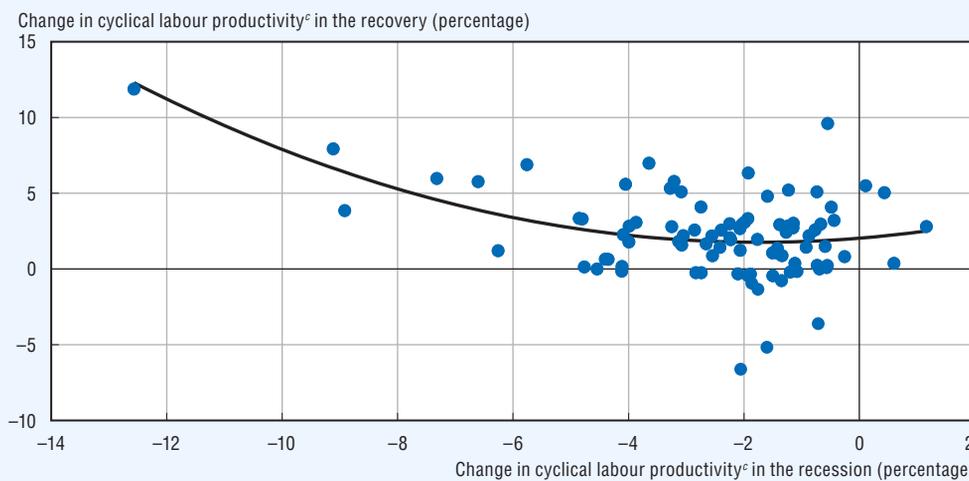
a) Recessions are defined as the period between the peak and trough in the level of GDP. The recovery is the eight-quarter period following the trough in GDP.

b) An illustrative second order polynomial (quadratic) trend line is shown.

c) Cyclical labour productivity is the difference between actual and trend labour productivity per employee, where trend productivity is defined as the OECD measure of potential output for each country divided by trend employment.

Source: OECD calculations based on *OECD Economic Outlook Database*.

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Box 1.7. **Is labour hoarding during the recession likely
to imply jobless recoveries?** *(cont.)*

These results tentatively suggest that countries, such as Germany and Japan, which have experienced stronger labour hoarding and greater falls in labour productivity in the recession may face a higher risk of a jobless recovery than others where there has been very little labour hoarding, such as the United States.

* Labour hoarding is inferred from temporary (cyclical) falls in labour productivity during the recession that should eventually be reversed in the recovery. This is distinct from a permanent fall (or at least permanently lower growth) in labour productivity in the recession due to a fall (or lower growth) in the potential output of the economy, which is not labour hoarding but rather a permanent shock to incomes.

historical evidence that job creation and hiring has tended to be relatively weak in economic recoveries that followed recessions during which employers had aggressively hoarded labour. If this pattern is repeated following the 2008-09 recession, one result could be worsened re-employment prospects for the unemployed in countries where most or all of the adjustment has been along the hours margin. However, this need not be the case because the reduced level of new job openings could be offset by a reduction in the number of unemployed persons competing for each new vacancy.[68] Another danger for these countries is that large hours reductions can only be sustained so long and a delayed wave of labour shedding could occur if the recovery stalls or is particularly weak.

5.1. *Promoting a job-rich recovery: what role for job subsidies?*

Given the extent of labour market slack at the beginning of 2010 in most OECD countries, one of the key policy priorities going forward is to create the conditions for a job-rich recovery. This requires both a return to vigorous GDP growth and a sufficiently high employment-intensity of output growth. Macroeconomic policies play an essential role in supporting the rebound in GDP, but further expansionary measures are likely to be constrained by rising concerns about the deteriorating fiscal position of many countries (OECD, 2010a). Even when aggregate stimulus measures are applied effectively, employers have a tendency to delay hiring early in a recovery period due to their uncertainty about how sustained and strong the recovery will be. In this context, more targeted employment policies may be able to jumpstart job creation, thereby creating a more labour-intensive recovery. This sub-section discusses the potential role of temporary job subsidies to increase the labour intensity of output growth in the early stages of the recovery.[69]

Policy makers can choose from a variety of different forms of job subsidies to promote employment in the recovery. A first strategic choice to be made is whether the subsidy should apply to the full stock of jobs (stock subsidies), only to jobs at risk of being destroyed (short-time work subsidies), or only to new hires or the subset of new hires associated with net employment gains (gross and marginal hiring subsidies, respectively). A second strategic choice is whether the subsidy is limited to the employment/recruitment of designated groups of disadvantaged workers (*e.g.* the long-term unemployed) or employers (*e.g.* SMEs). These choices should be made in light of labour market needs and the policy goals being pursued, both of which are likely to vary with the stage of the business cycle.

Policy goals are likely to evolve over the business cycle. In a recession and the early stages of a recovery a high priority should probably be given to expanding overall employment, and this suggests a relatively large role for measures intended to increase

overall employment and a more a limited role for targeting job subsidies on disadvantaged workers or firms. By contrast, focusing on disadvantaged workers and reducing deadweight are likely to become key objectives as the recovery gathers speed and/or fiscal consolidation becomes more urgent. Targeting subsidies on disadvantaged groups is also likely to be more appropriate when the concern is to improve the employment and earnings prospects of groups who face structural barriers in the labour market. However, targeting can also be of salience in recessions and early recovery phases to prevent the burden of unemployment from being borne disproportionately by certain workforce groups and to reduce the risk of disadvantaged groups becoming permanently disconnected from the labour force.[70] This will be discussed in Section 5.2. As a preliminary to the policy discussion, it is useful to review how labour market needs evolve over the course of a recession.

Figure 1.25 documents changes in the unemployment inflow and outflow rates during the first and second years of the 2008-09 recession. During the first year of the recession (2007 Q4 to 2008 Q4), both an increased rate of unemployment inflows and a reduced rate of unemployment outflows (associated with a positive sign in the figure) contributed to the sharp increase in the unemployment rate that was observed in many OECD countries, with the rise in the unemployment inflow rate (*e.g.* layoffs) dominating the fall in the unemployment outflow rate (*e.g.* hiring) in 11 of the 20 countries for which appropriate data are available.[71] In the second year of the downturn (2008 Q4 to 2009 Q4), the reduction in the rate of unemployment outflows and hence the lengthening duration of unemployment spells had become the main driving force raising unemployment in 16 of the 20 countries. The fall in the unemployment outflow rate likely reflects the large number of unemployed job searchers for each vacancy, due to both the expansion of the pool of unemployed and employers' caution about taking on new staff in the early phase of the recovery. Another factor contributing to a low rate of job creation is the considerable scope that exists for raising output without increasing employment in many countries (*i.e.* through increases in labour productivity and working time).

These patterns in unemployment dynamics provide a rationale for progressively shifting the mix of active labour market measures used to confront the jobs crisis. While increased layoff rates played an important role in raising unemployment during the initial phase of the recession, their importance gradually diminished as the downturn bottomed out and recovery began. This suggests that policy makers concerned with reducing unemployment or limiting its rise should shift their efforts from protecting viable jobs at risk of being terminated towards re-integrating the unemployed into the workforce and encouraging hiring by firms. This could imply a shift in emphasis from general employment subsidies (stock subsidies) or subsidies directed at jobs at risk (short-time work subsidies) to hiring subsidies. This is also consistent with the changes in the policy stance documented in Section 3 of this chapter.

Stock subsidies may be effective in the short run but are very expensive

The fiscal stimulus packages enacted by a majority of OECD counties included broad cuts in employer social security contributions intended to support overall labour demand. OECD (2009a) shows that reductions in employers' contributions are likely to have a significantly larger short-term impact on employment than is indicated by a simple multiplier analysis for a tax cut, due to the relative price effect associated with a general reduction in unit labour costs. However, the long-run effect of a reduction in employer

Figure 1.25. **Changes in unemployment inflows and outflows
during the downturn and early recovery in OECD countries, 2007 Q4-2009 Q4**

Year-on-year percentage change to the fourth quarter[a]
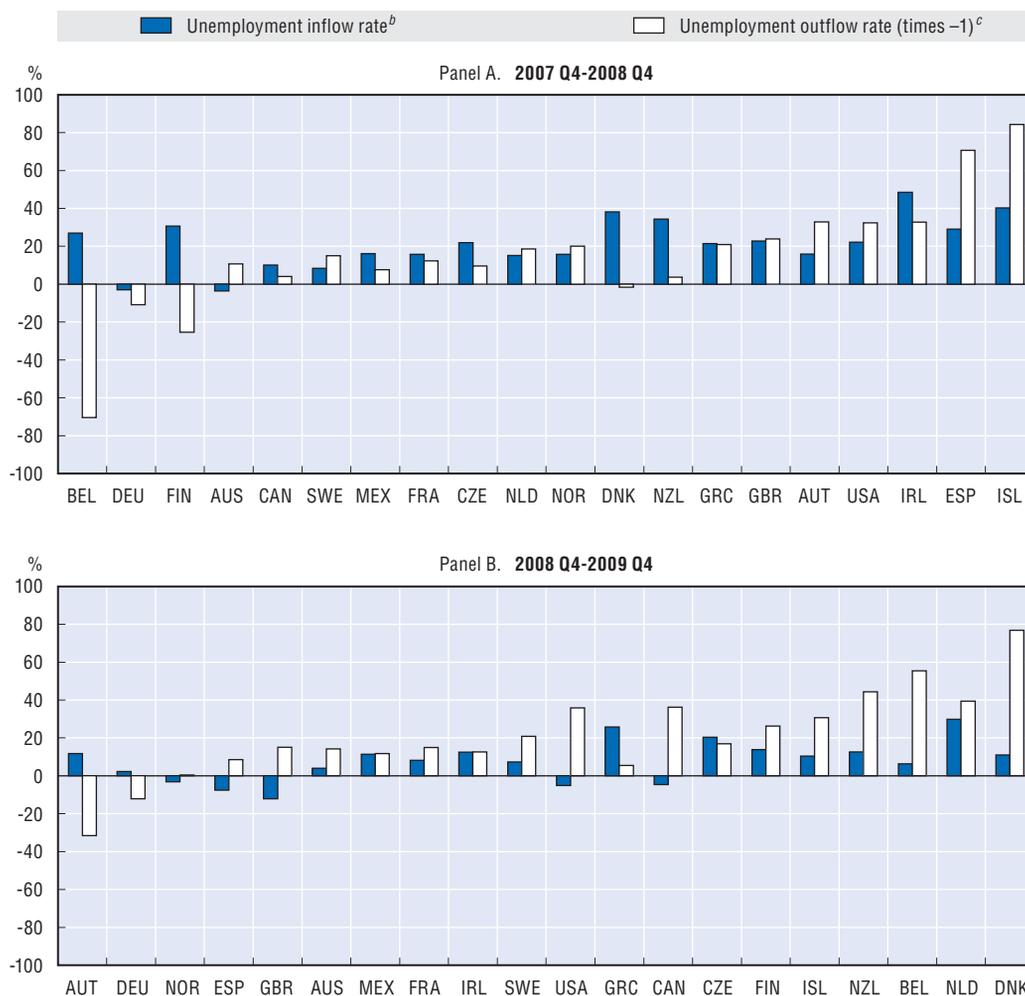
a) The change in unemployment inflow and outflow rates in the figure are normalised so that positive (negative) changes are unemployment increasing (decreasing).

b) The unemployment inflow probability (I) is defined as the ratio of the number of unemployed who have been unemployed for less than a month, over the number of employed one month earlier. The unemployment inflow rate is then defined as $-ln(1 – I)$.

c) The unemployment outflow probability (O) is defined as one minus the ratio of the number of unemployed who have been unemployed for more than a month over the total number of unemployed one month earlier. The unemployment outflow rate is then defined as $-ln(1 – O)$.

Source: OECD estimates based on the Labour Force Survey for Australia, Canada and the United States (Current Employment Situation), the Encuesta Nacional de Ocupación y Empleo (ENOE) for Mexico, the Household Labour Force Survey for New Zealand, and the European Union Labour Force Survey (EULFS) for the European countries.

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social security contributions on equilibrium employment is likely to be small, due to offsetting real wage adjustments. A "back-of-the-envelope" calculation suggests that a 1% reduction in unit labour costs, as a result of a reduction in employers' contributions, may increase employment by only 0.2% in the long-run. This means that the cost per additional job created is 1.7 times average total compensation costs per job in the short-run and seven times average compensation in the long-run (OECD, 2009a).

The low cost-effectiveness of stock subsidies, particularly in the long-run, and their large budgetary cost underlies the importance of ensuring that such reductions are temporary, when they are undertaken as an anti-recessionary measure, rather than being viewed as a structural reform to the tax system. This consideration is all the more compelling currently since fiscal consolidation has become urgent for many OECD countries. However, there may be a stronger case for retaining reductions of employer contributions which are *targeted on low-wage workers* since they may have important long-run benefits by permanently raising employment rates of some groups on the margin of the labour force (Phelps, 1994).

Gross hiring subsidies are less expensive but typically not very effective in promoting net employment gains

The main advantage of hiring subsidies relative to general reductions in employers' social-security contributions or "stock" subsidies more generally is that they tend to be more cost-effective. While stock subsidies may be relatively easy to implement and relatively effective in supporting employment in the short-run, at least as compared with the employment effects of other forms of fiscal stimulus, the associated employment gains come at a significant cost in lost tax revenues. The fact that the subsidy is paid for all jobs, including jobs that would have existed even in the absence of the subsidy, results in important deadweight losses. By concentrating exclusively on newly created jobs, hiring subsidies have the potential to be significantly more cost-effective.

Past evaluations indicate that gross hiring subsidies can be quite effective, but also that performance has been highly variable (Martin and Grubb, 2001).While it appears to be possible to enhance their effectiveness through careful targeting on disadvantaged groups and stricter conditions for employers in some cases (see below), the overall effectiveness of such measures to improve net employment appears to be quite limited, whereas they appear to be more effective in bringing about a more equal distribution of unemployment across labour force groups. This equity consideration may be of considerable importance in recessions, when the chances of regaining employment after displacement are particularly low for disadvantaged groups, due to the large inflows of newly unemployed, including increased numbers of well-qualified job losers. Targeted recruitment subsidies may also be needed in a deep recession to keep job-search requirements associated with UI credible, at a time when the immediate returns to job-search assistance is likely to be unusually low for harder-to-place job seekers.

Marginal employment subsidies may be a cost-effective way to promote aggregate employment

Marginal employment subsidies refer to labour demand policies that are explicitly targeted at raising net employment *via* either the preservation of jobs at risk or the creation of new jobs. This suggests that they have the potential to be more cost-effective in raising total employment, than either stock or gross hiring subsidies because leakages *via* deadweight and displacement effects may be largely avoided (OECD, 1982). While this would appear to be a programme design that is especially well suited for strengthening job creation in the early phases of a recovery (*i.e.* in preventing a "jobless recovery"), there has been only relatively limited use of such schemes during the current downturn and recovery, many of them targeting vulnerable jobseekers such in the long-term unemployed or youth (see Box 1.8). This probably reflects the relative complexity of such schemes and

Box 1.8. **Marginal employment subsidy schemes in OECD countries**

Belgium has marginal hiring subsidies that pre-date the 2008-09 recession. An employer who hires a first, second or third employee pays reduced social security contributions (with the largest reduction for the first employee and successively smaller reductions for subsequent employees) if the new employees do not replace someone who resigned or was dismissed in order to receive the subsidy.

Between 2007 and 2011, *Finland* is conducting an experiment with marginal employment subsidies in peripheral regions with difficult employment situations or those that have suffered from large job losses due to the closure of a local factory. A subsidy of 30% of wage costs in the first year and 15% in the second year is paid to self-employed people who hire their first paid employee. The job has to have a permanent contract and working time must be at least 25 hours per week.

Portugal has introduced a temporary programme called the *Programa Iniciativa Emprego* during 2009 and 2010, which eliminates employer social contributions for net new hires of long-term unemployed (registered with PES for more than six months) or young people (aged up to 35 years looking for their first job) for the first three years of employment (or for the first two years in addition to a EUR 2 500 hiring subsidy). Firms must have net hiring over a three-year period, meet certain accounting standards, fulfill tax and social security obligations and not have wage arrears.

The *Employer Jobs (PRSI) Incentive Scheme* in *Ireland* eliminates employer social security contributions for one year for new hires in addition to existing staff of people unemployed for six months or more. The new job must last for at least six months, otherwise the firm must pay back the subsidy. Participation is capped at 5% of the existing workforce.

Hungary's SME+ programme exempts small businesses and non-government organisations from social security contributions for one year for net employment increases resulting from new hires of employees affected by collective layoff, someone who has been registered as a jobseeker for at least three months or who has not been employed for at least one year. Firms must employ the subsidised employee for at least twice as long as the duration of the subsidy.

Turkey waives employer social contributions for the first five years of employment for employers that hire women or youth (18-29 years) who have been unemployed for at least six months before July 2008 or in December 2008 and January 2009. Employment must be additional to average employment in the firm over the past 12 months.

the widespread impression that the marginal employment schemes which operated in a number of countries in earlier decades proved to be difficult to administer effectively.

However, the recent apparent success in operating STW schemes suggests it may also be timely to reconsider whether new marginal employment schemes could be operated substantially more effectively than their historical antecedents. The new schemes in Portugal, Ireland, Hungary and Turkey – where employers are exempt from social security payments for net hires of unemployed people – are similar in spirit to programmes that were operational in Canada and Ireland during the late 1970s and early 1980s. These programmes were less generous than the new schemes but were targeted somewhat more broadly on workers unemployed for a couple of weeks or more. A formal evaluation of the Canadian scheme concluded that only one-third of the jobs covered by the programme were additional (Gera, 1987).

The marginal employment subsidy that has been most extensively evaluated is the New Jobs Tax Credit (NJTC) that was operational during 1977 and 1978 in the United States.[72] The NJTC represented a subsidy of 50% over the increase in an employer's wage base beyond 102% of the previous year. The amount of the subsidy was limited to USD 100 000 per firm and USD 2 100 per employee. As a result, the reduction in marginal cost of hiring an additional employee was particularly large for low-wage and part-time workers. At its peak, the program provided subsidies for 2.1 million workers. The available evaluation evidence suggests the NJTC may have had a substantial positive impact on net job creation, although different studies have reached rather different estimates of its impact.[73]

A key question that is particularly important for governments who are considering to implement a similar scheme at present but face increasingly tight fiscal constraints, is whether such schemes should be targeted at all workers or only at the unemployed. Restricting eligibility to the unemployed will reduce the total cost of the programme by reducing its scope (*i.e.* the number of subsidised jobs), but also the cost per worker as many of the additional hires will result in a reduction in public expenditure on UI or other income-transfer benefits. However, restricting eligibility in this way is also likely to reduce the impact of the scheme in raising employment. This could happen if restricting eligibility increases the effective cost of recruiting workers under the scheme by reducing the pool of potential candidates. Nonetheless, the Canadian experience with the Employment Tax Credit Program suggests that restricting eligibility to unemployed workers is compatible with achieving a significant scale when subsidies are sufficiently generous.

A related question is to what extent such schemes should target specific types of firms or workers. For example, small firms may not be able to hire as many workers as they would like early in the recovery because they are more likely to face tight credit constraints. However, Section 2 suggests that small firms have stronger incentives to hoard labour during recessions and, hence, may not be the top priority for hiring subsidies during recoveries. The effectiveness of subsidies may also differ across different groups of workers. To the extent that the responsiveness of the demand for workers with low hiring and firing costs to changes in labour costs is larger – this is likely as such workers tend to compete in more competitive markets – there may be a rationale for targeting hiring subsidies at workers that are least likely to be hoarded, *i.e.* low wage workers and workers with limited experience and skills. However, it is also possible that subsidies targeted at such workers will be less effective because they end up at the back of the hiring queue or because they reduce employer take-up.

5.2. Reducing unemployment and labour force withdrawal hysteresis
How big is the risk of hysteresis effects in the labour market?

Labour market recovery following a severe recession can be not only slow, but also incomplete in the sense that unemployment remains permanently elevated or labour force participation rates permanently depressed, so-called "hysteresis" effects. Unemployment hysteresis attracted considerable attention from researchers after being put forth by Blanchard and Summers (1986) as the most plausible explanation for the upward ratchet effect, whereby many western European countries had seen each successive recession, from the early 1970s onwards, result in a rise in the unemployment rate that was only partially reversed in the subsequent recovery. More recently, structural reforms in many of these countries appear to have reversed much of the previous rise in unemployment rates

and researchers have tended to focus on analysing how institutions and policies affect structural unemployment (the so-called NAIRU), rather than the extent to which temporary shocks to unemployment may have permanent effects (Bassanini and Duval, 2006; Gianella *et al.*, 2009; OECD, 2006). Nonetheless, there continues to be considerable interest in persistence effects in the labour market in the wake of negative macroeconomic shocks (Ball, 2009). Indeed, the onset of the 2008-09 recession has led to an upsurge of empirical research studying the medium and long-term costs of banking crises and severe recessions. Many of these studies conclude that severe recessions cause persistent declines in potential output, in part due to hysteresis effects in the labour market (Blöndal and Pain, 2010; Cerra and Saxena, 2008; Furceri and Mourougane, 2009).

The OECD is monitoring closely signs of how the 2008-09 recession will influence potential output in OECD countries in the coming years. There is great uncertainty surrounding these impacts, but the current estimate is that the peak area-wide reduction in potential output will be approximately 3% (OECD, 2010a).[74] Approximately one-third to one-half of the projected reduction in potential output is attributable to hysteresis effects in labour input, namely, increases in structural unemployment and decreases in labour force participation, while a reduction in the capital-labour ratio and productivity due to higher capital costs accounts for the rest. Whereas the capital cost effect is expected to be permanent, past recessions suggest that the reduction in labour input will reach its peak five to eight years after the onset of the recession and then gradually reverse thereafter. The methodologies used to assess the strength of hysteresis effects in unemployment and participation are somewhat different. Each will now be briefly summarised since they provide some insights into the influence of policy settings on the degree of hysteresis affecting labour input.

Hysteresis effects for unemployment are estimated in two steps based on the close relationship between the incidence of long-term unemployment and structural unemployment (Machin and Manning, 1998; Furceri and Mourougane, 2009). In the first step, historical data are used to estimate simple dynamic regressions relating the level of long-term unemployment to the contemporaneous (overall) unemployment rate and first and second lags of both unemployment variables (*i.e.* the overall and long-term unemployment rates). These equations – which are estimated on a country-by-country basis to make allowance for differences across national labour markets in the extent to which a sustained increase in overall unemployment raises long-term unemployment – are then used to translate projected changes in the unemployment rate into projections of long-term unemployment. The second step is to convert the projected changes in long-term unemployment into changes in structural unemployment. This conversion also takes account of historical differences in the strength of this relationship in different countries, as indicated by the available empirical studies.[75] Using somewhat different methodologies, Furceri and Mourougane (2009) and Guichard and Rusticelli (2010) present complementary evidence that unemployment hysteresis effects tend to be stronger in countries where product market competition is less supportive of competition and long-term unemployment benefits more generous, but weaker where greater use is made of active labour market policies to keep the long-term unemployed better connected to the labour market.

Table 1.5 classifies countries according to OECD estimates of the sensitivity of structural unemployment to a cyclical increase in unemployment (table rows) and how much unemployment had increased as of the end of 2009 (table columns). Ireland, Spain and Turkey stand out for combining a large shock to unemployment with a strong susceptibility to unemployment hysteresis. These countries appear to be particularly at

Table 1.5. **Potential vulnerability to an increase in structural unemployment varies by country**

| | | Change in unemployment rates from peak to trough[a] | | |
		No/small unemployment impact (less than a 1.5 pp increase)	Medium-small unemployment impact (at least a 1.5 pp increase but less than a 3.5 pp increase)	Large unemployment impact (at least a 3.5 pp increase)
Estimated relative sensitivity of structural unemployment to a cyclical increase in aggregate unemployment[b]	Low	Korea Mexico	Canada Denmark New Zealand Sweden	Iceland United States
	Medium	Australia Austria France Germany Japan Luxembourg Norway	Finland Hungary United Kingdom	
	High	Belgium Italy Netherlands Switzerland	Czech Republic Greece Portugal	Ireland Spain Turkey

pp: Percentage point.
a) Peak and trough defined in terms of real quarterly GDP.
b) Based on OECD estimates of how the impact of recessions on structural unemployment is affected by cross-country differences in labour market institutions and policies (see Guichard and Rusticelli, 2010).
Source: OECD calculations based on *OECD Economic Outlook Database* and Guichard and Rusticelli (2010).

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risk of experiencing a large increase in structural unemployment. Unemployment has also increased relatively sharply in Iceland and the United States, but these countries have exhibited relatively weak unemployment hysteresis following past recessions and may thus be at a somewhat lower risk of seeing structural unemployment rise than countries where the rise in unemployment has been smaller so far, but there appears to be a greater propensity for cyclical unemployment to persist (*e.g.* the six European countries in the middle cells of the bottom two rows of Table 1.5).[76]

In order to analyse possible hysteresis effects for participation, the OECD Secretariat has estimated impulse-response models of the impact of recessions on labour force participation rates. Preliminary results from this on-going work are presented in Table 1.6. A first finding is that significant reductions in participation are detected following only severe recessions, in which the output gap falls by least 6 percentage points. The impact on participation is both stronger and longer-lasting following very severe recessions, but in all cases tends eventually to decay. While the negative impact of recessions on participation has been quite even between men and women, it appears to be strongly concentrated on the youngest and oldest workers. Labour market policy settings also appear to influence how strongly participation rates are reduced by recessions. The estimation results indicate larger medium-run declines in participation in countries where employment protection regulation is relatively strict or the generosity of unemployment benefits drops off sharply with the duration of unemployment. The tendency for recessions to lower participation rates for youth is also greater in countries where tertiary enrolment rates were already relatively high prior to the downturn and opportunities for post-secondary education – as

Table 1.6. **Estimated impacts of recessions on participation rates**[a]

Percentage-point change in labour force participation rate

Panel A. **Variation of the impact by the severity of the recession**		
Severity of the recession according to the percentage-point decrease in the output gap	Peak impact on participation rates	Lag between recession on-set and the peak impact (years)
Moderate (3-6 pp decrease)	−0.4	4
Severe (6-9 pp decrease)	−1.6***	5
Very severe (more than 9 pp decrease)	−2.5***	8
Panel B. **Variation of the impact by gender and age**[b]		
Age groups	Men	Women
All	−2.2***	−1.8***
Ages 20-24	−4.6***	−3.9***
Ages 40-44	−0.8	−0.3
Ages 60-64	−4.1***	−3.4***
Panel C. **Variation of the impact by institutional and policy settings**[b]		
Institutional and policy settings	Difference in the peak impact on participation between the 1st and 3rd quartile policy settings	
Strictness of employment protection legislations	1.0 (all workers)	
Fall-off in net replacement rate for unemployment benefits	0.5 (all workers)	
Implicit tax on continued work for 60-year-olds	4.0 (60-64-year olds)	
Tertiary education enrolment rates for 20-29-year-olds	2.3 for men, 1.5 for women (20-24-year olds)	

*** denotes statistical significance at the 1% level.
pp: Percentage point.
a) Least-squares dummy variables (LSDV) estimates of impulse response functions that were estimated using an unbalanced panel of annual data for OECD countries from 1960 to 2008.
b) Estimated impacts of a severe recession.
Source: OECD estimates. For further details, see OECD (2010e).

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an alternative to searching for a job in a depressed labour market – may be greater.[77] Participation rates for older workers have been particularly sensitive to severe recessions in countries where the tax and pension system are structured so as to blunt the financial incentive to remain in employment beyond age 60.

Might this recession be different?

There are some grounds to believe that good policy choices may be able to reduce unemployment and labour force withdrawal hysteresis following the 2008-09 recession relative to what would be expected based on the historical record discussed above. The labour market and social policy responses to the crisis, as summarised in Section 3, suggest that many governments are taking actions that might help to reduce hysteresis effects (and avoiding Malthusian actions that could exacerbate them). In part, this appears to reflect a widespread resolve to prevent the gains achieved by structural reforms in recent years from being reversed during the recession. Four examples appear to be particularly noteworthy:

● In an effort to maintain effective re-employment services in the context of often large increases in the numbers of job seekers and a relative paucity of job openings, many OECD governments have significantly scaled up resources for ALMPs. While it is too early to assess how effective this effort will prove to be, it is encouraging that the historical

tendency for ALMP budgets to remain relatively constant or only expand a little during recessions appears to have been avoided (OECD, 2009a).

- As was discussed in Section 2, an unusually large share of the recessionary drop in labour input is being achieved *via* reductions in average hours, rather than layoffs, in a number of countries. In part, this reflects the extensive use governments have made of STW schemes as a way to preserve existing jobs, as was shown in Sections 3 and 4. The diffusion of flexible working time arrangements in recent decades (*e.g.* hours banking) also appears to have played a role in encouraging adjustment along the hours margin. Finally, employers in some countries appear to be showing a greater propensity to hoard labour than in past recessions.[78] By reducing the increase in unemployment, greater reliance on hours adjustment may tend to reduce the build-up of the number of long-term unemployed during the recession and the number of workers withdrawing from the labour force (or postponing labour market entry) due to poor job-search prospects, indirectly reducing hysteresis effects. However, that need not be the case. Labour market segmentation could be further heightened by increased labour hoarding, if the resulting reduction in labour turnover rates places unemployed job seekers at a heightened risk of long-term unemployment, even though there are fewer of them. This possibility suggests that governments expanding STW schemes should be particularly vigilant to assure that suitable re-employment assistance is available to job seekers, including expanded training and work-experience programmes.[79]

- In several countries where the maximum duration for the receipt of unemployment insurance benefits is relatively short, temporary extensions have been put in place, notably the United States where the usual limit of 26 weeks has been raised to nearly two years in some states. Since unemployment durations rise during recessions, these measures can be justified as a response to job losers' increased need for income support. A second rational for these measures is that the job search requirements and re-employment measures associated with these benefits may help to keep job losers attached to the labour market and, hence, improve their chances of benefiting from the recovery when it arrives. The more numerous cases where countries have extended eligibility for unemployment benefits to workers who would not normally qualify, such as temporary and part-time workers, might have a similar benefit. It is vital, however, that such extensions are temporary, since a number of studies have found that more generous and longer duration benefits raise the structural rate of unemployment in the long run.

- At least at the level of explicit national policy, no OECD government appears to have repeated the mistakes sometimes made in some past recessions of taking measures to lower labour supply, such as expanding options for early retirement or granting easier access to disability benefits. Indeed, employment rates have actually tended to rise during the recession for older workers (*cf.* Figure 1.3). While that departure from past patterns may reflect, in part, policy choices not to encourage early retirement as a way to mute the rise in (open) unemployment, it also reflects the impact of sometimes large losses in retirement savings in causing potential retirees to remain in the labour market longer than they had anticipated (Coile and Levine, 2009). The impact of the sharp fall in asset prices during the 2008-09 recession in encouraging older workers to remain in the labour market is likely to have been particularly strong in countries where a significant share of pension wealth is invested in equities, such as the Netherlands, Canada and the United Kingdom (OECD, 2009g, h), or where housing prices have fallen sharply.

While there are reasons to hope that there may be less unemployment and labour force withdrawal hysteresis following the 2008-09 recession than is suggested by recent history, that is far from certain. In particular, the risk of hysteresis effects is likely to increase rapidly should the economic recovery be too timid to absorb the currently high level of labour market slack within a few years. It has been emphasised that short-time working, as an alternative to labour shedding, becomes increasingly problematic the longer the period of low demand. That probably is also true for the other three broad measures mentioned above (*i.e.* up-scaling active labour market programmes, extending eligibility for unemployment benefits and preventing the unemployed from drifting onto other social protection benefits). Policy measures to limit hysteresis effects should thus be combined with measures to speed the economic recovery and make it as rich in employment as possible. However important, these policy challenges must be pursued in a manner that is consistent with also meeting the pressing need for fiscal consolidation (OECD, 2009c and 2010a).

Conclusions

The labour market impact of the 2008-09 recession confronted employment and social policy makers with a major challenge that is still ongoing, despite governments having taken vigorous policy measures and the global economic recovery being underway. This chapter updates the assessment in the 2009 *OECD Employment Outlook* of the labour market impact of the recession and the labour market and social policy responses to the resulting jobs crisis. Whereas early policy responses to the crisis necessarily emphasised the provision of prompt assistance to job losers and other workers adversely affected by the severe economic downturn, this chapter documents some subsequent shift of emphasis towards fostering a prompt and complete labour market recovery.

As the severity of the global economic slowdown became apparent in late 2008, there was widespread agreement that the labour market and social policy responses adopted during past recessions had left much to be desired, particularly as concerned avoiding the persistence of excessive levels of unemployment and inactivity far into and even beyond the subsequent economic recoveries. The structural labour market reforms enacted in many countries during the decades preceding the 2008-09 recession, had created a more solid foundation for limiting the social costs of severe recessions and fostering strong recoveries. Nonetheless, there was much uncertainty concerning best practice responses to rising labour market slack. For example, the guidelines for employment policy contained in the *Reassessed OECD Jobs Strategy* of 2006 emphasise the structural prerequisites for strong employment performance in the long run, but do not provide guidance for how employment and social policies should be modulated in a deep recession. The analysis in this chapter and its antecedent last year begin to fill that lacuna.

The labour market and social policy response of OECD governments to the 2008-09 recession differs from responses to earlier recessions, both in terms of the vigour of the response and the mix of policy measures taken. While it is still too soon to reach a final verdict about how effective this policy activism ultimately will prove to be, there appear to be grounds to hope that the labour market shadow cast by the 2008-09 recession will be shorter and less dark than would have been expected given its severity. Even should this prove to be the case, it is essential to continue monitoring both the good and bad results obtained from employment policy initiatives taken during the crisis since this is the only way to determine how policy choices affected the evolution of labour market conditions.

Three examples of somewhat novel policy initiatives emerge from this chapter as being particularly likely to shed new light on policy strategies for reducing the social costs associated with recessions and supporting strong labour market recoveries. First, many countries have introduced or significantly expanded short-time work schemes in order to preserve existing jobs. The chapter's analysis suggests that these schemes have had considerable success in limiting layoffs, at least through most of 2009, but it is too early to judge how they will affect the vigour of hiring and productivity growth going forward. Second, a considerable number of countries have vigorously expanded PSE staffing levels and ALMP offerings for job seekers in order to maintain an active stance in the operation of unemployment benefits and labour market programmes through the recession. This represents a determination to avoid repeating past experiences where recessions led to a large build up in the pool of long-term unemployed whose connections to the labour market became tenuous. Finally, governments are taking a number of steps to promote a full and rapid labour market recovery, including fiscal measures to raise the employment content of the early stages of the recovery and a variety of policies intended to minimise hysteresis effects in unemployment and participation.

Despite these encouraging developments, the jobs crisis resulting from the 2008-09 recession will continue to occupy policy makers for a long time to come. It seems increasingly likely that many OECD governments will embark upon fiscal consolidation before labour markets have recovered. In this difficult context, it will become all the more important to assure that labour market programmes retain adequate resources and are opertated in the most cost-effective manner possible.

Notes

1. Even though it is somewhat imprecise, this chapter will use "2008-09 recession" as a convenient, short-hand designation for the economic downturn associated with the global financial crisis that became acute following the bankruptcy of Lehman Brothers investment bank in September 2008. The turmoil in financial markets led to steep global declines in production and trade in the final months of 2008 and early 2009, but the rate of decline eased rapidly thereafter and an economic recovery began in most OECD countries during the second half of 2009. Although most OECD countries experienced a recession during 2008-09, the downturn in a few countries may not be considered to have been deep or long enough to qualify as a recession, whereas the recession had already begun in late 2007 or continued into 2010 for other countries.

2. The final *communiqué* of this ministerial meeting is available from the OECD website, *www.oecd.org/document/29/0,3343,en_2649_34487_43790301_1_1_1_1,00.html*.

3. Chapter 2 of this publication is also part of this monitoring exercise, but it focuses on nine emerging economies (including three OECD countries), whereas this chapter focuses on OECD countries. The analysis of the labour market dimension of the global crisis presented in the 2009 and 2010 issues of this publication is part of a broader effort by the OECD to assess the impact of the 2008-09 recession and identify best policy responses. This effort includes assessments of the impact of the crisis on potential output and how structural reforms can minimise that impact (OECD, 2009b, c and 2010a, c), as well as analyses of many other policy areas, such as the implications for immigration policy (OECD, 2010d), pension policy (OECD, 2009g, h) and sickness and disability benefits (OECD, 2009d).

4. The questionnaire responses reflect policy stances as of early 2010. It is possible that heightened pressures for fiscal consolidation have led governments subsequently to reduce planned spending on crisis-related labour market measures.

5. These projections are reported in OECD (2010a) which was released on 26 May 2010. Most of the aggregate data used in this chapter come from the *OECD Economic Outlook No. 87 database* which underlies these projections.

6. The overview of the labour market impacts of the 2008-09 recession in this section of the chapter makes use of a common dating scheme based on average developments for the OECD area. The more detailed analysis of labour market adjustment in Section 2 makes use of country-specific dating that takes account of differences in when the recession began and ended in different countries.

7. These estimates are based on national definitions of unemployment that differ from the internationally harmonised definition in some countries. OECD harmonised unemployment rates also indicate a 2.9 percentage-point increase between December 2007 and March 2010, when it reached 8.7%. (see Annex Tables 1.A2.1 and 1.A2.2 of OECD, 2010b). The increase in the number of unemployed persons according to the harmonised definition was also about 17 million.

8. Unemployment increased dramatically during these two recessions in certain countries (*e.g.* in Finland in the early 1990s), but the downturn was much milder in other countries muting the increase in average unemployment. It should be noted, however, that the proportionate increase in OECD area unemployment exceeded 60% in the 16 quarters following 1979 Q3, due to the cumulative impact of two closely-spaced recessions in many countries. The increased volatility of sovereign debt markets in the second quarter of 2010 indicates that a "double-dip" recession that could further push up unemployment rates remains a risk (OECD, 2010a).

9. The increase in the Korean unemployment rate between December 2007 and March 2010 was also less than 1%, but unemployment in January 2010 was 1.7 percentage points above the pre-crisis level. The upsurge in unemployment during the first two months of 2010 was probably due to the temporary expiration of a crisis-related public works programme.

10. Reductions in employment may result from either increased job losses or reduced hiring. Analysing data for the United States, Elsby *et al.* (2010) find that differences across workforce groups in the current downturn have been driven largely by differences in the risk of job loss, rather than differences in the probability of finding a job.

11. Whereas changes in employment by gender, age and education are calculated for the period between the fourth quarters of 2008 and 2009, changes by work status (*i.e.* the type of employment contract) are calculated between the second quarters of those two years to account for the much more rapid response of temporary employment to both downturns and recoveries. The reduction in temporary employment using fourth quarter data is only 2.2%, because temporary employment had already begun to recovery strongly in the second half of 2009, even as permanent jobs continued to be lost.

12. Whereas construction employment has been considerably more cyclical than manufacturing employment historically, job losses were steeper in manufacturing during the year to 2009 Q4.

13. Annex Table 1.A2.3 of OECD (2010b) provides comparable estimates for earlier recessions. The jobs gap in 2009 Q4 is somewhat smaller for the OECD area that that at the trough of the 1979-1982 "double-dip" recession, but larger than those for all other recessions since 1970.

14. The working-age population shrank in Austria, Germany and Japan, reducing the jobs gap estimates in these countries relative to that implied by the changes in the unemployment and participation rates.

15. Ireland appears to have experienced a shift from net in-migration to net out-migration with the foreign-born, working-age population declining between 2008 and 2009 (OECD, 2010d). This could lead to an overestimate of the employment gap in Table 1.1 since the estimates of the working-age population used in the calculation do not take account of the post-crisis shift in net migration and hence overestimate potential labour supply.

16. The already high jobs gap in Ireland is projected to rise further to nearly 20%, but this estimate is probably too dire since it does not adjust for the recent shift from net in-migration to net out-migration.

17. See Annex Table 1.A2.4 of OECD (2010b) for a full set of country results. Since seasonally-adjusted versions of most of these measures are not available, two-year changes are calculated with respect to 2007 Q4.

18. Discouraged workers are the sub-set of marginally attached workers who say that they are not actively searching for a job because they believe none are currently available. Annex Table 1.A2.4 of OECD (2010b) provides estimates of UR4, which augments conventional unemployment by adding only discouraged workers, for the relatively few countries where this concept could be estimated.

19. This reflects the heavy reliance of German employers on labour hoarding in combination with hours reductions, as is discussed in Section 2.

20. The LFS data charted in Figure 1.6 are based on the responses of adults who were interviewed as part of national household surveys. Actual hours worked on the main job, as reported in the LFS, are subject to considerable reporting error and take no account of multiple job holding. Section 2 analyses data on hours worked that is largely based on employers' reports. The two sources provide somewhat different assessments of how much hours have fallen during the 2008-09 recession. For example, the recent fall in average hours worked in Germany is only a little over 1% in Figure 1.6, but around 3% when calculated using the alternate data source.

21. The very large increase in unemployment in Finland (and to a lesser extent Sweden) in the early 1990s, which reflected localised banking crises and the breakup of trading patterns with the ex-Soviet bloc, contributed to the high standard deviation of changes in both real GDP and unemployment.

22. Real GDP grew between 2007 Q4 and 2009 Q4 in Australia, Korea and Poland. In part, this is an artefact of adopting a timing scheme based on turning points in the output-gap measure for the OECD area. Section 2 analyses labour market responses to the recession making use of country-specific dating.

23. Consistent with Okun's Law, these data suggest a cross-country Okun coefficient of approximately 0.5, well below 1. However, Okun's Law is more typically applied to the association between changes in output and unemployment *within* countries. The analysis of labour demand adjustment in Section 2 examines this relationship.

24. Ireland is also located substantially below and to the left of the regression line, indicating a low Okun's coefficient value. As mentioned above, Ireland has experienced a large shift in net migration that may help to explain why the increase in unemployment has been relatively small compared with the reductions in GDP and employment: a substantial number of job losers and other job seekers may have emigrated and hence do not show up in the statistics for Irish unemployment.

25. The correlation between real GDP growth and employment growth is 0.63 and highly statistically significant, confirming that labour demand does vary with output demand. Nonetheless, the extent to which employers have cut jobs as product market demand fell has varied considerably. Of particular interest is whether employers have been more inclined to retain staff in excess of current production needs ("hoard" labour) in some countries and, if so, why this has happened and what it implies for the costs of the recession and the strength of the coming economic recovery.

26. For example, some workers may withdraw from the labour market as employment opportunities diminish in a recession (the so-called "discouraged worker effect"), causing the increase in unemployment to be smaller than the fall in employment. It is also possible that additional workers will enter the labour market to try to compensate for the income losses that occur when other family members lose their jobs or experience partial earnings losses (the so-called "added worker effect").

27. Recall that the data for Ireland are potentially misleading since the impact of international migration on the size of the working-age population has not been accounted for. This omission will tend to exaggerate the decline in the labour force participation rate if, as seems plausible, participation rates are very high among the persons whose migration choices have been affected by the economic crisis.

28. The decline in export demand fell particularly strongly on durables manufacturing (Baldwin, 2009). This sector is likely to rely more heavily on firm-specific skills than construction, and hence have a greater tendency to hoard labour following a drop in product demand.

29. No attempt is made here to determine the optimal mix of labour demand adjustment along the employment and hours margins during a recession, although this is an important issue for future study. Greater reliance upon adjustments in average hours worked has the potential to preserve specific human capital while also avoiding most of the social costs associated with unemployment. However, labour hoarding also tends to raise unit labour costs in the short run and could also reduce long-run productivity growth if it serves as a brake on the reallocation of workers towards more productive employment (see Chapter 3). Another possible drawback to an excessive use of hours adjustment could be to heighten labour market segmentation between core workers, who are offered a high degree of protection from layoffs in cyclical downturns, and other workers who employers view as easily replaceable.

30. Whereas Section 1 examined labour market impacts of recessions using a common, OECD-wide dating, based on turning points in OECD area output, the aggregate analysis of labour demand adjustment in this section relies upon country-specific dating of recessions (see Table 1.A3.1 in OECD, 2010b). Recessions are considered to occur between local peaks and troughs of real GDP series in levels. A local peak (trough) occurs at time t when $y_t > (<)y_{t \pm k}$ where $k = 1, 2$. The turning points

are further refined by the following requirements: the peaks and troughs must alternate, each cycle must have a minimum duration of five quarters and each phase (expansion, recession) must be at least two quarters long.

31. Australia and Poland experienced a fall in real GDP in 2008 Q4 after which GDP growth resumed. Even though these two countries did not experience a recession, according to the definition used here, growth did slow sufficiently to cause unemployment to increase. For comparison purposes, data for Australia and Poland are included in Figure 1.9 and some of the analysis that follows, with changes being calculated over the period 2008 Q3 to 2009 Q2.

32. A historical average is not available for Ireland, but it is clear that the current downturn is particularly deep. Thus, 24 out of the 30 OECD countries analysed in Figure 1.9 experienced a historically deep recession.

33. Unweighted averages for the countries shown in Figure 1.10 indicate an average historical Okun's coefficient of 0.46, as compared with 0.39 during the 2008-09 recession. This overall decline is all the more notable because Chapter 3 of IMF (2010) reports evidence that structural reforms during the 20 years preceding the crisis (*e.g.* less strict employment protection regulation and the expansion of temporary employment) had increased the responsiveness of unemployment to cyclical variation in real GDP. This study also presents evidence that Okun's coefficient tends to be larger in recessions associated with a financial crisis or a housing price bust.

34. See Table 1.A3.2 of OECD (2010b) for further details on the definitions and sources of the hours worked series.

35. The hours share of adjustment is quite strongly negatively associated with the change in output per worker (correlation of –0.57), whereas the correlation with hourly productivity is considerably weaker (–0.20).

36. A comparison of peaks and troughs in labour input and GDP reveals that the decline in both series usually starts in around the same quarter. In some cases, the decline GDP may lead labour input by a quarter or two. Perhaps more surprising is that a decline in labour input, usually due to a fall in hours, sometimes leads GDP recessions. In recovery phases, an increase in labour input almost always lags an increase in GDP.

37. The panel regressions take the form $\theta_{ie} = \lambda_i + \lambda_e + \varepsilon_{ie}$, where θ_e is the contribution of hours to total labour input adjustment from the peak to the trough of GDP (*i.e.* during the recession), e denotes recession episodes, i denotes countries, λ_i is a country dummy and λ_e is a recession episode dummy for each of the periods 1970-75, 1976-85, 1986-95, 1996-2005 and 2005 onwards.

38. It is important to note that this inference is based on relatively few data points for each country.

39. The output elasticity of labour input also appears to be very high in Norway, but this may reflect a problem with the hours series used in this analysis.

40. Since output is deflated by the GDP deflator and wages by the deflator for private consumption, and these two deflators may have evolved differently, the data displayed in Figure 1.15 may not provide an accurate gauge of how unit labour costs evolved.

41. Since the questionnaire responses were submitted in early 2010, a number of OECD governments have come under increased pressure to accelerate fiscal consolidation and announced spending cuts. The analysis is this chapter does not incorporate those initiatives.

42. In the Czech Republic, a wage subsidy (plus training subsidy) is only paid for workers on reduced hours who participate in the "Educate Yourself" programme. Participation in training in Hungary is compulsory for workers taking part in the short-time work scheme financed by the European Social Fund. Training is not compulsory for short-time workers financed by national funds. Nationally-funded schemes were suspended at the end of 2009. In total, around 25-50% of short-time workers have participated in training in Hungary during the current downturn. In the Netherlands, workers receiving *Deeltijd-WW* must either participate in training or undertake a secondment to another firm or production unit.

43. Throughout this section, references to the PES include equivalent private-sector employment services providers in countries where PES activities are contracted out to private providers (*e.g.* Australia).

44. The increase in PES staffing in Poland between 2007 and 2008 was not in response to the recession but due to a legislative change in 2007 requiring staffing levels to adjust according to, among other factors, numbers of registered unemployed and vacancies. Local employment offices increased staffing substantially until mid-2008 to meet the new requirement.

45. Growth in the caseload is proxied by the growth of the ratio of registered jobseekers (or registered unemployed in Poland and the Czech Republic) to total PES staff.

46. The empirical analysis below takes account of both temporary layoffs and reduced working time.

47. Another way to reduce deadweight is to require firms to share in the cost of short-time work, as is discussed below.

48. In light of their differential coverage by STW schemes and the likely greater tendency of employers to attempt to retain their core workers, the empirical analysis of the impact of STW in the 2008-09 recession below distinguishes between temporary and permanent workers to the extent possible.

49. Participating firms in the Work Sharing programme in Canada were previously required to develop a recovery plan. However, this requirement has been suspended until at least March 2011 in response to the 2008-09 recession.

50. Take-up of training during STW tends to be low in countries where it is not compulsory. While this may provide a rationale for governments seeking to reduce displacement effects to make training compulsory, it could also indicate that training often is not appropriate or cannot easily be organised as was concluded by a Canadian study of STW (HRDC, 2004).

51. While firms in the United States are not required to share wage or social security costs for hours not worked, firms may face higher unemployment-insurance premia in the future as a result of participating in short-time work, due to the experience-rating system for unemployment insurance.

52. Firms may also top-up benefits to workers to match their normal wage, either voluntarily or in accordance with collective agreements.

53. The figures were obtained from the OECD/EC questionnaire responses. See Section 1.3 for further details.

54. The length of the recession may increase or reduce deadweight loss. In a short and shallow recession, short-time work schemes may be more likely to support jobs that would have been maintained anyway, while in a long and deep recession, there is a greater risk that jobs supported by short-time work are lost during the programme or soon after its termination (CPB, 2009).

55. Put differently, perfect substitution is assumed between each hour of STW and an hour of layoff.

56. The use of short-time work in those sectors tends to be relatively small and it typically is not for economic reasons, which is the focus here.

57. More precisely, comparisons are made across countries within broad economic sectors, rather than at the aggregate country level. This should help to reduce the role of aggregation bias due to technology differences across industries.

58. Take-up rates are measured in terms of the number of participants. Ideally, take-up would be measured in terms of total hours or the number of full-time equivalent (FTE) employees. Unfortunately, data on the number of hours subsidised or FTE employees are not available for the majority countries considered here.

59. However, the size of such spill over effects cannot be isolated with the current data.

60. Increased employment stability among permanent worker may come at the expense of lower job stability among temporary workers when STW schemes shift the burden of adjustment from insiders to outsiders.

61. When concentrating exclusively on manufacturing, there is weak evidence that short-time work has increased the employment response to output shocks of temporary workers during the crisis.

62. Industry take-up data are also available for Ireland, but as is explained below Ireland has been excluded from the econometric analysis.

63. The change in the sample and the definition of take-up at the industry level both account for about half of the reduction in the (absolute size of the) estimated coefficient of the interaction term for the change in output, the crisis dummy and the average take-up rate.

64. Accounting for the possible impact of short-time work schemes on temporary employment would, if anything, increase the difference as the present analysis suggests that short-time work schemes had a tendency to increase job losses among temporary workers. However, the estimated contribution of temporary work to the overall jobs impact of short-time work schemes is very small and not statistically significant. The total number of jobs saved as a result of short-time work after taking account of its potential impact on temporary employment is 215 000 for Germany and 385 000 for Japan (instead of 220 000 and 395 000, respectively).

65. The discrepancy between the net number of jobs preserved and the total potential number of jobs preserved actually represents the sum of deadweight and displacement effects. However, it is unlikely that displacement effects had been very large as of 2009 Q3.

66. Chapter 2 of this publication reaches a similar conclusion regarding the importance of social protection programmes already being in place and functioning prior to the onset of a recession.

67. The timing of the modifications to pre-existing STW schemes tended to coincide with the period when output was falling most steeply, complicating the identification of the impact of modified schemes relative to the counterfactual of no STW scheme.

68. Even if unemployed job seekers are not disadvantaged generally, particularly vulnerable groups such as new entrants (*e.g.* youth) may find it particularly difficult to gain a foothold in a labour market where labour hoarding has reduced the flow of new job openings.

69. It should be emphasised that a high employment intensity of growth generally is not an appropriate policy goal, since it implies a downward pressure on labour productivity. However, in a period of very high labour market slack and in which firms are likely to be particularly cautious about hiring, there may be a case to be made for policies that bring forward employment growth.

70. Targeting also has the potential to lower NAIRU if it favours groups with lower bargaining power.

71. This is consistent with findings by Elsby *et al.* (2010) for the United States that both unemployment inflows and outflows account for a substantial part of the recent increase in unemployment. This is in contrast to recent work by Shimer (2007) which concludes that the decline in unemployment inflows accounts for the bulk of the rise in unemployment during earlier recessions. The importance of unemployment inflows during the recent recession is likely to reflect its particular severity. Davis *et al.* (2006) have shown that in sharp recessions more firms adjust to declines in product demand through increased layoffs and fewer firms through reduced hiring.

72. In early 2010, the Obama administration proposed a revised version of the NJTC before reversing course and supporting a alternative proposal for a gross hiring subsidy that had greater support in Congress. The Hiring Incentives to Restore Employment (HIRE) Act of 2010 was enacted in March and it provides subsidies to employers hiring workers during 2010 who have been unemployed for at least 60 days.

73. Perloff and Wachter (1979) found that employment in firms that knew about the scheme grew 3% faster than in firms that did not. This implies that up to one-third of the jobs covered by the program were additional, while the remaining two-third would also have been created in the absence of the subsidy. However, their estimates should be considered as upper bounds as *i)* firms that were growing more quickly may also have been more likely to learn about the programme; *ii)* the study does not account for displacement effects. Bishop and Haveman (1979) and Bishop (1981) conduct various difference-in-differences experiments to analyse the effectiveness of the programme by comparing employment growth before and during the program across eligible and non-eligible industries, small and large firms and part-time and full-time workers. They focus on industries instead of firms as the unit of observation to capture the potential effects of displacement effects. They also find that the programme had a significant impact on aggregate employment. To the extent that employment in eligible industries, small firms and part-time workers is more sensitive to the cycle this could also account for some of the observed differences in employment growth.

74. These estimates were developed as part of the OECD programme of macroeconomic projections as reported bi-annually in the *OECD Economic Outlook*. For an explanation of the methods used to estimate the impact of the recession on potential output, see OECD (2009c, 2009f and 2010a).

75. The relative importance of short- and long-term unemployment for wage setting is a key determinant of the strength of the relationship between increases in long-term unemployment in a recession and the resulting increases in structural unemployment. For example, Llaudes (2005) finds that an increase in long-term unemployment has only about one-fourth as much impact on prices and wages as an equal increase in short-term unemployment in most European countries, suggesting that three-quarters of a rise in long-term unemployment can be considered as representing an increase in the NAIRU. The corresponding ratio appears to be lower in non-European OECD countries.

76. It is possible that the US labour market has become more vulnerable to unemployment hysteresis since it has seen an unprecedented rise in long-term unemployment the past several years (*cf.* Figure 1.5).

77. The welfare effect of the lower youth participation rates following recessions is unclear since it depends on the extent to which they are led to make additional human capital investments that pay off in increased future productivity and earnings (McMahon, 1984). It is known that recessions tend to increase education enrolment and, with a lag, attainment (Helyen and Pozze, 2007; and

Furceri and Zdzienicka, 2010), but also that cohorts entering the labour market during recessions experience long-lasting reductions in their earnings capacity (so-called "scarring" as analysed by Oreopoulos *et al.*, 2008; and Kahn, 2010).

78. Möller (2010) analyses the situation in Germany and concludes that many employers in the industries making the greatest use of STW have been particularly keen to retain skilled workers because they have recently faced labour shortages and anticipate that these shortages will quickly re-emerge during the recovery.

79. As was mentioned above, it is also important to minimise the extent to which STW and other forms of labour hoarding impede efficiency-enhancing labour mobility. This risk should be lower for temporary measures taken during recessions then when STW is used to assist firms and workers in sectors facing structural decline, as happened in the former East Germany following reunification (Möller, 2010) and in some other European countries in the past. In the context of structural decline, STW measures send misleading signals to workers that may inhibit them from voluntary mobility and engaging in additional training (Mosley and Kruppe, 1996).

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ANNEX 1.A1

*The institutional features
of short-time work schemes in place
during the recession in OECD countries**

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* Several countries have extended eligibility, duration or generosity of short-time work schemes during the current recession. The information in the table refers to schemes as they are operating during the recession. For full details on recession-related changes, see OECD (2009i).

The institutional features of short-time work schemes in place during the recession in OECD countries

	Name of scheme	Work-sharing requirements			Eligibility			Conditionality				Generosity			
		Minimum number/ proportion of workforce participating	Minimum hours reduction	Maximum hours reduction	Firm must provide justification of economic need	Social partner agreement	Participating workers must be eligible for UB	Compulsory training	Recovery plan	No dismissal	Job search requirement for employee	Maximum duration	Subsidised training	Cost to employer for hours not worked	Employee receives for hours not worked
Austria	*Kurzarbeitsbeihilfe* (short-time working allowance)	No	10%	90%	Yes	Yes	No	No	No	Yes	No	Six months with extension up to 24 months (18 months from 2011)	Yes	Employer's share of SSC for first six months	Flat rate per hour not worked equal to to 1/8th of daily UB plus health and pension insurance
Belgium	*Chômage temporaire pour causes économiques* (partial unemployment, for blue collar workers only); régime temporaire et collectif de suspension totale ou partielle de l'exécution du contrat de travail (for white collar workers in private sector)	No	0%	100%	Yes	Blue collar: no White collar: yes (or business plan)	No	No	Blue collar: no White collar: yes	No	No	Blue collar: four weeks (full layoff); 12 months (3+ days work/week); three months (<3 days work/week) White collar: 16 weeks (full layoff); 26 weeks (2+ days of work/week)	Yes	None	UB "majorées" (70-75% of normal wage)
Canada	Work Sharing	At least two employees	20%	60%	Yes	Yes	Yes	No	No	No	No	52 weeks (2009); 78 weeks (2010)	No	None	UB (55% of normal wage)
Czech Republic	Subsidised training for workers on partial unemployment (educate yourself "Vzdělávejte se")	No	0%	100%	Yes	Yes	No	Yes	No	No	No	Six months	Yes	SSC	60% of normal wage
Denmark	*Arbejdsfordelingsordning* (work sharing)	Must cover either a firm, division or production unit	Minimum two days per week receiving benefits or one week work and one week receiving benefits		No	Yes	No	No	No	No	Yes (when receiving UB)	26 weeks (more than 13 weeks must be authorised by regional employment council)	No	None	UB
Finland	Adjusted unemployment allowance for partial unemployment	No	25%	100%	Yes	Consultation	Yes	No	No	No	Yes	No maximum	Yes	None	Adjusted UB (= full daily UB − 50% of daily part-time wage)

	Name of scheme	Work-sharing requirements			Eligibility			Conditionality				Generosity			
		Minimum number/ proportion of workforce participating	Minimum hours reduction	Maximum hours reduction	Firm must provide justification of economic need	Social partner agreement	Participating workers must be eligible for UB	Compulsory training	Recovery plan	No dismissal	Job search requirement for employee	Maximum duration	Subsidised training	Cost to employer for hours not worked	Employee receives for hours not worked
France	*Chômâge partiel* (partial unemployment)	No	0%	100%	Yes	Yes	No	No	No	Yes	No	1 000 hrs per employee per year	Yes (by social partners)	Partial wages	60% of gross wage without SSC (75% of net wage), not lower than min wage
Germany	*Kurzarbeit § 170 SBG III* (structural short-time working)	No (see note)	10%	100%	Yes	Yes	Yes	No	No	No	Yes	24 months (2009); 18 months (2010)	Yes	50% of SSC for first six months; none after six months or if employees are in training (see note)	60-67% of foregone net wage
Hungary	ESF-financed short time working scheme	At least two employees	20%	100%	Yes	No	No	Yes	No	Yes	No	12 months (min. duration three months or 96 hours in total spent in training)	Yes	Wages and SSC over 500% of min. wage plus partial training costs	Normal wage
Ireland	Systematic short time working	No	Two days per week	100%	No	No	Yes	No	No	No	Yes	Varies depending on contribution history	Yes	None	UB
Italy	*Cassa Integrazione Guadagni Ordinaria & Straordinaria* (Wage Compensation Fund)	No	0%	100%	Yes	CIGO: no; CIGS: consultation	No	No	Yes	No	No	3-24 months	Yes	Partial SSC	80% of previous earnings (with monthly ceiling)
Japan	Employment Adjustment Subsidy	No	0%	100%	Yes	Yes	Yes	No	No	No	No	300 days over three years	Yes	10-33% of wages + SSC	More than 60% of most recent average wage
Korea	Employment Retention Subsidy Scheme	50% of workers	1/15 of total hours	100%	Yes	Consultation	Yes	No	No	No	No	180 days over one year (90 day extension for vocational training)	Yes	25% of wages (SMEs) or 33% of wages (larger firms)	Normal wage
Luxembourg	*Indemnisation de chômage partiel* (partial unemployment)	No	0%	50%	Yes	Yes	. .	No	Yes	No	. .	Six months within 12-month period	No, but higher wage subsidy	SSC (at 80% of normal wage)	80% (90% if undergoing training) of normal earnings capped at 250% of minimum wage

	Name of scheme	Work-sharing requirements			Eligibility			Conditionality				Generosity			
		Minimum number/ proportion of workforce participating	Minimum hours reduction	Maximum hours reduction	Firm must provide justification of economic need	Social partner agreement	Participating workers must be eligible for UB	Compulsory training	Recovery plan	No dismissal	Job search requirement for employee	Maximum duration	Subsidised training	Cost to employer for hours not worked	Employee receives for hours not worked
Netherlands	*Deeltijd WW* (partial unemployment benefits)	No	20%	50%	No	Yes	Yes	Yes (or secondment)	No	Yes	No	See note	No	Training costs. Employers often pay difference between UB and normal wage to employees	UB
New Zealand	Job Support Scheme	No	0%	10 hrs/ fortnight (cannot work fewer than 30 hrs/week)	No	Yes	No	No	No	Yes	No	Six months	Yes	Reduced SSC	Adult minimum wage up to five hours per fortnight
Norway	Unemployment benefit for temporary layoffs	No	40%	100%	Yes	No	Yes	No	No	No	Yes	52 weeks in 18 month period	Yes (ALMP possible but not obligatory)	Full wage for first five days	UB
Poland	Guaranteed Employee Benefits Fund – for temporary work stoppage and reduced hours	No	0%	100%	Yes	Yes	No	No	Yes	Yes	No	Six months	Yes	Work stoppage: difference between minimum wage and UB; reduced hours: difference between minimum wage and 70% of UB or 120% of UB if employee participates in training	Work stoppage: minimum wage; reduced hours: minimum wage with respect to the normal working time shedule
Portugal	*Suspensão ou redução temporaria da prestação de trabalho* (temporary suspension or reduction of employment)	No	0%	100%	. .	. .	. .	Yes	No	No	. .	12 months with extension of six months	Yes	30% of reduced wage	2/3 of normal wage (between 1-3 times minimum wage)
Slovak Republic	Support for maintenance of employment	No	4% of established weekly working time	100%	Yes	Yes	No	No	No	No	No	60 calendar days per year	No	At least 60% of normal wage (SSC are reimbursed)	At least 60% of normal wage plus employee SSC

	Name of scheme	Work-sharing requirements			Eligibility			Conditionality				Generosity			
		Minimum number/ proportion of workforce participating	Minimum hours reduction	Maximum hours reduction	Firm must provide justification of economic need	Social partner agreement	Participating workers must be eligible for UB	Compulsory training	Recovery plan	No dismissal	Job search requirement for employee	Maximum duration	Subsidised training	Cost to employer for hours not worked	Employee receives for hours not worked
Spain	*Prestaciones por desempleo parcial de nivel contributivo* (partial unemployment benefit)	No	33%	100%	Yes	No	No	No	Yes	No	Yes	24 months	No	None	UB
Switzerland	*Chômage partiel* (partial unemployment benefits)	Must apply to entire unit of firm	10%	100%	Yes	Individual agreement with employee	No	No	No	No	No	12-24 months	Yes	Full wage for one day per month + part of SSC	80% of normal earnings
Turkey	Short-time working	No	33%	100%	Yes	No	Yes	No	No	No	No	12 months	Yes	None	60% of gross earnings up to 120% of minimum wage
United States	Short Time Compensation/Work Sharing (operating in 17 states with just over half of the US labour force)	At least two employees	Varies: typically 10-20%	Varies: typically 40-60%	Yes	Yes	Yes	No	No	No	No	Varies: typically 26-52 weeks	No	Can increase future UI premia	UB

. .: Information not available; ALMP: active labour market programme; UB: unemployment benefit; UI: unemployment insurance; SSC: social security contribution; STW: short-time work.
Austria: no check of individual eligibility for UB, but calculation of STW allowance is on basis of notional UB. Some exemptions from no dismissal requirement during STW. Can agree to up to four month retention period after STW. Employer must also pay partial wage costs in case of more favourable social partner agreement for employees.
Canada: a recovery plan is usually required, but this requirement has been suspended until March 2011.
France: the social partners are responsible for funding vocational training initiatives.
Germany: generally one-third of the workforce, but this requirement does not currently need to be met. Employer must also meet other costs such as statutory holidays, sick leave, vacations, etc.
Hungary: three schemes were in operation during the recession. Two nationally-financed schemes finished in 2009. The ESF-financed scheme discussed in the table finished in early 2010.
Italy: training is not compulsory, but regions provide training for workers on CIG "in deroga". Training may be funded by Interprofessional Funds.
Luxembourg: usually the employer is required to pay wage cost for the first 16 hours per month of hours not worked, but this has been waived during 2009 and 2010.
Netherlands: the outflow date is fixed at either 31 December 2009, 31 March 2010 or 30 June 2010. This outflow date depends in the number of employees in the scheme relative to the number of employees in the company. Therefore the maximum duration depends on the date of inflow and the number of employees. More employees in the scheme imply a shorter duration. Minimum duration 26 weeks.
Source: Information collected from a variety of sources verified by national authorities.

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