Eurofound

# Employment effects of reduced non-wage labour costs

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Contents

Note about the annexes: The seven annexes containing detailed information and data about the evaluations and meta-analysis are available in a single PDF attached to the web page of this report, see http://bit.ly/nonwagelabour

Country codes

28 EU Member States (EU28)

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

Abbreviations used in the report

ALMP	active labour market policies
CEE	central and eastern European
D-i-D	difference-in-differences
ESF	European Social Fund
FJF	Future Jobs Fund
GDP	gross domestic product
NIC	national insurance contributions
NSJ	New Start jobs
SMEs	small and medium-sized enterprises
SSCs	social security contributions
VAT	value added tax

Note on currency conversion: Rates shown in the report are indicative and approximative and are based on currency conversion rates at November 2016 (unless otherwise indicated).

Executive summary

Introduction

Labour taxes make up a substantial share of overall labour costs in all developed countries. Reducing taxes on labour, in particular on the employer side, could be one way of inducing employers to hire more workers or to retain staff that might otherwise have been let go. Employment subsidies for hiring new workers operate in a similar way by increasing incentives for employers to create new jobs. Both types of measure – employment incentives and reducing employer non-wage labour costs – have been deployed in many EU Member States since the onset of the crisis. They have been used either as a general labour demand-enhancing measure or else targeted at specific categories. These are often groups with limited labour market attachment such as the young, low-skilled or low-paid and the long-term unemployed.

The main aim of this report is to assess the effectiveness of employer-side incentives in generating positive labour market outcomes. The report summarises the current state of knowledge on the effectiveness of shifts in employer social security contributions, employer payroll taxes and functionally equivalent employer incentives as employment-generating policy interventions. The assessment involved a review of 68 methodologically robust evaluations of specific policy interventions, including a detailed meta-analysis. The evaluations covered relate largely to policies implemented in EU Member States from 2000 onwards. The report also presents an overview of more recent (2008–2014) policies implemented in different Member States.

Policy context

In a period of high unemployment, strong fiscal pressures and low growth, EU policymakers have underlined the importance of identifying policy reforms – including labour taxation reforms – that are growth- and employment-friendly. This has been a common theme of the EU's European Semester policy coordination process. Country-specific recommendations to many Member States in recent years have included specific guidance about reform to the system of labour taxation, with the emphasis on shifting taxes away from labour to other tax bases. These include property, consumer spending and environmental taxes. In a context of depressed labour demand, the policy emphasis was on reducing the tax burden on employers, especially from 2011 to 2013–2014. As the policy review indicates, there has been a greater tendency than previously to target measures – even if the targeted categories are not always those where the evaluation literature indicates the likelihood of more positive employment impact.

Key findings

Across the evaluation studies covered, the employment effects from lower employer social contribution rates or functional equivalents such as hiring subsidies tend to be modest. In just over 40% of the employment effect estimates covered in the meta-analysis, no significant positive impact was identified. However, the policy is effective when it works: in cases where there was a positive employment outcome, it was strongly positive.

Policies targeted at a specific group were more effective than general or non-targeted policies. The target groups most likely to benefit are the long-term unemployed and fixed-term contract employees (conversion to permanent status). Reforms targeted at younger and older workers were less effective, as were measures targeting specific groups of companies (categorised by sector, company size or region).

The meta-analysis results indicate that positive employment impacts are more likely to be observed in the short term rather than over the medium or long term, suggesting that employment effects may tend to dissipate over time.

The report also highlighted potential drawbacks that limit the effectiveness of such measures. There were particular concerns about waste or inefficiency in implementation, opportunistic behaviour by benefiting companies, and the potential countervailing or distortionary impact on non-participating companies or economic players. Each can potentially undermine the cost-effectiveness of the measures or compromise policy objectives. Deadweight losses (jobs created that would have been created anyway without the subsidy) in particular are likely to be considerable, though well-targeted measures are likely to reduce such losses.

Policy pointers

- Employer-side incentives were successful from an employment perspective in a majority of the individual evaluation estimates, but not an overwhelming majority.

- Strong positive employment impacts were more likely from policies based on reduced employer social security contributions (compared with measures such as hiring subsidies) and from policies embedded in a package of reform measures (compared with standalone measures). Overall, however, there was little to suggest that any one policy out of all those considered systematically led to better employment outcomes than any other.

- Reduced employer taxes or increased subsidies need to be financed. The requirements of budget neutrality, an especially important constraint at a time of severe public spending restrictions, may require new taxes,

for example on consumer spending. Second-order employment effects from these may offset positive gains resulting from employer tax reductions.

o Such potential countervailing impacts – as well as deadweight and displacement effects – are not easy to estimate, but are critical to making an effective cost-benefit assessment of such policy interventions. Very few existing evaluations include such calculations.

o A positive macroeconomic context appears to enhance the probability that employer cost reduction measures achieve their goal of stimulating employment.

This final point could be an argument against the use of such measures when they are in theory most appropriate and in practice most needed – in recessionary or post-recessionary periods of depressed labour demand. It also implies that they may be more effective at times such as the present – with modestly improving output and employment growth.

Introduction

In a period of high unemployment, strong fiscal pressures and low growth, EU policymakers have underlined the importance of identifying policy reforms – including labour taxation reforms – that are conducive to both economic growth and employment creation. This has been a common theme running through recent documentation supporting the EU's European Semester policy coordination process (European Commission, 2015a). [1]

Aggregate EU labour market performance has begun to improve since 2013 as evidenced by higher employment rates (up from 64.1% to 65.6% in 2015, EU28) and steady declines in unemployment. But growth is slow and there were still fewer people at work in the EU in 2015 than in 2008 – before the global financial crisis. Employment rates in particular remain low for certain categories such as younger workers, low-skilled workers, lone parents and female workers. And among the unemployed, almost one in two of all unemployed had been without work and actively seeking a job for 12 months or more in 2015 (48.5%) compared with 37% pre-crisis. Increasing the incentives for employers to take on new workers may help to alleviate some of these problems.

Reducing the employer's social security contributions or payroll taxes is one form of labour taxation reform that aims to increase labour demand by decreasing the overall labour costs for employers – and hence facilitate the creation of new jobs. Employment subsidies for hiring new workers operate in a similar way, increasing incentives for employers to create new jobs.

The aim of this report is to review the current state of knowledge on the effectiveness of shifts in employer social security contributions, employer payroll taxes and functionally equivalent employer incentives as an employment-generating policy intervention. The assessment is carried out through a review of selected evaluations of specific policy interventions, including a detailed meta-regression analysis. The evaluations covered relate largely to policies implemented in EU Member States from 2000 onwards. The report also presents an overview of more recent (2008–2014) policies implemented in different Member States.

Employment and labour taxes

Labour taxes make up a substantial share of the labour costs in all developed countries. This means that labour taxation is inevitably a factor that influences labour supply and labour demand decisions, particularly in the formal economy. Labour taxes drive a wedge between the cost of labour to employers and the final post-tax consumption wage of employees. High levels of labour taxation may engender increased levels of informal employment or undeclared work outside the obligations and protections of the formal economy. They may also impact negatively on employment levels by encouraging changes to more capital-intensive forms of production.

Tax revenue, however, is essential to support the role of the state as a consumer of goods and services and as a direct and indirect employer of nearly one-third of all workers in some developed countries. Current taxation levels and methods are the result of historical path dependencies and represent social choices in developed democracies and preferences, for example, regarding state provision in sectors such as health and education. The power to levy taxes is a key prerogative of individual Member States and the EU has limited powers in this area. One consequence is that there are wide variations in the percentage share of taxation in total gross domestic product (GDP) across the EU28, in the proportion of tax revenue generated by labour taxes and in the distribution of labour tax among different tax types and economic players (personal income tax, employer social security contributions, employee social security contributions and payroll taxes[2]).

An important initial observation is that there is no direct connection between high taxation levels and weak employment performance. Some of the countries with the highest levels of tax, including labour taxes, are also characterised by strong labour market performance indicators. In this area, the Nordic countries continue to be exemplary.

Nonetheless, regardless of starting labour taxation levels, there may be scope to stimulate employment creation by means of policies that set out to reduce the tax burden. And such policies are considered especially appropriate at a time of weak labour demand and high labour supply.

An important empirical support for moves towards lower labour taxes has been country panel data showing evidence of superior average labour market performance (or higher average hours worked) in countries with lower tax wedges. An illustrative comparison has been that between the USA, with low tax wedges, and the generally higher tax wedges that have tended to prevail in the recent past in many EU Member States. In influential contributions, American Nobel laureate economists have pointed to differences in payroll tax levels in the EU and the USA (Phelps, 1994) and differences in overall labour taxation levels (Prescott, 2004) to explain the divergences in natural unemployment rates (non-accelerating inflation rate of unemployment or NAIRU) and total labour input per

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1   The European Semester is the EU's yearly cycle of economic and fiscal policy coordination. Each year, the European Commission publishes the Annual Growth Survey and the Alert Mechanism Report and analyses EU Member States' plans for budgetary, macroeconomic and structural reforms, and offers country-specific recommendations for the next 12–18 months.

2   Employer payroll tax is often used in the literature as a synonym for employer social security contributions (SSCs), but there are at least two broad differences worth signalling. Payroll taxes are generally levied on a company's total wage or salary bill – rather than on individual workers – and do not confer entitlement to social benefits, while employers' SSCs confer an explicit entitlement to social benefits (Econpubblica, 2011).

head between Europe and the USA, respectively. Higher labour taxes in the EU translated into fewer hours worked and higher unemployment. According to Nickell (2003), an increase in the tax wedge of 10% reduces employment on average by 2%.[3]

With the support of such research, reducing labour taxes is a long-standing and widespread policy recommendation for raising employment, evidenced, for example, in the influential OECD jobs study (OECD, 1994). Reducing labour taxes may 'make work pay' and help to bypass 'unemployment traps' that result from high effective marginal tax rates for low-paid workers. It may also operate on the labour demand side by decreasing total labour costs for employers and thus raising their propensity to hire.

It is important to recognise, however, that the relationship between taxes and employment is inevitably a complex one. There is little consensus on the extent to which lowering taxes translates into better employment outcomes and, in particular, on whether lowering employer-side or payroll taxes has sizeable beneficial effects. In a comprehensive review of policy measures in the EU and six other countries including the USA in the period 1990–2008, one of the main findings was that 'the impact of the policies on the unemployment rate, the employment rate, the inactivity rate and the weekly hours of work, is very weak if any' (Econpubblica, 2011). The authors concluded that tax policy can play only a minor role in determining labour market outcomes; however, where they are deployed, an approach targeting specific groups of workers (for instance low-skilled, older or female workers) is preferable. This latter consideration relates to the large costs and deadweight losses when reduced labour taxes are applied across the board.

The emphasis on targeted measures is also justified by evidence of variations in labour demand elasticity across different categories of the working population. This is a key metric in that it offers some *a priori* basis for assessing the relative cost-effectiveness of taxation changes. The more responsive demand for a specific category is to a given change in labour cost, the greater is the likely employment dividend in devoting available budget to measures targeted at that category. In a recent meta-analysis, labour demand elasticities were highest for low-skilled workers and for atypical (fixed contract) workers (Lichter et al, 2015). Analysis by the European Commission based on simulation results from the Labour Market Model developed by the Directorate-General for Employment, Social Affairs and Inclusion (DG-EMPL) suggests that measures targeted at specific groups would be more successful than non-targeted measures in employment terms (European Commission, 2014b). This finding is based on simulations of the effect of reduced employer social security contributions equivalent to 0.1% of GDP on the employment levels of three underrepresented groups in the labour market: younger workers, older workers and low-skilled workers. The analysis has a longer time horizon (20 years) than possible in most retrospective evaluation studies. For all three target groups considered, the median employment outcome across the 14 Member States covered was positive (although with negative outcomes for labour productivity and output for low-skilled and younger workers).

As many of the measures evaluated in the material covered later in this report are based on a targeted approach, they can help to assess to what extent reductions in the tax wedge may have positive employment outcomes and for which categories of workers positive impacts may be the strongest.

Policy context

In the context of the annual European Semester policy coordination process, country-specific recommendations to many Member States in recent years have included specific orientations about reforming the system of labour taxation. The emphasis has been on shifting taxes away from labour to other tax bases including property, consumption and environmental taxes. This policy orientation is based substantially on a ranking of the distortionary impact of taxes on economic growth (OECD, 2010), where labour and corporate taxes have been considered especially distortionary.

The integrated guidelines that accompany the EU2020 strategic targets include employment guidelines. The emphasis on employment-friendly labour taxation measures was made more explicit in the proposed 2015 revision of these guidelines. The original 2010 guidelines included the following provision:

> In order to increase competitiveness and raise participation levels, particularly for the low-skilled … Member States should review tax and benefit systems and the capacity of public services to provide the necessary support.
>
> *(European Commission, 2010a, p. 21)*

The proposed 2015 revision, however, included the following, more specific orientation:

> The tax burden should be shifted away from labour to other sources of taxation that are less detrimental to employment and growth while protecting revenue for adequate social protection and growth enhancing expenditures. Reductions in labour taxation should be aimed at the relevant components of the tax burden and at removing barriers and disincentives to labour market participation, in particular for those furthest away from the labour market.
>
> *(European Commission, 2015b, p. 2)*

The key features of the new guidelines are the emphasis on shifting taxes away from labour and targeting reductions

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3   Tax wedge is 'a measure of the difference between labour costs to the employer and the corresponding net take-home pay of the employee – which is calculated by expressing the sum of personal income tax, employee plus employer social security contributions together with any payroll tax, minus benefits as a percentage of labour costs' (OECD, 2014).

in the labour tax burden to enhance employment possibilities, particularly for the long-term unemployed and for underrepresented workforce categories (low-skilled workers and younger, older and female workers).

Recent reviews by the European Commission have indicated that progress towards implementing such tax shifts has been limited so far. Member States have been more active in following the guidance in relation to lower labour tax burdens but less active in relation to balancing increases in consumption taxes and other taxes. Where Member States have followed the tax shift guidance, it has been by levying higher consumption taxes rather than property-based or 'green' taxes. But consumer spending taxes are also to a significant extent borne by workers. Transferring tax burden from labour to, for example, indirect taxes such as value added tax (VAT) raises consumer costs. This has a negative impact on the real consumption wage, just as the reduced tax wedge may have a positive impact. The extent to which one measure dominates the other or both cancel each other out should therefore be an important consideration for policy evaluation, though this lies beyond the scope of the present report.

Labour taxes can be levied on the employer or employee side. An emphasis in the period 2011–2013 was on reducing employer-side taxes. On the basis that employer incentives are more likely to increase labour demand while employee incentives (reduced personal income tax or employee social security contributions) are more geared to increasing labour supply, the former are considered more appropriate in a post-recessionary context of depressed labour demand. Reducing labour costs for employers should help to generate more new employment and/or maintain existing employment relationships. Additional empirical support for such approaches comes from recent academic work on labour taxation which shows that labour demand elasticities have tended to increase over time. This is possibly because globalisation and technological change offers employers greater possibilities of substituting away from domestic labour (Lichter et al, 2015). The increasing sensitivity of labour demand to labour costs should tend to make measures reducing employer labour costs relatively more effective as a policy intervention.

More recently, since 2013, there has been a greater prevalence of targeted reductions for employees within the personal income tax system: increased tax-free allowances, extended tax credits and reduced rates. This shift in policy could be related to the resumption of employment growth and the beginnings of the first sustained (if still modest) economic recovery since the global financial crisis. In these circumstances, incentives on the labour supply side are likely to be increasingly effective. Apart from any positive employment effects, such incentives – depending on how they are targeted – could also boost incomes and raise living standards at the bottom of the income distribution. Between mid-2013 and mid-2014, 13 Member States took such measures while a much smaller number implemented reductions in employer social security contributions (European Commission 2014d).

Scope of report

This report reviews the evidence on the effectiveness of measures that reduce the employer part of the tax wedge in stimulating positive labour market outcomes. It adopts a broad focus to encompass not just changes in the applicable rates of employer social security contributions, or of payroll taxes levied on employers, but also measures that the authors deem are functionally equivalent. These include incentives or subsidies to employers to generate new employment. The conflation of the two categories can be justified on the basis that many reductions of employer social security contributions are considered to be a form of employment subsidy (Econpubblica, 2011) and many hiring subsidies take the form of reduced employer tax liabilities. The scope of the project, therefore, includes policies whose effect is to incentivise employers by reducing their labour costs in order to increase employment levels more than they would otherwise have done.

This approach reflects the orientation of the European Commission's Labour market policy database. For its purposes, expenditure on labour market policies in general and on employment incentives in particular refers both to 'transfers in the form of cash payments or reimbursements' (for instance employer subsidies) and 'amounts of revenue foregone through reductions in obligatory levies, which should be valued as the amount of revenue foregone compared to that normally payable' (for example, in reductions in employers' tax liabilities).

It brings together measures that would generally fall under the heading either of labour taxation policy and/or of active labour market policy. The only condition is that the measures should involve direct or implicit transfers from the state to employers to raise labour demand and facilitate increased hiring.

Outline of contents

Chapter 1 presents a non-exhaustive mapping of recent policy interventions over the period 2008–2014. This is based on two main sources. The first is a Eurofound comparative analytical report (entitled *Do reduced non-wage labour costs lead to more and better jobs?*) carried out in 2015 in collaboration with its network of European correspondents, based on feedback to a structured questionnaire. The second is the European Commission's Labour Market Reforms (LABREF) database for the period 2008–2014. The LABREF database is maintained by the Directorate-General for Economic and Financial Affairs (DG-ECFIN) and covers labour market reforms in the Member States under a variety of headings including – of specific interest to this report – labour taxation and employment incentives.

Chapters 2 and 3 provide an overview of the existing evaluation literature assessing policy measures that reduce the employers' tax burden with the intention of creating labour demand. The focus here is largely on earlier policy measures where adequate data were available over a significant period to make possible a methodologically sound empirical analysis of the specific

employment effects that can be attributed to the measure itself. Chapter 2 provides a brief literature review including a narrative review of selected individual policy evaluations. Chapter 3 presents a methodical meta-analysis of the evaluation studies selected according to specified criteria. A meta-analytical approach is increasingly used in labour market policy impact evaluation (Card et al, 2010; Melguizo and González-Páramo, 2013). This approach treats each selected evaluation as one observation in a dataset where outcome variables (positive, negative or non-significant employment outcomes) can be associated statistically with given characteristics of the measure being evaluated

(such as targeted category of measure, magnitude, country and period covered) and indeed of the evaluation itself (for instance, econometric approach or publication type). This approach potentially offers the advantage of statistically robust conclusions about the efficacy or otherwise of a given type of policy intervention based on all relevant studies that comply with objectively specified selection criteria. In this sense, it represents a scientifically sound summary of the best available research.

The final chapter draws some conclusions primarily from the analysis of the evaluation literature and provides some relevant policy pointers.

1 | Recent employer-side measures to stimulate labour demand

This chapter provides an overview of the reforms in non-wage labour cost that have been adopted since 2008 across the EU Member States in an effort to stimulate labour demand. It focuses on those reforms aimed at reducing labour costs for employers. These policies have been prominent in the policy agenda of the European institutions and have played a very important role in the labour market reform priorities of Member States in recent years.

Background

The tax burden on labour is relatively high in many European Member States compared to other developed countries (OECD, 2014). Against the background of above-average unemployment experienced in many EU Member States, European policymakers have advocated a reduction in the tax wedge on labour. Pressure for such measures has increased since the onset of the economic crisis in 2008. Recent evidence has shown that high taxes on labour provide disincentives on both the labour supply and demand side.

In the early stages of the crisis, the European Economic Recovery Plan aimed to deploy quick responses to the negative consequences of the crisis on labour markets. Among the measures adopted were reductions in labour taxes and social contributions on labour, since the European Commission argued that:

… lower social contributions paid by employers can have a positive impact on job retention and creation while lower taxation of labour income can support purchasing power in particular for low wage earners.

(European Commission, 2008, p. 8)

This plan required Member States in particular to 'consider reducing employers' social charges on lower incomes to promote the employability of lower skilled workers' (European Commission, 2008).

After the initial efforts to address the immediate effects of the crisis on labour markets and to protect the most vulnerable groups, policy action focused on improving the robustness of European economies and labour markets by correcting imbalances. Lower non-wage labour costs – in the form of lower employer social security contributions (SSCs) and other payroll taxes – have been advocated as a way to improve job creation, since they reduce the cost of labour without affecting the net wage of employees. Since the start of the European Semester in 2011, reducing taxes on labour to stimulate labour demand (and supply too, by increasing incentives to work) emerged as a priority in many countries, especially for low-paid work.

The key strategy commonly referred to in the European policy debate on labour taxation reforms is that of a tax shift. This concept was already mentioned in the Europe 2020 Strategy, according to which the tax systems should be more 'growth-friendly' by avoiding growing levels of labour taxation and by levying instead higher shares of tax on property, consumer spending and resource use (European Commission, 2010b).

The theoretical rationale for a tax shift from labour to other sources is based on two main ideas. Taxes would cover a broader tax base since almost everybody pays consumption taxes, while labour taxation only applies to the working population. However, some forms of taxation – notably labour taxation – are considered to be more negative for growth than others, such as 'recurrent property, environment and consumption taxes' (European Commission, 2014b). A tax shift away from labour intends to encourage growth and employment by reducing the potential negative impact of labour taxation on job creation and work incentives (Pestel and Sommer, 2016). The concept of tax shift is recurrent in the overarching communications that the European Commission has published every year since 2011 and in the country-specific recommendations within the European Semester framework.

Changes in the tax wedge

The concept that best measures the extent of labour taxation as a share of total labour costs is that of the tax wedge: the difference between what employees take home in earnings and what it costs an employer to employ them. The tax wedge is the sum of personal income tax and employee plus employer SSCs together with any payroll tax less cash transfers, expressed as a percentage of labour costs. The tax wedge varies widely among European countries, from levels of around 50% of the total labour cost of an employee earning the average wage (in Austria, Belgium, France, Germany, Hungary and Italy) to around 30% or less (in Ireland, Malta and the UK).

Figure 1 (overleaf) presents data on the evolution of the tax wedge and its components during the period 2001–2015 for the EU average. The European policy emphasis on the need to reduce labour taxation, spurred on by the economic crisis and the way it affected European countries, provides a useful background to interpret the observed trends in labour taxation and its components. Up to 2010, the tax wedge was gradually reduced, particularly between 2007 and 2010, during the initial stages of the crisis, when expansionary fiscal policies were adopted. As a result of constrained public finances, these policies were reversed, reflected in an increase in the tax wedge between 2010 and 2013. This uneven progress towards the goal of reducing labour taxation in these years is reflected in the overarching communications published by the European Commission and in the country-specific recommendations

within the European Semester framework, where references to lack of progress are common.[4] In more recent years, a major emphasis on the need to reduce labour costs through more systemic tax reforms seems to be emerging and can be seen in the reductions in the tax wedge observed from 2013 onwards.

The three components of the tax wedge show varying trends. The SSCs paid by employees remained relatively constant between 2001 and 2015 due to moderate increases in the pre-crisis years and large reductions in the initial years of the crisis. Personal income tax levels fell strongly in the initial years of the crisis following fiscal stimulus measures, but have increased significantly from 2010 against a background of fiscal consolidation. Lastly, employer SSCs – the component covered in this report – show a declining trend during the whole period, only interrupted between 2010 and 2012, the years when fiscal consolidation efforts were strongest. Moreover, the data show that the reductions in employers' SSCs have been greater for employees earning lower wages, reflecting the policy emphasis placed on stimulating labour demand for this group of employees.

The EU average for the evolution of employer SSCs is broadly in line with the trends in a majority of countries (Figure 2). Employer SSCs were reduced in the first part of the previous decade in most countries, particularly in some eastern European countries (Hungary, Poland, Slovakia and Slovenia). This trend continued across most countries at the onset of the crisis and in some there were significant cuts in employer SSCs (Bulgaria, the Czech Republic, Finland, Hungary, Slovenia and Sweden), reflecting the policies targeted at encouraging labour demand that were implemented at that time. Only in a small set of countries – Denmark, Estonia, France, Luxembourg and Romania – did contributions increase.

The trend changed from round 2010, coinciding with the beginnings of the sovereign debt crisis and the turn in policy towards fiscal consolidation. This explains why levels of employer SSCs increased in most countries in this period, significantly so in Bulgaria, Finland, Greece, the Netherlands, Poland and Slovakia. Lastly, the relative easing of financial conditions and the weak labour market situation in many Member States may explain why employer SSCs started to decrease again after 2012 in many countries, notably in Estonia, France, Greece and the Netherlands.

Figure 1: Tax wedge components for a single individual (EU average)
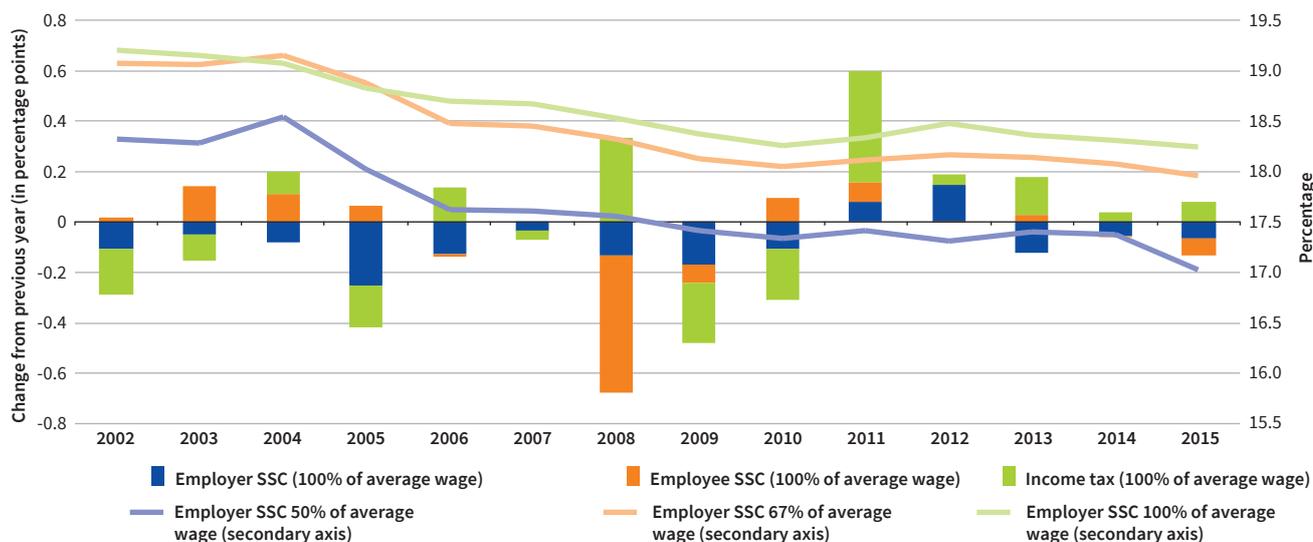
Notes: *The three components of the tax wedge are presented for an individual earning the average wage, expressed as percentage point changes in the percentage of total labour cost. Information for the employer SSCs component is presented on the secondary axis for three types of individuals at different wage levels (50%, 67% and 100% of the average wage). The EU average includes 21 countries that provided data for the whole period and excludes Bulgaria, Croatia, Cyprus, Latvia, Lithuania, Malta and Romania.*
Source: *European Commission's Tax and benefits indicators database (author's elaboration)*

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4   'Insufficient attention has so far been given to reducing the tax wedge on labour' (European Commission, 2011d); 'there is no evidence of an overall reduction in labour taxation' (European Commission, 2012b).

Figure 2: Change in employer SSC levels over different periods between 2001 and 2015
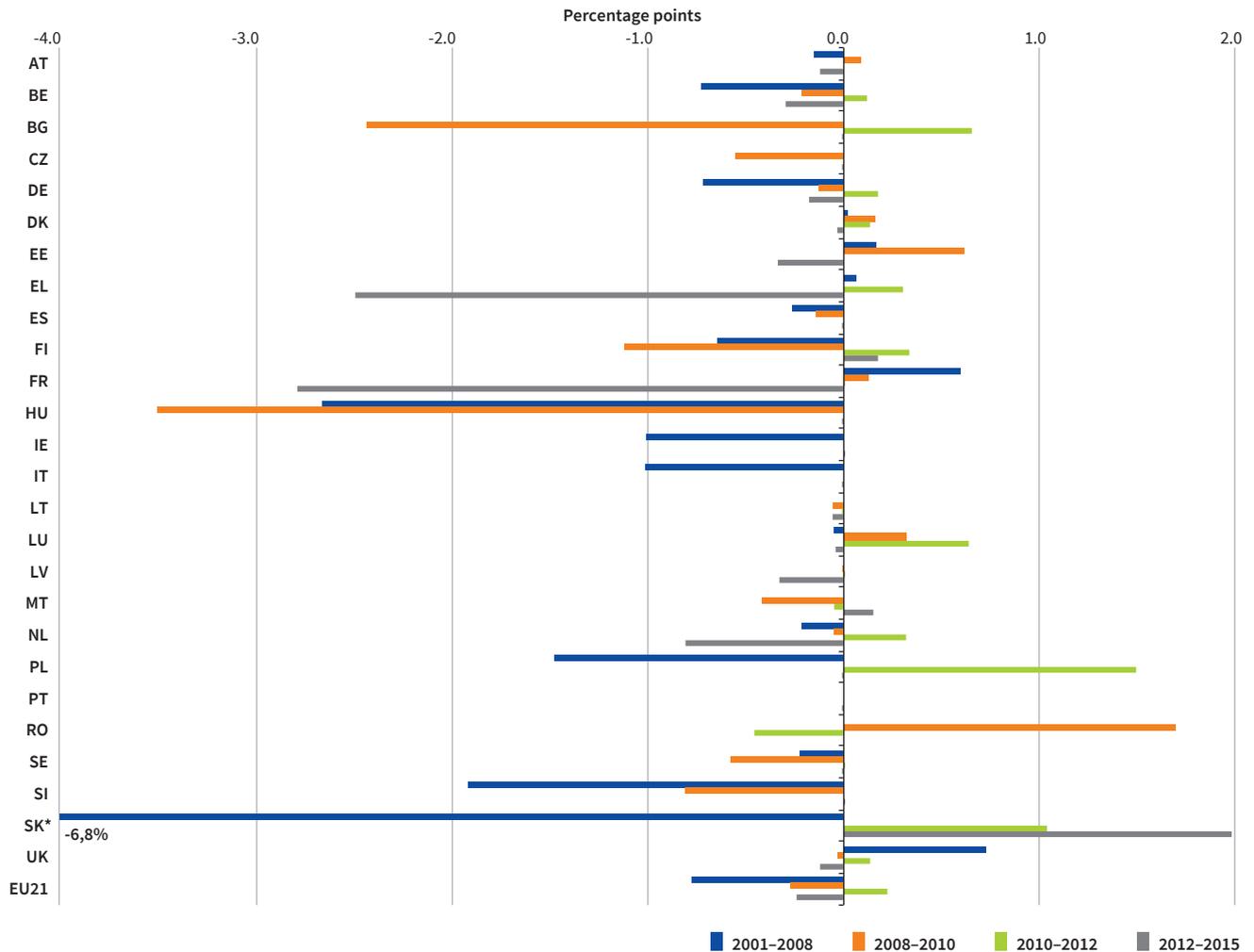
Note: *The EU average includes 21 countries that provided data for the whole period and excludes Bulgaria, Croatia, Cyprus, Latvia, Lithuania, Malta and Romania.*
* The value for Slovakia is too large to be included in the graph.
Source: *European Commission's Tax and benefits indicators database (author's elaboration)*

Reforms in employer-side labour taxes

As indicated earlier, the European policy debate on non-wage labour costs in recent years has advocated a reduction in labour taxation levels as a way to strengthen labour demand (and supply) and improve employment outcomes. A reduction in non-wage labour costs borne by the employer has been particularly present in the debate within the EU as a way to stimulate labour demand. For equity and efficiency reasons, such measures have been considered especially appropriate when targeted at categories where labour demand and supply elasticities are high – for instance, the low-paid, low-skilled and female workers.

Labour market reform activity across European countries can be mapped with the LABREF database. This is an inventory of reforms, understood as a change in a policy area as a result of a legislative, executive or administrative act, agreement or court ruling. Although

the dataset offers only qualitative information and the number of reforms is not necessarily a good indicator of their importance, it is a useful tool to observe how the reform emphasis varies across policy domains and over time and across countries.

Figure 3 (overleaf) presents LABREF data for the period 2000–2013 in some of the main labour market policy domains. Two main facts are worth noting. First, labour taxation and active labour market policies (ALMP) are the two labour market areas with the highest reform intensity in the last decade, both before and after the crisis. These are the two policy areas where the measures covered by this report are included (employer SSCs within the labour taxation domain and employment subsidies within the ALMP domain). Second, three different subperiods are discussed that can be identified in the post-crisis period (2008 onwards) (Turrini et al, 2015 and European Commission 2015a).

In the initial years (2008–2009), reforms attempted to address the negative impact of the crisis on employment

and income by adopting fiscal stimulus policies and measures such as targeted reductions in labour costs and wage subsidies to support employment. This is reflected in the high number of measures under the labour taxes and ALMP headings. In a second stage, as fiscal policy shifted from stimulus to consolidation, budget-neutral interventions – such as reforms in employment protection legislation and wage-setting – assumed greater prominence while interventions in labour taxation and ALMP declined in relative importance. Finally, in the most recent years covered by LABREF (2012 and especially 2013), Member States appear to have responded to the challenging labour market situation by strengthening labour demand and supporting incomes through tax and social security reforms, including better targeted ALMPs and cuts in the tax wedge.

A similar modulation over time can be seen in the number and direction of the interventions that are the particular focus of this study (Figure 4). The majority of interventions – involving employers' labour costs (including employer SSCs), payroll taxes and

employment subsidies for employers – were aimed at reducing such costs during the period 2000–2013. But again, different subperiods are visible. In the run-up to the crisis, almost all measures were intended to reduce labour costs for employers, but from 2008 onwards it is possible to observe increased policy activity overall – including measures that increase taxation – and the level of stimulatory, tax-reducing measures declined sharply in 2011 before beginning to grow again as budgetary concerns became less pressing. Although untargeted reductions occurred in several countries, the relative importance of cuts targeted at specific, generally disadvantaged, labour market categories tended to increase from 2008 to 2013.

A selected review of measures taken from 2008 to 2015 across European countries in the area of employers' labour costs is presented next, collected through Eurofound's Network of European correspondents and complemented by the European Commission's LABREF and Taxation reforms database.[5] The review distinguishes between untargeted and targeted reforms.

Figure 3: Average number of reforms per year in the EU by policy domain
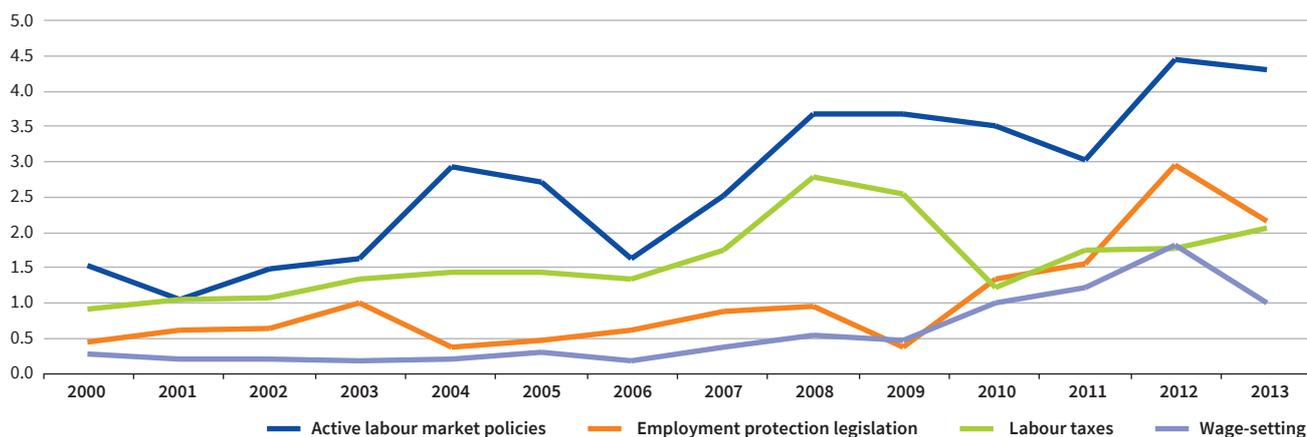
Note: EU data exclude Bulgaria, Croatia and Romania.
Source: LABREF

Figure 4: Number of reforms in employer SSCs and employment subsidies by direction of reforms in the EU
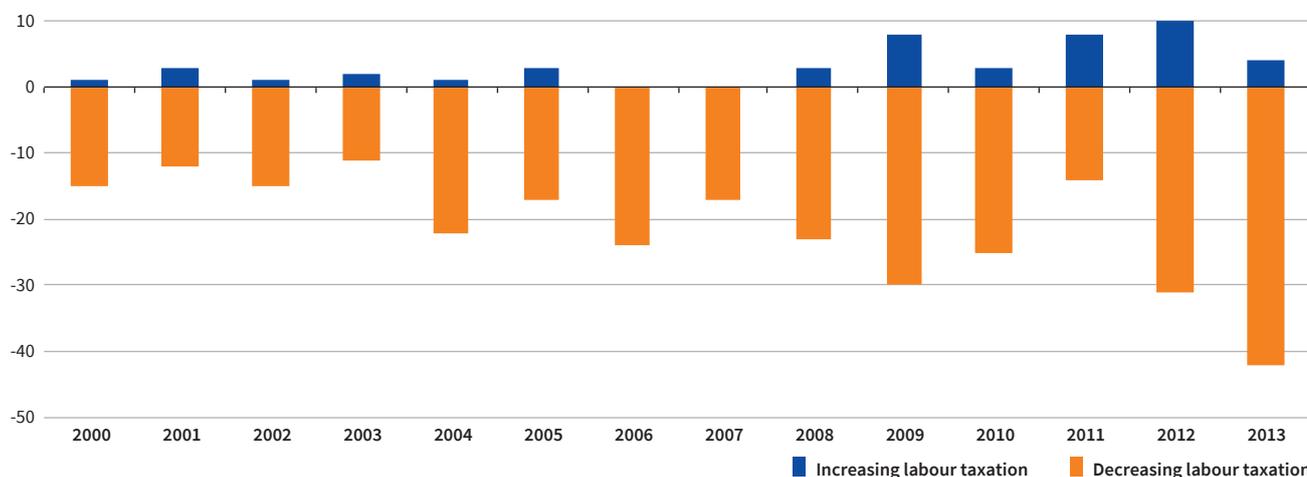
Note: *EU data exclude Bulgaria, Croatia and Romania.*
Source: *LABREF*

Untargeted reforms in employers' labour costs

Reductions of a general character affecting the labour costs borne by the employer are not as common as those targeting a particular group within the workforce. Their relevance also clearly declines over the period from 2008 onwards.

Immediate post-crisis period (2008–2009)

In the early years of the crisis, many governments adopted national employment programmes as a reaction to the crisis. These were intended to strengthen labour demand, often by reducing employer SSCs and/or introducing wage subsidies with a general character. In some cases, these reductions were temporary, with a clearly predefined period of enforcement, while in others they were permanent.

General employer-side tax reductions: 2008–2009

Bulgaria: Employer SSCs were effectively cut by 2.4 percentage points in 2008 (and by a further 2 percentage points in 2009) as a result of the entry of the state as a third insurer together with the employers and the employees.

Czech Republic: Within the national anti-crisis plan of 2009, there were reductions in social security premiums paid by employers. The rate of health insurance paid by employers decreased from 3.3% to 2.3% in 2009. However, this legislation was repealed after several months due to a package of measures aimed at reducing the deficit in the public finances.

Finland: As part of the government's stimulus package in 2009, the state pension insurance contribution was cut by 0.8 percentage points for all employers from the start of April (remaining at an average level of 0.77% of the employees' wage for employers in the private sector and 1.05% of the wage for other employers) and then fully removed in 2010. The policy was forecast to increase labour demand by 10,000 workers in the long term while savings of €495 million were expected due to its removal. However, it seems the reduction has been offset by the successive increases in the employers' earnings-related pension contributions. According to data from the Confederation of Finnish Industries (EK), the total non-wage labour costs of employers have in fact increased from an average of 22.07% of wage in 2009 (23.21% of wage in 2008) to 23.38% in 2015 due to the increases in the earnings-related pension contribution, the health insurance fee and unemployment insurance contribution.

Germany: Labour costs for employers were reduced through a cut in the employer contributions to statutory unemployment insurance funds: from 3.3% in 2008 to 2.8% in 2009.

Hungary: In April 2009, the reshuffled government, under a new Prime Minister and a mandate of crisis management, approved the Managing the Crisis and Building Confidence programme which reduced the contributions paid by employers by 5 percentage points (from 32% to 27% of gross salaries). This reform had the elements of a fiscal devaluation,[6] since the measure was counterbalanced by increases in consumer spending taxes.

Employers' labour taxes increased in just a few countries mainly as a result of concerns about domestic budgetary situations. This was a concern that tended to become more prevalent in subsequent years. In Romania, employer SSCs increased by 2.3 percentage points in 2009, from 18.5% to 20.8%, for this reason. In the UK, and as part of the emergency budget to counter the debt crisis, the rates of national insurance contributions (NICs) paid by employers rose permanently by 1 percentage point. Although the change effectively took place in 2011 under the new Coalition Government, it was announced in two stages by the previous Labour Government in its pre-budget reports in December 2008 and 2009.[7] Employer SSCs also increased in Lithuania in 2009, and in Estonia where the rise was higher than originally planned in 2008 due to the severity of the crisis.

Fiscal consolidation (2010–2011)

A growing number of countries started to change their policy stance in 2011 and 2012 due to growing debt levels and the perceived need for fiscal tightening. Untargeted increases in employers' labour costs were very characteristic of this period, together with the discontinuation of some of the reductions adopted in 2008–2009.

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5   These two datasets can be consulted online for a comprehensive review of all the reforms adopted in the area of employers' labour costs: LABREF (https://webgate. ec.europa.eu/labref/public/) and the Taxation Reforms database (http://ec.europa.eu/economy_finance/db_indicators/taxation_reforms_database/index_ en.htm).

6   Fiscal devaluation is a policy tool aimed at regaining competitiveness and which could be relevant against the background of the crisis for euro area countries given the impossibility of 'traditional' exchange rate devaluations within the single currency. A fiscal devaluation is defined by the OECD as 'a shift from employers' social security contributions to value added tax (VAT), as an alternative means to restore competitiveness'. The fiscal devaluation would have a neutral effect on the public budget and would improve external competitiveness by making exports relatively cheaper and imports relatively more expensive, therefore improving the balance of trade, although there are doubts about its medium- and long-term relevance as a policy strategy (Koske, 2013).

7   To mitigate the impact on individuals with lower incomes, and on the incentives for employers to take on new staff, both the primary and secondary thresholds were raised substantially above inflation.

General employer-side tax increases: 2010–2011

France: The new government ended one of the last TEPA Act measures (*la loi en faveur du travail, de l'emploi et du pouvoir d'achat*, the law in favour of labour, employment and purchasing power, introduced in 2007) still in force, and after September 2012 extra hours worked were no longer free of social contributions for employers over and above the weekly 35 hours.

Greece: A 'special solidarity contribution' for annual incomes exceeding €12,000 was introduced in 2011, varying from 1% to 4% on the actual or imputed taxable or tax-exempt reported income (for income earned in 2010–2014). Although this measure was targeted, it potentially covered a large share of the workforce.

Poland: There was an increase in employers' pension contributions by 2 percentage points, up to 8% from 2012. According to government estimates, the additional revenues to the Social Insurance Fund amounted to about PLN 7 billion (around €1.55 billion) per year.

Spain: The maximum contribution base for social security was increased by 1 percentage point from 2011.

Slovakia: From 2012, income from work performed outside contractual work was liable for full social insurance and health insurance contributions.

UK: From April 2011, employer rates of NICs increased by 1 percentage point.

There are also examples of general, untargeted reductions in employers' labour costs in this period, although they were far less common than in the immediate post-crisis period.

The first Memorandum of Understanding signed in 2010 between Greece and its international creditors made an overall reduction in employer contributions a prerequisite for financial assistance. This started in 2012 with the abolition of two organisations, the Workers Housing Organisation (OEK) and the Workers' Health Organisation (OEE) which provided contributory benefits for private sector employees. This resulted in a reduction of employers' SSCs by 1.1 percentage points and a reduction in social security funds of €240 million, according to the then Minister of Employment.

There are other cases of untargeted reductions in employers' SSCs in this period. In the UK, the threshold at which employers start to pay NICs was raised by GBP 21 (€24 as at 3 January 2017) per week above indexation in April 2011. In Ireland, a temporary decrease in employer SSCs was adopted in 2011 to offset the reversal of the cut in the minimum wage. In the Czech Republic, employer allowances to employees' social and health insurance were replaced in 2011 by a tax on wages which effectively meant a reduction of taxes for employers. Also in 2012, when the employer SSCs stood at 1.4% of payroll, it was decided to reduce the rate back to its 2009 level of 1%.

Post-crisis (2012 to 2015)

From 2012 onwards, there was a renewed policy orientation towards strengthening labour demand through reductions in employer labour costs. Compared with the early stages of the crisis, these untargeted reductions represented a much lower proportion of the total interventions aimed at reducing labour costs for the employer. Rather than a short-term reaction to the crisis, these measures appear to be aimed at reducing employers' labour taxes over the longer term.

General employer-side tax decreases: 2012–2015

Austria: In 2013, the newly formed Austrian governing coalition (Social Democratic Party and the Austrian People's Party) announced reduced SSCs for employers in their programme to stimulate economic growth and employment. Employer contributions were lowered by 0.1 percentage points to 1.3% for occupational injury insurance from July 2014 and for the Insolvency Remuneration Fund (*Insolvenz-Entgelt-Fonds*, IEF) from 0.55% to 0.45% as of January 2015.

Belgium: A stimulus plan was announced in 2013 that included measures to decrease employer SSCs and offer wage subsidies amounting to €1.3 billion. The subsidies were to be released in three stages in 2015, 2017 and 2019, each with funding of €450 million; the measure was mainly aimed at reducing the wage gap between Belgium and its neighbouring countries by 2018. Each of these three programmes will include a linear and general reduction of employer SSCs and a reduction targeted at low-wage workers and an increase in wage subsidies for night and shift work.

France: The possibility of a fiscal devaluation was under discussion for several years. In 2012, the previous government adopted the so-called Social VAT, which would have lowered employer SSCs and increased VAT simultaneously, but this reform was abandoned a few months later by the newly elected centre-left government. Nevertheless, the political debate about increasing the cost competitiveness of French companies through a fiscal devaluation regained momentum with the publication of the Gallois report (Gallois, 2012). In 2013, the government presented a tax credit for competitiveness and employment (*Crédit d'impôt pour la compétitivité et l'emploi*, CICE), to be financed half through increases in the VAT rate and environmental taxes, and half through a reduction in public spending, therefore containing elements of a fiscal devaluation. As of 2014, the standard VAT rate was raised from 19.6% to 20%, while the reduced rate increased from 7% to 10%. In addition, a carbon tax was introduced and some additional measures in the area of environmental taxation were enacted. Although the CICE is supposed to target low-paid employees, in practice it covers around 82% of workers. According to some simulation studies, the CICE is expected to increase GDP by 0.1 to 0.3 percentage points and to create around 130,000–150,000 new jobs over a two to four-year time frame (Plane, 2012; Espinoza and Ruiz, 2014).

Greece: In 2014, the government completed the second cut in employer SSCs agreed with creditors. Contributions were cut by 1.1 percentage points in 2012 and then by 2.9 percentage points in 2014, through the abolition of the contributions to various funds covering sickness and maternity benefits. According to the Minister of Employment and Social Security, this reduction, together with a 1 percentage point reduction in employees' contributions, was to result in a €800 million reduction in social security funds.

Italy: Reduced employer SSCs for companies for accident and illness funds were adopted in 2013. Moreover, companies became entitled to a tax deduction of up to €15,000 for each new permanent hiring, provided the number of workers employed under an open-ended employment contract within the company increased.

Latvia: The mandatory employer SSCs rate was reduced from 24.09% in 2013 to 23.59% in 2014.

Romania: A reduction in employer SSCs by 5 percentage points (from 20.8% to 15.8%) was sanctioned from October 2014.

Spain: In early 2014, the government discussed proposals for a fiscal devaluation, prepared by a committee of experts selected by the Minister of Finance (*Comisión de Expertos para la Reforma del Sistema Tributario Español*). However, recently announced taxation reforms do not include any further reduction in employer SSCs, apart from the targeted ones covered later in the report. On consumer spending taxation, Spain increased the standard VAT rate by 2 and 3 percentage points in 2010 and 2013, respectively, and the reduced rate from 7% to 10%.

Targeted reforms in employers' labour costs

The European policy debate has generally favoured targeted reforms to reduce the costs borne by employers and these have been more extensively used across Member States, especially in more recent years. Targeted interventions are aimed in almost all cases at reducing employers' labour costs, with one exception: cases of differential employer labour tax rates intended to incentivise the creation of permanent employment in highly segmented labour markets. In some cases, these operate by penalising temporary contracts with higher rates of employer SSCs.

In the early stages of the crisis, some targeted measures responded to the negative shock in labour markets by trying to save jobs or specifically targeting redundant workers or companies at risk. In the second stage of the crisis (2010–2011), against a background of fiscal consolidation across many countries, there was a focus on incentives to support employment in small- and medium-sized enterprises (SMEs) and to encourage start-ups, entrepreneurship or self-employment. Most recently, in 2012 and especially from 2013 up to the present, there has been a large increase in the number of targeted measures. The groups targeted include the young, older, long-term unemployed, those on temporary contracts and those in disadvantaged regions. This reflects the concern of policymakers about the disproportionate effect of several years of depressed labour markets on people who fall into these categories. It may also reflect increasing evidence of the relative cost-effectiveness of targeted measures, particularly their comparatively limited deadweight losses and high labour demand elasticities among targeted groups.

The next section presents a selection of the relevant measures by target group.

Start-ups, small companies and crisis-hit companies

Austria: The period during which start-ups can make use of the benefits is important, as illustrated by the Austrian case, where initially start-ups had 12 months to take advantage of partial exemption from various contributions.[8] This window was extended in 2011 to up to three years (during which exemption from the employers' contribution could be granted for 12 months). The decision to extend the time frame was because start-ups often do not have any staff in the first year. During the first year, there is no limit on the number of employees for whom a start-up can ask for exemptions. In the second and third years after start-up, the exemption of employer contributions can only be claimed for the first three employees.

Belgium: A more generous reduction in SSCs was agreed in 2011 for SMEs for their first three recruitments. The measure took effect in 2013. The reduction had a sliding scale: for the first hiring, employer SSCs were reduced by €1,500 per quarter during the first five quarters, €1,000 per quarter during the next four quarters and €400 per quarter during the four following quarters; for the third hiring, the reduction was €1,000 per quarter during the five first quarters and €400 for a further four quarters.

France: Employer SSCs were reduced for new jobs created in small companies during 2009, setting them to zero at minimum wage levels.

Ireland: A subsidy was introduced for eligible manufacturing and internationally trading enterprises that had identified a number of full-time jobs at risk as a result of the economic downturn. Successful applicants could get a subsidy of up to €200 per week for each person working full time (an average 35-hour week) for the first 26 weeks, then declining to a maximum of €9,100 over the 15-month period to November 2010, capped at a maximum €500,000 per enterprise.

Hungary. The first employee employed by micro-companies run by families or self-employed individuals was offered a wage supplement of between HUF 66,000 and HUF 106,000 (€212–€341 as at 31 December 2016) and a waiver of SSCs for 12 months, provided the employment continued for at least three months afterwards. This measure was introduced in 2008.

Latvia. Microenterprises (up to five employees) pay a lower rate of employer contributions: the nominal rate of social contributions is 34.09% of payroll, while the microenterprise tax is 9% of payroll, 65% of which must be dedicated to social insurance.[9]

Lithuania: A subsidy available to small enterprises starting businesses in 2010 covered SSCs and business licence acquisition costs.

Portugal: From 2012, mandatory SSCs were reimbursed to start-up companies when they offered full-time employment contracts of at least 18 months' duration to skilled workers.

Spain and Sweden: In both Member States, special exemptions were introduced for companies with crisis-related difficulties. In Spain, viable companies experiencing temporary economic problems were able during 2009 to postpone social security payments if they made a commitment to maintain employment. In Sweden, employers could apply to defer payments of preliminary taxes for their employees during a two-month period in 2009. The deferment was for a maximum of one year and applied to wages paid between February and December 2009.

UK: Businesses set up in the three tax years from 2010 (excluding those in London, the south-east and eastern England) were exempt for one year from NICs for the first 10 employees hired in the first year of trading. The exemption was capped at a maximum of GBP 5,000 (€5,800) per employee and was worth up to GBP 50,000 (€58,000) per business for up to 400,000 businesses, with a total Exchequer cost of GBP 0.9 billion (€1.04 billion) spread over three years.

The unemployment rates of young people have reached record highs in Europe since the onset of the crisis. As opposed to previous episodes, when older cohorts exited the labour market in greater numbers due to industrial restructuring, young people have disproportionately carried the burden of labour market adjustment since 2008. The policy response to this at EU level culminated in the 2013 Youth Guarantee. As a consequence, this is the group that has been most commonly targeted. The age thresholds used when defining young people varies across countries and policies; for some apprenticeship measures, for instance, the qualifying age ranges from the early twenties up to the age of 35 in some countries. In some cases, such as Belgium and France, additional requirements related to the low education levels or poor skill levels of the young people. In countries with very high graduate unemployment such as Italy and Spain, some schemes have been targeted at graduates. In others, measures are linked to the labour market entry of young people; these include exemptions or reductions in employer taxes that apply only to employers taking on employees in their first job as in, for instance, Austria and Croatia. Typically, the measures require that the person remains employed for a relatively long time or for a certain time after the programme is over.

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8   Employers do not have to pay employer contributions to the Family Burdens Equalisation Fund (*Familienlastenausgleichsfonds*, FLAF), to housing subsidies (*Wohnbauförderung*), occupational injury insurance and surcharges for the Federal Economic Chamber (*Kammerumlage*).

9   In 2015, the microenterprise tax rate increased to 11% for microenterprises whose turnover was €7,000.01–€100,000 (9% for microenterprises whose turnover does not exceed € 7,000), while the share of the microenterprise tax paid into the social insurance budget increased to 69.4% of the total.

Young people

Austria: In 2010, the *Aktion +6.000* programme targeted young people under the age of 25 who could not find a job after completing their education. The public employment service paid over 50% of all total payroll costs for an employee during their first six months of work.

Companies set up in the previous five years that had decided to train apprentices for the first time, or established businesses that had stopped training apprentices and wanted to start again were eligible for the Youth Employment Package (*Jugendbeschäftigungspaket*), which from 2009 gave them a 'basic subsidy' (*Basisförderung*) for each apprentice hired; this was the equivalent of three months of an apprentice's gross salary paid after the first year, two months' salary after the second, and one month's salary after the third and fourth year. They could also apply for a one-time subsidy of €2,000 for each apprentice (*Blum-Bonus II*).

Belgium: Reductions in employer SSCs were offered in Belgium from July 2013 for companies employing low-skilled job-seekers aged under 27 years; the workers were additionally entitled to a working allowance paid by the National Employment Office (ONEM/NEO).

Croatia: Employers have been exempted from contributions since 2012 when recruiting people below 30 years of age who either did not have work experience in the skill or profession for which they had educational qualifications, or who were long-term unemployed (registered for more than two years with the Croatian Employment Service).

In 2009, employers who gave someone their first job were exempt from pension insurance contributions for a year.

Finland: In 2010, the government had created a hiring subsidy for people below 25 years of age. With the launching of the Youth Guarantee in 2013, the subsidy was extended to cover all unemployed people younger than 30 (€700 per month for up to 10 months, covering 30%, 40% or 50% of the hiring costs depending on the duration of previous unemployment).

France: The Jobs for the Future *(Emplois d'avenir)* programme, targeted at youngsters having serious problems entering the job market, was set up in France in 2012. Under the scheme, 75% of the gross wage is paid by the State for three years and priority is given to those aged between 16 and 25 who have no qualifications and especially those living in urban or rural areas with high unemployment.

Greece: In 2012, a programme targeted at highly skilled young people (including degree holders up to the age of 35, graduates from Greek higher education institutes and holders of undergraduate or postgraduate degrees) gave private employers a grant (€25 per day for unemployed people over 25 years and €20 per day for those under 25 years) for a maximum of 24 months if they agreed to keep the newly recruited employees for at least an extra three months.

Hungary: The First Job Guarantee Programme started in Hungary in 2013, providing employment opportunities for young job-seekers under the age of 25 (primarily the unskilled and first-time job seekers). It offers potential employers a maximum of six months' wage subsidy on condition that the employment continues for at least half as long again as the period during which the employer received the subsidy.

Italy: A 35% tax credit (capped at a maximum of €200,000 per year and per company) was made available to encourage the recruitment of high-skilled young people, in particular those with a technical/scientific specialisation.

In 2011, employers with up to nine workers were granted 100% relief on SSCs for up to three years when contracting apprentices aged between 15 and 29 years, while employers with 10 or more workers paid reduced SSCs for apprentices over the whole period.

Latvia: The Latvian Work Places for Young People (*Darba vieta jaunietim*) programme, co-funded by the European Social Fund (ESF), was set up in 2011 and subsidises jobs for young people between 18 and 24 years of age who have been unemployed for at least six months (or have recently been on childcare leave, or have a disability). The subsidy covers 50% of the monthly wage for nine months (with an upper limit of €142 for the first six months and €71 for the next three months).[10]

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10 It replaced the Work Practice for Young People (*Jauniešu darba prakse*) programme, which was discontinued following an evaluation suggesting that it was being used by employers as a source of cheap labour rather than as a genuine training initiative.

Lithuania: The ESF-funded project, Increasing Youth Employment (*Jaunimo užimtumo didinimas*),[11] was launched in August 2012 to support those aged under 29 years with no previous job experience (including long-term unemployed young people), subsidising them for six months while they acquired working skills on-the-job or for four months of employment. The subsidy reimbursed the employer for up to 50% of salary costs (and up to 75% for disabled employees).[12]

Netherlands: From 2014, a programme (*Premiekorting jongere werknemer*) subsidised the labour costs of new employees aged between 18 and 26 years who had previously been unemployed or on welfare benefits for at least six months. Employer SSCs were reduced if these new recruits were employed for at least 36 hours per week (reduced to 24 hours in 2015). The reduction applies throughout the duration of the contract up to a maximum of two years and up to a ceiling of €3,500 per employee per year.

Slovenia: A new measure was introduced in 2013 that partially reimburses employer SSCs if a person under 26 years, or a mother with a child under the age of three is hired and the job is their first. However, the employment must last for at least two years and the employer can ask for the reimbursement only at the end of the first year. The reimbursement is 50% during the first year of employment and 30% in the second year of employment.

Employers who, between November 2013 and December 2014, hired on a permanent contract someone who had been unemployed for at least three months and was under 30 years of age were exempt from all of the main employer contribution categories (including health, pension and disability) for the first 24 months of employment.

Spain: Launched in 2013, the work experience contract (*Contrato en prácticas*) consisted of a 50% reduction in employer SSCs (with a 50% additional deduction for employing youngsters benefiting from the National Youth Guarantee System) when recruiting people under the age of 30 (or 35 if disabled).

Sweden: It was announced in the 2014 budget that SSCs for people under 23 years at the start of the year would be reduced to 10.21% (while the previous reduction would no longer apply to those who had reached the age of 25).

UK: Existing exemptions were extended from April 2015; NICs previously levied at 13.8% on wages between GBP 153 (€171) per week and just over GBP 800 (€899) per week were removed for approximately 1.5 million young people currently in employment who were aged 21 and under.

The labour market situation of older workers has been improving and their employment levels have continued to grow over the crisis period. Nonetheless, in cases of involuntary job loss, older workers are generally considered more vulnerable. The likelihood of them finding new employment is much lower than their younger counterparts. For this reason, they account for a relatively high share of the long-term unemployed (European Commission, 2014b).

Although fewer reforms aimed at reducing employers' labour costs target this group than target younger workers, an increase in such reforms can be observed in recent years. The age limits set in such reforms vary across countries and policies. Some are as low as 45 (in Portugal), but generally they apply to those over the age of 50. In many countries, the magnitude of the exemptions increases with age, as in Belgium, although in others restrictions are imposed on eligible jobs in terms of upper limits for wages. Measures may target an older worker who may be considered a 'returner' to the labour market after being unemployed for a certain time or, in some cases, older long-term unemployed people (as in Malta). Training may be necessary for older workers who have been out of the labour market for some time and this can be taken into account, as in the Slovenian 50plus scheme.

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11   This programme replaced a previous one that ran from August 2010 to July 2012 exempting employers from pension social insurance contributions (representing 23.3% of gross) for a maximum of one year when employing someone in their first job and whose remuneration did not exceed three times the minimum monthly wage of LTL 2,400 (€696) before tax.

12   The employer pays the employee's wage and all related social insurance contributions in full, but a portion of these costs is then reimbursed. Up to LTL 1,700 (€493) can be reimbursed per month, but there is a cap of LTL 391 (€113) per month for one employed person, which means employers are compensated for approximately 23% of each individual's salary costs. The relatively low nominal value of the subsidy means that beneficiaries will mostly be in the low-skilled/low-income segment.

Older people

Belgium: Reduction of social contributions (€1,600 per year and per employee) for companies that hire workers over 57 years was offered in Belgium from 2012. Graduated reductions were also offered to workers from the age of 50, the reduction in contributions starting at €200 per year for employees aged 50 and increasing with age. For workers aged 50–57, one condition was that the overall wage should not exceed €4,000 per month. Previously, from 2008, Belgian employers could reduce contributions by a rate that increased in line with the age of the employee from 54 to 65 years (€400 per quarter for employees aged 54–57 years, €1,000 for those aged 58–61, €1,500 for those aged 62–64) when hiring people aged at least 54 years and where the gross wage did not exceed €13,401 per quarter.

Malta: An annual tax deduction of €5,800 was introduced in 2014 for employers hiring older people who had been unemployed for the previous three years, with an additional tax deduction on their income or corporate tax of 50% for training costs (up to a maximum of €400) if training was offered through a provider officially accredited by the Malta Qualifications Council.

Netherlands: From 2009 up to 2012, employers could claim an annual subsidy of €6,500 per employee for a maximum of three years to finance their SSCs when recruiting an older worker for at least 36 hours a week. The age threshold was 50 years of age and recipients had to previously have been in receipt of social benefits. In 2012, the subsidy was increased to €7,000 per year and employee. The age threshold was set to rise to over 55 years of age from 2015.

Poland: From 2013, employers benefited from a wage subsidy for 12 months when hiring an unemployed person over 50 years and for 24 months when the unemployed person was over 60. One condition was that the wage could not exceed 50% of the minimum wage and the employment had to continue after the expiry of the subsidy for at least half as long as the subsidy had been paid.

Portugal: From 2013, when hiring unemployed people aged over 45, Portuguese employers could have a full refund of the Single Social Tax (TSU) for up to 18 months when offering permanent employment and a partial refund (75%) for fixed-term employment.

Romania: From 2013, employers hiring registered unemployed individuals aged 45 and over received a monthly payment equal to the Reference Social Indicator – set at RON 500 (€110) for 12 months – although the employment relationship with those employed had to last at least 18 months. This measure was available also when hiring people within five years of early or statutory retirement age.

Slovenia: The '50plus' measure in Slovenia offers on-the-job training to those aged 50 or above who have been registered as unemployed for more than six months. The training lasts for a month and must be followed by full employment for at least 18 months with the same employer. The employer gets an €8,000 subsidy for each person recruited to work full time, or proportionally less for part-time employment.

People who have been unemployed for some time may progressively lose their labour market attachment and find it more difficult to reintegrate into the workforce. This is why some policies have targeted this group, particularly in recent years, although they are much less common than those targeting young and older people. The period of unemployment considered to be long-term unemployment varies and the magnitude of benefits may also depend on the duration of previous unemployment. Many measures targeted at the long-term unemployed involve elements of training which may be important for people who have been out of employment for a long time and whose skills may have deteriorated.

Long-term unemployed

Bulgaria: A programme for the training and employment of the long-term unemployed was introduced in 2015. The training leads to professional qualifications followed by employment in the private sector. The employer receives reductions in SSCs and a wage subsidy (based on the minimum statutory wage); the subsidised salary under the programme for 2015 was BGN 360 (around €185) per month. Priority recipients include the long-term unemployed registered at the Labour Office for at least 12 months who are aged 29 or under and receiving monthly social assistance, or those over 50 years of age.

Estonia: From 2009, Estonian employers hiring a person registered as unemployed for at least 12 consecutive months (or 6 months for those aged 16–24) could apply for a subsidy of 50% of their wage, up to a maximum of half the national minimum monthly wage and for up to six months. Coverage was extended in 2010 to all those registered as unemployed for at least six months (or three months for those aged 16–24) before being hired, which had the effect of considerably increasing the uptake of the measure.

Finland: A new hiring subsidy implemented in 2015 covers a varying amount of the hiring costs depending on the duration of the unemployment (ranging from 30%, 40% or 50% of the hiring costs and lasting for 6 or 12 months, or even more, depending on the length of the previous unemployment period). The subsidy also depends on the type of person targeted. Apart from being aimed at the long-term unemployed, criteria include an upper wage limit and also make it possible for the benefit to be made available for people who belong to another specified disadvantaged category, even if they may not fit the formal definition of long-term unemployed.

Ireland: The Irish JobPlus initiative, set up in July 2013, subsidises the gross wage for up to two years when someone has been registered as unemployed for at least 12 months (on the Live Register) and is hired full-time. The subsidy is worth €7,500 over the course of two years for someone previously unemployed for between 12 and 24 months, and €10,000 for someone previously unemployed for over 24 months. This initiative replaced two previous programmes, the Employer Job Incentive scheme and the Revenue Job Assist scheme, moving the focus away from employer SSCs to direct wage subsidies.

Slovakia: Since late 2013, employers may be exempt from most social and health contributions for a year for a worker previously registered as unemployed for more than 12 months. The employee's monthly income must not have been higher than 67% of the average monthly salary in the year before the employment relationship started. Another requirement is that the employer does not fire staff in order to recruit someone eligible for the scheme.

The unemployment effects of the crisis have not been spread evenly across countries or across regions. Due to the concentrated effects of the crisis in certain areas, over the past few years some regions have been targeted by specific policies.

Disadvantaged regions

France: An evaluation of an earlier programme for 'tax-free zones' (economically depressed areas) concluded that the jobs created did not sufficiently benefit local people and future programmes should therefore be more focused on employment and less on companies. As a result, the *Emplois francs* programme ('tax-free zone' employment provision) was set up in 2013 as a way to support better access or return to work for young people (up to 30 years old) living in disadvantaged urban areas (*zones urbaines sensibles,* ZUS). Participating companies were offered financial support of €5,000 per recruited employee. Take-up of the scheme was, however, much lower than expected and the scheme was ended in 2015.

Hungary: The government declared more than 1,000 disadvantaged areas as 'Free enterprise zones'. The enterprises operating in these areas could apply for an exemption from employer contributions on wages up to a gross salary of HUF 100,000 (about €320) for any new employee. From 2013, the only condition was that staff numbers increased.

Lithuania: From 2013, employers have been offered subsidies for new jobs in regions with above-average unemployment rates. Employers undertake to pay at least 35% of the labour cost of the new employees and to maintain their employment for at least three years. Employers were also obliged to provide a letter of guarantee from a bank or insurance company covering 50% of the subsidy amount (initially it was 100%, but this was judged to be a disincentive and modified).

Incentives for employers to create permanent employment or to convert existing temporary jobs to permanent status have been implemented in countries having a highly segmented labour market and characterised by high levels of temporary employment. The two main countries to use such incentives have been Italy and Spain. The measures typically involve differential levels of employer contributions for different employment statuses.

Employers pay higher rates for fixed-term contracts than for open-ended contracts. In some cases, such as Italy, recent policy changes serve in part to correct past reforms that had precisely the opposite effect – incentivising non-standard employment – and implemented in previous periods in an attempt to stimulate flexible forms of employment and hence raise employment levels.

Promoting standard employment

France. The rates of employers' unemployment insurance contributions for short-term and fixed-term contracts were raised in 2013 from 4% to 7% for fixed-term employment contracts of less than 1 month, 5.5% for contracts of between 1 month and 3 months, and 4.5 % for customary fixed-term employment contracts of less than 3 months (*contrat à durée déterminé d'usage*). Exemptions were granted for hiring young people on permanent contracts.

Italy: Several reforms were adopted in recent years to discourage atypical employment and incentivise permanent hiring. In 2011, pension contribution rates were raised by 1 percentage point for pseudo-subcontracting workers (some self-employed workers and so-called 'co-co-co contracts' – coordinated and continuous collaboration contracts). In 2012, the contribution rates for the new Social Insurance (ASPI) were revised and the contribution for permanent contracts was set at 1.31%, while that of other contracts was raised by an additional 1.4%. At the same time, the placement contract (*contratto di inserimento*), created in 2003 to increase the employment of disadvantaged workers by providing employers with wage and social security breaks, was abolished.

In 2013, two new measures were adopted. First, for each new recruitment in open-ended contracts, the employer can deduct a maximum of €8,060 per year from SSCs over 36 months following the hiring. This is equivalent to a full exemption for wage levels below €36,000. Second, a related measure exists for people aged 18–29 who are in 'disadvantaged conditions' (unemployed for at least six months or not holding a secondary education qualification). Employers are entitled to a bonus of up to €650 per month for 18 months for each new recruit with an open-ended contract (excluding job sharing and on-call employment relationships). This applied only to jobs starting between 7 August 2013 and 30 June 2015. Where a fixed-term contract was turned into an open-ended one, the bonus lasted only 12 months.

Portugal. In 2008, employer SSCs on permanent contracts were cut by 1 percentage point, financed by an increase in the rate for fixed-term contracts by 3 percentage points. The aim was to incentivise employers to hire workers on permanent contracts.

Slovenia. Employer SSCs and taxes were significantly increased in 2013 for contract types typically used by employers to acquire low-cost labour, in an attempt to discourage their use.

Spain: From 2013, employers could receive a bonus of €500 for men and €700 for women per year, to be deducted from the social security quotas paid by the company, when converting the First Young Job contract of young people under the age of 30 into a permanent contract.[13] This is a type of fixed-term contract for young people registered with the public employment service who do not have any previous work experience. A significant reduction in social security contributions was introduced in 2014 for employers recruiting on open-ended contracts signed between 25 February 2014 and 31 December 2014, since they would only have to pay the so-called flat rate contributions for 24 months, amounting to €100 per month for full-time employment (reduced pro-rata for part-time working). At the end of 2014, employers were granted a social security bonus for giving permanent contracts to people benefiting from the National Youth Guarantee System and other categories of unemployed workers, including victims of gender violence, terrorism and people with disabilities. Employers can benefit for between six months and four years, depending on the employee hired. In 2015, a new law granted employers a bonus of €500 per month to be discounted from their common contingencies SSCs for recruiting new employees on permanent contracts. The benefits last for 24 months and apply only to contracts signed between 28 February 2015 and 31 August 2016.

The problem of low pay is typically intertwined with that of low skills, since people with low levels of educational attainment are much more likely to receive lower levels of pay. Measures targeted at low-paid employees typically overlap with those aimed at other groups already discussed, but there are some policies where low pay is itself the most important target.

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13   While these measures to encourage permanent employment were implemented, Spain also adopted in 2013 a measure that offered incentives to employers who hired workers through temporary employment agencies.

Low-paid workers

Belgium: Reductions in employer SSCs when hiring low-paid employees were cut in 2008 from 15.99% to 12.57% of contributions paid on the minimum wage from 21 years of age.

Czech Republic: Reductions in employer SSCs were available from 2009 to the end of 2010, applying to employees whose assessment basis[14] was lower than 1.15 times the average wage. The monthly reduction of contributions for each employee was 3.3% of the difference between 1.15 of the average wage (CZK 27,100, about €1,042) and the assessment basis of the employee, but its maximum value could not exceed 25% of the assessment basis of the employee.

France: Since the early 1990s, the focus of French policy has been to reduce non-wage labour costs for low wages (Bunel and L'Horty, 2012). Two recent major reforms have been initiated to reduce these costs for low-waged workers to boost employment, investment and the international competitiveness of the French economy. First, the so-called tax credit for competitiveness and employment (*Crédit d'impôt pour la compétitivité et l'emploi,* CICE) reduces by 6 percentage points the total staff costs for individual wages that do not exceed 2.5 times the national minimum wage.[15] CICE was complemented in early 2014 by the Responsibility and Solidarity Pact (*Pacte de Responsabilité et Solidarité,* PRS) which stipulates further cuts in employer SSCs. As of January 2015, a reduction of 28.35% applies to wages up to the national minimum wage (27.95% for companies with fewer than 20 employees). The rate progressively declines up to the upper limit of 1.6 times the national minimum wage (currently €2,332 per month for full-time employment of 151.67 hours). At the same time, employers' contributions for family allowances were reduced by 1.8 percentage points, from 5.25% to 3.45%. The combined effect of CICE and the targeted PRS, if unfinanced by spending cuts, is estimated to boost output by 0.5 percentage points and to create around 290,000 jobs in the short term. In the long term, around 600,000 jobs could be created if cuts in employer SSCs are not targeted and the reform remains unfinanced by spending cuts (Espinoza and Ruiz, 2014).

Finally, a more limited set of interventions has been identified where the targeting is based on incentivising employment across gender, family situation, disability, specific activities/sectors or multiple groups.

Measures with multiple targets

Portugal: A series of employment initiatives was launched from 2008 onwards including reductions in employer SSCs and employment subsidies for many groups. They include:

- a 3 percentage point reduction in employer SSCs for hiring workers aged 45 years or more in SMEs;

- a 50% reduction in the conversion of temporary contracts into full-time, open-ended contracts;

- a 36-month exemption of employer SSCs for new permanent contracts given to people below 36 years of age seeking their first job, or unemployed people above 54 years of age. An alternative was the direct transfer of €2,000 from public funds followed by exemption from employer SSCs for only 24 months.

The above measures implemented in the 2008 Initiative for Investment and Employment (*Iniciativa para o Investimento e Emprego*) have been extended in subsequent years to include:

- a 1 percentage point reduction for workers earning the minimum wage;

- a 50% and 65% reduction (in the first and the following two years, respectively) for new fixed-term contracts given to people over 40 years of age who have been registered with the public employment service for over nine months;

- a 65% and 80% reduction (in the first and the following two years, respectively) for new workers who have been unemployed for two or more years – this could be combined with a direct transfer from public funds of €2,500, in which case the reduction in employer SSCs would last for 24 months;[16]

- a 36-month exemption from employer SSCs when a company hires an intern on a permanent contract.

Many of these measures excluded companies in which the number of workers with a permanent contract had decreased in the previous year; many were conditional on employment levels being at least maintained during the period of receipt of benefits.

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14 The sum of taxable income items according to income tax rules for individuals who are not exempted from that tax, and which were credited to an employee by an employer in relation to his employment, which is subject to obligatory health insurance or pension insurance only.

15 In practice, this covers more than 80% of workers. For this reason, this measure was also included in the section on untargeted reductions in employers' labour costs.

16 Beneficiaries of Social Insertion Income, beneficiaries of a disability pension, former drug addicts or former prison detainees could benefit as well.

Spain: A new law (11/2013) introduced a number of measures involving exemption from employer SSCs for specific groups:

- 12 months' exemption in enterprises with fewer than 250 workers (75% reduction if more than 250 workers) when hiring unemployed people under the age of 30 in part-time jobs with a training component;

- 12 months' exemption for people under 30 years of age when recruited on permanent contracts by microenterprises (<10 employees);

- 12 months' for employees over 45 when the employer is self-employed, younger than 30, without employees and recruiting an employee for the first time.

An interesting policy design feature of these measures is that they are intended to remain in place until the unemployment rate in Spain falls below 15%.

Women in areas with a large gender employment gap

Italy: Insertion contracts (*contratto di inserimento*) aimed at integrating difficult-to-employ individuals were extended in 2011 to women who had not had a job for at least six months in areas where there is a significant gender gap (a gap in the employment rate of at least 20 percentage points and in the unemployment rate of 10 percentage points). Employment on such contracts is for between 9 and 18 months, and employers pay reduced SSCs.

Parents returning to work

Hungary: As of 1 January 2011, Hungarian employers could pay SSCs at a rate of 20% instead of 27% for up to three years when hiring employees returning from childcare leave. One condition was that the job should be shared for at least one year between the returning employee and the worker who had been hired as a temporary replacement, with the working time shared equally between them. Another condition was that the wage should be no more than 200% of the statutory minimum wage.

Poland: Employers were exempted in 2009 from paying contributions for 36 months (to the Labour Fund and the Fund of Guaranteed Employee Benefits, accounting for around 2.5% of the gross wage) for employees coming back to work after maternity or parental leave.

Spain: In a plan introduced in 2008 to stimulate the economy, incentives were introduced for companies hiring (on permanent and full-time contracts) unemployed people with children. Rebates on employer SSCs of €1,500 per year for each hired worker were offered for two years (for contracts running until December 2010). In practice, the main beneficiaries were women. This benefit also applied to women who had suffered from gender violence, regardless of whether they had children or not.

People with disabilities

Malta: An employer hiring a new employee with a disability (individuals who have an intellectual and/or physical impairment, and individuals suffering from mental health problems) from 2015 is exempt from paying SSCs and may also claim a tax deduction on profits equivalent to the wage of the employee up to an annual maximum of €4,500 for each employee.

Netherlands: Reductions in employer SSCs for hiring a worker receiving disability benefits have increased over time. From 2013, employers can receive up to €7,000 per employee per year (compared with €1,021 in 2006). Another programme covers all labour costs from 2013 for employers recruiting people in receipt of disability (or unemployment) benefits for a trial period: during the first two months, the employer is exempt from labour costs (both wage and non-wage costs) and the worker retains their benefits.

Part-time workers and multiple job holders

Estonia: Two targeted measures were introduced in 2010 for part-time jobs. The social tax contribution for the employer was reduced for up to a year when hiring a long-term unemployed person (defined as being unemployed for at least six months for 12 months before the start of work) in a part-time job. The employer social tax contributions were also reduced if an employee worked in more than one job. Previously, one employer of a worker with two or more jobs had to pay the minimum social tax contribution calculated on the basis of the national monthly minimum wage, while the other employer/s paid the tax on the basis of the actual monthly gross wage. As of 1 July 2010, each employer can pay the social tax on the basis of the actual monthly payment.

Spain: Employer SSCs were reduced in 2011 for the recruitment of certain groups of unemployed people on a part-time contract (working hours between 50% and 75% of a full-time job) for at least six months. The eligible groups were unemployed people below 31 years of age or the long-term unemployed. Companies hiring within 12 months of the date that the measure was introduced benefited from a 100% reduction for 12 months if they had fewer than 250 employees, and a 75% reduction if they had more. One condition was that benefiting companies must demonstrate a net increase in employment.

Promoting research activities

Spain: A 40% reduction in employer SSCs is granted for the whole duration of the employment contract when hiring workers involved exclusively in research and development (R&D) tasks from 2014.

Sweden: To stimulate investment in R&D, especially in smaller companies, in 2014 employer SSCs for individuals working within the R&D sector were cut by 10% for those aged between 26 and 64 years. The upper limit of the reduction was SEK 230,000 (€24,885 as at 22 May 2015) per employer and month.

Summary

Since 2008 and the onset of the global financial crisis, there has been a growing policy consensus on the desirability of reducing labour taxation, and in particular employer-side taxes, as one way of fuelling demand for labour. However, as the examples presented in this chapter indicate, the reforms implemented across many European countries have not always been in line with this consensus. In the initial years of the crisis, against a background of fiscal stimulus programmes, the tax-cutting orientation was generally followed. There was an increase in the number of reforms aimed at lowering SSCs or implementing employment subsidies. However, the emergence of the sovereign debt crisis from 2010 onwards coincided with a clear decline in the number of policies to reduce employer contributions. A number of labour tax-raising reforms were implemented in many countries because of concerns over budgetary stability. In more recent years, since 2013, policy orientations and practice appear once again to be more in alignment. Data on employer SSC levels clearly reflect these trends, decreasing up to 2010, increasing in 2011 and 2012 and then once more declining.

Another change over time has been in the level of targeting in the tax breaks. Targeted measures have assumed more prominence over time. In the immediate aftermath of the global financial crisis, broad, untargeted measures were relatively more prominent. In the post-2012 period, most new measures have been largely targeted at disadvantaged groups that are underrepresented in the workforce; young people, older workers or the long-term unemployed. Measures have been intended, at least in part, to address the disproportionate labour market impact of the crisis and post-crisis period on these groups. Targeted measures are also more likely to minimise one of the common weaknesses of such measures: substantial deadweight losses. Moreover, they are relatively more cost-effective – an important consideration in a period of severely constrained public finances.

2 | Impact on employment of reduced non-wage labour costs – literature review

Impact of the tax wedge on labour supply and demand

During the years preceding the Great Recession, most EU countries displayed a downward trend in labour taxation. [17] However, the tax wedge remains high on average in Europe compared with other industrial, developed countries such as the USA, Canada or Japan. Different authors have analysed the impact of the tax wedge on the labour market and on the overall economy. In the model presented by Alesina and Perotti (1997), a rise in transfers, for example to retirees, financed by payroll or corporate taxes can lead to higher relative unit labour costs for tradeable products, an appreciation in the relative price of non-tradeables and a subsequent decrease in the employment level in all sectors of the economy. According to Nickell (2003), a 10 percentage point increase in the tax wedge should reduce labour input by 1%–3%. By comparing France, Germany and Italy with the USA, Nickell (2003) found that the difference in the tax wedge accounts for around a quarter of the difference observed in the employment rates between the USA and the large continental countries.

On empirical grounds, Daveri and Tabellini (2000) found that the response of unemployment to labour taxation is particularly strong in Europe. They argued that levels of collective representation were higher in Europe and, as a result, higher tax rates on labour were indeed shifted into higher gross wages in Europe – but not in the other OECD countries. If labour costs increase as a response to an increase in the tax wedge, labour inputs become more expensive relative to capital. Companies are encouraged to substitute capital for labour, implying that the marginal product for capital will tend to fall in equilibrium. Due to decreasing returns, the incentives to accumulate capital may decline over time, implying lower long-term growth. A 10 percentage point increase in labour taxes reduces output growth rate by 0.4 percentage points per year and raises unemployment by 4 percentage points.

Knabe et al (2006) found that an increase in the net tax wedge (measured as the tax wedge less cash benefits) of 1 percentage point would raise the low-skilled unemployment rate by 0.2 percentage points in high wedge countries, even after controlling for the public employment share. In contrast, Dolenc and Laporšek

(2010) concluded that an increase of the tax wedge of 1 percentage point is expected to decrease EU employment growth by a more modest 0.04 percentage points. [18]

Policies aimed at lowering the tax wedge are often directed at specific segments of the labour market, such as the low-skilled, women, young people, older workers and migrants, as they are subject to higher unemployment risk. Since their labour market elasticities are rather high in absolute value, employment probabilities in these groups are particularly affected by a change in non-wage costs (Hamermesh, 1993; Katz, 1996).

Besides the low-skilled, other groups are subject to specific labour market risks. High and persistent youth unemployment is a major challenge in many countries. Young people often face higher barriers to entry into the labour market due to their lack of working experience compared with adults. Labour market difficulties encountered in early working life can have long-lasting consequences on the earnings profile. Bell and Blanchflower (2010) estimated that a six-month unemployment spell for young workers aged below 22 leads to an 8% wage decrease. At the age of 30, the wages of this group are expected to be lower by two to three percentage points than they would have been otherwise.

In addition, women are often faced with limited working opportunities as in many cases they are the ones who have to shoulder the double burden of work and family obligations. Due to policies favouring flexible working hours, the prevalence of poor childcare provision and the lack of part-time employment opportunities, the unemployed female workforce has a high concentration of single parents and long-term unemployed. There is a higher risk of dropping out of the labour force altogether, shifting from unemployment to inactivity.

Payroll taxes and social contributions are paid by employers and employees. However, irrespective of the legal incidence of taxation, the actual burden may differ as it is determined largely by the elasticities of labour demand and supply. For this reason, the economic incidence is not necessarily the same as the legal incidence of taxes (Borjas, 2013). For instance, while a reduction in the SSC rates paid by employers does not affect the gap between the gross and net wage for private households, it lowers the labour costs to companies. Labour demand

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17 The Great Recession is a term that refers to the sharp decline in economic activity in developed economies during the late 2000s which followed the global financial crisis in 2007–2008.

18 These rather minor effects are restricted to the shorter experience after the turn of the century, where movements in the tax wedge have been less pronounced than in earlier periods. For this reason, the effects may have been more difficult to identify.

will increase but labour supply may remain unchanged, resulting in upward wage pressure if the labour market is in equilibrium before the reform. The less elastic the labour supply, the larger the share of lower contribution rates that end up being shifted to workers in form of higher wages. This can reverse the benefits of the initial reduction of labour costs to the employer and limit positive employment effects. While the legal incidence may not coincide with the economic incidence of taxation, it may nonetheless be important in the short term, as it normally takes some time for wages to adjust to new conditions. Econpubblica (2011) and the European Commission (2015c) provide recent reviews on the empirical findings of tax incidence on wages. In general, the estimates suggest that labour demand is more responsive to a change in the tax wedge than labour supply – at least at the aggregate level.

This chapter looks at the academic literature on the response of labour demand and then the labour supply to non-wage labour cost reductions. It concludes with some final remarks on the relative advantages and disadvantages of the different policies.

Labour demand response

The slope of the labour demand curve is determined by its own-wage elasticity – that is, the responsiveness of labour demand with respect to the producer wage (including non-wage costs). This parameter is of key importance, as the effectiveness of tax wedge reforms crucially depend on the reaction of companies to cost changes. The larger the elasticity in absolute value, the more pronounced the employment reaction for a given change in the tax wedge. A high elasticity of labour demand also ensures that the decline in costs will not result in higher wages for workers. According to the meta-analysis presented by Lichter et al (2015), there is no consensus on the genuine value of the elasticity. Heterogeneity can be traced to different sources, such as the dataset used, the type of worker, the industry considered and the country in the evaluation exercise. The responsiveness of labour demand to costs is higher in absolute value if labour can be more easily substituted by other input factors. Thus, the demand for low-skilled workers is more affected by lower costs than skilled work. Moreover, the short-term elasticity is smaller than the long-term elasticity in absolute value. The fact that labour demand is less elastic over short-term periods reflects the lag in adjustment to new conditions. For example, if the production technology could be characterised by a Cobb-Douglas function with constant returns to scale, a 1% increase in labour costs implies a 1% reduction in employment in the long-term equilibrium.[19] If wages increase, companies have the incentive to substitute labour with capital. But the installation of new machinery takes time, leading to a less pronounced short-term reaction. Elasticities vary across different segments of the labour markets. In general, the more easily labour inputs can be replaced, the higher their responsiveness to a change in relative input prices.

For this reason, employment in low-skilled work can be particularly responsive to a decrease in labour costs. In the current context of weak wage and productivity growth, the availability of relatively inexpensive labour may be a more attractive option for employers than the more risky commitment to invest in productivity-enhancing technology, even at very low interest rates.

According to standard models, the equilibrium quantities of employment and the real wage are determined by the intersection of labour demand and supply. Compared with the pre-crisis conditions, labour demand is not sufficient to absorb the initial plans of private households to supply work. The rise in unemployment may generate downward pressure on wages, either in the form of wage decreases or more moderate wage growth in the future. In principle, a new equilibrium could be reached if real wages can sufficiently adjust, but wages tend to be 'sticky' – empirical estimates suggest that the quantitative reactions are not very strong. For example, the wage curve postulates a negative relationship between the wage level and unemployment – see Blanchflower and Oswald (1990, 1995) and Card (1995). According to these studies, the elasticity of wages with respect to unemployment is -0.1 or lower in absolute value. In a meta-study, Nijkamp and Poot (2005) demonstrated considerable heterogeneity of the parameter across countries, but the parameter is very low in absolute value. As the response of wages to disequilibria between labour demand and supply is quite modest, unemployment will probably be persistent.

Figure 5 illustrates the effect of a subsidy equal to q%, for example, due to lower social contributions or functional equivalents. Such a subsidy can decrease the labour costs from w_0 to w_1. Since companies require a lower marginal product of labour in the new equilibrium, labour demand will expand (Bell et al, 1999). While the labour supply curve (S) is unchanged, the demand curve will shift to the right (from D_0 to D_1), as the labour demanded by companies will be higher at each wage level. The larger the labour demand elasticity is, the flatter the respective curve, and the higher the number of new jobs which are offered by companies.

After the reduction of the social contribution rate, labour demand exceeds labour supply at the labour costs before the reform (w_0). As a consequence, an upward pressure on wages is generated that will stimulate labour supply. Otherwise, private households are not willing to increase their supply. Hence, the initial wage reduction will not be maintained, as part of the lower tax wedge will be passed to employees in form of higher wages. The upward wage adjustment is stronger the less elastic labour supply is and reduces the potential employment response. However, companies can still benefit, as long as the new market wage (w_1) remains below the initial level. Households are willing to increase supply, as their payoff $w_1'=w_1(1+q)$ is higher than the previous level. Employment increases from L_0 to L_1.

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19   In economics, a Cobb-Douglas production function represents the relationship between the output and the combination of factors, or inputs, used to obtain it.

Figure 5: Effect on employment of wage subsidy provided to companies
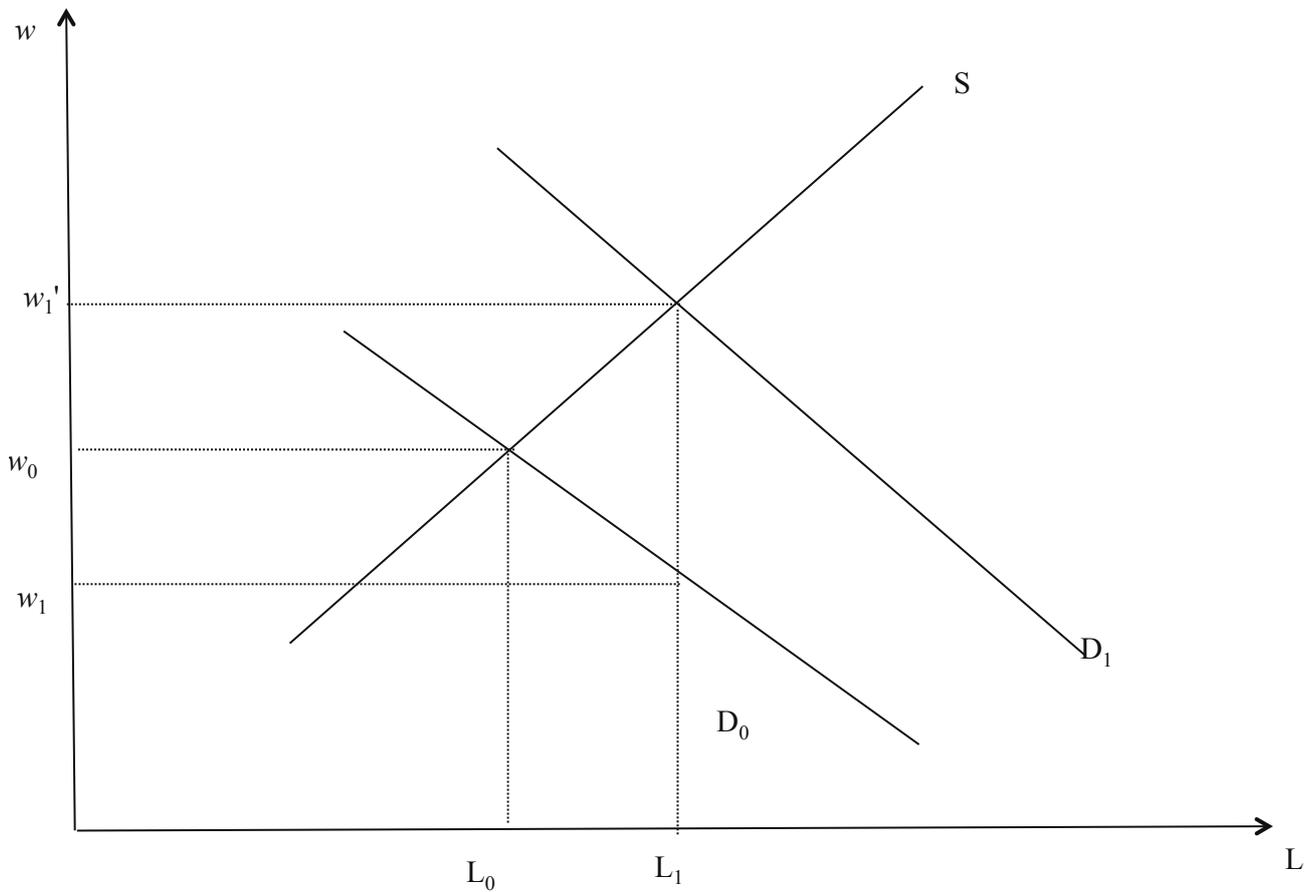
Notes: *Wage subsidy is equal to q%. w_1' = wage paid to worker; w1 = wage cost to employer; D = labour demand; L = employment; S = labour supply; w = wage costs.*

In reducing the cost of hiring workers, subsidies for companies can stimulate the demand for certain groups in the labour market, such as workers with low skills. The skills offered by workers may not match the requirements of the job. The mismatch could gradually diminish with training on-the-job. Subsidisation reduces the degree of uncertainty on the side of employers regarding worker productivity and may serve as a screening instrument. Subsidies can in this way overcome impediments linked to information asymmetries between companies and workers.

In any case, the actual response of employment and wages depends on the extent to which the lower costs are passed onto the employees in higher wages, as a shift will reduce the employment gains. At least, some shifting should be expected; otherwise, households may not be willing to increase their labour supply.

In a seminal study on a large payroll tax reduction in Chile in the early 1980s, Gruber (1997) found that the reduced costs to companies were entirely passed on to workers in the form of higher wages with little effect on employment. Azémar and Desbordes (2010) emphasised that the level of collective bargaining coordination is important for the size of the shift. In countries where wage bargaining is not highly coordinated, half of the lower cost will be shifted to workers in the long term in the form of higher wages,

whereas in countries operating under highly coordinated bargaining regimes or under systems including parameters capturing productivity gains when allowing for wage increases, full shifting can be expected. Under the latter conditions, employment gains could be minimal. Based on a recent meta-analysis, Melguizo and González-Páramo (2013) concluded that on average about two-thirds of the incidence of labour taxation finally shifts onto workers' wages.

Labour supply response

Although the scope of this study is on policies to influence labour demand, policies may also aim to reduce the tax wedge in favour of employees. Here, outcomes are affected by influencing the supply side. Measures include reduced personal income taxes or employee SSCs, wage subsidies or (earned income) tax credits. As they supplement the ordinary labour market earnings, they provide higher incentives for low-income households to work. Because the subsidies raise the effective wage, more people are willing to work at any given market wage than they were in the absence of the subsidy. The tax reduction usually focuses on low productivity workers, where the market wage is below the reservation level and generally dependent on the level of unemployment benefits.

The mechanism is illustrated in Figure 6, where the introduction of a wage subsidy of *p*% leads to a shift

Figure 6: Effect on employment of wage subsidy provided to employees
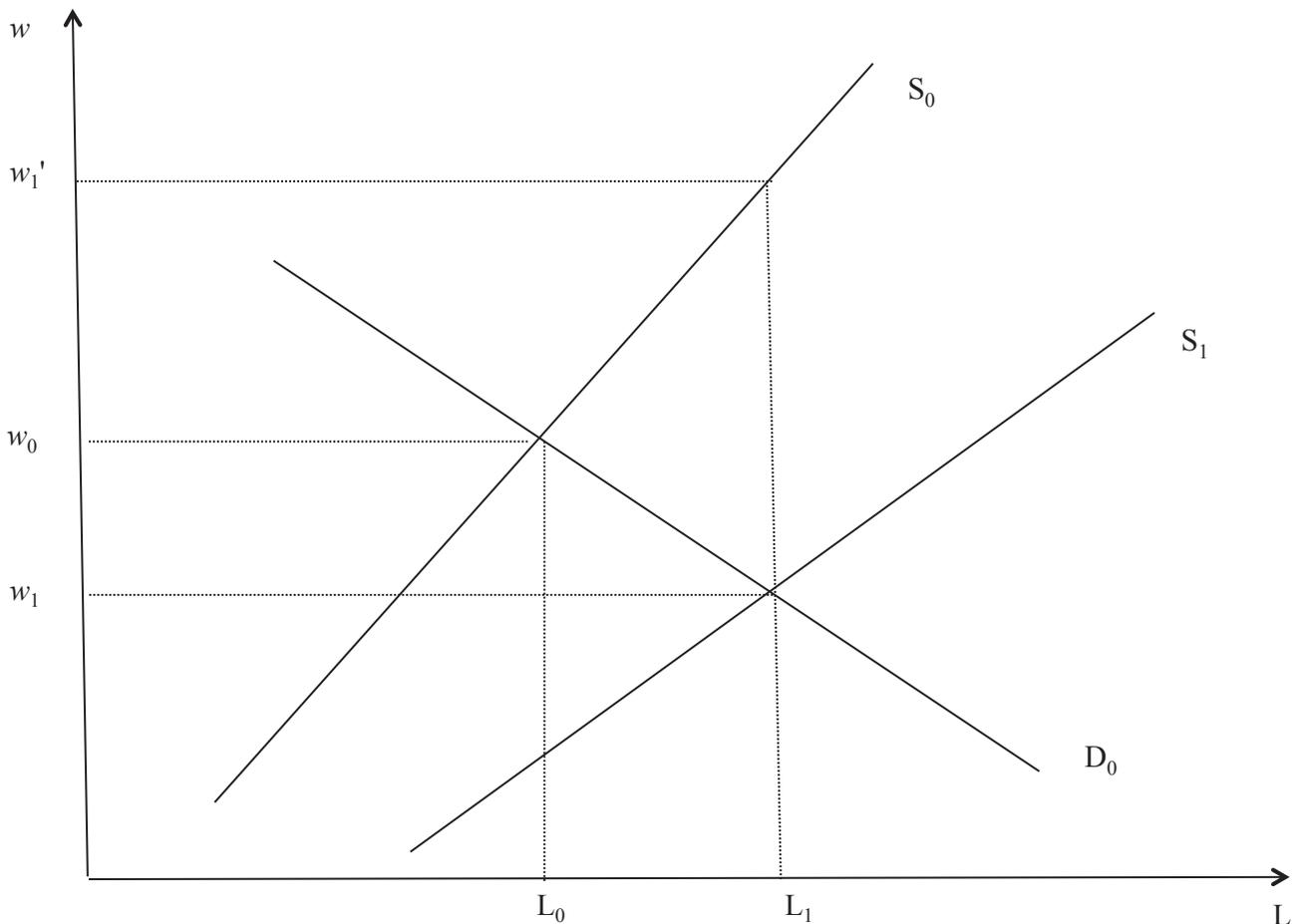
Notes: *Wage subsidy is equal to q%. w_1' = wage paid to worker; w1 = wage cost to employer; D = labour demand; L = employment; S = labour supply; w = wage costs.*

in the labour supply curve from S_0 to S_1. In contrast to the discussion presented above, the labour demand curve (D_0) is not affected by the policy move. At the new equilibrium, the employment level is higher. The market clearing wage declines (from w_0 to w_1) owing to the higher number of people in work. The fall in the market wage rate encourages companies to hire more workers. However, the take-home pay received by workers – that is, the market wage plus the tax credit or $w_1' = w_1(1 + p)$ – exceeds the initial wage.

The policy will lead to increases in the real consumption wage. In terms of its opportunity costs, leisure will become more expensive. Private households will therefore raise labour supply – the substitution effect from labour to leisure is expected to be positive. The income effect works in the other direction, as the higher consumption wage allows the household to work less for any given income level. For a household already at work, the higher consumption wage can raise the incentive to work less. In families with multiple workers, a credit can lead one spouse to leave the labour force in response to the higher income earned by the other spouse (Neumark, 2013). Benefits also go to people who are employed regardless of the availability of the tax credit. For a household initially not working, there is no ambiguity. The higher consumer spending wage generates a positive substitution effect, but there will not be a negative income effect. At the

aggregate level, however, the income effect is ambiguous, implying that the response of labour supply to reduced employee taxes is not determined in advance. In Figure 6, a positive net impact is assumed for illustrative purposes and employment increases from L_0 to L_1. The larger the response of labour supply to real wages, the flatter the supply curve and the higher the impact.

Choosing between the alternatives

Both demand- and supply-oriented tax reforms act on different sides of the labour market. Demand side reforms aim to stimulate the labour demand of companies through a lower cost burden. The decrease in the producer wage is achieved through a lower tax wedge. Supply side reforms aim to improve the incentives of private households to participate in the labour market.

In general, a lower tax burden on the wage earnings of private households can be sufficient to stimulate labour supply in the presence of negative productivity shocks. These shocks are often caused by structural change and are limited to certain industries. The former wage level turns out to be too high, leading to sectoral employment losses. If unemployment benefits raise the reservation wage above the market equilibrium, tax subsidies or a cut of functional equivalents can be a suitable instrument to circumvent the unemployment trap. Because the subsidy raises the effective wage, more people are willing to work

at any given market wage than they would have been in the absence of the subsidy.

Instead of paying wage-replacing benefits that will be reduced if a person starts working, the government may pay benefits that will increase the wage of people if they accept work in a low-paid job. These benefits reduce the tax burden on low wages and can activate employment in the low-skilled segment. At the same time, they constitute a redistributive channel that raises low wages up to socially acceptable levels. Therefore, the policies are also more in line with the goal of socially inclusive growth. It should be noted, however, that the response of labour supply is not determined on *a priori* grounds. While unemployed people may be encouraged to work, people already in employment can work less in response to higher consumption wages. In families with multiple workers, a tax credit scheme can lead one spouse to leave the labour force due to the higher income earned by the other spouse (Eissa and Hoynes, 2004; Neumark, 2013). Benefits are also paid to people who are employed regardless of the availability of the tax credit. Large deadweight losses can therefore be expected.

The employment effects of such measures depend on the elasticity of labour supply with respect to the wage. The higher the elasticity, the stronger the response. In this case, private households are willing to increase their labour supply even after modest wage increases, and the initial reduction of labour costs through lower social contribution rates may be largely maintained. Evidence at the aggregate level suggests that the elasticity is rather low (Bargain et al, 2014), but that tax cuts may have different effects for particular groups of the labour force. While the supply decision of men is largely unaffected, employment decisions of married women, single mothers and low-skilled men tend to be more influenced by a decrease of the tax wedge (Meghir and Phillips, 2010; Devillanova and Profeta, 2011).

In a recession, policies stimulating the supply side of the labour market may not be very successful. As employment is restricted by a widespread lack of demand, employers may not be willing to create more jobs, irrespective of the incentives for households to supply work. For that reason, subsidies provided to companies can provide a more promising approach.

Review of empirical evidence

This section summarises the empirical evidence regarding the impact of non-wage labour costs reductions on employment. Following a brief introduction, it looks at studies evaluating the impact of reductions in employer SSCs and empirical studies on functional equivalents such as hiring subsidies, before finally turning to the available evidence on the potential negative side effects of wage subsidies (such as deadweight and substitution effects).

Many empirical studies have investigated the employment effects arising from the reforms in the tax wedge implemented since the 1990s to improve the labour market performance. Marx (2001) offers a review of the older literature. Among some of the main general patterns

highlighted in this review, it seems that positive results are found in simulations of the impact of a reduction in employer SSCs, but only if it is assumed that demand for low-skilled labour is very sensitive to its cost. But this may not be the case, as most evaluations before the 2000s indicate that the net employment impact of selective employment subsidies for the most vulnerable groups is only minor, probably due to skills mismatch or other barriers to employment. In addition, although very few studies estimate the deadweight loss, it is often found when they do, that between 50% and 90% of those subsidised would have found employment anyway. Also, around 20%–35% of the subsidising jobs act to the detriment of those in unsubsidised jobs. All in all, discounting the deadweight loss and substitution cost, the net employment creation due to cuts in employer SSCs is very small. In the review of US evaluations made by Neumark (2013), however, the author signals that the negative appraisal of hiring credits is mainly based on evaluations of policies directed at the disadvantaged. Instead, based on the evidence regarding the impact of broad-based reductions in employer SSCs, they could prove more effective at creating jobs than measures targeting the disadvantaged. For the fiscal burden, however, these measures are more costly and can worsen labour market adjustment to disequilibria.

A common conclusion in both reviews is the potential negative effect of targeting: workers who are eligible for employment subsidies may suffer stigma effects. Potential employers may perceive that subsidised workers have been unsuccessful in the labour market and consequently consider them as risky or less productive. This stigma attaching to eligible workers, together with the lack of information about existing subsidies and the considerable administrative costs involved in claiming subsidies, can account for the low take-up of available incentives by companies signalled in both reviews. In periods when there is a general lack of demand, when unemployment is a widespread phenomenon, stigmatisation effects may be less important.

The impact of wage subsidies has also been considered in the context of the evaluation of ALMPs. For instance, Kluve (2010) carries out a meta-analysis on a comprehensive dataset of 137 programme evaluations from 19 European countries including private sector incentive programmes. Studies evaluating private sector wage subsidy programmes find beneficial impacts in terms of individual employment probability, although most evaluations do not take into account potential displacement or substitution effects or deadweight. Card et al (2010) extended the previous analysis by carrying out a meta-analysis of around 200 microeconometric evaluations of ALMPs between 1995 and 2007, and covering nearly 50 countries, and found similar results.

The bulk of the evidence in the above reviews refers to the period before the Great Recession. This section aims to extend the review of the more recent analyses on the effectiveness of non-wage labour cost reductions with a specific focus on European countries. In order to identify the studies providing an evaluation of the policy

intervention of interest, three bibliographic sources have been used:

o a web search using a set of keywords;

o a compilation of studies collected by Eurofound staff;

o reports from recognised institutions such as the European Commission and the OECD.

Studies from the last two sources were directly added to the dataset for the review if they included relevant evaluations. This review also searched for evaluations in the references in these studies, adding them to the dataset if they fulfilled the requirements. As for the web search, the standard procedure in systematic reviews of the literature, including meta-analysis, was followed. The economic literature databases – Google Scholar, RePEc (Research Papers in Economics), Scopus and Thomson Reuters Web of Science – were used and a set of keywords defined based on those most commonly used in the related literature. More precisely, the search used the following three groups of keywords:

o non-wage labour cost, payroll tax, payroll taxes, SSC, labour tax, tax incidence, company taxation, business taxation, wage subsidy, targeted wage subsidies, hiring subsidies, hiring credit, subsidised employment, subsidised work, low-wage subsidies;

o employment, labour demand, job creation schemes;

o evaluation, programme evaluation, matching, propensity score matching, difference-in-difference, regression discontinuity, treatment effects.

As a result of the search process combining the different groups of keywords in different ways and limiting the publication year to those after 2000, a preliminary list of 378 studies was produced. This list was used to identify those studies whose focus was the precise type of policy intervention of interest for the review. In a subsequent step, the resulting list was screened to identify those studies that included an estimate of the effect of the intervention on employment. Only empirical studies containing such an estimate were considered. The list of 96 selected studies is reproduced in Annex 1.[20]

To guarantee a degree of homogeneity in the quality of the results, a criterion for inclusion based on the levels of the so-called Maryland scale (Sherman et al, 1997) was defined.[21] In principle, evaluations from analyses that fit into Level 1 of the scale have not been considered, whereas studies that apply techniques that make it possible to identify a causal effect (from Levels 3 to 5 of the scale) were preferred. Those classified as Level 2 have been analysed in detail to decide on their inclusion or exclusion. A review of these studies follows. For readers who are interested in the whole set of papers, the most relevant information in the tables is offered in the supplementary material which is available from Eurofound on request.

It is also worth mentioning that a range of techniques are used in the empirical papers to evaluate the efficiency of decreases in employer SSCs and equivalent measures. There is no clear superiority of one over the rest, and the choice depends on the characteristics of the data and the scope of analysis. The techniques are briefly presented in the box below.

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20 All the annexes mentioned are available on the web page of this report at http://bit.ly/nonwagelabour

21 Level 1: Either (a) a cross-sectional comparison of treated groups with untreated groups, or (b) a before and after comparison of treated group, without an untreated comparison group. No use of control variables in statistical analysis to adjust for differences between treated and untreated groups or periods.

Level 2: Use of adequate control variables and either (a) a cross-sectional comparison of treated groups with untreated groups, or (b) a before and after comparison of treated group, without an untreated comparison group. In (a), control variables or matching techniques are used to account for cross-sectional differences between treated and controls groups. In (b), control variables are used to account for before and after changes in macro level factors.

Level 3: Comparison of outcomes in treated group after an intervention, with outcomes in the treated group before the intervention, and a comparison group used to provide a counterfactual (for example, difference-in-difference). Justification is given to the choice of comparator group that is argued to be similar to the treatment group. Evidence is presented on the comparability of treatment and control groups. Techniques such as regression and (propensity score) matching may be used to adjust for difference between treated and untreated groups, but there are likely to be important unobserved differences remaining.

Level 4: Quasi-randomness in treatment is exploited, so that it can be credibly held that treatment and control groups differ only in their exposure to the random allocation of treatment. This often entails the use of an instrument or discontinuity in treatment, the suitability of which should be adequately demonstrated and defended.

Level 5: Reserved for research designs that involve explicit randomisation into treatment and control groups, with randomised controlled trials providing the definitive example. Extensive evidence is provided on the comparability of treatment and control groups, showing no significant differences in levels or trends. Control variables may be used to adjust for treatment and control group differences, but this adjustment should not have a large impact on the main results. Attention is paid to problems of selective attrition from randomly assigned groups, which is shown to be of negligible importance. There should be limited or, ideally, no occurrence of 'contamination' of the control group with the treatment.

Techniques to evaluate the impact of non-wage labour cost reductions

Different approaches have been proposed to examine the impact of non-wage labour cost reductions on employment. One dimension is related to the level of the analysis, where macro- and microeconometric evaluations can be distinguished.

Macroeconometric evaluations of reforms in non-wage labour costs usually exploit the time and regional variation of the implementation of the policy in order to apply a panel data difference-in-differences estimator (D-i-D) that allows the impact on employment to be measured.[22] The analysis is implicitly based on the assumption that the elasticities of the outcome with respect to the explanatory variables are identical across the panel members (for instance, countries in international comparative analysis). An important limitation of this approach is that even if the results hold for the average of the panel, they may not be valid at the individual economy level. Moreover, most evaluations only provide a partial assessment of the policy impacts. In particular, indirect effects may be substantial, but they are often neglected in the analysis. For instance, companies benefit from lower production costs if they receive wage subsidies when jobs for the targeted are created. They hire additional workers and increase production levels, with further (second order) positive effects on employment. The subsidies may crowd out unsubsidised work, as the latter will lose price competitiveness. The result could reflect a substitution from unsubsidised to subsidised work, with no output change. In exchange for hiring the new workers, old workers can be dismissed.

In general, indirect effects are difficult to estimate. Although the direct impact can be positive, the total impact could be negative if indirect effects have huge undesirable consequences. An additional critique to this approach is that most studies following this approach provide *ex post* evaluations of the policy change – that is, what the impact of reductions in non-wage labour costs implemented in the past had been. However, even though the experience with past policies can be helpful to ensure the smooth implementation of future reforms, this interpretation of the results requires that the behaviour of agents does not change once new policies are implemented (Lucas, 1976).

Macroeconometric models and computable general equilibrium models can allow one to overcome both criticisms. First, as these models consider complex interactions between policy settings and outcomes, they are able to deal with both the direct impact of any policy changes and the indirect effects of such changes on the whole economy. Second, and due to their micro foundations, they are less subjected to the Lucas critique and they can be used to carry out *ex ante* evaluations – that is, the future impact of a policy change. However, and due to their strong data requirements, usually there is a lack of empirical underpinning, and results can be largely driven by the model assumptions and by the calibration process of the model parameters.

At the microeconomic level, studies are usually based on longitudinal data coming from surveys. Estimating the policy impact is usually also based on a D-i-D strategy. In this setting, the appropriate construction of counterfactuals is of critical importance and can have a significant impact on the results. The dominant approach distinguishes between two groups: people who are treated by the specific measure and people who are not. Ideally, the treatment should be the only variable that accounts for potential differences between the two groups. A person who is eligible for a specific measure is paired with an otherwise comparable person or set of people who are not. The D-i-D estimator is an instrument to quantify the average treatment effects by comparing the pre- and post-treatment differences in the outcome in a treatment and control group (Ashenfelter and Card, 1985). One difference relates to the starting differences between the two groups which by assumption should persist over time in the absence of the policy effect (parallel trend assumption); the second difference relates to variations over time between the two groups that are induced by or attributable to the policy effect. To determine the significance of the treatment, the appropriate calculation of standard errors is important. If they understate the true variation due to the presence of serial correlation or heteroscedasticity in the error term, treatment effects can appear as significant, when they are actually not (Bertrand et al, 2004). As before, the most relevant limitation of this approach is that indirect effects of the policies are often not considered. Indirect effects occur when a programme affects people other than its participants. In some evaluations (see, for instance, Damioli et al, 2015), as all subsidy recipients are necessarily employed, the standard approach of using actual receipt of the subsidy as treatment creates the problem of separating the effect of gaining a job from the effect of gaining the subsidy. Ideally, one would like to compare subsidy recipients with other unemployed workers who have the same probability of getting a job without the subsidy. Thus, credible identification requires solving the so-called double-selection problem (Lechner and Melly, 2010) of selection into employment and selection into the treatment.

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22 Difference-in-differences is a statistical technique used in quantitative research in the social sciences that attempts to mimic an experimental research design using observational study data by studying the differential effect of a treatment/policy/measure on a 'treatment group' versus a 'control group'. It calculates the effect of a treatment (that is, an explanatory variable) on an outcome (that is, a response variable) by comparing the average change over time in the outcome for the treatment group with the average change over time for the control group. A further elaboration – differences-in-differences-in-differences, D-i-D-i-D – allows a further differentiation in impact across subcategories of the 'treatment group' and the 'control group', for instance based on age or gender.

Using a control group of unemployed workers who do not receive a subsidy is likely to result in largely overestimated employment effects of the subsidy if selection into employment is not appropriately accounted for. The reason is that employed subsidy recipients are being compared with unemployed workers for whom the probability of getting a job is generally much lower. The second challenge arises even if selection into employment could be solved. As in most non-experimental programme evaluation studies, receipt of the subsidy is not random. However, in contrast to other measures such as training programmes or job search assistance, the assignment process for wage subsidies involves not only the caseworker and the job-seeker but also the employer. To eliminate selection bias, one would ideally like to control for all factors that drive the decisions made by all three parties that affect the employment outcomes of the subsidy recipients. However, data limitations usually do not make it possible to follow this approach.

Impact of reductions in employer SSCs

This section examines some selected studies that evaluate the impact of reductions in employer SSCs on employment.

The effect of the large increase of payroll tax subsidies for low-wage workers that occurred in France in 1995 and 1996 is studied by Crépon and Desplatz (2002). The initial scheme from 1993 consisted of an exemption of 5.4 percentage points in employers' payroll taxes for monthly wages less than 1.1 times the minimum wage and a halving of payroll taxes for those earning between 1.1 and 1.2 times the minimum wage. Between 1995 and 1996, these two thresholds were raised to 1.2 and 1.3 times the minimum wage, respectively, and in September 1995 a new degressive reduction of between 1 and 1.2 times the minimum wage was introduced. In October 1996, these two programmes were merged into a single degressive reduction on payroll taxes for those earning up to 1.33 times the minimum wage. Wages matching the minimum wage were allocated the highest reduction of 18.2 points in payroll taxes. Using propensity score methods[23] the authors found that, between 1994 and 1997, payroll tax reductions were associated with strong employment effects in the economy: the average growth rate of employment attributable to the policy was 2.24% in manufacturing and 3.15% in non-manufacturing. The authors also found that these developments in employment are related to two broad types of mechanism. The first is related to substitutions between factors of production where there has been a composition effect of the workforce favouring lower paid workers (an increase of the unskilled labour content of production) and a substitution between labour and capital, with the capital–labour ratio falling. The second mechanism corresponds to a profitability effect, that is, an increase in all factors of production due to an increase in demand where reduced production costs are passed on in prices.[24]

Plane (2012) simulates the economic impact of a tax credit in France, the Tax Credit for Competitiveness and Employment (*Crédit d'impôt pour la compétitivité et l'emploi,* CICE), aimed at the creation of employment and the growth of GDP. Eligibility includes all companies taxed on their actual income and subject to corporation tax. The tax credit translates into a decrease of 6% of the gross payroll tax, excluding contributions by employers, for salaries between 1 and 2.5 times the minimum wage (*salaire minimum interprofessionnel de croissance,* SMIC). According to the simulation made by the author using the macroeconometric 'model e-mod.fr', a 6% decrease in gross payroll taxes implied by the CICE would lead to a decrease of 2.6% of the average labour costs in the market sector. The strongest sectoral impact on the cost of labour would be in industry (-2.8%) and market services (-2.4%). Overall, the CICE accounts for 1.4% of the value added of the market sector. According to the simulation, in five years the CICE would create about 150,000 jobs, lowering the unemployment rate by 0.6 percentage points and generating a gain of 0.1 percentage points of GDP five years later. By lowering labour costs, the CICE directly promotes employment by encouraging the substitution of capital by labour.

Also in France, Cahuc et al (2014) evaluated the impact of an unexpected (announced and implemented on the same day) temporary one-year subsidy targeted at workers paid less than 1.6 times the minimum wage in companies with fewer than 10 employees. 'Zero charges' reduced labour costs by up to 12% (for workers hired at the minimum wage). Using a D-i-D strategy and administrative data, the authors compared the development of small companies (between six and 10 employees, the treatment group) and medium-sized companies (between 10 and 14 employees, the control group) from November 2008 – just before the introduction of the hiring credit – to November 2009. The measure was introduced by the French government at the outset of the global financial crisis. The authors found that the programme had a strong and rapid impact on employment. The estimated elasticity of employment with respect to the drop in labour cost induced by the hiring credit was about -4, a very high (absolute) value. This can be explained by the fact that the measure was targeted at low-wage workers in the context of a high minimum wage and high unemployment, but also by the fact that the hiring credit was only for the newly employed. If the measure had instead been applied to all jobs, the corresponding elasticity would have been about -1.1. It is worth highlighting that hiring and employment began to rise three months after the introduction of the credit. The pattern of hours worked is similar to that of employment, meaning that companies did not substitute the working

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23 Propensity score matching is a statistical matching technique whose objective is to estimate the effect of a policy by accounting for the covariates that predict receiving the policy.

24 Because of the econometric specification involved, the authors advised that their study was valid only for the specific measure in force over the period 1994–1997 and could not be generalised to other measures.

hours of workers newly employed and eligible for the hiring subsidy for those of incumbent employees.

However, it has also been found that the employment effects of hiring subsidies decrease when recruitment difficulties increase. This suggests that they are more effective at boosting employment in downturns than in upturns, when labour markets are tight.

The authors identified two additional and interesting results. First, about 84% of the hirings subsidised by the policy would have been created without the hiring credit. Second, although the gross cost of the hiring credit per job created borne by the government amounts to about a quarter of the labour cost, once it is computed net of savings on social benefits, the cost of the hiring credit per job created is about zero, allowing the authors to conclude that the hiring credit was nonetheless cost-effective.

Huttunen et al (2013) investigated the effects of a Finnish payroll tax reduction aimed at improving the employment chances of older (over 54 years) low-wage full-time workers (earning between €900 and €2,000 per month). The reduction was temporary (from 2006 to 2010), but sizeable – up to 14 percentage points, depending on the respective wage level: the size of the subsidy was determined as 44% of the part of the monthly earnings that exceeded €900 and was capped at €220 per month, which was reached when earnings were €1,400. The subsidy was reduced by 55% of the monthly earnings over €1,600. The authors used a differences-in-differences-in-differences (D-i-D-i-D) strategy where the treated group are workers in the targeted group and the control groups refer to slightly younger workers (45–53 years) and workers not on low wages. The results show that the subsidy had no effect on the employment of the eligible groups. However, working hours increased slightly for those already in work, as former part-time workers took on full-time jobs.

Korkeamäki and Uusitalo (2009) and Korkeamäki (2011) looked at the effects of a payroll tax experiment. The first study focused on northern Finland and the second extended the focus to eastern regions of Finland. The Finnish government had cut payroll taxes by between three and six percentage points for a three-year period. Specifically, the experiment abolished employer contributions to the national pension scheme and health insurance for companies located in targeted high unemployment regions. The policy offered a reduction in payroll taxes for eligible companies of 4.1 percentage points on average from 2003 to 2005. Although using individual company data and a D-i-D method, evidence refers to the regional level where each company in a target region was matched with a similar company in a comparison region. The findings indicate that the reduction in payroll taxes leads to higher wage growth in the targeted regions and this offset half the impact of the initial tax reduction. Although the cut in payroll taxes was not entirely passed on in the form of higher wages, the employment effects from the remaining cost reduction were not significant.

Egebark and Kaunitz (2014) investigated whether a payroll tax reduction for employers of young workers in Sweden was effective in raising youth employment. The policy involved a reduction of 11 percentage points in the payroll tax rate in 2007 for employers of young workers and an additional decrease of six percentage points in 2009. They found that the payroll tax cuts were largely unsuccessful in Sweden, the impact on youth employment being small (2.7%) and the cost per created job rather high. No significant effect of the extension, implemented in 2009, was found. Because the tax reduction also applied to existing employment relationships, the burden for the public budget was sizeable. Estimated costs per created job were more than four times higher than the costs of directly hiring workers at the average wage.

Analysing the same policy and with the same methodology, Skedinger (2014) reported similar results for the Swedish retail industry. This sector absorbs many young workers, and the share of labour costs to total costs is relatively high. Hence, the demand for labour should be more sensitive to cuts in wage costs than in other industries. While the effects of the tax reductions on worker recruitment were quite small, they tended to be somewhat greater at lower wage levels. For workers bound by minimum wages, the evidence points to larger effects on the probability of entry. This finding is consistent with the view that high minimum wages represent a serious obstacle to labour market entry among the young. One reason for the overall modest effects could be that, for the group of uneducated, inexperienced young workers, labour costs are still too high compared with their expected productivity gains. Even sizeable deductions in the tax wedge cannot be sufficient to close this gap. Hence, cuts in payroll taxes alone may not be efficient to improve employment opportunities for young people. The policies could be extended by training measures to increase the employability of the participants. Both papers outline the possibility of certain overlaps with other labour market reforms introduced in Sweden in that period (New Start Jobs, income tax reductions, changes in employment protection legislation) and that, after 2009, the effect of the policy may be confounded with the impact of the financial crisis.

Other authors have analysed the impact of policies reducing non-labour costs for specific groups of workers and companies. For instance, Pirttilä and Selin (2011) analysed the impact of a reduction in payroll tax rate for older workers in Sweden. In 2007, payroll taxes were reduced by about 16 percentage points for workers over 65 years. In 2008, the measure was extended with the abolition of payroll tax for workers born in 1937 or earlier. The policy was combined with a generous income tax credit for those aged 65 and over, thus introducing additional work incentives from the supply side. The evaluation was carried out using aggregate data from the Labour Force Survey between 2001 and 2010, and applying a D-i-D methodology using workers between 55 and 65 years as the control group. The results showed a large and significant increase in the employment rate of the older workers after the intervention. The size of the effect is around 2 percentage points, taking into account that the mean pre-reform value of overall employment in the period 2001–2006 was 10.3% of the population aged 65–74 (increased to 12.3%), which implies an increase in percentage terms of 19.4%. However, the authors

recognise that the exercise should not be interpreted as a proper evaluation of the impact of the reform on the labour supply of the older workers, as it necessarily reflects the simultaneous effect of the income tax credit and the reduction in payroll tax.

Bennmarker et al (2009) and Månsson and Shahiduzzaman Quoreshi (2015) estimated the impact of a 2002 reduction of 10 percentage points in the payroll tax rate (from about 33% to about 23%) for companies in Regional Support Area (RSA) A in Sweden (the northern part of the country), with annual gross wage bills up to SEK 852,000 (around €85,500). Companies in the agriculture, fishing and transport sectors were excluded. Although the reduction was not limited in time, there was an ongoing debate about discontinuing the support, which may have influenced company behaviour. Using micro-level data for the 2001–2009 period, both papers estimate a D-i-D in which the treated group were companies in the RSA A region and the control group consisted of companies located geographically close to the ones in the treated group in RSA B. The authors found an impact on employment of about 2% during the first year of implementation, although it was not statistically significant at the usual levels. However, in the medium term (four years after implementation), a 4% increase in employment was observed to be statistically significant at the 10% level, whereas in the long term (eight years afterwards) the impact was again non-significant.

For the Hungarian case, Cseres-Gergely et al (2015) measured the impact of a temporary reduction on employer SSCs when hiring long-term unemployed people, a reduction which is largest for job-seekers aged over 50 and those with only primary education (START plus and extra). The reductions last for a maximum of two years. The general subsidy available to all long-term unemployed is 14% of the total wage cost in the first year and 7% in the second year, which for the selected subgroup with multiple disadvantages almost doubles – 25% of the total wage cost in the first year and 14% in the second year, with a cap set at twice the minimum wage. Eligibility is determined solely by the observable characteristics of job-seekers. Eligibility for START extra can be earned in two ways: by accumulating unemployment spells (for those with low levels of education); or by reaching 50 years of age (for those with qualifications). Using a large administrative dataset, the results of the analysis show a significant impact on the re-employment probabilities for men aged over 50, which is driven by the subgroup of those with lower secondary education. For the higher educated, there is no significant effect, and this may be due to the ceiling on the subsidy (which reduces the value of the subsidy at high wages) or possibly to stigma effects, which may be stronger in

white-collar occupations. The authors found positive but insignificant effects for women. A possible explanation is that older women are less likely to actively look for a job, which lowers the potential impact of any wage subsidy that is by design dependent on job search. The subsidy for job-seekers with at least secondary education and aged over 50 is cost-effective for men. The authors presented some evidence to show that this was not merely caused by substitution across various subgroups of job-seekers. They also estimated exit probabilities for close substitutes of the treatment group and found no indication of a substitution effect. Lastly, under conservative assumptions, the subsidy is cost-effective for men with at least secondary education aged over 50.

Damioli et al (2015) presented the results of the counterfactual impact evaluations of three different ESF-funded measures implemented between 2009 and 2012 in the Italian regions of Marche, Umbria and Calabria. Two policies are analysed: the promotion of permanent contracts by subsidised conversion of fixed-term contracts in Marche and Umbria; and the creation of new employment by hiring disadvantaged and severely disadvantaged workers (according to EU Regulation 800/2008) and disabled workers (Law 68/1999) in Calabria.[25] Focusing on the intervention in Calabria targeting the creation of new employment for disadvantaged people, monetary incentives covered between 50% and 75% of total labour costs (gross wages and social contributions) for between 12 and 36 months. The exact amount and duration of the incentive varied according to the type of hired worker. Specifically, the maximum incentive was equal to 50% of total labour costs for 12 months after the hiring, extended to 24 months for severely disadvantaged workers, and to 75% of total labour costs for a maximum period of three years for disabled workers. The evaluation was carried out through a combination of propensity score matching and D-i-D methods, analysing a period covering the year before the policy introduction in Calabria and all quarters after the introduction of the measure since 2014. The results indicated no or limited impact on the recruitment of new workers, possibly because the incentive structure was not strong enough to counterbalance the risk of employing an unknown worker.

Impact of other measures to reduce employer labour costs

The empirical evidence on the impact of functional equivalents to reductions in employer SSCs on employment is considered here. Most evidence refers to hiring subsidies, which can be implemented in various forms and with different objectives depending on the country and the characteristics of the labour market.

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25 'Disadvantaged worker' means any person who (i) has not been in regular paid employment for the previous six months; or (ii) has not attained an upper secondary educational or vocational qualification (ISCED 3); or (iii) is over the age of 50 years; or (iv) lives as a single adult with one or more dependents; or (v) works in a sector or profession in a Member State where the gender imbalance is at least 25% higher than the average gender imbalance across all economic sectors in that Member State, and belongs to that underrepresented gender group; or (vi) is a member of an ethnic minority within a Member State and who requires development of his or her linguistic, vocational training or work experience profile to enhance prospects of gaining access to stable employment. 'Severely disadvantaged worker' means any person who has been unemployed for 24 months or more. 'Disabled worker' means any person who: (i) is recognised as disabled under national law; or (ii) has a recognised limitation which results from physical, mental or psychological impairment.

For instance, several studies have focused on the impact of integration allowances, a hiring subsidy paid to the employer over a fixed period of time in Germany (*Eingliederungszuschuss*, EGZ). This programme, active between 1998 and 2003, consisted of three variants of the subsidy, which were collapsed into a single one in 2004.

Jaenichen and Stephan (2011) analysed the effectiveness of one of the three variants that were in place during the period 1998 to 2003: the variant for hard-to-place workers (*Beierschwerter Vermittlung*), whose target group was unemployed people having severe difficulty in reintegrating, such as the long-term unemployed or disabled people. The subsidy compensated the company for a gap between a worker's productivity and their minimum wage. It accounted for as much as 50% of the monthly wage or salary and lasted for a maximum of 12 months. The study used a propensity score matching approach and displayed the effect of taking up a subsidised job during the second quarter of 2002 compared with no or later participation in a labour market programme. The results show that wage subsidies may considerably increase the employment prospects of supported workers compared with never being in any programme or participating only later. The share in regular employment three years after the programme was 25%–42% higher in the treatment group than in the matched comparison group.

Boockmann et al (2012) analysed another variant of the EGZ subsidy, which was targeted at workers of age 50 and older, studying their transition from unemployment into employment. A D-i-D estimator compared the change in the survival in unemployment during the first 180 days of unemployment of the treatment group compared with a control group of unemployed people just below the age of eligibility. The authors found that the broadening of eligibility in 2002 increased the likelihood of exiting unemployment only for one category of worker, women in eastern Germany. Consistent with this finding, the end of specific treatment for older workers in 2004 reduced the causal employment effect in this group. According to the authors, the reasons why women from eastern Germany were the only group to exhibit positive employment effects was 'not the result of a single reason but a mixture of labour supply, good qualifications, previous work experience, high unemployment rates, labour market attachment and longer subsidy durations'. A comparison of the number of estimated additional employment relationships with the estimated number of additional subsidies disbursed indicated significant deadweight effects.

Deadweight and substitution effects were directly estimated by Moczall (2013), who looked at German establishments receiving the *JobPerspektive*, a long-term wage subsidy targeted at very hard-to-place job-seekers launched in 2007. The subsidy was granted initially for a maximum of 24 months, after which the subsidy could be extended permanently, although no permanent subsidisation has been available since 2012. One assumption underpinning the intervention was that there are some people who will never find unsubsidised employment and achieve high enough earnings to exit welfare. Therefore, this subsidy was available to employers willing to employ hard-to-place workers at local wage rates (or the union wage, if applicable), eliminating the need for regular welfare payments and generating payments to social security. It was designed to compensate the employer for the lack of productivity of such workers, depending on how productive these workers were assumed to be. Up to 75% of total wage costs were reimbursed. In the evaluation, subsidised establishments were matched to one or more non-subsidised establishments using propensity score matching and a population-size establishment panel from administrative sources. The empirical evidence supported a positive and significant result on employment for companies in western Germany. The increase occurred about evenly in the low- and mid-skilled regular worker groups, and mostly for workers aged below 50 years. In eastern Germany, however, no robust effect on regular employment was found. The policy conclusion is that wage subsidies combining restrictive targeting and generous subsidies can indeed lead to positive employment outcomes in subsidised establishments. Limiting the number of subsidised workers relative to the total workforce size should also provide a safeguard against distorting competition on the product market leading to potential displacement effects.

Kangasharju (2007) examined a Finnish wage subsidy distributed through local Labour Offices. The target group were the unemployed, long-term unemployed, those facing the threat of unemployment and unemployed persons aged 25 or under. The wage subsidy was between €430 and €770 per month, with a maximum length of a subsidised job of 10 months (average 6 months), which implied a reduction in the wage costs of a subsidised worker of about one-third. The company was required to demonstrate that the job was new, the worker had a permanent contract, and it had not laid off workers from similar jobs just before or during the subsidy period. Using micro data and a D-i-D approach, the treated group corresponded to companies with subsidised workers in any year of the period under analysis (1995–2002) and the control group consisted of matched companies that did not receive subsidies. The effect was measured as the difference between the treated and control groups in the change in company's payroll before and after employing subsidised workers. The wage subsidy stimulated employment in subsidised companies, with a magnitude of the effect that was about a 9% increase in payroll. The effect was robust to alternative controls and methods of matching, whereas evidence also indicated that subsidies did not have sizeable effects on non-subsidised companies of the industry or region (that is, there was no significant displacement effect).

According to Eppel et al (2011) and Eppel and Mahringer (2013) based on Austrian policy examples, subsidies to encourage work appear to be successful especially for certain unemployed categories. These authors reported positive effects of the so-called comeback employment subsidy (Integration Subsidy or *Eingliederungsbeihilfe*) in helping disadvantaged unemployed individuals back into employment. Potential participants from disadvantaged groups included: long-term unemployed people aged

over 25 and unemployed for more than one year; those aged under 25 and unemployed for six months); people at risk of becoming long-term unemployed such as female returners, people with psychological, physical or mental disabilities; and job-seekers with poor or outdated labour market skills and a long unemployment record. The subsidy was up to 66.7% of wage costs (monthly gross pay not including special bonus payments) and a lump sum of 50% for non-wage labour costs. It could be granted for the duration of the employment relationship, but for no more than two years. The programme duration could be extended to three years only for individuals with disabilities. During a probationary period of no more than three months (six months for people with disabilities), the subsidy could cover 100% of the wage costs. Eppel and Mahringer (2013) identified programme effects for episodes starting in the period between 2003 and 2006, with unemployed individuals who took up subsidised employment during a specific analysed quarter considered to be the treated group, and those who did not considered to be the non-treated. The study used matching techniques and nearest neighbour propensity score matching. In a follow-up period of four years, the promotion through integration subsidy implied an increase in unsubsidised paid employment of 102 days (+13.9%) and a reduction in the time spent in unemployment of 58 days (-13.8%). Although all subgroups benefited from subsidised employment, this was particularly the case for older workers and the long-term unemployed. It was concluded that wage subsidies are a particularly encouraging instrument in helping disadvantaged unemployed individuals back into employment. However, substitution or displacement effects were likely to be substantial (more than 50%), as the companies tended to fill vacant positions with subsidised rather than unsubsidised job-seekers.

For the UK, Marlow et al (2012) evaluated the impact of the Future Jobs Fund (FJF) introduced in 2009 to support the creation of subsidised jobs for unemployed young people. The subsidy consisted of an employer subsidy whose maximum amount was GBP 6,500 (€7,300) for each job. Eligible workers were young people who had claimed Jobseeker's Allowance (JSA) for at least six months. The scheme was active from 2009 to 2011, with an extension of an additional year until 2012. Whereas the treated group consisted of 20–24 year-olds who started an FJF job between October 2009 and March 2010 and were receiving JSA one week before the job started, the control group was composed of the non-participants aged 25–29 who claimed JSA. Using D-i-D combined with propensity score matching and administrative data, the authors computed the difference between participants and similar non-participants in the likelihood of receiving welfare support and of being in unsubsidised employment. A negative effect of the policy on the probability of a participant being in unsubsidised employment (jobs not subsidised by the FJF) during the lock-in period was, as expected, indicated. After the lock-in, the programme increased the probability of being in unsubsidised employment by approximately 10 percentage points. This gap was observed over the period from 27 to 104 weeks after starting an FJF job. No

significant differences between groups of individuals (by gender, ethnicity or disability) were found.

Pons-Rotger and Arendt (2010) examined the magnitude of the employment effects of the Act on an Active Employment Effort, a Danish hiring subsidy for small private companies introduced in 2006, which covered approximately 50% of the minimum wage throughout the subsidised period. The programme imposed certain restrictions: the 'employment contribution' condition required that the hiring of a subsidised employee resulted in a net increase of the company's number of normal employees. Thus, a new subsidised employee cannot replace an existing ordinary job and ordinary employment (calculated as the average level of employment in the three months before subsidised hiring and the same three months of the previous year) cannot be reduced in advance. There is also a maximum number of subsidised employees linked to company size: companies with 1–5 employees (full- or part-time employed) can employ at most one subsidised employee; companies with 6–50 employees can employ one subsidised employee for each five ordinary employees; and companies with more than 50 employees can employ one subsidised employee per 10 ordinary employees. The maximum duration of a subsidised job is one year, but six months was the most frequent duration. The sample used in this study was restricted to private sector one-workplace companies at least a year old, and which were eligible for a new wage subsidy because they did not – at the start of the treatment month – have any subsidised employees and had at most 10 employees. This threshold of 10 employees was chosen so that only employers who in the treatment month might recruit at most one subsidised employee would be considered. The study used a D-i-D matching estimator approach and found that, after completion of the subsidised period, the subsidy contributed in 71% of cases to an increase in ordinary recruitment, while in 45% this happened at the cost of an existing ordinary employee who was separated from the company. In summary, the net employment effect was moderate: in 26% of companies the subsidy led to a new ordinary recruit. However, the overall employment effect of the subsidy was higher than the proportion of subsidised employees who ended up being employed at the subsidised company on ordinary terms. Some additional jobs were created which would not have been created in the absence of a wage subsidy. In addition, the study found no evidence of deadweight loss or substitution effects during most of the subsidised period.

Finally, Sjögren and Vikström (2015) studied the impact of the New Start Jobs (NSJ) scheme, a Swedish subsidy for employers hiring from among the long-term jobless – those who had been unemployed or for other reasons absent from the labour market for at least one year. The subsidy covered the payroll tax (31.4%) for the same amount of time they had been unemployed or out of the labour force (up to a maximum of five years). In a context of increasing unemployment after the global financial crisis of 2008, the subsidy became more generous in 2009 (doubled to 62.8% of gross salary). By 2011, the NSJ scheme had benefited some 45,000 individuals out of

a total of around 250,000 who had been jobless for at least a year.

The authors used micro-level data to apply D-i-D and regression discontinuity approaches – the latter based on modifications to the policy over time already noted and to the provision of double duration subsidies for older workers hired (>55 years). In practice, their analysis is based on data on individuals who had previously been unemployed – not the broader group of jobless or non-employed provided for in the measure. A sizeable employment effect of being eligible for the NSJ subsidy was found. Eligibility was associated with a 16%–20% increase in job-finding rates initially. Using as a comparator group those unemployed who found a job just before they became eligible for the subsidies (who had been unemployed for just less than 12 months when they found an unsubsidised job), the study found a positive employment impact for scheme beneficiaries (+2 percentage points in employment rate 30 months after leaving unemployment). Subsidised workers were more likely to keep their jobs at the expiry of subsidies than other workers and to remain in employment over a longer time horizon.

The employment effects were stronger for men, older workers and the less educated. For highly educated beneficiaries, however, there were strong crowding out effects. This, the authors suggest, points to a need to target the measure more at those near the minimum wage level. The authors also found that both the rate and length of subsidies matter: positive employment effects increased when the subsidy became more generous and where benefit duration was longer. But for older workers, doubling the duration rather than the subsidy rate was a more cost-effective and employment-generating strategy. One possible reason was that the human capital accumulation necessary to strengthen more long-term employment prospects takes time to materialise.

Incentives to convert fixed-term employment contracts into permanent positions

Employment subsidies can serve policy objectives other than employment creation. The share of fixed-term contracts is particularly high in Italy and Spain, and recent measures have offered incentives to recruit on permanent contracts or convert existing fixed-term contracts to permanent contracts.

In the pre-crisis period, fixed-term contracts were widely used to circumvent the regulatory burden on permanent contracts in a number of countries, most notably in Italy and Spain (Adam and Canziani, 1998; Barbieri and Sestito, 2006). While they provide an instrument to introduce more flexibility in the labour market, fixed-term contracts can also increase the instability of employment relationships. Employment protection is typically less pronounced, and the incentives for workers and companies to invest in human capital can be lower. The Great Recession led to massive layoffs of fixed-term employees. Workers on temporary contracts are more likely to lose their jobs and are also more likely to suffer from wage cuts. Conversion incentives are one measure to counter labour

market segmentation where it is considered especially problematic.

For Italy, Cipollone and Guelfi (2003, 2006) evaluated the effects of a tax credit to support hiring with open-ended rather than with fixed-term contracts. In particular, the policy (*Credito d'imposta*) consisted of an automatic tax credit given to companies hiring workers with open-ended contracts. The incentive amounted to about €413 (€620 for workers in the south of Italy) per month and per worker from the moment of hiring (starting in October 2000) until the end of December 2003. Thus, according to the authors' calculation, for a worker in the south hired in October 2000 and retained until December 2003, each company would have received about €24,200. The eligibility criteria were very undemanding for both companies and workers. In particular, a worker was eligible if they were aged 25 years or over and not working with an open-ended contract in the 24 months before being hired. A company was eligible if the newly hired worker raised the overall level of permanent employment at the company above the average recorded in the period between October 1999 and September 2000. In particular, two questions were addressed. The authors examined whether the credit actually increased the average worker's likelihood of being hired on an open-ended contract. They also investigated whether the increase in probability was uniform across workers (that is, whether it provided everybody with an additional opportunity to enter permanent employment or instead favoured only specific workforce groups).

Using longitudinal data from the Italian Labour Force Survey, the authors estimate simple linear probability models in which the probability of being hired on an open-ended contract is the dependent variable. This is estimated using a D-i-D technique that identified the effect of the subsidy as the change occurred after the year 2000 (when the tax credit was introduced) with respect to previous years. The results indicated that companies used this subsidy primarily to hire under open-ended contracts workers who would have been hired under such contracts regardless of the subsidy, albeit after a short transition into temporary employment. The estimates suggested that, compared with 2000, in 2001 the subsidy did not increase the overall probability of being hired, but increased the chances of finding an open-ended contract. The change was rather uneven across workers. Conditional on being hired, the probability rose by about 10% for workers holding a college degree and by about 4% for people with a secondary school diploma, while it did not change or may even have declined slightly for less educated workers.

The authors also found that although all workers older than 25 were eligible, the policy was more effective for those aged between 25 and 35: for this group, the probability of getting a permanent job went up by 4.2 percentage points between 2000 and 2001 when compared with a worker of 36 or older. One potential explanation is that transitions between permanent positions, which were not eligible for the subsidy, are more frequent among older workers. In addition, the research found a strong and positive impact for those unemployed workers who had some previous working experience. Finally, the tax credit seems to have improved the chances of finding a job in the

southern regions for both less and more educated workers. The effect seems to be stronger in these areas because of the larger saving on labour costs due to a higher tax credit per head and lower wages.

Anastasia et al (2013) analyses the impact of another scheme of incentives for the conversion of fixed-term contracts into permanent jobs adopted in Italy in 2012. The measure affected all workers except men over 30 and the conversion incentive amounted to €12,000. Although expected to last nearly six months, uptake of the scheme was such that the funding was exhausted after less than one month. The analysis used micro data from *Sistema informativo lavoro Veneto*, an online system managed by the region of Veneto. The evaluation used a regression discontinuity design based on the age threshold for eligibility. The authors concluded that the measure had been successful: in particular, it had curbed the downward trend in permanent contracts, encouraging the hiring of women and young people without displacing adult males. There were some deadweight costs: around half of the new jobs would have been created without the policy.

Ciani and Blasio (2015) provided additional evidence about this policy measure using a similar methodology. Their results also showed that the programme was effective in stimulating conversions. Compared with the counterfactual scenario, conversions increased by 83% and the impact persisted for 7.5 months after the scheme had ended. The authors' estimates on deadweight costs are more precise than those in Anastasia et al (2013). In particular, Ciani and Blasio (2015) found that the additional permanent positions came with a cost: to get one extra permanent job, the government had to finance an additional 1.2 conversions that would have taken place without financial support.

For Spain, García-Pérez and Rebollo-Sanz (2009) evaluated the effectiveness of regional wage subsidies to foster permanent employment. The evaluated policy was a one-time subsidy for new permanent contracts in 1997 and 2001. The average regional subsidy paid to workers from different age and gender groups ranged from 9% of labour costs in the Balearic Islands to more than 60% in Extremadura. On average, the subsidy represented about 24% of labour costs. The target groups for new permanent contracts depended on criteria defined at the regional level, ranging from all ages to specific age groups varying by gender. For instance, while in Andalusia, Cantabria or Castille-Leon the target group covered the whole population, in Aragon men over 40 were excluded, in the Balearic Islands all men were excluded and in Catalonia and Navarra there was no incentive. Using longitudinal administrative individual data (*Muestra Continua de Vidas Laborales*), a microeconometric evaluation was carried out for the 1995–2004 period. In particular, duration models are estimated using a D-i-D-i-D strategy making use of the regional and temporal variation of wage subsidies together with differences in individual eligibility criteria. The results allowed the authors to conclude that subsidising new permanent contracts had a positive but small effect on the flow to permanent jobs, but only for certain eligible worker groups (middle-aged women and young workers). An important caveat of this analysis is that the authors just

evaluated the potential impact of the policy, as they were only in a position to know whether individuals employed were eligible for the subsidy but not whether a specific company claimed the subsidy or not.

Conde-Ruiz et al (2010) also provided evidence of the impact of this policy, but focused on a different aspect. In particular, the authors analysed whether companies fired workers once the subsidy finished. Their results supported this hypothesis. They suggested that a potential solution would be to take into account a company's history of firing and hiring decisions. Those companies with a higher job turnover are the ones benefiting more from the subsidy, a situation that is clearly inefficient.

Deadweight, displacement and substitution effects

While most papers point to moderately positive employment effects for the targets and beneficiaries of reductions in non-wage labour costs paid by the employer, the total impact is not determined in advance. A reduction of these costs can increase the chances for the people eligible, but can be also accompanied by negative side-effects for others (Heckman et al, 1999; Card et al, 2010). These side-effects are hard to quantify and are ignored in many empirical studies.

Evaluating the employment effects of policy interventions is problematical. It is often unclear whether new jobs can be attributed to the policies or not: they might have been created even without the existence of the wage subsidy (deadweight losses). Some of the workers might be recruited in any case at the given wage level. Such effects are more pronounced when a larger group is eligible to benefit from the policy. Secondly, subsidised work can crowd out or displace unsubsidised work (Layard et al, 1991). The availability of subsidies affects the relative price of workers and can cause unintended displacement effects. Companies may tend to fill vacant positions with subsidised rather than unsubsidised job-seekers, or may replace non-subsidised workers with subsidised workers (substitution effects). If the policy is directed at new recruits, employers could fire old and hire new workers to receive the subsidies (Katz, 1996). To limit these unintended effects, reforms of the tax wedge may require special reporting and control mechanisms. These impose additional costs, often relatively onerous for SMEs, and can dissuade companies from making use of subsidies because of the substantial administrative burden.

Only some of the analysed studies conducted an analysis of the deadweight, displacement and substitution effects of employment-enhancing policies. In particular, estimates of the percentage of people subsidised who would have found work anyway, had the employment subsidy not been in place, varies substantially across these studies and even within the same study for different measures and targets. Csoba and Nagy (2012), for instance, concluded that in over half of cases, the participants of active labour programmes in Hungary would have been hired in the absence of the subsidy. Eppel et al (2011) estimated a deadweight effect of the so-called comeback employment subsidy (*Eingliederungsbeihilfe*) in Austria of 52%. However, deadweight losses were estimated to

be significantly lower for women, older and the long-term unemployed. High variability was also present in the study by Betcherman et al (2010), where estimates of deadweight losses were in a range of between 47% and 78%, and 27% and 46%, for two targeted employment subsidies offered by the Turkish government – Law 5084 (2004) and Law 5350 (2005), respectively. It is worth mentioning that many evaluations estimating deadweight loss are based on interviews with employers: in these cases, deadweight effects could be underestimated due to selection bias or opportunistic responses by the participating employers.

For substitution effects, it was estimated by Csoba and Nagy (2012) that a wage subsidy programme that sought to provide long-term employment to those excluded from the labour market in Hungary was responsible for only up to two-thirds of newly created jobs. However, several studies found no indication of a substitution effect, for example Pons-Rotger and Nielsen (2010) on a Danish wage subsidy for small private companies and Cseres-Gergely et al (2015) on a wage subsidy for long-term unemployed workers introduced in Hungary in 2007. In many analyses, the existence of a substitution effect is acknowledged, but not estimated. One way to limit the substitution effect could be to ban the dismissal of workers and their replacement with subsidised employees. A number of schemes include provisions that make subsidies dependent on the recipient company at least maintaining employment levels.

Financing labour tax reforms

Wage subsidies provide moderate positive employment effects for the beneficiaries, according to most empirical studies. Nonetheless, there is the possibility that the costs of deadweight and displacement effects could outweigh the positive results. Furthermore, most empirical studies are partial, as they do not consider the second-order effects of tax reforms. Once the financing side is considered, positive employment effects may be harder to identify. The potential effect of policies accompanying employer labour cost reductions and possible knock-on effects on aggregate labour demand are considered in this section.

Reductions in employer SSCs and functional equivalents will, all other things being equal, trigger a decline in public revenues. These deficits will in many cases be financed by additional taxes. In principle, a reduction of contribution rates can be self-financing if a substantial increase in employment can be expected and if the labour demand elasticity is large in absolute value. The reduction of the tax wedge may, for example, lead to a huge employment response that is also supported by an expansion of labour supply. Due to the rising number of contributors, further revenues in the social security system will be generated. In principle, they can be sufficiently large to compensate for the initial loss of revenue. However according to the evidence in the above studies, positive employment effects are more likely to be modest and the self-financing scenario is highly unlikely. Budget-neutral reforms will require increases in other taxes.

Indirect taxes such as VAT may finance the loss in revenues caused by a lower labour tax wedge. If VAT increases are passed onto consumer prices, they will reduce the purchasing power of households. A decline in private consumption expenditure can be expected. If the tax increase is redistributed between employees and companies, wage–price spirals can result, with further negative effects on economic performance. VAT rises may reduce the profits of companies and potentially undermine private investment, implying a lower speed of capital accumulation. In any case, output falls can be expected due to the decrease in aggregate demand with, ultimately, adverse effects on employment. Additionally, distribution effects need to be taken into account. A higher VAT rate can imply a particular burden for low-income households, as they spend a higher share of disposable income on consumption (Warren, 2008). Such taxes are additionally regressive since recipients of transfers (such as pensions and unemployment insurance) do not benefit from the parallel cut in labour taxes.

Macroeconometric models are appropriate tools to examine the overall effects of a shift in the tax structure because they are able to capture the direct and indirect effects within the system of national accounts. Simulations by the European Commission indicate positive effects of a tax shift in the long run, if lower social contribution rates provided to companies are targeted at the employment of young and low-skilled people (European Commission, 2014d).

Based on a model for the German economy, Dreger (1996) found that lower contributions to the pension system can stimulate employment: a reduction in the contribution rates of 1 percentage point could lead to 80,000 additional jobs on average (equivalent to about 0.2% of the total labour force). However, the effects become much more modest if a budget-neutral increase in the VAT rate is included: employment gains fall to 20,000 jobs (about 0.05% of the total labour force). As the output reaction is even weaker than the employment response, a minor decline in productivity is involved. However, this does not point to a loss in competitiveness. Instead, it reflects the fact that production becomes more labour-intensive. These results have largely been confirmed in later studies. Using the QUEST III macroeconometric model, the European Commission (2008) simulated a shift from labour to consumer spending taxes for the entire euro area. Relative to the baseline scenario of no change, employment is found to increase by 0.14% after the first year and by 0.25% after the second.

Summary

Several lessons can be drawn from this literature review. A core result established by the standard theory on the incidence of labour taxation emphasises that the effects on employment depend on the extent to which any tax relief for employers is passed onto employees in form of higher wages. For full shifting, no impact on new employment is expected, as the producer costs relevant to companies will not change. Hence, the policies are more successful the weaker the shift to wages is. In an environment of high

unemployment in many EU countries, the actual incidence of lower social contribution rates may not deviate very much from the legal incidence. High unemployment and a more elastic labour supply will limit any potential wage increases. Therefore, the risk that wages rise in response to lower social contribution rates should be rather low.

The empirical evidence summarised here has indicated that the employment effects from lower social contribution rates or functional equivalents such as hiring subsidies are positive, but likely to be modest. This result is in line with those indicated in previous reviews such as that by Marx (2001). Although there is great heterogeneity in the estimated impacts, they are consistently lower than the predictions of theoretical models and non-statistically significant in several cases. This heterogeneity may be due to the design of each of the measures studied, such as the definition of the target group or the variations in research methodologies, aspects that are analysed in the meta-analysis that follows.

Empirical studies have also found evidence of deadweight losses, displacement losses and substitution effects. Deadweight losses in particular are often seen to account for 50% or more of the net new jobs created. To reduce crowding out and deadweight losses, net hiring subsidies can be favoured over gross hiring subsidies. According to Knabe et al (2006), to this end the principle of double marginal subsidisation may be helpful. In particular, a company hiring a new worker and raising employment above the reference level will receive wage subsidies only for the new worker and one incumbent worker. On the positive side, this could strengthen the incentives for net job creation. However, such measures imply higher

monitoring costs and can raise their administrative burden, disincentivising their use in particular for SMEs. To rule out habituation effects, subsidies should be temporary and targeted at companies or sectors facing temporary shortfalls in demand (van der Ende et al, 2012) and should be terminated as soon as the economy improves to shift the focus to re-employment in regular, unsubsidised jobs.

Even in periods of deep economic crisis with large employment losses, it may be prudent to target non-wage labour cost reductions at specific subgroups of workers. Labour demand elasticities are low in absolute value for better qualified workers, suggesting that non-wage costs reductions should be targeted to the needs of the most vulnerable group of the labour force. Closer targeting should also increase efficiency and reduce deadweight losses. For the most disadvantaged groups, such as the long-term unemployed or people with disabilities, more generous employment incentives and hiring subsidies may be necessary to compensate for impediments such as deficits in skill levels.

More research is needed to analyse the cost-effectiveness of policy reforms. The few new jobs generated could imply a substantial drop in revenue for the treasury or the social security system if funded by compensatory tax increases, for example, on consumption. For this reason, reforms to reduce the tax wedge should be designed with care. The employment increase in response to hiring subsidies is not huge, according to most empirical studies. Furthermore, unintended side effects such as distributional distortions, deadweight losses and habituation effects may offset some of the employment benefits.

3 | Results of the meta-analysis

This chapter presents the results of a meta-analysis of recent evaluations of the employment impact of the employer SSCs and functional equivalents in Europe. It complements the earlier literature review by means of a quantitative analysis of the existing estimates. First, the process followed to build the dataset of impact estimates and carry out a descriptive analysis of the studies used to perform the meta-analysis is discussed. Next, the main characteristics of the variability of the estimated impacts are described, depending on the precise type of policy reform (that is, change in SSCs or in any of the elements included under the umbrella of functional equivalents). Differences across estimates based on other key characteristics of the reform, such as its duration, scope and existence of a target group of workers, are also explored in this step. Similarly, the distribution of the estimated impact is compared with differences across studies in their design and characteristics (for instance, type of data, econometric methodology, type of publication, country under study) and to the macroeconomic context, including the institutional setting of the labour market. This preliminary descriptive evidence provides information on the likely sources of variability of the estimated impact of SSCs or functional equivalent reforms on employment. However, it does not account for the confounding effect that other factors may exert. There may be differences in the estimated impact across types of reforms, or due to differences in the characteristics of the intervention, that can stem from variations in the design and context of the studies.

A meta-regression analysis aims to assess the variability in the estimated impact of the policy studied while accounting for the sources of variation between evaluations. First, the econometric methodology is briefly discussed, taking account of the fact that the outcome of interest in this study is not the estimate of an effect size. The lack of a minimum degree of homogeneity in the economic magnitudes that have been used in the literature to measure the employment impact of a change in the employer SSCs or in a functional equivalent prevents the standard meta-analysis of effect sizes. Instead, the focus of the meta-analysis in this section is a categorisation of the estimated impact of the reforms on a magnitude that is related to employment in some way. In fact, the existence of such a type of estimate is a crucial element for the inclusion of a study in the dataset for the meta-analysis. Due to this constraint, the approach follows Card et al (2010) and Kluve (2010) in fitting non-linear probabilistic models for binary and ordinal outcomes. Probit models are used to carry out a meta-analysis on positive and significant versus non-positive and significant (significantly negative and non-significant) estimated effects of the policy reform on employment. To add more information, estimates in the group of studies are classified in three categories depending on the strength of the effect:

o   significantly negative and non-significant;

o   significantly positive but weak;

o   significantly positive and strong.

Ordered probit models are fitted in this case to account for the ordinal nature of the outcome to be meta-analysed. The section contains a synthesis of the results of the meta-analysis.

The chapter concludes with a summary of the main findings of the meta-analysis.

Description of the database

In order to carry out a systematic and structured meta-analysis of the evidence, the standard steps in this kind of analysis (for instance, Garg et al, 2008; Stanley et al, 2013) were followed.

Identification of the question of interest: This must be as specific as possible and associated with a quantitative measure linking the outcome of interest to the magnitude used to proxy for the policy intervention. In most cases, this task involves some homogenisation or grouping of the inputs and outcomes, necessitated by the large variation among studies in the measures used.

Identification of all studies providing evaluation(s) of the policy intervention: The process for compiling studies needs to be explicit so as to avoid sources of bias and to allow for the external judgement of the quality of the meta-analysis. Databases and other sources, the keywords used to perform the search and the period must be disclosed. Similar principles should apply to the rules for the selection (inclusion/exclusion) and classification of studies based on the dimensions of interest for the meta-analysis.

Coding of information: This is the information selected from each study that will be used to produce the quantitative review. It is important to collect information on:

o   the impact of the measure;

o   details of the evaluation;

o   the empirical method and econometric technique;

o   the context of the economy for which the estimate was obtained;

o   the group of the population targeted by the policy intervention;

o   the type of data;

o   the period covered;

o   details about the publication.

This information needs to be complemented using the interpretation of the results and/or the subjective assessment of the policy intervention. The type of subjective information to be compiled and treated needs to be determined on *a priori* grounds based on the focus of the review. It may, for instance, include the side-effects of intervention or the cost of implementation. To minimise the risk of misinterpretation, and even mistakes

in the coding, it is preferable that two or more reviewers code the relevant studies. However, in an extensive survey of evaluations, the potential number of studies to be considered can be rather large, meaning that the task associated with this step is likely to be very time-consuming. In such a case, the risks can be minimised by strong coordination among reviewers and by defining a common grid to be used by them all, with clear criteria. The grid including the information collected for all the studies can be made available on request.

Analysis of the collected information: This step includes the appraisal of the methods in each study, or group of similar studies, the summary of results and the isolation of key findings, and the identification of the origin of the variability of results across studies. The analysis should also take into account the main characteristics of the policy intervention (for instance, type of reform, duration, target groups).

Drawing conclusions on the magnitude, significance, and sources of variability of the effect under analysis: In this final step, the team of reviewers must reach conclusions on the existence and relevance of the effect of the policy intervention, based on the previous analysis of the reported evidence. The team is also expected to establish whether the findings in the available studies are consistent and can be extrapolated to other contexts (for instance, other countries/regions, population groups, time periods, sectors). In this regard, it is reasonable to believe that a proper search of primary studies (including issues such as positive and negative estimated effects, published and unpublished, in English and in other languages) and a systematic, transparent and 'as objective as possible' treatment of the evidence reported in these studies, will provide more consistent and comprehensive conclusions than those derived from the mere comparison of one study to another.

With respect to the question of interest in this study, the aim was to analyse whether and to what extent reducing SSCs supported by employers have an effect on the net generation of employment. Although the primary focus is on this particular policy, the analysis is also extended to measures that can be considered to be functional equivalents (policies to stimulate labour demand by reducing labour costs for the employer), as already indicated.

The procedure implemented for selecting the evaluations considered in the study is described in Chapter 2. Studies considered in the meta-analysis have been identified from the list of studies resulting from the search of the literature applying the filters described in that section (that is, only those that analysed European countries and whose empirical methodology fit into Levels 2 to 5 of the Maryland scale). In particular, for the meta-analysis, only those studies that included at least one estimate of the effect of an SSC or functional equivalent reform on a broadly defined measure of employment were selected. This resulted in 207 estimated effects from 68 studies covering 19 countries. Different estimates for the same study were included when they corresponded to the impact on, for instance, different population groups, periods of time and types of policy interventions.

It has become common practice to use meta-analysis only when there are a high number of available estimates of the effect of interest. This means that the number of elements in the list of empirical studies providing estimates of the employment effects of changes in the employer SSCs or functional equivalents determined whether the meta-analysis could be carried out or not. The main reason is that, with a small number of studies, the statistical analysis would be unstable and unreliable. Every study in the list of potential candidates was reviewed to determine if it fulfilled the conditions to be included in the meta-analysis. The result of this process is summarised in the final column of the table in Annex 2. The number of studies with feasible evaluations was large enough to guarantee reliable evidence from the meta-analysis. Compared with previous meta-analyses of the effect of similar policies, the dataset from this study included more estimates than that in Kluve (2010) and a similar number to that used by Card et al (2010) (137 and 199, respectively). However, the exclusive focus on the effects in European countries and the more focused scope of the policy under analysis in this report makes the number of studies in this sample lower than that in Kluve (2010) and Card et al (2010) (96 and 97, respectively).

Extraction of the relevant information in each of the selected studies was performed by the team members. Extraction and coding of the information about the policy reform, its effect, and the main characteristics of the design of the evaluation and the context in which it was performed, is a crucial task for a systematic review of evaluations when the number of studies to review is large and several reviewers are involved. All relevant information from the evaluations must be collected and this makes it important to design a mechanism that guarantees that the collection of information is both as objective and as systematic as possible, and that subsequent consolidation and summarisation is possible. At the same time, differences in the criteria used by reviewers should be minimised.

To guarantee the quality of results in this step, two decisions were made – on the design of an evaluation grid and on a strategy to assure the quality of the reviews.

Evaluation grid

An evaluation grid (reproduced in Annex 3) was designed in which most of the items corresponded to variables whose information was directly used in the meta-analysis. The grid had four sections.

In the first section, the reviewer was asked to provide basic information about the study, such as the author/s, year and type of publication. This section also documented the language of the publication.

The main elements and characteristics of the policy intervention were introduced in the second section. The items included the type of policy intervention (employer SSCs) and the different types of functional equivalents, the population targeted by the policy, the duration, and the country and year of the reform.

The third section was dedicated to the design of the evaluation, determining the characteristics of the

methodology and data used to assess the impact of the policy. The reviewer was first asked to supply the precise type of data and, if relevant, its frequency. The source of the data distinguishing between administrative registers and survey datasets was also included. This was followed by information about the methodological approach of the evaluation: if the focus was on individuals or companies (microeconomic approach), or territories, sectors or any other type of aggregation (macroeconomic approach); the type of econometric method that was applied; and the rating of the paper according to the Maryland Scientific Method Scale. Finally, in this section of the grid, the reviewers also provided information about the period under analysis and the precise definition of the outcome variable in the study. This was crucial information given the focus of the review on the effects on employment.

Finally, the fourth section was designed to collect information about the evidence in each study. The reviewer was firstly asked to reveal if the evaluation focused on a precise group of the population (for instance, long-term unemployed, young, female) or if there was not a particular target group. Then the reviewer was asked to provide information about the time horizon of the impact, distinguishing between short-, medium- and long-term impacts, and whether the evaluation was about the effect on the extensive margin (people employed) or the intensive margin (number of hours). This section of the evaluation grid ends with items for the quantitative impacts of the reform. As detailed below, rather than the estimate of a coefficient and the corresponding standard error, or p-value, the reviewer was asked to indicate if the estimated effect was significantly positive or not, and in the former case, if the impact was considered as strong or weak.

The evaluation grid was implemented in Google Forms. Once a reviewer had completed the grid for an evaluation, it was submitted and automatically uploaded into a dataset in the form of a spreadsheet, which also included the name of the reviewer of each study and the date on which the review was produced. This made initial treatment of the collected information easier, particularly with a view to homogenisation and standardisation of responses, and the subsequent export of the data to the statistical software used to obtain the results of the meta-analysis.

Quality assurance strategy

The second decision taken concerned the strategy to guarantee the quality of the information gathered by the reviewers. The information of each study was extracted and collated by a member of the research team using the evaluation grid. The project coordinator monitored a number of entries selected randomly for each reviewer, with the object of checking the consistency with the criteria established for the collection of information and with that required in the evaluation grid. At the end of this process, the coding of information was revised and homogenised before its analysis. A preliminary test of the entire procedure was performed using a limited number of studies. The members of the team reviewed this set of studies, selecting, coding and entering the

information into the evaluation grid. Afterwards, all the entries were compared and differences were discussed. As a result, some practical clarifications were made such as the information to select and the way of coding it. The procedure also led to the introduction of some improvements and the correction of minor bugs in the evaluation grid. In principle, this systematic procedure should minimise the risk of heterogeneous and inconsistent responses in the collection of the relevant information for the meta-analysis.

Methodology

The information collected from each of the studies included in the meta-analysis was codified and clustered into groups of variables. The first group corresponds to the outcomes. In this regard, the ideal magnitude to be meta-analysed would have been the standardised effect size (the standardised magnitude of the estimated effect) corresponding to the impact that the policy reform had on employment. However, the selected studies strongly differ over the definition of the outcome and policy variables, which makes it impossible to combine sufficiently comparable effect sizes to be meta-analysed. Regarding the measure of employment, while most macroeconomic evaluations focus on the employment rate or the number of jobs, microeconomic evaluations usually consider the probability of finding a job, as some evaluations focus on the effect on the exit from unemployment (it is assumed that a decrease in unemployment is strongly linked to employment generation due to the less elastic response of participation). In addition, other evaluations address other types of related effects, such as the duration of unemployment spells or the transition from temporary to permanent employment.

In this sense, it is worth mentioning that several studies have focused on the evaluation of policies targeted on some specific population groups and that studies varied in the time span in which the response of employment to the intervention was measured. Broadly speaking, there are three options: short, medium and long term. In summary, to proxy the theoretical magnitude, employment evaluation studies use a number of different empirical counterparts that range from employment rates, levels or changes to the probability of finding a new job, the time to find a job and the probability of getting a better/more stable job. This variety makes it difficult to obtain a sufficiently homogeneous quantitative measure that can be used across the different evaluations.

There is also a wide heterogeneity between studies in the variable used to capture the policy intervention. It may be simply a time dummy to distinguish the period in which the intervention was in force (as in aggregate time series analyses for a single economy) or the interaction between this type of binary variable with other dichotomous and/or continuous variables that proxy, for instance, the group of workers targeted by the policy and the size of the intervention (as in studies aiming at identifying causal effects). Variability in the method of creating a proxy for policy intervention is even observed within the latter type of measure as studies vary, for example, in the

target groups of workers and in the way the size of the intervention is defined.

Therefore, the large variability in the set of studies made a meta-analysis based on effect sizes impossible. Instead, estimates were classified based on the sign and significance of the effect. Two outcome variables were defined based on such information. The first distinguishes two groups of estimated effects: those indicating that the impact of the reform on employment was positive and significant; and those for which there was not a significant effect or it was even negative.[26] The second adds further information as it differentiates the first group of estimates by the strength of the impact. More precisely, three groups were defined for the second outcome: the first included the non-significant or negative estimates; the second was formed by significantly positive weak estimates; and the third was formed by significantly positive but strong estimated effects. The distinction between a weak and a strong effect rested on the reviewer's subjective judgement, based on information from each study referring to the magnitude of the estimated effect and the corresponding degree of significance. Where available, the indicated assessment of the reviewer/s of the evaluation on the strength of the estimated effect was also taken into account. It is worthwhile mentioning that Kluve (2010) and Card et al (2010) faced similar issues regarding the availability of comparable effect sizes in their datasets, which led them to suggest the categorisation of the estimated effects, though in a way slightly different to that used in this study. Their three categories correspond to significantly negative, non-significant and significantly positive effects.

The rest of the information corresponded to variables that account for variations across estimates in the policy intervention, the design of the study and the characteristics of the publication. Several variables were defined within each of these groups. Table 1 shows the details of the variables included in each group and the corresponding categories for each of the categorical variables. The inclusion of the level of each evaluation in the Maryland scale was considered as an additional control for the design of the study. However, this variable is closely associated with other components of the design of the study, particularly the econometric method used to obtain the estimate of the effect of the policy intervention and, as a result, their inclusion in the meta-regression does not improve the estimates (further details are provided in Annexes 5 and 6). It can be observed from the information at the bottom of Table 1 that a group of variables was added to the dataset with the aim of controlling for the macroeconomic background and the labour market institutions of the country-period for each evaluation. Specifically, the annual GDP growth rate and the unemployment rate for the country and period of the evaluation were the two variables included to control

for differences across evaluations in the macroeconomic context. The source for these data is the World Bank's World Development Indicators dataset. Measures of the degree of wage-setting coordination, level of wage bargaining, union density and adjusted bargaining coverage were the ones selected to account for differences in labour market institutions. They were extracted from the ICTWSS database (Visser, 2016).

Next, the main trends of the database, describing several characteristics to be used later in the meta-regressions, were summarised. The descriptive analysis of the information collected from the evaluations is a crucial element. In the first place, it is important to check that there is enough variability across studies in the effect of the policy. If so, obtaining preliminary evidence on the sources of variability is necessary: for instance, whether the estimates of the effect varies over time and/or across countries, or whether there are clear manifestations of the influence of the econometric method or the type of data used to obtain the estimate of the effect. Differences were formally tested using the statistical toolkit. This preliminary descriptive evidence was used to guide the specification of the meta-regression, in which the particular impact of each of the characteristics of the study, the policy intervention, the context and so on can be estimated, conditional on other characteristics. A detailed description of studies included in the meta-analysis according to different dimensions is provided in the tables in Annex 4.

Analysis of the studies

The 68 studies finally considered covered 19 countries. They were mostly written in English (81%) and mostly published as academic articles (44%), working papers (28%) or reports (19%), the rest (9%) being unpublished works or other types of publication. Half of all studies, and also half of those published as journal articles, were published from 2012 onwards. This more recent period accounts for 69% of all reports, but just 40% of working papers and other types of publication. Central and eastern European (CEE) countries provided many of the more recent publications, while a higher number of 'older' works was found for continental countries. Significantly, the database did not include journal articles for CEE countries, which were mostly represented by reports (80% of all works). In the southern countries, however, 60% of all considered studies were published as journal articles. Studies for the Nordic countries were mainly published as working papers, while continental countries were mainly responsible for those in the 'Other' category.

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26   The researchers opted to group evaluations reporting non-significant and significantly negative estimated effects since the main interest of the study is the identification of policy interventions in the EU Member States that stimulated employment in an effective way. Additionally, the joint consideration of these two types of effects in a single category allowed them to compute the variable of interest in a way that guaranteed a good balance between its two categories, 59% of observations corresponding to a positive and significant effect and 41% to non-significant or significantly negative effect. A further distinction between the last two effects would have led to the definition of categories with a low number of observations, which could negatively affect estimates in the meta-regressions.

Table 1: Variables for policy intervention, study design and controls

Group	Variable	Categories	Notes
Policy intervention	Type of reform	SSCs	Employer SSCs and functional equivalents. The 'Other' category includes active labour market programmes and other non-wage labour cost measures.
		Employment incentive	
		Payroll cost	
		Other	
	Direction	Increase	Any policy intervention focused on the employer social security contributions or a functional equivalent that caused an increase in the cost of labour was coded as 'Increase'.
		Reduction	
	Duration	Permanent	Defined as permanent when a period of application was not announced when the reform was enforced.
		Temporary	
	Scope	Single reform	
		Included in a package	
	Targeted (companies or workers) – general	Specific group of companies	The policy is targeted at a specific group of companies, at a specific group of workers or not targeted at all.
		Specific group of workers	
		No specific group	
	Target – detailed	Unemployed	
		Long-term	
		Fixed-term	The target group for fixed-term is individuals already employed, and the type of intervention is of the form of conversion incentives.
		Young	
		Old	
		Women	
		Disabled	
		Low-skilled	
Design (data, method and so on)	Data frequency	High frequency	High frequency: periodicity less than annual
		Low frequency	Low frequency: annual or more than annual
		Undated	
	Data source	Administrative	
		Survey	
	Econometric method	Difference in differences	
		Matching	
		Regression discontinuity	
		Other	
	Outcomes of the study	Employment only	
		Employment and wages	
	Number years analysed		Continuous variable
	Time horizon assessed	Long-run	Long-run: effect measured after three or more years
		Medium-run	Medium-run: effect measured between 1 and 3 years
		Short-run	Short-run: effect measured within the first year after the intervention
		Other	
	Language	English	
		Other than English	
Characteristics of the study	Group of countries	CEE	CEE: Bulgaria, Estonia, Hungary, Macedonia, Poland, Romania
		Continental	Continental: Austria, Belgium, France, Germany
		Nordic	Nordic: Denmark, Finland, Norway, Sweden, UK
		Southern	Southern: Italy, Portugal, Spain, Turkey
	Type of publication	Journal article	
		Report	
		Working paper	This category includes mostly unpublished works.

Group	Variable	Categories	Notes
Context	GDP growth		Continuous variables Sources: ICTWSS and World Development Indicators databases
	Unemployment rate		
	Wage setting coordination		
	Level of wage bargaining		
	Union density		
	Adjusted bargaining coverage		

Note: *ICTWSS is the Database on Institutional Characteristics of Trade Unions, Wage-setting, State Intervention and Social Pacts in 51 countries between 1960 and 2014 (Visser, 2016)*

[see Excel file for table]Even though the main focus of this report is on changes in employer SSCs, the list of studies strictly devoted to this type of policy intervention accounted for only 15% of all of those covered. Functional equivalents, particularly employment incentives, were more numerous. Most papers (50%) evaluating SSCs corresponded to southern European countries, followed by continental countries. In only one CEE country (Hungary) was an evaluation of this type of policy found. Nordic countries were responsible for two-thirds of all works on the effects of payroll cost measures. In all groups of countries, the category 'employment incentives' was the type of policy measure with most evaluations (Sweden being the only exception). The 'Other' category accounted for 12% of works and included mostly ALMPs.

Only six out of the 68 studies considered policies that imply an increase in costs, four being associated with employment incentives and two with payroll costs. Most of these works are found in continental countries.

Most works (65%) related to policies that are permanent rather than temporary. This was not so in the works for southern countries, where two-thirds of works related to temporary policies. Interestingly, eight out of 10 policies considering employer SSCs were temporary, while two out of 10 were mainly permanent. All policies that would mean an increase of costs for the company are temporary.

Half of the studies considered reforms that were part of a comprehensive package. This ratio was higher (65%) for studies in continental countries, while in Nordic countries, 35% of the analysed studies considered single reforms. Again, studies analysing SSCs displayed a differentiated pattern, as most of them (73%) were linked with reforms labelled as 'Single'.

Most (80%) of the analysed policy interventions were targeted at workers. Five out of six studies analysing interventions targeted at companies related to Nordic countries. When employment incentives were analysed, most of the policies focused on workers rather than on companies. Companies were more represented in studies analysing changes in payroll costs.

The main characteristics of the design of the studies are as follows. Only six studies performed a macro analysis, three being based on developments in southern countries. Clearly, the types of data influence the analysis. A quarter of all studies used cross-sectional data, while half of the works used high frequency (quarterly, monthly) data and the remaining used annual data. This proportion was about the same for all types of policy interventions, with the exception of studies about reforms in payroll costs, which tended to use lower frequency data. For collecting such data, 90% of studies used administrative records and just 10% used surveys. Most analyses using surveys related to southern countries.

As for the statistical techniques used in the evaluations, half used a D-i-D approach; matching techniques were used by 29% of studies and regression discontinuity by 10% (mostly in works carried out in southern countries). Half of the works applying D-i-D used low frequency data, while regression discontinuity approaches were mostly applied to high frequency information. Policies labelled as 'Other' were those that more frequently used, in relative terms, matching and regression discontinuity techniques.

When deciding the score for each study on the Maryland scale, the technique and type of data were, as might be expected, key. The two studies considered to be Level 4 used undated data with a regression discontinuity design for analysing the impact of reforms in employment incentives. At the opposite end of the spectrum, those studies signalled as Level 2 mainly used 'Other' types of techniques. Significantly, most studies in CEE countries were marked as Level 2. In the same vein, 57% of Level 2 studies were reports or 'Other' type of publications; this contrasts with the 80% of Level 3 and Level 4 which were published as journal articles or working papers. Finally, Level 2 studies that, for the purposes of this study, have lower standards displayed the highest proportion of works written in a language other than English. This clear dependence between the level of the Maryland scale in which each evaluation was classified and the characteristics of the design of study is the reason why the Maryland scale was not included as a separate determinant of the employment outcome in the meta-regressions.

The focus of the studies was also checked and only those studies where there was an evaluation of the policy and its impact on employment were considered. Nevertheless, some studies also considered the impact on wages. This was the case in 37% of all studies, but this incidence was higher (70%) in studies carried out in Nordic countries. It was also the case for payroll costs and 'Other' types of functional equivalent policies.

Of 68 studies, seven analysed across a time frame of only one year, and 42 up to 5 years. Only 4 studies analysed more than 10 years in total. Studies analysing SSCs were those with the highest proportion (73%) using short periods of time (up to five years). Looking at the reference year of every study, 31% of all the studies were before 2000, 46% were between 2001 and 2007, and 24% were from 2008 onwards. [27] Studies referring to CEE and southern countries were the ones with more recent analysed periods. Studies analysing years before 2000 used mostly regression discontinuity and 'Other' types of techniques. The most recent work focused only on companies was referenced in 2006. Consequently, the more recent studies were devoted to the analysis of policies targeted at workers. Interestingly, there was no study involving analysis of payroll costs whose reference year was after 2008.

The 68 considered studies reported 207 estimates, or evaluations, in total. As shown in Figure 7, for 19 analyses (28% of the total), only one evaluation was considered. The largest number of papers (39 or 57%) had between two and four estimates, while 10 studies had more than five estimates. These studies accounted for 82 estimates in total. On average, every study had about three estimates. Studies analysing 'Other' types of functional equivalent interventions were the ones with more estimates per paper (5.3 on average), followed by SSCs (4), payroll costs (3.5) and employment incentives (2.1), a category that had 17 out the 19 papers with just one estimate. These averages are larger than the ones in the works of Kluve (2010) and Card et al (2010) (1.4 and 2.1, respectively).

The main outcome of every evaluation reports whether the analysed policy had a significant impact on employment. Table 2 (p. 47) and Figure 8 (overleaf) display the

proportion of estimates that resulted in no significant or negative results, plus the proportion of positive and significant estimates, with a distinction between weak and strong effect: 59% of all evaluations reported a significant and positive effect of policy interventions on employment creation, most of them (73%) being categorised as having a strong rather than a weak impact on employment. Table 2 also distinguishes the results by the characteristics of the policy. The policy with the strongest proportion of positive results is employment incentives, followed by SSCs and other policies, with payroll costs the one with the lowest positive impact (in fact, it displays more negative or non-significant impacts than positive ones). As shown in the last column of Table 2, this study found a significant bilateral association between the type of policy and the outcome of the estimate.[28]

When the policy implies an increase in labour costs, the impact on employment is particularly strong, although not statistically significant. This variable has to be interpreted with caution: an increase in labour costs may lead to a reduction in employment and this is interpreted as the expected outcome of the policy.

The duration of the policy is not significantly associated with the result of the estimate, while being part of a comprehensive package of policies increases the frequency of strong positive results of the analysis.

The aspect strongly associated with the outcome is the policy target. When policies are focused on companies rather than on workers, the impact is either not significant or negative in almost all estimates (92%).

The distribution of the results of the estimates were also analysed with respect to the differences in the design of the study and the other characteristics. Detailed results

Figure 7: Histogram of the distribution of estimates per study

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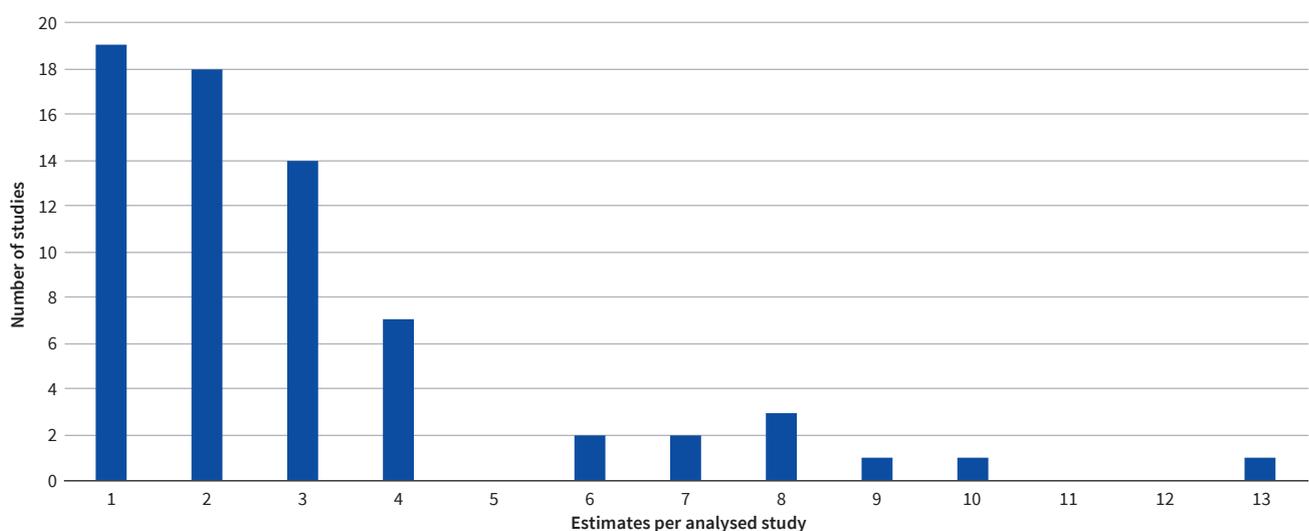
27 The reference year was considered to be the one in which the policy under analysis was enforced, or when a change in such policy took place. Where the policy had been in place previously and no change was experienced, the middle year of the analysed period was used as the reference.

28 In order to decide if there is a significant association, a battery of tests was used: Pearson's chi-squared, likelihood-ratio chi-squared, Cramer's V, Goodman and Kruskal's gamma, and Kendall's tau-b. Details of these results are given in Table A4.7 of Annex 4.

Figure 8: Distribution of the employment impact by type of policy
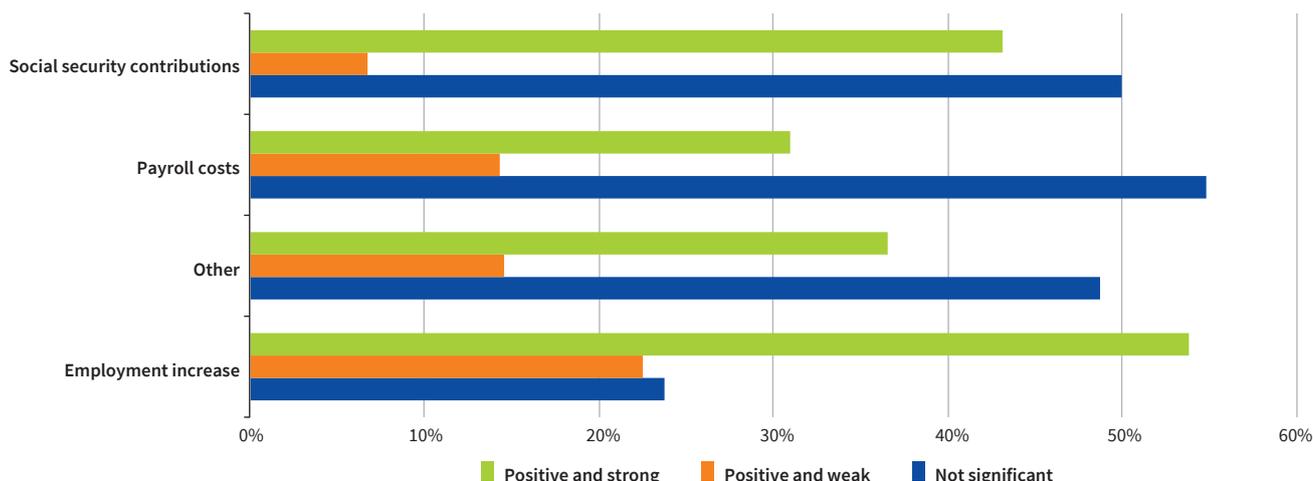
are provided in Table A4.6 of Annex 4. In brief, the design of the evaluation is in general significantly associated with the final outcome. This study finds, for instance, that studies using matching techniques display a strong trend towards a positive and strong impact on employment. Something similar happens when the studies are only analysing employment rather than when the focus is on both employment and wages.

The length of the time period under analysis is significantly associated with the final outcome. Hence, analyses using shorter periods of time show higher proportions of strong positive impacts on employment. This result, however, is not found when looking at the time horizon of the assessment, as evaluations with long- and short-term perspectives display similar outputs.

The evidence from the description of the information in the dataset of evaluations is informative about the type of reforms analysed and the characteristics of the design of the studies, the publication, and the economic and labour market context. It also provides an initial insight into the sources of variability in the impact of the policy reforms. However, as already indicated, it would be speculative to derive strong conclusions from the simple measures of association between the reported outcome of the evaluation and each characteristic of the policy intervention. This is because differences in certain factors – the design, in other characteristics of the study, and the context, which have also been shown to correlate with the estimated impact of the reforms – might be behind the association between the outcome and the characteristics of the policy. The meta-regressions in the following section provide evidence on the variability in the impact of the reforms due to the precise type of policy intervention and other characteristics of the reform, conditional on differences across evaluations in the design, the publication and the context.

Econometric methodology and results of the meta-regressions

The design of the meta-regression is highly conditioned by the type of outcome used to summarise the effect of the policy intervention. As discussed above, an in-depth analysis of the evaluations led the authors of this study to the idea of using both a nominal and an ordinal variable that summarised the impact of the reform in each evaluation rather than a proper effect size. More precisely, based on the estimates of the corresponding effect provided in each evaluation (a_i) a binary outcome variable, *impact1*, was constructed as:

$$\begin{cases} impact1_i = 1 \text{ if } \alpha_i \text{ is significantly positive} \\ impact1_i = 0 \text{ otherwise} \end{cases}$$

Therefore, *impact1* just distinguishes between evaluations yielding a significant positive effect and those that do not. In other words, it differentiates between policy interventions that effectively stimulated employment and those that did not.

A probit model is used to analyse the relationship between the effectiveness of the policy intervention, as proxied by *impact1*, and its main characteristics, controlling also for differences in the design of the evaluation, the characteristics of the publication, and the economic background.

In addition to the binary outcome variable, and motivated by the interest in having additional information on the interventions that exerted a positive effect on employment, an ordinal variable with three categories, *impact2*, was defined as:

$$\begin{cases} impact2_i = 3 \text{ if } \alpha_i \text{ is significantly positive with a large value} \\ impact2_i = 2 \text{ if } \alpha_i \text{ is significantly positive with a moderate value} \\ impact2_i = 1 \text{ otherwise} \end{cases}$$

In this case, an ordinal probit model is fitted to analyse variations in the estimated impact of the policy intervention to its characteristics and the design,

Table 2: Distribution of model output by characteristics of analysed/estimate study

		% of estimates that are:			Number of observations	Association
		No sign/ negative	Positive			
			Weak	Strong		
All estimates		41%	16%	43%	207	
Policy intervention						
Type of instrument	Employment increase	24%	23%	54%	80	✓✓
	Other	49%	15%	37%	41	
	Payroll costs	55%	14%	31%	42	
	SSCs	50%	7%	43%	44	
Direction	Increase	25%	19%	56%	16	
	Reduction	42%	16%	42%	191	
Duration	Permanent	39%	18%	43%	131	
	Temporary	43%	12%	45%	76	
Scope	Package	34%	15%	51%	104	✓
	Single measure	48%	17%	36%	103	
Target	No specific	44%	17%	39%	18	✓✓✓
	Specific group of companies	92%	8%		13	
	Specific group of workers	36%	16%	47%	176	
Specific target group of workers						
	Unemployed	36%	16%	48%	83	
	Long-term unemployed	22%	21%	57%	63	✓✓✓
	Fixed-term contract	20%		80%	5	
	Young	38%	15%	46%	52	
	Old	29%	29%	42%	31	✓
	Women	28%	20%	52%	25	
	Disabled	21%	14%	64%	14	
	Low-skilled	35%	6%	59%	17	

Note: ✓✓✓, ✓✓, ✓ denotes that the null hypothesis of independence is rejected for the variables involved with a probability of 99%, 95% and 90%, respectively.

publication and context controls. The reasoning behind this alternative treatment of the estimated impact is that it may be the case that the size of the effect varies across alternative types of reforms (for instance, for a change in employer SSCs and for some of the functional equivalents) and/or depending on, for instance, the duration and the specific group of workers targeted by the intervention. In this regard, as a final step in the analysis, a third indicator of the impact estimated in each evaluation, *impact3*, is defined only for the significantly positive effects as:

$$\begin{cases} impact3_i = 1 \text{ if } \alpha_i \text{ is significantly positive with a large value} \\ impact3_i = 0 \text{ if } \alpha_i \text{ is significantly positive with a moderate value} \end{cases}$$

Accordingly, a probit model was fitted to analyse the effect of the characteristics of the reform on the magnitude of the effect, using only the sample corresponding to the evaluations that provide a significantly positive effect (123 out of 207).

Considering the strategy followed in the meta-regression for each of these three outcome variables, only the variables under the category 'Policy intervention' were included in the specification in a first step. This allowed the researchers to assess to what extent the employment effect of the reform depended on the type of instrument, the direction, duration

and scope of the intervention, and the target group (if any). As for the target of the policy, a distinction was made between specifications that used a broad measure of the target (whether the target was a group of workers or a group of companies, or whether the reform was untargeted and applied to the whole population), and those that allow for differences in the impact across detailed groups of workers (for instance, the long-term unemployed, young, female, disabled). In further steps, controls for differences in the design, type of publication and economic context of each evaluation were subsequently included with the aim of checking whether variations in the impact of the reform were really due to differences in the policy rather than, broadly speaking, to the environment in which the evaluation was implemented. For the specifications including the controls for the economic context, a distinction was made between specifications that included only controls for the macroeconomic background and those that also added information about the labour market institutions, as they might exert a differential effect on the chances of the success of reforms such as those analysed in this report. In a final step, the effect of the interaction between the type of policy intervention and the target groups was explored. This was motivated by the fact that the effectiveness of the different

types of interventions might well vary between the groups targeted by the reform.

In the following section, the results of the estimate of the probit and ordered probit specifications described above are summarised and discussed. The tables in this section synthesise the estimated effect of differences in the characteristics of the policy intervention on the employment impact reported in the evaluations. They also include information about the effect of the controls. A set of symbols is used in these tables, rather than the precise value of the estimated coefficients and the corresponding standard errors and levels of significance. The symbol 'O' is used when a coefficient is not statistically different from zero (the effect of the corresponding variable is negligible), a '+' is used when it is significant and positive, and a '−' when it is negative. The degree of significance (as a statistical proxy for the relevance of the effect) is denoted by the number of symbols in each cell. The interested reader can find the tables summarising all the technical information of the estimates in Annex 5.

It is also important to mention that in all estimates the omitted (reference) categories are, respectively: 'a change in the employers' SSCs', 'a decrease in the non-wage cost of labour', 'a temporary change', 'a comprehensive package', 'the lack of a target group', 'high frequency data used', 'source of data is administrative records', 'econometric method is D-i-D', 'only the effect on employment is analysed', 'short-term impact', 'CEE group of countries', 'published as journal article', and 'language other than English'.

Significantly positive impacts compared to non-positive impacts: Probit meta-regressions

As already mentioned, the analysis starts by distinguishing between evaluations that provide a (significantly) positive and a non-positive impact. Table 3 shows the summary of results when using the broad target measure. The first column in the table corresponds to results when only the policy characteristics are included. The probability of obtaining a positive impact (compared to a non-positive one) in an evaluation of a reform involving an employment incentive is significantly higher than that implemented through a decrease in the employers' SSCs. In contrast, there seems to be no differences with respect to the other two types of reforms. As for the other characteristics of the policy intervention, neither the direction nor the duration and scope seem to affect the result of the evaluation. The only source of variability in the impact worth mentioning is that corresponding to policies that target a specific group of companies. With respect to non-targeted reforms, those targeted at specific companies seem to be less likely to provide a positive impact on employment. Interestingly, there are no difference between untargeted reforms and those directed at a particular group of workers.

The following columns show the results when subsequently adding the three groups of controls. The effect of the type of reform when controlling for differences in the design, publication and macroeconomic context remains largely unaltered. The only difference is in the effect associated with employment incentives, which in some specifications becomes insignificant while in others remains significantly positive. Its effect is only marginally significant when the dummies for the group of countries

are excluded in the specification that controls for the macroeconomic context variables (last column in Table 3). The inclusion of controls does not lead to major changes in the results of the effect of the other policy characteristics, with the interesting exception of that for the group of workers. The specification that includes the three set of controls suggests that the probability of obtaining a positive impact of the reform is higher if the policy was targeted to a particular group of workers.

> Overall, the results suggest that when a reform affects only a specific group of the working population, it is more effective in increasing employment than when there is no target. In turn, the evidence derived from the evaluations indicates that interventions designed for particular groups of companies may be less effective even than untargeted reforms.

As for the influence of differences across evaluations in the controls, the results confirm the strong influence of the design of the study itself. In summary, it is more likely to estimate a positive employment impact of the reform when using data drawn from periods of less than a year, and when using administrative registers rather than data from a survey. On the other hand, using matching techniques may increase the chance of estimating a positive impact compared to applying D-i-D in isolation. In any case, the latter econometric method may be linked to a higher propensity to obtain positive evaluations when compared to alternative techniques (such as regression discontinuity).

> Regarding the time horizon of the assessment, the results indicate that a positive impact is less frequent in the medium and long term compared to the short term.

Less frequent positive impacts are also obtained in studies that combine the assessment on employment and wages versus those that only focus on the impact on employment. On the other hand, the results summarised in Table 3 reveal some differences across groups of countries in the propensity to obtain positive impacts. **With respect to the CEE group, which is the reference category, evaluations for the other groups of countries tend to provide less frequent positive effects**. The fact that part of the differences across countries vanish when the GDP growth and the unemployment rate are included as controls suggests that some of these differences are caused by disparities in the economic background of the economies in which the policy reform is evaluated.

> It can be inferred that the likelihood of a positive impact increases in countries and periods of high pace of growth and decreases when the economy is relatively stagnant. As regards the influence of the unemployment rate, the evidence derived from the meta-regression of evaluations is not as robust that of GDP growth. If anything, the evidence points to a decline in the chances of observing a positive effect when unemployment is high.

Table 3: Probit models for positive versus non-positive impact – general target*

Policy intervention						
Type of reform	Employment increase	++	O	O	++	+
	Other	O	O	O	O	O
	Payroll cost	O	O	O	O	O
Direction	Increase	O	O	O	O	O
Duration	Permanent	O	O	O	–	O
Scope	Single reform	O	O	+	O	O
Target	Group of companies	– –	– – –	– – –	– –	– – –
	Group of workers	O	O	O	+ + +	+ + +
Design (data, method and so on)						
Data frequency	Low frequency		O	O	– – –	– –
	Undated		– –	– – –	– – –	– –
Data source	Survey		O	– –	– – –	– – –
Econometric method	Matching		+ +	O	O	+ + +
	Other		–	–	– –	–
	Regression discontinued		– – –	– – –	– – –	– – –
Outcomes	Employment and wages		– –	– –	– –	– –
Number of years analysed			–	O	O	O
Time horizon assessed	Long term		–	–	– – –	– – –
	Medium term		– –	– –	– – –	– – –
Characteristics of the study						
Group of countries	Continental				– – –	–
	Nordic				– –	– – –
	Southern				– – –	– –
Type of publication	Other			O	–	– –
	Report			O	O	O
	Working paper			O	+ +	+
Language	English			O	O	O
Context – macroeconomic						
	GDP growth				+ + +	+ + +
	Unemployment rate				– –	O
Number of observations		207	207	207	207	207
Joint significance		Yes	Yes	Yes	Yes	Yes
Pseudo-R2		0.11	0.26	0.30	0.35	0.33

Note: *Full statistical outputs for this table and other results of the meta-analysis are available in an online annex at http://bit.ly/nonwagelabour

Models are probits, fit to binary data with value 1 for significant positive estimates, and 0 for negative and non-significant estimates. + + + positive $p < 0.01$; + + positive $p < 0.05$; + positive $p < 0.1$; – – – negative $p < 0.01$; – – negative $p < 0.05$; – negative $p < 0.1$; O $p \geq 0.1$. Based on standard errors clustered by article. Joint significance denotes the result of the Wald test of the joint significance of all the coefficients. Omitted categories are: SSCs, Decrease, Temporary, Comprehensive package, No target group, High frequency, Administrative data, D-i-D, Only employment, Short-term, CEE, Journal article, Other than English.

The results of the probit meta-regressions obtained when including the detailed target group of workers instead of the variable for the general target are synthesised in Table 4 (overleaf). The inclusion of the detailed groups of targeted workers indicates that there may be some differences in the effectiveness of the policy intervention, depending on the particular group of workers targeted by the reform. Based on the specification that includes all the controls (fourth column of results in Table 4), **the probability of obtaining a positive impact on employment is higher when the policy is targeted at female workers and, to a lesser extent, the low-skilled**. The differential effect observed for the long-term unemployed in the specification with no controls and

only with controls for differences in the design vanishes when the country group dummies and the macro-context controls are added. The opposite holds true as regards the effect of women. When the dummies for the groups of countries are excluded (fifth column of results in Table 4), a positive effect is again observed for the long-term unemployed and, particularly, for workers with a fixed-term contract. This points to the concentration of the differentiated effect for these groups in specific countries or under specific macroeconomic circumstances.

The results of a final set of specifications that add several controls for differences in the labour market institutional setting in which the evaluations were obtained are summarised in Table A5.3 of Annex 5.

Table 4: Probit models for positive versus non-positive impact – detailed target

Policy intervention						
Type of reform	Employment increase	O	O	O	O	O
	Other	O	O	O	O	O
	Payroll cost	O	O	O	O	O
Direction	Increase	O	O	O	O	O
Duration	Permanent	O	O	O	O	O
Scope	Single reform	O	O	O	O	O
Target	Unemployed	O	O	O	O	O
	Long-term contract	+ +	+	O	O	+
	Fixed-term contract	O	+	O	O	+ +
	Young	O	O	O	O	O
	Old	O	+	O	O	O
	Women	O	O	O	+ +	+
	Disabled	O	O	O	O	O
	Low-skilled	+	O	O	+	+
Design (data, method and so on)						
Data frequency	Low frequency		O	– – –	– – –	– – –
	Undated		O	–	– –	O
Data source	Survey		O	– –	– –	– –
Econometric method	Matching		O	O	O	+
	Other		– – –	– –	– – –	– – –
	Regression discontinued		– – –	– – –	– – –	– – –
Outcomes	Employment and wages		O	– –	O	O
Number of years analysed			– –	–	O	–
Time horizon assessed	Long term		–	–	– –	– – –
	Medium term		– –	O	– –	– –
Characteristics of the study						
Group of countries	Continental			–	O	
	Nordic			O	–	
	Southern			– –	– –	
Type of publication	Other			O	O	O
	Report			O	O	+ +
	Working paper			O	++	+
Language	English			O	O	O
Context – macroeconomic						
	GDP growth				+ + +	+ + +
	Unemployment rate				–	O
Number of observations		207	207	207	207	207
Joint significance		Yes	Yes	Yes	Yes	Yes
Pseudo-R2		0.12	0.25	0.28	0.32	0.31

Notes: *See notes to Table 3.*

> The main conclusion that can be derived from the results is that none of the labour market controls seem to affect the probability of a positive impact in the evaluation.

Strong, moderate and non-significant impacts: Ordered probit meta-regressions

The results of the meta-regressions obtained so far do not allow evaluations reporting strong and weak, or moderate, positive impacts to be distinguished as they are all grouped into the category of significant positive evaluations. However, it may be that different types of reforms result in positive impacts with a similar probability, while differing in the frequency at which they lead to moderate or strong

impacts. A similar argument can be applied to the other policy intervention characteristics. To investigate variations between non-positive, positive moderate and positive strong impacts, the meta-regression exercise was replicated by means of an ordered probit model. The assumption is that there is a logical ordering in the values taken by the *impact2* variable. The synthesis of these results is shown in Tables 5 and 6.

Results from the ordered probit model for the specifications that include the general target groups of workers and companies are very similar to those observed above for the binary variable that only distinguishes between positive and non-positive impacts. As can be observed in the results columns of Table 5 corresponding to the most comprehensive specification, the only policy characteristic

Table 5: Ordered probit models for degree of the impact – general target

Policy intervention						
Type of reform	Employment increase	O	O	O	O	O
	Other	O	O	O	O	O
	Payroll cost	O	O	O	O	O
Direction	Increase	O	O	O	O	O
Duration	Permanent	O	O	O	– –	O
Scope	Single reform	O	O	O	O	O
Target	Group of companies	– –	– – –	– – –	– –	– – –
	Group of workers	O	O	O	+ + +	+ + +
Design (data, method and so on)						
Data frequency	Low frequency		O	O	– –	O
	Undated		O	– –	O	O
Data source	Survey		–	– –	– – –	– – –
Econometric method	Matching		+ +	O	O	+ +
	Other		–	O	– –	–
	Regression discontinued		– –	– – –	– – –	– – –
Outcomes	Employment and wages		O	O	O	O
Number of years analysed			– –	–	O	O
Time horizon assessed	Long term		O	O	– –	– –
	Medium term		–	–	– – –	– –
Characteristics of the study						
Group of countries	Continental			O	O	
	Nordic			O	– –	
	Southern			O	O	
Type of publication	Other			–	– –	– –
	Report			O	O	O
	Working paper			O	O	O
Language	English			O	O	O
Context – macroeconomic						
	GDP growth				+ + +	+ + +
	Unemployment rate				– –	–
Observations		207	207	207	207	207
Joint significance		Yes	Yes	Yes	Yes	Yes
Pseudo-R2		0.07	0.16	0.18	0.22	0.21

Notes: *Non-significant estimates, 2 for significant weak positive estimates, and 3 for significant strong estimates. + + + positive $p < 0.01$; + + positive $p < 0.05$; + positive $p < 0.1$; – – – negative $p < 0.01$; – – negative $p < 0.05$; – negative $p < 0.1$; O $p \geq 0.1$. Based on standard errors clustered by article. Joint significance denotes the result of the Wald test of the joint significance of all the coefficients. Omitted categories are: SSCs, Decrease, Temporary, Comprehensive package, No target group, High frequency, Administrative data, D-i-D, Only employment, Short-run, CEE, Journal article, Other than English.*

that induces variation in the probability of the three categories in which the impacts are classified is the type of general target.

> Specifically, when controlling for differences in design, characteristics of the study and the macroeconomic context, reforms that are targeted at a group of workers are more effective: they increase the probability of a large impact more than those with no target group or those for a specific group of companies.

Table 6: Ordered probit models for degree of the impact – detailed target

Policy intervention						
Type of reform	Employment increase	O	–	O	O	–
	Other	O	O	O	O	O
	Payroll cost	O	O	O	O	O
Direction	Increase	O	O	O	O	O
Duration	Permanent	–	O	O	O	O
Scope	Single reform	– –	– –	O	– – –	– – –
Target	Unemployed	O	+ +	O	O	+ +
	Long-term contract	+ + +	+	O	O	+ +
	Fixed-term contract	+	+ + +	+ + +	+ + +	+ + +
	Young	O	O	O	O	O
	Old	O	O	O	O	O
	Women	O	O	O	O	O
	Disabled	O	+ +	+	+ +	+ +
	Low-skilled	+ +	+	+	++	+ +
Design (data, method, etc.)						
Data frequency	Low frequency		O	–	– – –	– – –
	Undated		O	O	O	O
Data source	Survey		O	–	–	– –
Econometric method	Matching		O	O	O	O
	Other		– – –	– – –	– – –	– – –
	Regression discontinued		– – –	– – –	– – –	– – –
Outcomes	Employment and wages		O	O	O	O
Number of years analysed			– – –	– –	O	–
Time horizon assessed	Long term		O	O	– – –	– – –
	Medium term		O	O	O	O
Characteristics of the study						
Group of countries	Continental			O	O	
	Nordic			O	O	
	Southern			O	O	
Type of publication	Other			O	O	O
	Report			O	+	+ +
	Working paper			O	O	O
Language	English			O	O	O
Context – macroeconomic						
	GDP growth				+ + +	+ + +
	Unemployment rate				O	–
Observations		207	207	207	207	207
Joint significance		Yes	Yes	Yes	Yes	Yes
Pseudo-R2		0.09	0.17	0.19	0.22	0.22

Notes: *See notes to Table 5.*

More differences between the analyses of the binary and the ordinal measures of the impact occur when the comparison is based on the specifications that include the detailed groups of workers.

Although no significant variability is observed in the type of reform, there is clear evidence to suggest that single reforms are less effective in promoting employment and that, even when they do so, the impact is weaker than reforms within a comprehensive package.

As for the differential effects of the target groups of workers, the results point to a higher impact for workers with a fixed-term contract (where the positive employment impact is conversion to permanent status).

The results also indicate that the impact is likely to be stronger when the target of the reform is the unemployed, including the long-term unemployed, the disabled and low-skilled workers.

As can be inferred from Table A.5.6 of Annex 5, this evidence is robust to the inclusion of proxies for differences across evaluations in the labour market institutional setting.

Strong impacts compared with moderate positive impacts: Probit meta-regressions excluding non-positive evaluations

As a final step in the meta-analysis, the focus was only on evaluations that provided a positive impact of the reform.

As described above, a probit meta-regression is used in this case for the outcome that differentiates between positive moderate and positive strong impacts, neglecting those that correspond to non-positive effects. Before discussing the results, it should be mentioned that the size of the sample of evaluations decreases sharply as a result of neglecting those reporting a non-positive impact (119 compared with 207 in the full sample). This may affect the precision of the estimates, so results should be interpreted with some caution.

It should also be mentioned that the number of evaluations reporting a positive impact when the reform was untargeted or the target was a group of companies is rather low (11 out of 123 evaluations, and only one for a group of companies as a target). Such a lack of variability in this dimension prevents the computation of meta-regressions using the specifications that include the variable for the general target of the reform. Consequently, only the results for the specifications including the detailed target groups of workers are summarised in Table 7. From this table, it can be seen that there is substantial variability in the magnitude of the impact of alternative types of reforms. Specifically, evaluations of any of the functional equivalents have a lower probability of providing a strong positive effect when compared with a change in the employer SSCs. This is an important piece of evidence that was not revealed in the previous meta-

Table 7: Probit models for strong versus weak positive impact – detailed target

Policy intervention					
Type of reform	Employment increase	– – –	– – –	– – –	– – –
	Other	O	– –	– – –	– – –
	Payroll cost	–	– –	– – –	– – –
Direction	Increase	O	– –	O	O
Duration	Permanent	O	O	+ +	– – –
Scope	Single reform	– – –	– – –	– – –	– – –
Target	Unemployed	+	+	+ + +	+ + +
	Long-term contract	O	O	O	+ + +
	Young	O	O	O	–
	Old	O	O	O	– – –
	Women	O	–	– – –	– –
	Disabled	+ + +	+ + +	+ + +	+ + +
	Low-skilled	+ + +	+ + +	O	+ + +
Design (data, method and so on)					
Data frequency	Low frequency		O	+ +	– – –
	Undated		+ +	+ + +	+ +
Data source	Survey		O	+ +	– – –
Econometric method	Matching		O	+ + +	O
	Other		O	O	–
	Regression discontinued		O	O	O
Outcomes	Employment and wages		O	O	O
Number of years analysed			O	O	+ + +
Time horizon assessed	Long term		O	O	O
	Medium term		O	O	–
Characteristics of the study					
Group of countries	Continental			+ + +	
	Nordic			+ + +	
	Southern			+ + +	
Type of publication	Other			+ + +	+ +
	Report			+ + +	+ + +
	Working paper			O	+ + +
Language	English			+ + +	+ + +
Context – macroeconomic					
	GDP growth				+ + +
	Unemployment rate				– – –
Observations		119	119	119	119
Joint significance		Yes	Yes	Yes	Yes
Pseudo-R2		0.18	0.24	0.44	0.44

Notes: *Models are probits, fit to binary data with value 1 for significant strong positive estimates, and 0 for significant weak positive estimates. Negative and non-significant estimates excluded. + + + positive $p < 0.01$; + + positive $p < 0.05$; + positive $p < 0.1$; – – – negative $p < 0.01$; – – negative $p < 0.05$; – negative $p < 0.1$; O $p \geq 0.1$. Based on standard errors clustered by article. Joint significance denotes the result of the Wald test of the joint significance of all the coefficients. Omitted categories are: SSCs, Decrease, Temporary, Comprehensive package, No target group, High frequency, Administrative data, D-i-D, Only employment, Short-run, CEE, Journal article, Other than English.*

regressions which also accounted for evaluations reporting non-positive impacts. It suggests a sort of discontinuity in the effect of the type of reform.

> There are no significant differences in the probability of a positive impact between changes in employer SSCs and functionally equivalent measures, but successful interventions provide a stronger effect on employment when they are implemented through a change in employer SSCs.

As for the other characteristics of the policy intervention, based on the last column of Table 7 which corresponds to the specification that controls for the macroeconomic context, it can be said that the chances of obtaining a strong rather than a moderate positive impact in an evaluation are lower when the reform is announced as permanent, or there is not a precise period of enforcement. This probability is also lower for single reforms than for comprehensive packages. However, the results point to substantial variability in the probability of observing a strong versus a moderate impact in the evaluation depending on the target group.

> The evidence suggests that evaluations that focus on the unemployed, including the long-term unemployed, on the disabled and the low-skilled tend to report more frequently evidence of strong positive impacts on employment. In contrast, the evidence of a strong impact is less frequent when the evaluation focuses on young and, particularly, older individuals and female workers.

Based on the meta-regressions, it is not possible to come to a conclusion on the differential effect for evaluations that focus on fixed-term workers because they all report a strong positive effect. (These observations are excluded from the analysis).[29] In any case, and conditional on this low number of cases, it can be assumed that there is a higher probability of a strong impact when the reform targets the group of workers with a fixed-term contract. Indeed, the ordered probit model, where the strength of the impact was considered, reported significant results for this target group, while a robust significant effect cannot be derived from the initial binary specification. At any rate, it should be kept in mind that policies that address workers with fixed-term contracts are a particular category and very different to the others considered in the study. Such policies target individuals who are already employed and the dependent variable in the analysis is the conversion to a permanent contract.

Finally, it should be mentioned that the specific analysis of the strength in the impact of positive evaluations points to the role of differences in the design and in other characteristics of the study in affecting outcomes.

Interaction between the type of reform and the group targeted by the policy

This subsection presents the main results of meta-regressions including the interaction between the type of intervention and the target group. More detailed comments and tables with results are provided in Annex 7. It can be argued that a particular policy tool, for instance a change in the employer SSCs, may have a different effect on employment depending on the group of workers targeted by the reform.

Interactions between the four types of reforms analysed in the study were considered: the two groups defined for the general target (a specific group of companies, and a specific group of workers) were compared with the eight more specific groups (such as all the unemployed, long-term unemployed, young people, women) for the detailed target. Due to the large amount of interactions and the limited size of the sample, only the interaction between the type of reform and one target group was considered. The probit results for the positive versus non-positive impacts and the ordered probit models specified for assessing the degree of the impact available were obtained just for the groups for which there was enough variability (they are displayed in Tables A7.1 and A7.2 in Annex 7).

> The results indicate that employment incentives are more effective than changes in employer SSCs for young workers, whereas the opposite applies for the disabled and low-skilled groups.

Summary of main findings of the meta-analysis

The meta-analysis has enabled the identification of the circumstances and features that affect the employment response to the reduction in employer SSCs and functionally equivalent measures (employment incentives, hiring subsidies, payroll cost reductions). In particular, the findings from the meta-analysis put forward the following conclusions.

Policy intervention

o   Across all of the evaluations covered, many including multiple estimates of employment effects, 59% of estimates indicated a significant positive employment effect and in most of these cases, the employment effect was assessed as being strongly positive.

o   The evidence from the sample of evaluations strongly supports the case that a positive employment impact is more likely when the policy targets a specific group of workers rather than when it affects the entire working population. In contrast, the existing evidence suggests that targeting specific groups of companies (located in remote areas and/or with some particular

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characteristics such as small companies) is not effective.

- Among the groups of workers usually targeted by the types of reforms under analysis, the higher probabilities of positive employment impacts were observed for the long-term unemployed and workers with fixed-term contracts (though in this case the positive impact is on the transition to a permanent contract). Also, improved employment outcomes were more likely for female, disabled and low-skilled workers, although the evidence is less robust for these groups. Interestingly, reforms targeted at young and older workers do not report a stronger effectiveness than untargeted policies.

- The probability of obtaining a significant positive effect was roughly the same for interventions involving SSCs and in any of the functional equivalents. However, among the evaluations reporting positive effects, changes in employer SSCs are more likely to produce a strong impact than any form of functional equivalent.

- A positive impact is less frequent in the medium and long term compared with the short term.

- The effects of decreasing and increasing non-wage labour costs as a result of the reform are symmetrical in the sense that the effect on the probability of observing a positive impact on employment is likely to be similar in magnitude, although of opposite sign, when the policy reform reduces or increases the employer SSCs (or functional equivalent).

- The likelihood of a positive impact is similar for single, standalone reforms and for changes in SSCs or functional equivalents that are part of a comprehensive package of reforms. However, for positive evaluations, the probability of reporting a strong impact is higher for reforms within a comprehensive package.

- Different types of reforms may well have a differentiated effect depending on the group targeted by the intervention. A tentative conclusion was that employment incentives were more effective than changes in employer SSCs for the employment prospects of young workers, whereas targeted reductions of employer SSCs work better for the disabled and low-skilled groups.

Design of the evaluation

- The characteristics of the data, the econometric methodology and the period during which the impact is measured affect the likelihood of obtaining a positive employment impact of the reform. On average, evaluations exploiting data from administrative registers, measured at intra-annual intervals, applying D-i-D techniques and, to an even greater extent, matching estimators have a higher probability of reporting a significant positive impact.

Economic and labour market background

- Faster GDP growth enhances the probability that the reform achieves its goal of stimulating employment. This may be also interpreted as the policy intervention having a lower probability of success in low growth economies and in periods of recession and stagnation. The evidence is overall less conclusive about the effect of the incidence of unemployment, though it does weaken significantly the probability of obtaining a strong positive employment effect.

- The evidence does not support a connection between the effectiveness of the reforms in employment creation, and the labour market institutional setting as regards collective bargaining and union density.

4 | Conclusions

This report has reviewed recent studies that evaluate policies aimed at reducing the cost burden on employers when hiring employees in an effort to stimulate new employment. Hiring subsidies and employment-generating reductions in employer social security contributions (SSCs) have become a prominent element in the set of labour market policies used in recent years. Their role in contributing to employment-friendly growth has been underlined by the European Commission in the European Semester policy coordination process and many Member States are currently implementing or considering relevant measures.

Existing research evidence points to the potential drawbacks that limit the effectiveness of such measures in promoting net employment generation. Concerns relate in particular to deadweight, displacement and substitution effects – the traditional qualifications of positive measure outcomes in labour market policy evaluation. Unintended effects include waste or inefficiency in implementation, opportunistic behaviour by benefiting companies and potential countervailing or distortionary impacts of the policies implemented on other non-participating companies or economic players. Each can potentially undermine the cost-effectiveness of the measures or compromise policy objectives.

Additional concerns relate to the requirements of budget neutrality, an especially important constraint at a time of severe public spending restrictions. Paying for employment subsidies or compensating for revenue foregone may require new taxes, for example, on consumption. Second-order employment effects from these may tend to offset some positive gains resulting from employer tax reductions. Similarly, reductions in employer contributions may result more directly in declines in public employment as a result of funding shortfalls. In relation to these effects, it is important to highlight that the current policy consensus is premised on such forms of tax shifts away from labour (or fiscal devaluation) being in aggregate employment and growth-friendly.

Finally, in relation to employer social security tax reductions, there is the possibility that decreases in employer taxes end up being diverted into higher employee wages rather than generating new employment, the main policy objective. This arises as a result of differences in labour supply and demand elasticities in particular across the business cycle and across different target categories.

Not all of these potential impacts are easy to estimate and even where evaluations do provide estimates – as is more often the case in relation to deadweight effects, for example – the range of estimates is very broad and covers a spectrum from no significant effect to up to 90% of new employment created. While a systematic assessment of these countervailing effects is beyond the scope of the current report, they need to be taken into account. Taken alone, deadweight losses in particular are likely to be considerable. Taken in combination, these countervailing effects can be expected to qualify considerably the findings of positive employment impacts.

There are policy design features intended to address some of these countervailing effects. The most obvious, and common, example is that of targeting where restricting the benefits to a specific category of beneficiaries should reduce deadweight losses. Many measures impose conditions that tie subsidy payment to maintenance of employment levels at benefiting companies to discourage the substitution of current employees with subsidised employees. In most cases, these obligations persist for a specified period after the expiry of the benefit and can involve repayment where the employment commitments are not maintained. Displacement effects relate to potential negative employment effects in non-beneficiary companies: limiting the number of subsidised recruitments per company may help to minimise market distortions leading to displacement effects (see, for example, Pons-Rotger and Arendt, 2010).

From a cost-effectiveness point of view, time-limiting policy interventions reduce costs and may also mitigate against habituation effects. Most of the policies covered in the evaluations were described as permanent rather than temporary. This was true in the narrow sense that no end date was known at the time of implementation but, by their nature, all policy measures are temporary and their provisions can be superseded. An interesting approach was that of the Spanish authorities who had decided that the targeted employer SSCs introduced in 2013 would remain in place until the national unemployment rate fell below 15%.

The empirical evidence summarised in the report has shown that the employment effects from lower employer social security contribution rates or functional equivalents such as hiring subsidies tend to be mixed. In just over 40% of employment effect estimates covered in the meta-analysis, no significant positive impact was identified. However, where positive employment effects were identified, they were much more likely to be considered strongly rather than weakly positive. Although there is a great heterogeneity in the results, the impact as evidenced in evaluations of actual policy interventions is consistently lower than the predictions of theoretical models and simulations.

Most evaluations do, however, find positive employment impacts and the meta-analysis has allowed those circumstances and policy design features that may impact on policy effectiveness to be identified. With the necessary caveats based on the heterogeneity of policies, target groups and methods of evaluation covered in the meta-analysis, some principal findings are as follows.

First, **policies with a specific target group appear to be more effective than general or non-targeted policies**. The target groups most likely to benefit are the long-term unemployed and fixed-term employees (conversion to permanent status) with less robust findings of positive

impact for the categories of female, disabled and low-skilled workers. Reforms targeted at younger and older workers appear less effective, as do measures targeting specific groups of companies (identified by sector, company size or region). Targeted measures are less likely to involve serious deadweight effects by virtue of the targeting and also because the targeted categories are generally underrepresented in the workforce by employment share. In practice, the review of recent policy implementations across the EU in Chapter 1 shows that there has been a greater tendency in most recent years (post-2011) on the part of policymakers to use targeted measures than was the case beforehand – even if the targeted categories are not always the ones where the evaluation literature indicates more positive employment impacts are likely to occur.

Second, **strong positive employment impacts were more likely in policies based on reduced employer SSCs** (compared with measures such as hiring subsidies) and on policies embedded in a package of reform measures (compared with standalone measures). Overall, however, there was little to suggest that any one of the policies under consideration systematically led to better employment outcomes than the others.

Third, **the positive employment impact of employer labour cost-reducing measures seems to be limited to the short term** and to dissipate over longer time frames.

Fourth, **a positive macroeconomic context appears to enhance the probability that employer cost-reducing measures achieve their goal of stimulating employment**. This could be an argument against their use when they are in theory most appropriate and in practice most needed – in recessionary or post-recessionary periods of depressed labour demand. It also implies that they may be more effective at times such as the present (2016) with (modestly) improving output and employment growth.

Few of the studies analysed carry out a cost-effectiveness analysis of the measures covered. This is an area in which more research is needed, especially as positive employment effects are indicated as modest and are likely to be offset by deadweight losses, substitution and other effects. If the metric for judging an employment-generating policy is the cost per new job created, a more detailed accounting may be required. This could also take into account the relative size of the policy stimulus (in budgetary terms) and go some way to answering whether observed employment impacts are proportionate to expenditure or instead are discontinuous and vary at different levels of stimulus 'intensity'. The strict focus of this report on the existence and size of employment outcomes means that these related and very policy-relevant considerations must be left for further research and analysis.

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Reducing labour taxes or offering incentives to hire new workers could motivate employers to either retain staff who might otherwise have been let go or to create new jobs. Since the onset of the financial crisis in 2008, both types of measure have been deployed in many EU Member States. This report reviews the effectiveness of measures designed to reduce the employer part of the tax wedge in an effort to stimulate positive labour market outcomes. It provides an overview of the reforms adopted since 2008 across the EU Member States to stimulate labour demand, focusing on policies aimed at reducing the cost of labour for employers. It analyses the effectiveness of shifts in employer social security contributions, employer payroll taxes and functionally equivalent employer incentives as employment-generating policy interventions. The findings show mixed evidence of positive employment effects from relevant policy reforms but suggest that measures targeted at specific groups of workers are more likely to be successful.

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