European Foundation for the Improvement of Living and Working Conditions

Pay in Europe in the 21st century

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For every tree felled, at least one new tree is planted.

Contents

Country codes

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

Executive summary

Introduction

The issue of wages has attracted particular attention at European level since the onset of the economic crisis. Changes in economic governance, notably within the European Semester, have prompted discussions on wage-setting mechanisms. While, overall, wage-bargaining regimes have remained relatively stable over time in many countries, the most substantial changes were seen in Member States facing more difficult economic circumstances.

This report provides comparative time series on wage-bargaining outcomes across the EU Member States and Norway. It presents and discusses pay developments against the background of different wage-bargaining regimes and looks into the link between pay and productivity developments (in terms of nominal and real unit labour costs).

The report also investigates different systems and levels of minimum wages in Europe at present, carrying out an accounting exercise through a hypothetical scenario of a minimum wage set at 60% of the median national wage (with some alternative scenarios as well for comparison) in order to benchmark and evaluate minimum wage levels and systems in Europe, and to discuss the possibilities and difficulties of coordination in this matter.

Policy context

The Treaty on the Functioning of the European Union explicitly excludes pay from the set of fields in which the EU has competences to intervene and explicitly recognises the autonomy of the social partners in pay bargaining. Nevertheless, wage setting has been addressed by the European institutions such as the European Commission, the European Council and even the European Central Bank for at least two decades in the form of statements or recommendations about wages and wage-related policy. Recently, this has become common in many policy instruments and forums, notably through the Commission's recommendations resulting from the European Semester and the 2013 attempt to establish a tripartite dialogue on wage developments. These interventions have to be seen in light of the non-monetary policies within the institutional framework of Economic and Monetary Union and the calls for enhanced macroeconomic policy coordination, on the one hand, and fiscal and wage policies on the other.

Key findings

Pay developments in light of different wage-bargaining regimes

- Collectively agreed pay – to a larger extent than actual compensation – seems to act as a kind of insurance for employees in times of crisis. It does not track the fluctuations in output closely.
- Similar to many other studies, no clear association was found between bargaining systems and linking of pay to productivity in the medium term. Different regimes can produce similar outcomes and similar regimes can produce different outcomes in terms of linking pay to productivity (in terms of nominal unit labour costs).
- Looking at the distributional aspect of wages in terms of real unit labour costs or the wage share within the economy, the overall trend was of a declining wage share in most Member States; only in the Czech Republic, Finland and the United Kingdom was wage share growing. However, a return towards an increase was observed in many Member States in the period during and after the crisis. While the most commonly observed decline of the wage share was spread equally across all types of bargaining regimes, the cyclical return to growth predominantly took place in

non-decentralised regimes. However, this cannot be entirely separated from the fact that countries that were affected most by the crisis (and hence experienced the highest wage cuts) did not see such a change of trend.

- At the sectoral level, disparities in terms of collectively agreed pay have increased over time between the public sector (local governments and civil service) and the private sectors covered in the study (metal, chemicals, retail and banking).

Minimum wage policies and levels in Europe: an accounting exercise

- Although all EU Member States have mechanisms in place to set minimum wages, there is a wide variety in terms of the systems and effective levels of minimum wages, and in the extent of low-paid employment. Establishing a common criteria for minimum wage policy (for instance, a common threshold of 60% of the national median) has been discussed. The impact of establishing such common criteria would vary considerably across countries, and also depending on the degree and mode of coordination (from purely voluntary to centrally regulated).
- The biggest institutional difficulties of any coordination would most likely be associated with the countries where minimum wages are set by collective bargaining, since it would entail either changing this system (for instance, establishing a statutory minimum wage underlying the collectively agreed wages) or a high degree of coordination with the actions of social partners at the national level.
- The quantitative impact, measured as the proportion of workers currently below a hypothetical EU minimum wage threshold of 60% of the national median, would also vary considerably across countries: it would be largest in the Baltic countries, Germany, Ireland, Poland, Romania and the UK, and smallest in Belgium, France, the Nordic countries, Portugal and Slovakia.
- In the hypothetical case of a coordinated minimum wage policy, the countries where the institutional impact would be largest are those where the quantitative impact would be smallest and vice versa. This is because countries with collectively agreed minimum wages tend to have lower shares of low-paid workers, and hence the impact of the common policy would be smaller, than countries with statutory minimum wages. The big exception is Germany, where collectively agreed minimum wages coexist with the largest proportion of low-paid workers.
- A criteria of a minimum wage of 60% of the median national wage would disproportionately affect women and young workers, since such groups are more likely to have low-paid jobs. The biggest impact would be in the personal services sectors and in small companies.

Policy pointers

- Collectively agreed pay is often neglected in discussions on pay developments: no harmonised data are available, and data and knowledge gaps around pay-setting mechanisms are persistent. Yet, collectively agreed pay is an important driver of actual pay in many countries, and it is the component of pay that can be most influenced by the actors involved. Hence, a better understanding as to how collectively agreed pay relates to actual pay outcomes is needed.
- Regarding the two central indicators that summarise pay developments in relation to productivity developments (nominal and real unit labour costs), it is important to note some shortcomings: the current interpretation of both looks only at their change over a certain period, while their initial levels and their respective starting points in relation to other countries are essentially disregarded.

- The existing treaties categorically exclude wages from EU competences. Therefore, any form of coordination of minimum wage policies would either require significant changes in the treaties or some form of voluntary soft coordination at the level of governments or social partners.
- Although all Member States have some form of minimum wages at present, the wide variety of systems across countries would make a coordinated approach difficult. In principle, any form of coordination would probably be easier in countries with statutory minimum wage systems than in countries where minimum wages are collectively agreed. Soft law mechanisms, however, could allow the development of common frameworks while respecting national institutional differences.

Foreword

Contrary to other areas of work and employment, such as working time or health and safety, the area of pay is explicitly excluded from the competences of European institutions in the existing treaties.

In the years of crisis and beyond, however, wages have gained special attention at European level. Changes in economic governance, notably within the European Semester, have prompted discussions on wage-setting mechanisms. While overall, wage-bargaining regimes have remained rather stable over time in many countries, the most substantial changes were seen in programme countries and in other Member States facing more difficult economic situations. Some analysts even speak of '… a paradigm shift in the EU's approach to collective bargaining from the acceptance of free collective bargaining to direct political intervention into national bargaining outcomes and procedures' (Schulten and Muller, 2013).

Social partners also repeatedly voice their concerns about interference with their autonomy in pay bargaining.

Minimum wages can be considered as a cornerstone of the 'European Social Model'. They exist in all EU Member States, even if they are set up and established in very different ways and do not cover all those who are employed in all Member States. The process of European integration has so far had very little engagement with minimum wages. But in the context of increasing European integration, it seems at least plausible that sooner or later there will be some attempt to coordinate this important aspect of social policy across countries.

This report is divided into two parts. The first contributes to the policy debate by providing a consistent time series on wage bargaining outcomes across the Member States and Norway. It sets out to do the following:

- summarise the European political context since the turn of the millennium;
- present and discuss pay developments against the background of different wage-bargaining regimes;
- look at how pay is linked to productivity developments (in terms of nominal and real unit labour costs) and the extent of wage drift.

The second part sets out to do the following:

- discuss the theoretical and policy considerations surrounding a coordinated EU minimum wage policy;
- review the social sciences literature on the effects of a minimum wage;
- present a broad picture of the current debates around the coordination of EU minimum wage policy;
- discuss the institutional challenges that such a coordination would have to face.

This part also carries out a simple accounting exercise to evaluate how many and what types of workers would be most affected by a hypothetical coordination of the minimum wage policy in the different countries, using a baseline scenario of a single national wage floor of 60% of the median national wages, and drawing from the two most recent EU-wide data sources on wages and income.

Part 1: Pay outcomes and wage bargaining regimes

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Introduction

In the years of crisis and beyond, the issue of wages has gained special attention at European level. Changes in economic governance, notably within the European Semester, have prompted discussions on wage-setting mechanisms. The most substantial changes have been seen in programme countries and in other Member States facing difficult economic situations.

The aim of this report is to provide, for the policy debate, comparative data on wage bargaining outcomes across the European Member States. This is a timely exercise, meeting the demands voiced by the European Commission, which has concluded that:

> *More information on wage developments and wage setting institutions and bargaining characteristics seems needed [including]'systematic and operational information on the outcome of collective labour contracts. This would permit a more timely assessment of wage trends.'*
>
> (European Commission, 2011a)

While data on actual wage developments are harmonised and available from national accounts (Eurostat, the Commission's statistics database, as well as AMECO, the Commission's annually updated macroeconomic database), there is an information gap regarding collectively agreed pay. While national information is available in several countries, there little cross-European research and data. There are three (recent) exceptions to this:

- the attempt by the European Central Bank (ECB) to create an indicator of collectively agreed pay for the euro zone (ECB, 2002);
- the Collectively Agreed Wages In Europe project (CAWIE) (Van Gyes, 2012);
- Eurofound's regular annual update on developments of collectively agreed pay.[1]

This report intends to present a consistent series of collective agreements on pay for those countries where such information is regularly collected within national databases, or present proxies for collectively agreed pay overtime, where feasible. Examples of such proxies include the following:

- outcomes of national-level agreements;
- tripartite recommendations at national levels;
- outcomes of pace-making agreements;
- a series of individual collective agreements at sectoral level.

Although it would be desirable and interesting to be able to present a harmonised indicator for collectively agreed pay increases across Europe, this is impossible, because of the different wage bargaining structures and systems, and the multitude of approaches in data collection. The more modest aim of this exercise is to present one series (or more) of collective agreements on pay from 1998 to 2012 for each country, with a focus on their consistency, and a documentation of metadata around the series, which allows the reader to draw conclusions on the degree of comparability of data across countries.

[1] See Eurofound (2013b) for the most recent one.

The collected data series are available on a designated web-portal created by Eurofound; featuring quantitative and qualitative information regarding collective pay bargaining, it is available at www.eurofound.europa.eu/eiro/cwb/.

Given the multitude of non-harmonised data sources that have been used, no attempt has been made to arrive at a 'European average'.

Pay developments (within and between countries over time) are influenced broadly by the following factors:

- cyclical factors;
- general labour market conditions;
- social factors;
- industrial relations factors;
- national legislation;
- national specificities as well as compositional factors.

All of these play a role in shaping pay and further economic outcomes; however, this report's theoretical discussion is limited to the following key issues:

- the link between wages, labour productivity and economic growth;
- the link between wage bargaining regimes and pay outcomes.

Member States differ markedly in terms of their wage bargaining models and their collective bargaining coverage, which is mainly attributable to the (non-)existence of extension mechanisms of collective wage agreements. In this sense, the relative impact of collectively agreed pay on aggregate measures of wage developments is much stronger in some settings than in others. The study uses a simple typology of wage bargaining regimes (based on the predominant bargaining level and the degree of coordination), and it presents the data in relation to these regimes.

The empirical analysis presented here is descriptive, using simple statistical methods. However, in future, a methodologically more advanced analysis could be carried out (for example, using panel estimation techniques across countries), which would allow simultaneous factors to be taken into account, controlling for constant differences over time and countries and providing statistical inference measures.

Despite these methodological difficulties and implied health warnings, this study has used the collected data to focus on the following questions for different subperiods.

- Which outcomes of pay bargaining can be observed for the total economy and for different sectors?
- Did collectively agreed pay increases keep in line with increases of labour productivity?
- To what extent did changes in actual compensation deviate from collectively agreed pay developments (for example, what is the degree of wage drift, if any?)
- Is it possible to observe any links between different wage bargaining regimes and the outcomes these systems generate, in terms of linking actual pay or collectively agreed pay with productivity?
- Did disparities in collectively agreed wages across sectors grow over time?

1 Policy background

This chapter will attempt to provide a brief depiction of the main policy documents and instruments put in place by the chief policymaking actors at European level. These form the background in which pay developments took place during the first decade of the new century and beyond. The focus will be on wage-related policies at European level over the period with influence over (or with the aim of influencing) wage-setting mechanisms in the EU.

The treaties

The treaties on the European Union and on the Functioning of the European Union are the bedrock of the EU (European Union, 2012). The latter organises the functioning of the Union and determines the areas of, delimitation of, and arrangements for exercising its competences. The Treaty on the Functioning of the European Union explicitly establishes in Article 153 that pay is excluded from the set of fields in which the EU can intervene. This aspect has been part of the treaties since the Maastricht Treaty, from 1991, and it was included under the Social Policy Chapter in the Amsterdam Treaty of 1997. It must be also underlined that the competences of the social partners in the social policy field are defined quite clearly in Articles 154 and 155 of the Treaty and include procedural involvement in the genesis of any initiative by the European Commission, how they wish to implement their agreements and the fact that they may decide on autonomous agreements in all social policy fields.

EMU and macroeconomic policy coordination

The contours of the Economic and Monetary Union of the EU (EMU) started to be defined in the mid-1990s and were finally implemented in January 1999. It was one of the most significant steps in the development and deepening of the EU since its creation. With the EMU, a framework for economic policymaking in Europe had been created. While the main objective is the maintenance of price stability, creating the basis for growth and employment in the EU, other areas such as fiscal policy and wage setting remained, in general, the preserve of Member States and other actors such as the social partners.

At the time of the EMU's implementation, there had been strong convergence regarding the outcome of wage policies in terms of nominal wage increases; at the same time, however, most national wage bargaining systems had been remarkably stable. This meant that the EU had a great variety of national models of wage regulation, with multiemployer bargaining at sectoral or even intersectoral level as the most important form of wage bargaining across the EU as a whole. The EMU, however, would bring with it a new emphasis on the role of wage policy in the Member States (Eurofound, 2000).

In a communication on community policies in support of employment issued in April 1999, the European Commission emphasised the importance of the coordination of economic and employment policy objectives. The communication called upon social partners at European, national, regional, local and enterprise level to continue to support the objectives of the European employment strategy in wage negotiations and through discussions on the modernisation of work organisation. The Commission expected the social partners to continue their contribution to the implementation of a macroeconomic policy mix favourable to growth and employment in line with the 1999 Broad Economic Policy Guidelines (Eurofound, 1999).

Broad Economic Policy Guidelines

Since 1994, the start of the second stage of EMU, the European Commission and the European Council have adopted annual 'Broad Economic Policy Guidelines' (BEPGs), which include

recommendations on what is considered 'appropriate wage developments' within the euro zone. According to the Commission's recommendation of 11 April 2000 (European Commission, 2000), it was necessary to do the following:

- insist upon nominal wage increases consistent with price stability; in the euro zone, that means insisting upon aggregate wage increases consistent with price increases within the price stability objective of the ECB;
- encourage real wages to increase in relation to labour productivity growth while taking into account the need to strengthen, where necessary, and subsequently maintain the profitability of capacity-enhancing and employment-creating investment;
- ensure that collective bargaining systems take account of productivity differences (whether according to skills, qualifications or geographical area) when determining wage levels;
- pursue policies aiming to reduce gender pay differences due to discrimination.

Until 1999, the key goals of the guidelines were sustained, non-inflationary growth and high employment in accordance with Article 2 of the EC Treaty, whereas they subsequently became more closely aligned with the Lisbon Treaty. Furthermore, the guidelines adopted the core of the European Union goal 'to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion (Hein and Niechoj, 2007).'

The European Council meeting held in Cologne on 3–4 June 1999 adopted a Resolution on a European employment pact, also known as the Cologne Process, which aims at the:

> *coordination of economic policy and improvement of mutually supportive interaction between wage developments and monetary, budgetary and fiscal policy through macro-economic dialogue aimed at preserving a non-inflationary growth dynamic.*
>
> (European Council, 1999)

The same pact established the Macroeconomic Dialogue, a forum of discussion between the Member States, the European Central Bank, the Council, the Commission and the European social partners, the partners in question being:

- ETUC (the European Trade Union Confederation);
- CEEP (the European Centre of Employers and Enterprises);
- BusinessEurope (Europe's main employer organisation);
- UAEPME (the European Association of Craft, Small and Medium-sized Enterprises).

The creation of this forum was based on the idea that key stakeholders and decision makers in macroeconomic policy, as well as those responsible for wage formation, (such as employers and workers' representative organisations) should have a proper understanding of each other's positions and constraints. This mutual awareness would mean that the voice of social partners could be heard in European macropolicy making, and in reaching agreements on joint solutions, in order to better realise the EU potential for growth and employment. The Dialogue takes place twice a year, usually immediately before the European Council meetings.

This governance structure, however, has always been informal. This is because the different actors involved view it differently. On the one hand, the ECB, some Member States and the European employer organisations have displayed no interest, so far, in such a coordination of European monetary, fiscal and wage policy. On the other hand, ETUC views the Macroeconomic Dialogue as a way of building a 'consensual' European monetary, fiscal and wage policy and has suggested a European 'framework formula' for collective bargaining, based on compensation for inflation plus productivity.

A new strategy and a new platform for governance

The developments described above took place during the implementation of the EU's Lisbon Strategy for 2000–2010. Then, in 2010, the European Commission adopted a new strategy for 'smart, sustainable and inclusive growth' – the Europe 2020 Strategy (European Commission, 2010a). Unlike the Lisbon Strategy (European Commission, 2010b), which held that wage developments should not exceed productivity growth, Europe 2020 did not contain any direct, explicit reference to wage policies. However, the Europe 2020 Strategy included the introduction of a new platform of governance under which the EU and the euro zone coordinate their budgetary and economic policies, in line with the Strategy and the Stability and Growth Pact. This platform is known as the European Semester. According to the Commission, the platform's goal is 'to ensure that collective discussion on key priorities takes place at EU level, before and not after national decisions are taken' (European Commission, 2011c). This would be crucial for further developments on wage policies in the EU, as will be shown below.

In the Commission's assessment of the first European Semester of economic policy coordination, it was concluded that progress in correcting macroeconomic imbalances had been slow in some Member States and that some further corrections were required regarding the review of wage-setting systems (in consultation with social partners), to ensure that wages support competitiveness and develop in line with productivity growth (European Commission, 2011c).

Euro Plus Pact

Wage policy and, more concretely, wage-setting mechanisms, were brought again to the forefront of policy debate when the Euro Plus Pact was agreed by the euro zone heads of state or governments and joined by Bulgaria, Denmark, Latvia, Lithuania, Poland and Romania. This pact was aimed at further strengthening the economic pillar of EMU and economic policy coordination, with the ultimate objective of improving competitiveness and thereby leading to a higher degree of convergence, so reinforcing the social market economy (Eurofound 2011).

The Euro Plus Pact has four main commitments:

- to foster competitiveness;
- to foster employment;
- to enhance the sustainability of public finances;
- to reinforce financial stability.

It explicitly outlines wages as an important economic adjustment factor for overcoming macroeconomic imbalances and improving competitiveness. The pact states that each country is responsible for the specific policy actions it chooses to foster competitiveness, but also that some reforms will be given particular attention:

> *(…) respecting national traditions of social dialogue and industrial relations, measures to ensure costs developments in line with productivity, such as… review[ing] the wage setting arrangements, and, where necessary, the degree of centralisation in the bargaining process, and the indexation mechanisms, while maintaining the autonomy of the social partners in the collective bargaining process; [and ensuring] that* **wages settlements in the public sector support the competitiveness efforts** *in the private sector (bearing in mind the important signalling effect of public sector wages).*
>
> (European Council, 2011, authors' emphasis)

The Euro Plus Pact highlighted wage-setting mechanisms, the degree of centralisation or decentralisation of collective bargaining, indexation mechanisms, and wage settlements in the public sector as areas that signatory countries to the pact, should pay attention to, review and eventually reform.

Sixpack

The Euro Plus Pact applies to a subset of EU Member States. However, the reform of the Stability and Growth Pact, through a set of legislative initiatives adopted in December 2011 (known as the Sixpack), concerned the whole EU. According to Schulten and Müller (2013) this reform contained two new major instruments for intensifying economic policy coordination:

> *One is the establishment of a new system of enhanced fiscal and macro-economic surveillance through an alert mechanism for the early detection of macro-economic imbalances based on a 'scoreboard' of economic indicators. The second is the introduction of an automatic procedure for imposing financial sanctions on those countries that fail to comply with the policy recommendations issued on the basis of the alert system.*
>
> (Schulten and Müller, 2013)

The main consequence, Schulten and Müller argue, is that, within this new European economic governance system, European policy recommendations for Member States lose their voluntary character and become almost compulsory. In practice, this means the EU having a greater influence on national wage policies, because ignoring EU policy recommendations means an increased risk of financial sanctions for Member States.

Those two instruments give support to the EU's Macroeconomic Imbalance Procedure, which, on the basis of a set of economic indicators, alerts authorities to the existence of serious imbalances. In relation to wages, the procedure refers to a three-year percentage change in nominal unit labour costs, with a threshold of 9% for euro zone countries and 12% for non-euro zone countries.

Employment package

The Employment package, which the European Commission launched in April 2012, is the most recent set of policy documents that look at how EU employment policies intersect with a number of other policy areas in support of smart, sustainable and inclusive growth. The main purpose is to complement the employment priorities of the EU's Annual Growth Survey with medium-term policy guidance within the context of the Europe 2020 employment objectives (Eurofound, 2012).

In that context, in its *Towards a job-rich recovery* (European Commission, 2012), the European Commission appeals for the modernisation of wage-setting systems in order to align wages with

productivity developments, thus translating growth in output into job creation. The Commission states that 'wage moderation' can be considered for some sectors of activity or some Member States, but it does not exclude the possibility of 'targeted increases' to sustain demand:

> *Wage-setting mechanisms ensuring that real wage growth reflects productivity developments and local labour market conditions are a precondition to ensure that output growth adequately translates into growing labour demand and ultimately job creation. In accordance with national practices of collective bargaining, wage developments should take account of the competitive position of the Member States. Although wage moderation or adjustment might be necessary for some sectors or Member States, targeted increases, which help sustain aggregate demand, might be feasible where wages have lagged significantly behind productivity developments.*
>
> (European Commission, 2012)

Commitments and recommendations over wage-setting mechanisms

The table below synthesises the commitments made in the Euro Plus Pact and the recommendations made by the European Commission, in the framework of the European Semester specifically concerning wage levels or the wage-setting mechanisms.

Eight members of the EU27 received recommendations by the European Commission about their wage policies for 2013–2014. Most of these recommendations are along the lines drawn up in the Employment Package – for example, to review or reform the existing wage-setting mechanisms in consultation with the relevant social partners (Belgium, Luxembourg and Malta, including the indexation system, and Italy). For Finland and Slovenia, the main message is that wage growth should 'support competitiveness and job creation'.

For France, the recommendation concerning wage policy is to 'lower the cost of labour' and to make sure that the level of the minimum wage supports job creation and competitiveness. For Germany, the recommendation is the opposite, that wage growth supports domestic demand. This was reinforced in April 2013, when a European Commissioner called on Germany to increase wages significantly in order to fuel demand domestically and throughout the EU: there were fears that the currency union would break apart if Germany did not do so.

Table 1: Commitments and recommendations on wage policy in Member States

	Euro Plus Pact commitments in 2011	European Semester recommendations for 2011/2012	European Semester recommendations for 2012/2013	European Semester recommendations for 2013/2014	Financial assistance programmes
AT	-	-	-	-	No
BE	Wage-setting mechanisms	Reform wage bargaining and wage indexation	Reform wage-setting system including indexation	Reform wage-setting system including indexation	No
BG	Wage-setting mechanisms	Link wage growth to productivity	-	-	No
CY	Wage-setting mechanisms	Reform wage-setting and wage indexation	Reform of the system of wage indexation	Implement commitments under financial assistance programmes	Reform of the wage-setting framework
CZ	n/a	-	-	-	No

	Euro Plus Pact commitments in 2011	European Semester recommendations for 2011/2012	European Semester recommendations for 2012/2013	European Semester recommendations for 2013/2014	Financial assistance programmes
DE	-	-	Wages in line with productivity	Wage growth to support domestic demand	No
DK	-	-	-	-	No
EE	-	-	-	-	No
EL	Wage-setting mechanisms	Implement commitments under financial assistance programmes	Implement commitments under financial assistance programmes	Implement commitments under financial assistance programmes	Reform annual update mechanism of minimum wage
ES	Wage-setting mechanisms	Comprehensive reform of the collective-bargaining process and the wage-indexation system	-	-	No
FI	-	-	Continue to align wage and productivity developments	Support alignment of real wage and productivity	No
FR	-	Ensure development in the minimum wage is supportive of job creation	Minimum wage supportive of job creation and competitiveness	Lower cost of labour; ensure minimum wage supportive of job creation and competitiveness	No
HU	-	-	-	-	No
IE	Wage-setting mechanisms	Implement commitments under financial-assistance programmes	Implement commitments under financial-assistance programmes	Implement commitments under financial-assistance programmes	Wages not directly addressed
IT	Wage-setting mechanisms	Ensure wage growth better reflects productivity developments	Monitor and if needed reinforce the implementation of the new wage-setting framework	Ensure effective implementation of wage-setting reforms	No
LT	Public sector wage developments	-	-	-	No
LU	Wage-setting mechanisms	Reform wage setting and wage indexation	Reform wage bargaining and wage indexation	Reform wage setting and wage indexation	No
LV	Wage-setting mechanisms	Implement commitments under Memorandum of Understanding of 20 January 2009	-	-	No
MT	-	Reform wage setting and wage indexation	Reform wage bargaining and wage indexation	Monitor wage-indexation mechanism and stand ready to reform (in the background considerations)	No
NL	-	-	-	-	No
PL	Public-sector wage developments	-	-	-	No
PT	Wage-setting mechanisms	Implement commitments under Memorandum of Understanding of 17 May 2011	Implement commitments under Memorandum of Understanding of 17 May 2011	Implement commitments under Memorandum of Understanding of 17 May 2011	Freeze wages in the government sector (nominal) 2012–2013; promote wage adjustments in line with productivity at the firm level

	Euro Plus Pact commitments in 2011	European Semester recommendations for 2011/2012	European Semester recommendations for 2012/2013	European Semester recommendations for 2013/2014	Financial assistance programmes
RO	Wage-setting mechanisms Public sector wage developments	Implement commitments under Memoranda of Understanding (June 2009 and June 2011)	Implement commitments under Memoranda of Understanding (June 2009 and June 2011)	Complete the EU/IMF financial assistance programme	Wages not directly addressed
SE	n	-	-	-	No
SI	Wage-setting mechanisms	-	Ensure wage growth supports competitiveness and job creation	Ensure wage growth supports competitiveness and job creation	No
SK	-	-	-	-	No
UK	n/a	-	-	-	No

Sources: Euro plus Pact Commitments in 2011 – Background on the Euro Plus Pact, European Commission; European Semester recommendations – European Commission, 2011a, 2012, 2013.

The recommendations for Cyprus, Greece, Ireland, Portugal and Romania are that they should implement the commitments made under their respective Memoranda of Agreement in the context of the financial assistance programmes. It is important to note that, for three of these countries, the memoranda established measures affecting their wage-setting systems. For Portugal, where the sectoral level is the principal or dominant level of collective bargaining, there was both a wage freeze in the government sector (over nominal wages) for 2012 and 2013, and also the promotion of 'wage adjustments in line with productivity at the firm level.' For Cyprus, the memorandum established the reform of the wage-setting framework. In Greece, it set out the reform of the annual mechanism to update the minimum wage.

It is also important to note that those countries that did not sign the Euro Plus Pact – (the Czech Republic, Hungary, Sweden and the UK), as well as Austria, Denmark, Estonia, the Netherlands and Slovakia (which are signatories to the Euro Plus Pact) did not make commitments or receive any recommendations directly concerning wage levels or wage-setting mechanisms. However, other countries made commitments and have been receiving recommendations since 2011 as regards reviewing or reforming their wage-setting systems or frameworks; this is the case with Belgium, Cyprus, France, Italy, Luxembourg, Malta (although it is not in the Euro Plus Pact) and Slovenia.

Under the Euro Plus Pact, from 2011, Lithuania, Poland and Romania agreed to pay close attention to public-sector wage developments in order to promote competitiveness. However, the recommendations emerging subsequently from the European Semester for these countries did not include any express reference to wage levels or wage-setting mechanisms.

Box 1: The principle of equal pay

The principle of equal pay has been part of the fundamental values of the European Union since the 1957 EEC Treaty prohibited unequal pay for men and women. EU policy orientations and legislation related to equal pay and the reduction, or elimination, of the gender pay gap have since evolved through a considerable number of documents, which cannot be scrutinised here. However, two important official papers must be mentioned. First, in the *Women's Charter*, from 2010, José Manuel Barroso, the president of the European Commission, underlines the commitment to 'work on gender equality in partnership with all stakeholders, including civil society, at national, European, and international levels and in particular on the principles' of equal economic independence and equal pay for equal work and work of equal value (European Commission, 2010c).

Secondly, Directive 2006/54/EC, also known as the Recast Directive, also establishes two important reference points for collective bargaining on wages. It refers to the principle of 'equal pay' in which the main idea is the prohibition of 'direct and indirect discrimination on grounds of sex'. It also states that Member States should promote social dialogue between the social partners in order to foster equal treatment:

'Member States shall encourage the social partners, without prejudice to their autonomy, to promote equality between men and women, … with the aim of facilitating the reconciliation of work and private life, and to conclude, at the appropriate level, agreements laying down antidiscrimination rules in the fields referred to in Article 1 [which establishes the purpose of the Directive and states that it contains 'provisions to implement the principle of equal treatment in relation to: … (b) working conditions, including pay'] which fall within the scope of collective bargaining.' (European Commission, 2006)

2 Positions and views of the European social partners

To complete the picture, it is also important to take into consideration the views and positions of the social partners, particularly at European level. Recent public statements, notes and/or resolutions of representatives from the recognised European social partners (ETUC, BusinessEurope, UEAPME, and CEEP) have been used here to illustrate the main positions on macroeconomic coordination and wage setting, in particular.

Trade unions

Several speeches by ETUC General Secretary John Monks at the Macroeconomic Dialogue meetings clearly express trade union concerns about the calls for wage moderation. The main attention is on the 'downward pressure' over wages. Here are extracts from some of the speeches he has made since 2009:

> *We are very aware of downward pressure on pay. What might make sense in the context of an individual firm does not make sense if it leads to competitive wage cutting and to deflation and a reduction in spending power.*
>
> November, 2009

> *[about the discussions which are leading to a new system of extended economic governance system in Europe] The first point is that the proposals [to solve the crisis] are anti-pay and wages. Wages – and labour markets did not cause this crisis. Lest we forget, it was the banks which were at the epicentre, feeding asset booms with excessive credit growth, resulting in unsustainable private sector debt loads. But the burden of adjustment is now switched to workers and their wages.*
>
> February, 2011

In 2012, ETUC in its *Declaration on the Treaty on stability, coordination and governance in the economic and monetary union*, stated that:

> *The need for economic governance is being used as a means of restricting negotiating mechanisms and results, attacking industrial relations systems and put downward pressure on collectively agreed wage levels; to weaken social protection and the right to strike and privatise public services. The ETUC actively resists these attacks, which, cumulated over the years, will dismantle a social model which is unique in the world.*
>
> (ETUC, 2012)

In the same declaration, ETUC claims that Europe needs a different economic union, with a strong social dimension based on a number of principles including a:

> *wage safeguard clause, imposing the full respect of the autonomy of social partners to bargain collectively and preventing the fiscal compact from intruding in the areas of wages, collective bargaining systems, wage formation systems, collective action and organisation. Wages are not a brake on the economy but its engine.*
>
> (ETUC, 2012)

ETUC, in this document, was quite critical about the economic governance that had taken place previously. It says such governance must be 'the contrary' of what it has been so far:

> *the aim of the governance must be to avoid social and wage dumping, and it must help towards the setting up of a European framework to allow the Member States to get out of debt and correct the high unemployment rates which they are currently faced with.*
>
> (ETUC, 2012)

Employer organisations

In a 2010 meeting of the Macroeconomic Dialogue, UEAPME, the European craft and SME employers' organisation, suggested that there should be debate at EU level on macroeconomic differences across Member States, including wage setting. The Secretary General, Andrea Benassi, said 'We must discuss all the possible causes for the current situation, including the effect of wages on the economic performance of some Member States' (Press release, Brussels, 14 February 2011).

Later in a Macroeconomic Dialogue meeting in 2011, UEAPME called for dialogue on wages at EU level:

> *… unsustainable wage developments are one of the main reasons of the current imbalances in the euro zone. Their effects do not stop at the border, especially in a closely linked and interdependent market such as the EU. At a time when the need for more economic policy coordination is clear and recognised, it would be unwise to exclude wages from the equation. I hope that trade unions will reconsider their staunch opposition in this respect and work at all levels with employers to find common solutions.*
>
> Press release, Brussels, 14 February 2011.

BusinessEurope claims that the competitiveness adjustments are not functioning properly or quickly enough due to 'a combination of labour and product market rigidities'. Europe's biggest employer organisation says this is partly due to 'inflexible wage-setting mechanisms'. Nevertheless, at meetings of the Macroeconomic Dialogue in February and October 2011, BusinessEurope said wage policies are of critical importance for social partners because this is their area of competence, and not a European competence, and for that reason calls on the social partners at national level to try to improve 'wage flexibility'. The organisation also said existing automatic indexation mechanisms, acting as 'inflation transmission belts', are counterproductive.

BusinessEurope also considers that greater wage flexibility, based on wage moderation when necessary, is vital in supporting job creation and competitiveness, will better reflect labour market and productivity conditions, and will limit wage and price inertia. In a seminar hosted by Euractiv on the EU's jobs and growth strategy, Maxime Cerruti, the employer organisation's Social Affairs Director, mentioned Spain as a good example of wage flexibility:

> *In 2012, the Spanish social partners reached a major agreement which includes moves towards linking wage developments to GDP growth and economic situation of companies, including productivity. This agreement represents a significant step towards the necessary wage flexibility.*
>
> (Speaking notes, April 2013)

Ensuring that wage developments reflect productivity is the key message BusinessEurope has been making, as at the St Petersburg Economic Forum and the Brussels Economic Forum in June 2013, for example. In both, BusinessEurope stated that:

> *Labour market competitiveness in many countries that were worst hit by the crisis may have started to improve, but we need to do much more to ensure that wage levels better reflect underlying productivity performance.*
>
> (Speaking points at Brussels Economic Forum, June 2013)

CEEP has been mainly concerned with the divergence of wage developments within the euro zone, which has contributed to the imbalance of the competitive positions; it therefore stresses the crucial role of 'wage settlements' (see for example, CEEP Spring note of April, 2007, or Autumn note of October, 2008). However, in 2009, CEEP also voiced its concern on the impact of wage developments on domestic demand, adding this issue to that of competitiveness, stating that both required a balanced approach (note of 22 January 2009). In January 2012, CEEP clearly backed the idea that wage increases should closely follow productivity by declaring that 'incomes policy could make a contribution to more solid and more balanced growth by linking wages more closely to productivity developments' (note of 31 January 2012).

The consultation meeting

In February 2013, the Employment Committee of the European Commission (EMCO) organised a consultation meeting of the social partners to obtain their views on three key areas:

- wage developments, productivity and prices;
- wages, employment and unemployment;
- wage inequalities.

The social partners were, in general terms, somewhat critical about the discussion, although each side presented contrasting perspectives. The trade unions stressed the need for alignment of real wages, instead of nominal ones, with productivity: they recommended that the European Commission include real unit labour costs (wage share) into the macroeconomic scoreboard. Meanwhile, the employers highlighted the importance of looking at labour costs in general (of which wages are just one part), because these affect the competitive position of companies as well that of vulnerable workers.

The trade unions also drew attention to the fact that not all Member States can save funds and at the same time reduce wages, making the point that fiscal austerity is not the way out of the crisis. Trade unions, although saying that it is important to look beyond wages and think about what happens to profits (and executive pay), support the idea that decent pay and adequate minimum wages are essential in low-income countries. Moreover, they consider that decentralisation and greater flexibility in collective bargaining undermine the role of social partners, particularly trade unions, and that in the countries under the financial assistance programme, there should be no interference in collective bargaining.[2]

[2] See the introductory remarks delivered by Bernadette Ségol, General Secretary of the European Trade Union Confederation, at a meeting of the Employment Committee with social partners on wage developments, on 1 February 2013.

The employers consider that it is crucial to be competitive, particularly for small and open economies, and hold that company-level bargaining can support competitiveness. In a position paper from 2012, BusinessEurope stated that:

> *in response to the Commission's proposal to set up an EU tripartite format for monitoring and exchanging views on wage developments in relation to productivity, inflation and internal demand, unemployment and income inequalities, BusinessEurope considers that a bipartite format would be better. Such exchanges could take place in the context of the European Social Dialogue Committee, in which representatives of the social partners of the 27 Member States take part.*
>
> (Key messages, July 2012)

Despite disagreements, the key common message from the social partners is that their autonomy in collective bargaining must be respected, and that strengthening it will function as a success factor. The Communication from the Commission on strengthening the social dimension of EMU (European Commission, 2013) seems to head exactly in that direction by underlining the importance of strengthening social dialogue as one of three main initiatives:

- promoting social dialogue in advancing the European social market economy;
- involving the social partners in policy debates and decision-making processes;
- enhancing the effectiveness of policy coordination at euro zone level.

In the same document, the Commission also:

- highlights the social partners' 'role at national level in setting labour market rules and wages';
- acknowledges the 'diverse industrial relations in the EU';
- supports Member States' competence in organising wage bargaining.

Nevertheless, the Commission suggests that there is still 'scope for improving the mechanisms to involve the social partners in the coordination of economic and employment policies at EU level' (European Commission, 2013).

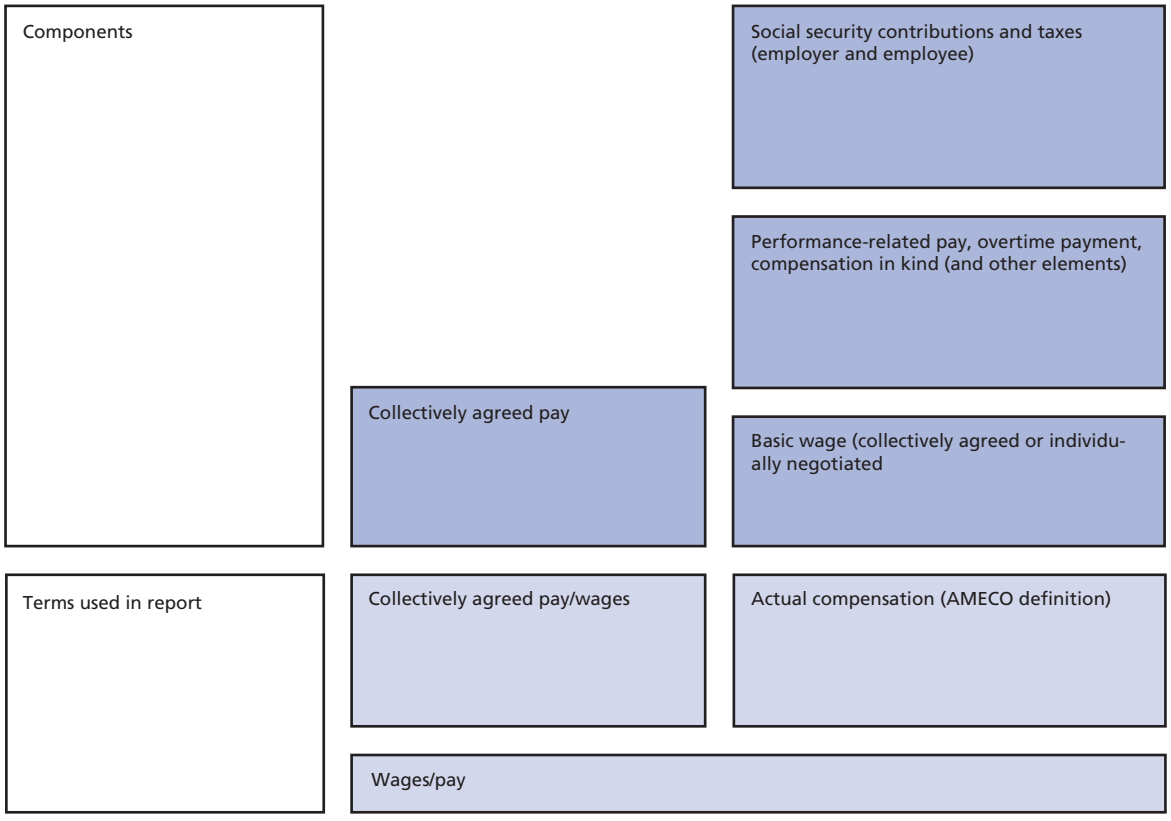
3 Theoretical background and empirical evidence

Wages have different roles and functions to play in the economy:

- an individual (and for most people, the most important) source of income;
- (in economic terms) the 'price of labour' and a way of aligning the demand and supply of labour;
- a return on investment in human capital, guiding educational and occupational choices;
- a cost of production for the employer;
- a potential source of motivation for employees when set at higher levels than the going rate;
- at macroeconomic level they play an important role as the main part of income, which sustains consumption and aggregate demand (Eurofound 2013c).

This report will look into two kinds of 'wages or 'pay' (these terms are used interchangeably, when no further distinction is needed): the first kind is collectively agreed pay (or wages) which, in this study, relates to increases in basic wages negotiated between social partners at various levels. The second is actual compensation (or actual wages or pay), taken from the AMECO database (of national accounts). This is the only time series of harmonised actual pay data available, and it is also used for the indicators used in the macroeconomic scoreboard. No distinction between net and gross wages is possible with this dataset.

Figure 1: Scope of pay-related terms used in report



Source: Own depiction, Eurofound

Box 2: Key definitions of terms and data used in the report

Actual compensation: AMECO data is used.[3] UWCD is the compensation of employees (in the entire economy (data taken from national accounts). It includes wages, salaries and employers social contributions. In national accounts, the OECD defines the compensation of employees as 'the total remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done by the latter during the accounting period' (from the OECD online glossary of statistical terms). In this sense it can be interpreted as a total labour cost to an employer, paid from the gross revenues or the capital of an enterprise.

Average capital efficiency: This indicates again how much output (gross domestic product, or GDP) has in nominal terms (for example, by using the GDP price deflator) been produced by employing an economy's capital stock (valued by the price of capital). Average capital efficiency equals capital productivity when the price of capital equals the price of the total output.

Capital productivity: This is a 'physical' or real measure, giving the amount of output (GDP) produced per unit of capital stock employed.

Collectively agreed wages: Those parts of actual compensation that have been determined in a process of negotiation between trade unions and employers (or employer organisations on their behalf). They usually refer to basic wages.

Inflation rate: The harmonised consumer price index from AMECO (ZCIPH) is used here. Such indices are compiled for international comparisons of price developments of consumer goods. Note, however, that for intra-country comparisons of collectively agreed wages, different national consumer price indices would be a preferable measure, to the extent that they have been used by the various actors in the bargaining process.

Labour productivity: This is here defined as gross domestic product per person employed. Hence, this is an 'average' figure for the amount of output (goods and services) that is produced in a year by a person (including both salaried employees and self-employed). Data and definitions stem from AMECO.

Nominal unit labour costs: A measure of the relationship between actual compensation per employee and labour productivity (in real terms). It indicates how much an 'average employer' has to pay to command one unit of national output, and is usually reported as changes in relation to a given base year. Increasing nominal unit labour costs imply that actual compensation has grown faster than labour productivity. This study uses the AMECO definition and data.

Real unit labour costs: A measure of the relationship between actual compensation per employee and labour productivity (in nominal terms). This is equivalent to nominal unit labour costs but deflated with the GDP deflator; it and can be interpreted as the 'wage share'. The wage share is the proportion of GDP received by the people employed. (The profit share, when added to the wage share, gives the total gross domestic product, or the total value of goods and services that have been produced within an economy in

[3] The AMECO list of variables can be obtained at http://ec.europa.eu/economy_finance/db_indicators/ameco/

a given year). In a similar fashion to nominal unit labour costs, real unit labour costs are reported in relation to a selected base year. The AMECO definition is applied here.

Return on capital: The 'profit rate', or the amount of profit generated in an economy in relation to the stock of capital that has been employed to generate it. Profits at the level of the whole economy are essentially defined as output (GDP) minus the wage bill.

Wage drift: The difference between actual compensation and collectively agreed pay. In this report, wage drift is taken to mean the difference between increases in actual compensation per employee, and increases in collectively agreed pay, expressed in percentage points. A positive wage drift means that actual compensation has increased faster than the part of it that can be attributed to collective agreements. A negative wage drift means that collectively agreed pay has outpaced actual compensation in terms of growth.

Wage share – Profit share/profit margin: The fraction of total gross domestic product that goes into wages (and salaries). It is equivalent to real unit labour costs and, expressed in percentage terms, it complements the profit share (or profit margin). Both together add up to 100%.

Pay developments (within countries and between countries over time) are influenced by a multitude of factors. These factors could be grouped as follows:

- cyclical factors;
- general labour market conditions;
- social factors;
- industrial relations factors;
- national legislation and national specificities;
- compositional factors.

Cyclical factors determining wages are those linked to economic growth over the business cycle,[4] such as:

- the number of working hours;
- the amount of overtime worked;
- bonuses linked to company performance;
- the amount of frictional unemployment or concessions made in bargaining.

[4] Messina et al (2009) looked into the cyclicality of real wages in 18 OECD countries and suggest that country differences remain important even after controlling for differences in data and methods. Three groups of countries emerge: (1) those with mainly pro-cyclical real wages; (2) countries with mainly counter-cyclical real wages; (3) countries with either cyclical real wages or with very different patterns of cyclicality across deflators. They find that more open economies and countries with stronger unions tend to have less pro-cyclical (or more counter-cyclical) wages. A similar finding was obtained by Rumler and Scharler (2011): looking at 20 OECD countries, they found that unions operating in a highly coordinated system of wage bargaining tend to reduce business cycle volatility. Coordination stabilises inflation rates, so they concluded that monetary policy may benefit from increased coordination of wage bargaining.

Some components of actual compensation (such as overtime payments or bonuses) go down in times of slower economic growth. Wages (or wage increases) could do the same, as a response to pressures from higher levels of unemployment or as a result of concessions made in individual or collective bargaining.

General labour market conditions include the following:

- the amount of structural unemployment;
- possible labour shortages;
- the speed of job creation and reduction.
- the degree of labour mobility (nationally or internationally) or the effectiveness of the process of matching demand for labour with its supply.

High levels of structural unemployment can constrain wage developments relative to other nations or regions,[5] while possible labour shortages (be they within occupations or regions) could lead to wage premia. This could interact, however, with the extent of labour mobility and whether workers (or companies) react to shortages and possible wage differentials. In relation to the effectiveness of the matching process, it would be expected that companies would be more likely to offer wage premia when they find it difficult to attract the required workforce.

Social factors affecting pay developments derive from concerns that the principles of social inclusion and cohesion should not be undermined by low wages. It is established that high wage differentials (between the highest and lowest wages, between different occupations, or between the genders) are related to poor public health and the perception of unfairness, and may lead to situations of social exclusion and unrest. Pay development may be partly determined by policies, measures or agreements devised to counter such wage differentials. The policy aim of narrowing the gender pay gap is perhaps the most well-known example of this but there are also instances of government measures or social partner agreements to reduce wage differentials through relatively greater pay increases for low-paid workers. However, pay developments might be determined or influenced by the determination to combat in-work poverty – whereby a person, although working, has an income below a certain threshold and can be considered poor – or to guarantee that workers are not paid below a living or subsistence wage, which is the minimum income necessary to meet such basic needs as housing, clothing and nutrition. Linked to this is the existence or otherwise of statutory minimum wages, their levels and the degree of compliance. See Part 2 of this report for an extensive discussion on the topic.

Industrial relations factors which could theoretically have an impact on the level and development of wages comprise the following:

- the type of bargaining regime (in terms of coverage of employees and companies or the existence of extension or derogation mechanisms);
- the importance of single agreements as opposed to multiemployer ones;

[5] The existence of regional wage curves (an inverse relationship between regional wages and unemployment) has often been observed in empirical research. An interesting study in this context, connected to industrial relations, is Blien et al (2009) for Germany. They found that a regional wage curve exists for plants with a firm-level collective agreement, while works councils dampen adjustment to the regional situation. They find no wage curve in plants without collective agreements or with sector-level agreements.

- coordination of wage bargaining (for example, by means of pattern setting) and articulation between different levels;
- the type of bargaining (existence of tripartite wage pacts, concession bargaining);
- bargaining power (trade union density, mandate of employer organisations, rules as regards representativeness);
- timing of bargaining rounds (multiannual or once a year);
- references used in bargaining (inflation, productivity growth, labour productivity, firms' profitability, fairness issues);
- compliance with wage agreements.

Some of these items are discussed in more detail below. It should be also borne in mind that wage agreements are typically broader and can also contain provisions on working time, training, variable elements of pay, or provisions on payments in kind. All of these are subject to negotiation and could influence the final pay outcome. The extent to which the scope of collective agreements is broader or narrower is highly country-specific.

National specificities or legislation in relation to wage-setting will help explain cross-country differences in wage outcomes and differences in developments over time and over the business cycle. Countries differ in the role government plays in the wage-setting process depending on whether they have done the following:[6]

- set a minimum wage;
- established legally binding mechanisms of pay indexation;
- declared negotiated wage agreements to be generally binding or allow derogation from them;
- introduced other wage-related legislation (such as rules for overtime);
- changed the taxation or social security system,[7] and the system of basic or minimum wages; the generosity of these systems also differs.

Even the political orientation of the government is a factor.[8] Different monetary policies are also linked to pay and competitiveness outcomes. In terms of monetary policy, Member States belonging to the euro zone have less freedom compared with their non-euro zone counterparts. When seeking to improve their international competitiveness, the latter can still use devaluations of their currencies as substitute for adjusting wages downwards.

In economic terms, countries differ in the following aspects:

- the degree of flexibility or rigidity of wages (how quickly at least parts of the wages can be adjusted to changing economic circumstances);[9]

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[6] Bayo-Moriones et al (2013) stressed the role of the national context (in relation to the bargaining system and level of regulation) when looking at the role various factors play in pay adjustment. Comparing the United Kingdom with Spain, they found that UK firms had a stronger focus on firm-level productivity while, in Spain, more importance was attached to social dialogue.

[7] For OECD countries, Koskelka and Schöoeb (2012) find that a higher degree of tax progression always leads to wage moderation.

[8] Johansen et al (2006) estimate that the change from a conservative to a social democratic central government in Norway significantly reduced manufacturing wages and made wages more responsive to unemployment.

[9] Du Caju et al, 2008, recall from the literature that the average duration of wage agreements limits the relative flexibility of wages, whereas greater union density and union coverage increase real wage rigidity.

- the degree of openness of their economies;
- their sectoral composition and – a related issue – the mobility of capital (and labour);[10]
- what role labour costs play in attracting investments (to what extent countries are specialised in labour- or capital-intensive industries, and knowledge- or labour-intensive industries).

Countries can also pursue different wage policies, such as:

- general moderation to preserve jobs in weaker companies;
- high-wage routes to foster adoption of highly productive technologies;
- policies promoting equality of pay developments between sectors, occupations and individuals;
- policies promoting pay that is in line with sectoral or individual productivity developments.

Finally, compositional factors play some role in explaining differences in pay levels and pay developments. Countries differ in relation to the following elements:

- their workforce (age structure and its relation to seniority-based pay or the likelihood of exit of and entry into the labour force, the skill level and wage differentials in relation to skills);
- their sectoral composition (degree of labour/capital intensity and knowledge intensity);
- the composition of firms (multinationals, small and medium-sized companies).[11]

Multinationals, for instance, could (depending on the industrial relations systems) have different approaches to local companies in determining wages. And expanding its business to foreign countries could also affect a multinational's bargaining position in its home country (Eckel and Egger, 2006).

These factors will not be further analysed here, but it should be borne in mind that they are potential determinants of wage developments and need to be taken into consideration if the aim is to arrive at a general model explaining pay outcomes.

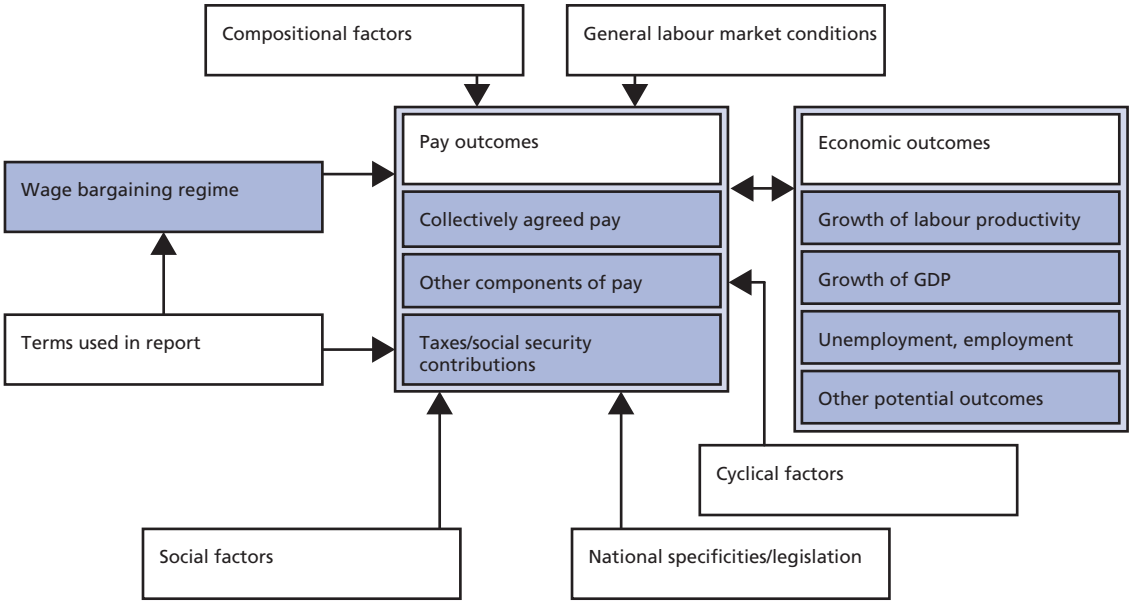
This report focuses on two key issues:

- the link of wages to labour productivity and related economic growth;
- the link between wage bargaining regimes, pay and pay outcomes.

[10] For Lithuania, for instance, Elsner (2012) showed that emigration had a significant positive effect on the wages of (male) workers who remained in the country: a one percentage-point increase in the emigration rate predicted a 0.67% increase in real wages.

[11] Based on German data from 1997–2004, Zwick (2011) showed that large, profitable establishments, and those with a highly qualified workforce, pay high seniority wages. They also showed that collective bargaining coverage, the presence of works councils and reduced working time for older employees are positively correlated with seniority wages; however, they found that the higher proportion of foreigners and women in the workforce, along with initial wage levels for job entrants, are negatively correlated with the payment of seniority wages.

Figure 2: Conceptual framework



Source: Authors' illustration

This study takes the view that there is no direct link between wage bargaining regimes and economic outcomes (such as growth of output, labour productivity, unemployment, unit labour costs.) However, a number of qualifications to this statement should be borne in mind.

- Any potential link between wage-setting mechanisms and economic growth is an indirect one. It is mediated predominantly by wage outcomes in relation to productivity, and the implied link between wages and levels of employment and unemployment; hence, it is important to look into the pay outcomes different systems generate.
- Different wage-bargaining regimes influence various components of pay to a different extent. The direct influence that social partners can exercise in their negotiations is first and foremost on the collectively agreed part, which embraces mainly basic wages, but could also go beyond this.
- Different wage-setting systems are only one variable among many that may have an impact on economic outcomes.
- Wage-setting mechanisms (or different bargaining regimes) do interact in many ways with other (labour market) policies and such interaction can be crucial in arriving at different growth outcomes. Such complementary policies could explain why similar systems can lead to different outcomes.

Links between wages and labour productivity

When looking at the relationship between wages (whether collectively agreed or actual compensation) and labour productivity three points need to be noted:

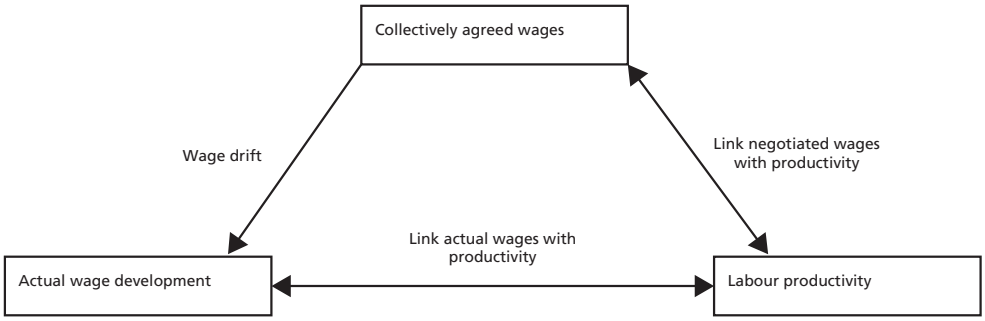
- The relationship between wages and labour productivity can go in either direction.
- Labour productivity, as well as the level of (expected) price increases, is one of the most important indicators used in wage negotiations (Du Caju et al, 2008; Eurofound, 2013b).

- Increases in labour productivity can stem from increased labour intensity, but may also stem from increased capital productivity or increased capital intensity or technological advancements.

Efficiency-wage theories have stressed the role of wages in stimulating individual labour productivity – provided they are set at levels above the going market rate. From a macroeconomic or country-level perspective, the decision to pay relatively high wages (in relation to other countries) could – potentially, in the longer-term – promote labour productivity, since only the most competitive companies survive. It could also stimulate the adoption of technologies that enable companies to reach a high level of productivity and hence be able to afford to pay high wages. Such a wage policy is part of the so-called 'Swedish model' (or the 'Rehn-Meidner' model).

Alternatively, (standard) economic theory predicts that, in equilibrium, labour productivity equals wages. Were labour productivity to exceed wages, profit-oriented companies would have an incentive to hire new workers; with returns to scale diminishing, this would bring labour productivity down. On the other hand, wages exceeding labour productivity would lead companies to shed labour with a subsequent rise of labour productivity.

Figure 3: Wages and labour productivity



Source: Authors' own depiction, Eurofound

Wage-bargaining regimes, pay and economic outcomes

The link between different wage-bargaining regimes and economic growth or other related economic outcomes has been discussed in academia for a long time, although a clear and empirically sound conclusion has, to date, not been reached. In the 1980s, the prevailing view among political scientists was that corporatist policies (within which wages are set centrally and wage setters would recognise broader interests) would lead to better performance. This was questioned by Calmfors and Driffill (1988) who introduced the so-called 'hump-shaped' theory: they argue that 'extreme' configuration of wage-bargaining regimes would lead to better economic performance (in terms of lower unemployment and by means of wage moderation, such as 'institutional wage restraint') than 'intermediate' configurations would do. They argued that highly decentralised systems of wage bargaining would do well (provided that product markets were perfectly competitive), because unions in such systems have limited 'market power'; this would in turn lead to wage moderation. However, they also said that highly centralised systems would do well because, in these systems, all-encompassing trade unions would naturally recognise their market power and take into account both the inflationary and unemployment effects of wage increases. In 'intermediate' systems, however, with bargaining

taking place at sectoral level, unions can exert some market power, but they would be more inclined to ignore the macroeconomic implications of their actions.

This work has been debated widely among academics – for instance, by Soskice (1990) who reassessed Calmfors and Driffill's hypothesis. Rather than referring to levels of bargaining and looking at the degree of centralisation, he suggested looking at the degree of coordination in the bargaining process. Coordination can be achieved by various mechanisms: through peak-level organisations; by means of pace-setting mechanisms; unilateral coordination by either unions or employer organisations; and actions by public authorities varying from 'signalling'' to the imposition of norms. The actors might be government or monetary authorities.

Soskice showed that if coordination, rather than the degree of centralisation, had been chosen in the empirical work, the hump-shaped pattern detected would have disappeared. As for the theoretical construct, he acknowledges that the theory is correct on its own assumptions, yet these assumptions 'seldom match the reality of uncoordinated company-level wage setting'.

Another work in this field is that of Traxler (1995), who speaks of 'organised decentralisation', where he distinguishes between two types of industrial relations regimes, both of which deal more in decentralised (sector or company-level) bargaining. Organised systems are those which, while having moved away from economy-wide concertation, still have a high degree of coordination of bargaining activities in place, either through peak-level employer organisations and trade unions and/or pace-setting sectors. In disorganised systems, the shift to bargaining at lower levels has been accompanied by more restricted coordination goals and/or capacity.

The existence of this 'hump-shape' has still not been confirmed, as Driffill himself showed (Driffill, 2006).

An example of one such empirical study within the context of this theoretical discussion is one produced by the OECD (2004), which seeks to reassess whether the claims made by a 1994 OECD study on the superiority of decentralised bargaining do hold. Based on a panel of data from OECD member states, it fails to establish such a link between aspects of collective bargaining systems and economic performance (growth of labour productivity), which leads the authors to the following conclusion:

> *… the great difficulty encountered by researchers attempting to identify robust associations between differences in bargaining organisation and differences in macro-economic performance suggest that quite different organisational forms may be capable of similar performance.*
>
> (OECD, 2004, p.166).

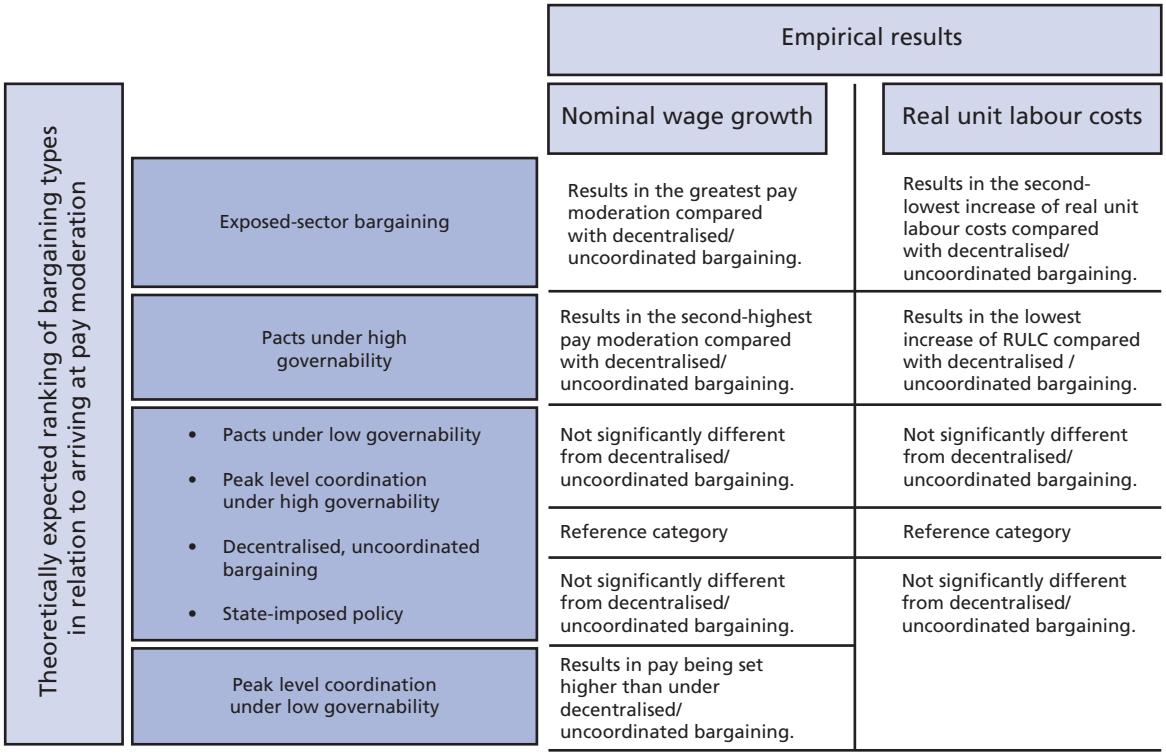
Another theory regarding the link between wage-setting mechanisms and growth is what economists call 'The Swedish Model' (or the 'Rehn-Meidner' model). More centralised or coordinated bargaining (such as in Sweden through pace-setting industries) leads to a more compressed wage distribution with equal pay for equal work. Such bargaining-induced compression reduces the potential of wage competition. In the medium to long term, and provided that wages are set high enough, this means that less productive firms cannot remain in business, as the collectively agreed wage will knock them out of the market. On the other hand, it will hold down wages in highly productive firms. This thus serves to reallocate labour and capital from activities of low productivity to those of high productivity with a further implication for long-term growth. Two components of the Swedish model

that complement this are active labour market policies, which are seen as a high, shared priority (with strong social partner involvement) and a balanced macroeconomic policy, which seeks to keep inflation down and to ensure there is a supportive demand framework.

Such a policy, especially in the short term, conflicts with standard economic theory, in which higher wages are expected to lead to higher unemployment, with the potential to prolong or even reinforce periods of economic downturn.

Some further recent empirical research has been conducted across and within countries and there is evidence for some links between bargaining regimes and wage outcomes. Brandl (2012) looks into the effectiveness of wage pacts in terms of their capacity to enhance economic performance. Theoretically, he suggests, exposed-sector pattern bargaining (in which the sector exposed to international competition sets the pace for further pay bargaining rounds by means of horizontal coordination) is most likely to deliver pay moderation (in terms of nominal wage growth and growth of real unit labour costs). This would be followed by pacts with a high degree of governability, while peak-level coordination with a low degree of governability would be least likely to achieve pay moderation. He suggests that other bargaining forms (uncoordinated decentralisation, state-imposed policy, pacts under low governability and peak-level coordination under high governability) fall between the two extremes. Using a sample of 20 countries – from western Europe and from outside Europe – he finds, within his basic model, a number of outcomes: exposed-sector pattern bargaining as compared with uncoordinated bargaining is able to deliver pay moderation; pacts under high governability also achieve pay moderation; and peak-level coordination under low governability shows a higher growth rate for nominal wages than it does under decentralised and uncoordinated bargaining. His findings also suggest that wage pacts have a comparative advantage relative to peak-level coordination within the same category of governability: under low governability, pacts record significantly lower wage inflation than their peak-level counterpart (which more strongly inflates wages than any other category). Yet, Brandl concludes, wage pacts are not a magic bullet: if the intention is to deliver pay moderation, other forms (such as exposed-sector bargaining) might equally deliver such results. Wage pacts, in his interpretation, are a special form of government intervention: their merits – relative to simple peak-level coordination – lie in a government's opportunity to prioritise the exposed industry.

Figure 4: Bargaining types and economic outcomes



Source: Brandl (2012), Outcomes of basic model (pooled time series cross-section analysis with period fixed effects, excluding country fixed effects)

Another recent study from the International Labour Office (ILO) (Cazes et al, 2012) looked into the relationship between the degree of coordination of the wage bargaining system and employment rates, and found it to be non-linear. Highly decentralised systems with company-level bargaining and no coordination are associated with the lowest employment rate. Moving towards more coordinated and centralised systems, a U-shape has been detected: decentralised, coordinated systems, as well as centralised, coordinated systems have the highest employment rates. Systems with intermediate degrees of coordination fare worse in terms of employment rates, but still better than the completely decentralised uncoordinated systems.

Other recent studies linking the bargaining system to economic outcomes have been produced by McGuiness et al (2010) and Baccaro et al (2007) who both suggested that a key driver of Irish growth before the crisis was the reduction of labour costs resulting from centralised bargaining within both the indigenous and foreign-owned sectors, although the relative advantage was greater among foreign-owned firms.

Rusinek and Rycx (2013) used firm-level data for Belgium and showed that, in regimes of decentralised bargaining (where renegotiation at firm level is often practised), a positive relationship between wages and firm-level profitability can be found (regardless of whether firm-level collective agreements exist). In more centralised regimes, however, where firm renegotiation is less common, they find no link between wages and firm-level productivity in general – only for those where firm-level renegotiation takes place.

Tronti (2010) looked at developments in labour productivity in Italy between 1993 and 2008 and the role of the bargaining model introduced by the tripartite 1993 'protocol'. This protocol introduced

an income policy framework, which promoted wage moderation with a view to reducing inflation, boosting employment and supporting firm competitiveness, and foresaw a two-tier bargaining structure based on sectoral level agreements and decentralised bargaining – usually at firm level. While sectoral agreements should preserve real wages, the subsequent local firm-level bargaining was meant to link wages to productivity, profitability or quality targets. According to Tronti, since local-level wage bargaining failed to reach a large proportion of the workforce, the wage moderation effect prevailed and wages only moderately increased their flexible component, and neither economic growth, nor productivity was boosted. Conversely, having relatively cheap labour, employers did not invest in labour-saving technologies, but boosted employment (rather than modernising their equipment), with a negative impact on labour productivity and economic growth. Echoing previous literature on bargaining models, Tronti suggests that better economic performance would be achieved by a bargaining system that distributes productivity gains more evenly, especially through sectoral agreements, given the constraints on expanding the coverage of decentralised bargaining beyond a minority of firms and employees.

Box 3: Wage cuts – empirical research evidence

Recently published empirical findings from the Central Bank of Ireland (Du Caju et al, 2013) based on a survey in 14 EU Member States, but pre-dating the crisis, suggest that firms have been quite reluctant to cut nominal wages and have used wage cuts as a last resort. Firms in all countries and sectors commonly felt that base wage cuts are best avoided in order to sustain morale and effort, and to keep the most productive workers. The surveyed countries varied most in terms of the importance that firms attach to labour regulations and collective bargaining. Firms in euro zone Member States attach a far greater importance to these as the main reasons for avoiding wage cuts than do firms in non-euro zone countries (where collective bargaining is, on average, less prevalent).

More recent information, on wage cuts made during the crisis, stems from Eurofound's fifth Working Conditions Survey of 2010 (analysed in Eurofound 2013d). The report finds that the extent to which workers experienced wage reductions is closely dependent on the Member State: in most countries, few workers saw their wages reduced (though this number was larger than that reported by Du Caju et al (2013) preceding the crisis). Countries with more than 20% of workers seeing their pay reduced in 2010 were the Baltic States, Ireland and Romania. The report also found that older workers were more likely to experience pay cuts, while younger workers were more likely to face a weakening of their job security.

Wages, profits and growth

The extent to which wage developments (and changes in the wage share of GDP) impact on economic growth is, at first glance, not clear. While wages can be used for consumption (and savings), a declining wage share (hence an increasing profit share) would leave room for investments and launch investment-led growth, particularly in small export-oriented economies. The magnitude of these opposing forces is subject to empirical assessment. This has led economists (Stockhammer and Onaran, 2012) to distinguish between 'wage-led systems' and 'profit-led systems'. In the first system, growth of the wage share stimulates economic growth by means of increased demand; in the second,

by contrast, economic growth is curtailed. Growth in a profit-led regime, with declining wage shares, could come only from the expansion of exports or be debt-led, if investments did not respond to declining wage shares. Stockhammer and Onaran (2012) also summarised empirical studies on this issue and suggested that demand in most economies seems to be domestically wage-led, meaning that both consumption and investment decline as the wage share goes down, because consumption responds much more sensitively to the decline than investments do. Profit-led regimes would be those where the effect of a declining wage share on net exports is strong enough to compensate for the decline in domestic demand – and this is likely only in small and open economies.[12] They suggest that the aggregate euro zone is wage-led, implying that simultaneous wage moderation would have a negative effect on demand and, ultimately, growth. As for the supply side, they suggest that labour market institutions can have a positive impact on labour productivity growth: good industrial relations can improve the propensity of workers to contribute to the production process and high wages can lead capitalists to rationalise the production process and speed up technological progress. They therefore suggest a wage-led growth policy, with stable or increasing wage shares, strengthened unions and collective bargaining and minimum wage policies. (See also Box 4: 'Beyond wage-related competitiveness'.)

[12] The empirical studies that Stockhammer and Onaran summarised show that, for the euro zone, only Austria and the Netherlands could be examples for such profit-led growth regimes.

4 Pay developments in the 21st century

Before moving on to the core of this report, which is the reporting on developments in collectively agreed pay into the new century across EU Member States, it is important to show the context in which pay is set in the various Member States. Firstly, a simple classification of wage bargaining regimes is presented, and then major trends in pay developments from 1998 to 2012 are shown, for both collectively agreed pay and actual compensation of employees. Based on these data, this part of the report then investigates to what extent both types of pay have grown in line with labour productivity developments – a requirement that, through the Macroeconomic Imbalance Procedure's scoreboard, is currently on the radar of European policymakers.

This study also looks into wage-drift, that is, the extent to which changes in actual compensation deviated from changes in collectively agreed pay.

Wage-bargaining regimes 1998–2012

The ways in which pay setting and wage bargaining function vary across the Member States. Beside the levels at which wages are set (central, cross-sectoral, sectoral, branch or company-level) the following must also be taken into account:

- whether multiple bargaining levels exist at the same time;
- the extent to which bargaining at various levels is interlinked (or 'articulated');
- the extent to which coordination occurs between the actors at different levels and across sectors, branches or companies;
- the timing of bargaining rounds;
- the extent to which government intervenes in the wage bargaining (for example, by setting statutory minimum wages;[13] the legal extension of agreements to non-affiliated parties; or whether it is legally possible to opt out or derogate from agreements);
- the existence of 'automatic' mechanisms of pay indexation;
- the extent to which certain sectors or agreements could act as 'pace-setters' for other bargaining rounds.

In the context of this study, it is useful to distinguish between Member States according to their wage-bargaining regimes. The grouping proposed is simple, drawing on two variables: the predominant level of bargaining and the degree of coordination in the wage-bargaining process. The reason for the choice of these two features is based on the literature surrounding the 1988 Calmfors and Drifill hypothesis, and the fact that these two received the greatest attention in the discussions afterwards. The choice was also driven by the availability of empirical data; another obvious candidate would be the collective bargaining coverage, but attempts to obtain recent data in a time series were rather unsuccessful.

This study uses the ICTWSS 4.0 database as a starting point for the generation of the two variables. The database, drawn up by Jelle Visser and hosted by the Amsterdam Institute for Advanced Labour Studies (AIAS), is the most comprehensive collection of variables and indicators in the field of industrial relations for the EU and OECD Member States. It provides time series ranging (in many

[13] See Part 2 of this report for an extensive description of minimum-wage systems in place throughout Europe.

cases) from the 1960s up to 2010 or 2011. During the writing of this report, national correspondents from Eurofound's European Industrial Relations Observatory (EIRO) were also asked to update selected wage-setting related time series for 2012 and to discuss and debate, where necessary, any doubts in relation to the provided classification. In some cases (for example, Italy and the Czech Republic) the originally indicated series was then slightly modified.

Table 2: Variables to classify wage bargaining regimes

ICTWSS Code	ICTWSS Description	Eurofound classification
Predominant bargaining level A level is 'predominant' if it accounts for at least two-thirds of the total bargaining coverage rate in a given year and country. If it accounts for less, but for more than one-third of the coverage rate, there is a mixed or intermediate situation, between two levels. A mixed situation also occurs when bargaining levels alternate and/or it is impossible to assess which of the two contributes more to actual regulation of employment relations.		
5	Bargaining predominantly takes place at central or cross-industry level and there are centrally determined binding norms or ceilings to be respected by agreements negotiated at lower levels	Rather centralised
4	Intermediate or alternating between central and industry bargaining	Rather centralised
3	Bargaining predominantly takes place at the sector or industry level	Intermediate
2	Intermediate or alternating between sector and company bargaining	Intermediate
1	Bargaining predominantly takes place at the local or company level	Rather decentralised
Wage coordination Based on Kenworthy (2001a; 2001b). Note that this is an indicator of the 'degree, rather than the type of coordination' (Kenworthy, 2001a, p.78), 'based on a set of expectations about which institutional features of wage-setting arrangements are likely to generate more or less coordination' (Kenworthy, 2001a, p.80).		
5	a) centralised bargaining by peak association(s), with or without government involvement, and/or government imposition of wage schedule/freeze, with peace obligation (for example, Sweden before 1980)	Highly coordinated
4	b) informal centralisation of industry-level bargaining by a powerful and monopolistic union confederation (Austria prior to 1983)	Highly coordinated
3	c) extensive, regularised pattern setting and highly synchronised bargaining coupled with coordination of bargaining by influential large firms (Japan prior to 1998)	Medium level of coordination
2	a) centralised bargaining by peak associations with or without government involvement and/or government imposition of wage schedule/freeze, without peace obligation (for example, Ireland 1987–2009); b) informal (intra-associational and/or interassociational) centralisation of industry and firm-level bargaining by peak associations (both sides) (Spain 2002–2008; c) extensive, regularised pattern-setting coupled with a high degree of union concentration (Germany, most years)	Medium level of coordination
1	a) informal (intra-associational and/or interassociational) centralisation of industry and firm-level bargaining by peak associations (one side, or only some unions) with or without government participation (Italy since 2000); b) industry-level bargaining with irregular and uncertain pattern setting and only moderate union concentration (Denmark 1981–1986); c) government arbitration or intervention (UK 1966–1968, 1972–1974)	Low level of coordination

Source: Visser, 2013; ICTWSS 4.0, codebook

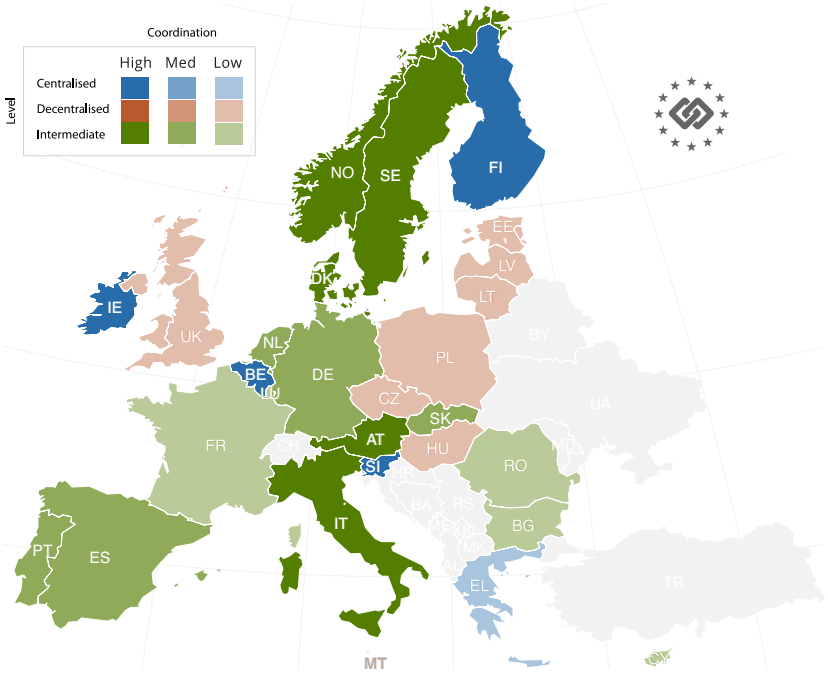
The maps in Figure 5 show the result of this classification exercise. The two variables on the predominant level of wage bargaining and the degree of coordination were crossed, drawing on the broader categories. The outcome is straightforward: countries in which pay is set at higher levels generally also have higher levels of degrees of coordination (which is partly already implied by the definition of the wage coordination variable). Nonetheless, there are some exceptions. Countries with intermediate levels of bargaining (sectoral, branch level or alternating between sector and company level) show the full spectrum of coordination outcomes. The only country which falls outside this general pattern is Greece, with a rather centralised level of pay-setting, but a low degree of coordination. In the pre-crisis Greek system, social partners agreed, at national level, on the setting of the minimum wage which, at the same time, served as the minimum increase to be granted in other agreements as well. When Greece became a programme country, and after the introduction of several Memoranda, this national 'EGSEE' agreement was suspended, sectoral agreements were not renewed and bargaining was delegated to the company level.[14]

There is no country in Europe with a decentralised but highly coordinated bargaining system. Such countries do exist globally: the most often-cited example is China, where bargaining takes place locally, but is highly coordinated in annual bargaining rounds taking place at the same time.

Overall, the maps suggest relatively stable systems, with the major changes occurring in the post-crisis period after 2009, mainly within the programme countries, but also in those countries that received wage-related recommendations in the European semester. So, for instance, the Irish central social partner agreement in the private sector was not renegotiated and pay bargaining was delegated to company level. In Slovenia and Romania, also, the central tripartite agreements were suspended or not renewed, with sector-level bargaining being predominant. While other sources do suggest accelerated tendencies of decentralisation (Eurofound 2013a), with more bargaining being delegated to the company level, this has not affected the predominant level of bargaining in most Member States – at least not for the time being.

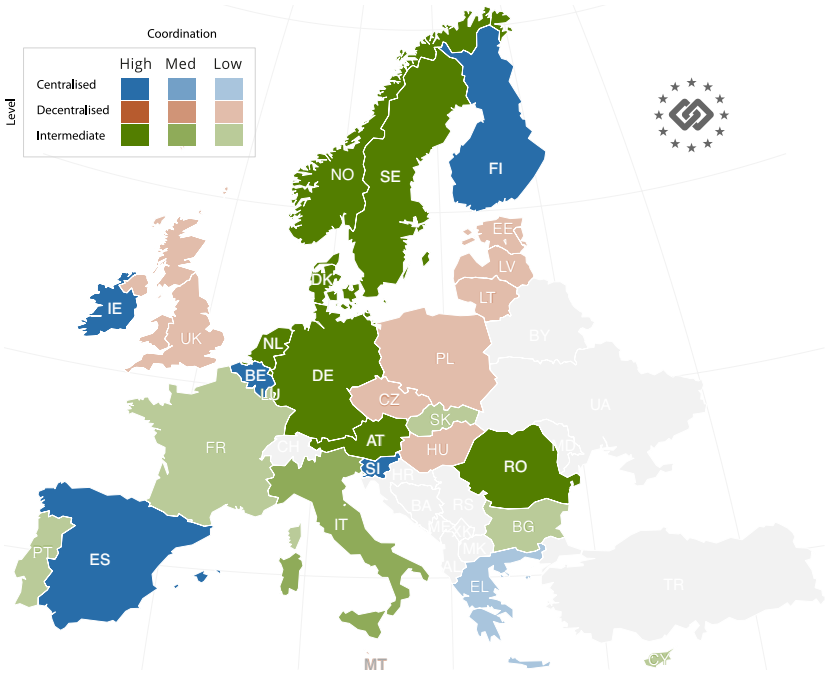
[14] More detailed information, is available in Eurofound (2013b) and the EIRO articles on Greece: http://www.eurofound.europa.eu/eiro/2013/country/greece.htm

Figure 5a: Wage-bargaining regimes in Europe in 1999



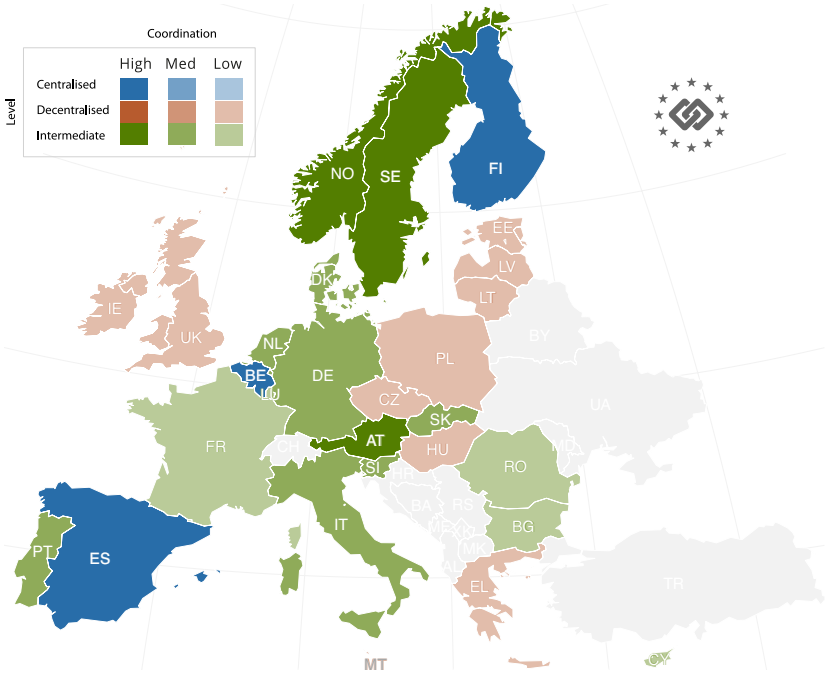
Sources: ICTWSS database, EIRO, Eurofound

Figure 5b: Wage-bargaining regimes in Europe in 2005



Sources: ICTWSS database, EIRO, Eurofound

Figure 5c: Wage-bargaining regimes in Europe in 2012



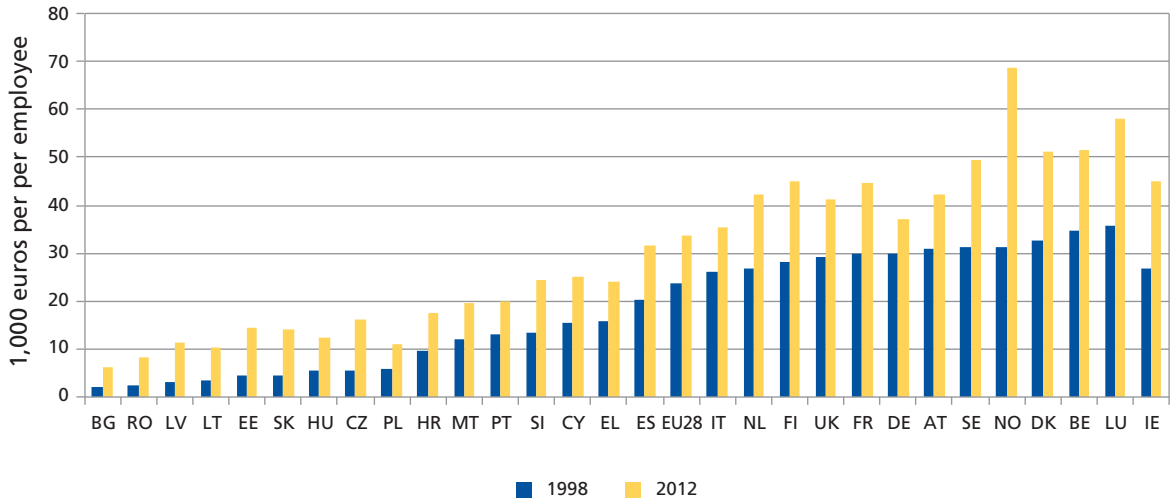
Sources: ICTWSS database, EIRO, Eurofound

Major trends in pay developments

5

Before reporting on pay developments, it is useful to consider the actual levels of compensation, and how these vary between countries. This disparity has narrowed in the period of observation,[15] but is still persistent. Actual pay ranged from around €6,200 per employee in Bulgaria in 2012 to around €58,000 per employee in Luxembourg. Higher growth rates of actual compensation per employee, mainly in the new Member States, reflect how these countries are catching up with European averages. It is also worth noting that cross-country differences in wages are closely linked to cross-country differences in productivity (compare Collignon, 2013b, and Figure 10), although some exceptions of course prevail at the individual country level.

Figure 6: Level of compensation per employee, 1998 and 2012, EU28 (thousands of euros)



Source: AMECO, national accounts

European countries show a wide range of developments of pay in terms of actual compensation.[16] Between 1998 and 2012, actual compensation per employee rose, on an annual average, 0.9% in Italy and 22% in Romania. This, of course, reflects differences in price developments as well as differences in productivity developments (these will be investigated further in Chapter 6: 'Pay developments and labour productivity'). The median European increase stood at 3.5% per year (Malta). The largest annual increases in actual compensation per employee were seen in the new Member States in central and eastern Europe (ranging from 4.5% in Croatia to 10% in Latvia), while the lowest increases took place (besides Italy) in Germany, Austria, Cyprus and France (all between 1% and 3%).

Pay and its links to the business cycle

Pay developments are inevitably linked to the economic business cycle, which differs between the various Member States. It comes as no surprise that pay developments have been much lower during the crisis in most Member States. Countries experienced the highest average annual increases of actual compensation per employee in the early years of the new century, with the exception of Germany. In these early years of boom, annual increases ranged between 1.4% in Germany and – because of substantial inflation in the years of transition – 42% in Romania. Between 2009 and 2012

[15] The coefficient of variation fell from 0.64 in 1998 to 0.52 in 2012, which means that the countries now cluster more closely around the 'average' compensation than before.

[16] Compensation of employees is defined as the total remuneration, in cash or in kind, payable by an employer to an employee in return for work done by the latter. In particular, it also includes social contributions paid by the employer (Eurostat, national accounts).

they ranged from -3.4% in Greece to +8.4% in Bulgaria. The only exceptions are Austria and Germany with growth in actual compensation in the years following the crisis that was higher than those countries' medium-term average. During what was a period of growth in most other Member States (2004–2008), Cyprus, Germany, Malta, Poland and the Netherlands experienced the lowest growth in actual compensation per employee (Table 7 in Annex 1 provides an overview of these figures). In most Member States with available data, collectively agreed pay (in nominal terms) rose more slowly than, or more or less in line with, actual compensation – Germany, Greece, Romania and Italy being major exceptions to this (see Figure 9). Collectively agreed annual pay increases ranged from 2.2% in Denmark and the Netherlands to 25% in Romania. The European median in this regard stood at 2.8% (the median countries being France and the UK); however, this is not fully comparable across Member States – because, as is the case with many data reported – not all levels where pay is actually set in collective agreements are necessarily covered by the data source from which the series reported here were taken. See Table 8 in Annex 1.

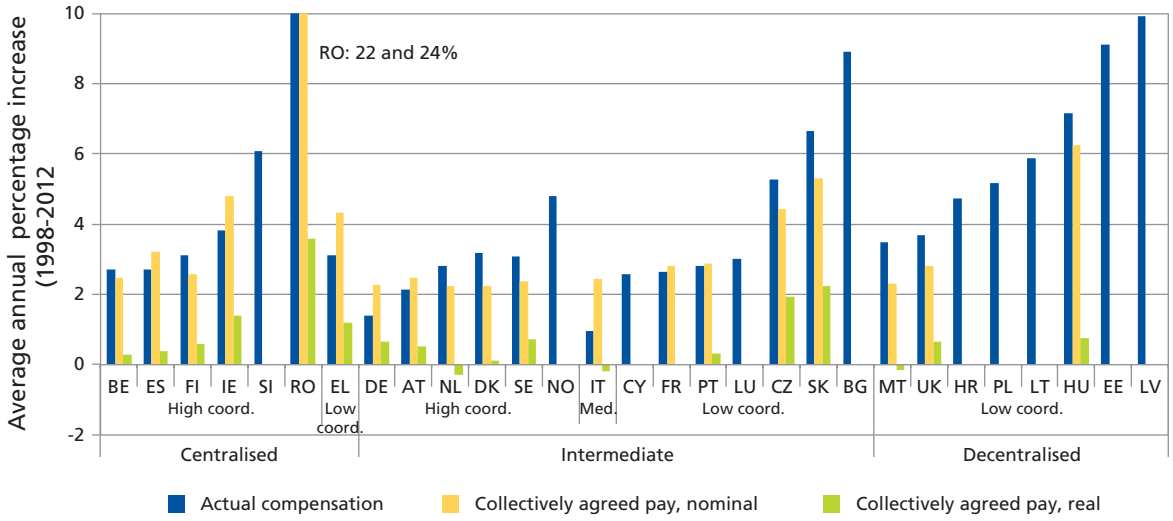
Outcomes of collectively agreed pay increases fluctuate much less over the business cycle than does actual compensation of employees (compare Table 8 in Annex 2). On the one hand, this is due to the fact that collectively agreed pay increases refer – by and large – to basic wages, while actual compensation per employee also includes variable elements such as performance-related pay or profit-sharing schemes, overtime payments, allowances, benefits in cash and in kind. These are the first to be cut in recessions and are likely to increase in more prosperous times. On the other hand, wages react to developments in the labour markets: as employment levels increase and there are tighter markets from the employer's point of view, the 'market price' for labour goes up. The opposite is true when unemployment goes up in relation to the available vacant positions. Such market-driven developments might not be reflected in collectively agreed pay to the same extent as they are in actual wages. For this reason, one could think of collectively agreed pay as having a kind of 'insurance' function for employees. Indeed, most Member States – also across the different wage bargaining regimes – show a fairly similar pattern when it comes to developments in collectively agreed pay in relation to changes in labour productivity. Increases in collectively agreed pay are below increases in labour productivity in times of boom, but are higher than declines in labour productivity in times of crisis. In this sense they might thought of 'shielding' the workers from cyclical ups and downs.

Pay across bargaining regimes

As wage bargaining regimes did not remain stable over time (compare Figures 5a, b and c), displaying results of pay outcomes by bargaining regimes is sensitive to the year of classification used, and can vary in some cases.

The breakdown of the average annual pay increases in 1998–2012 (in this depiction broken down by bargaining regime as of 2005) shows that a range of outcomes can be observed in every regime.

Figure 7: Average annual growth rate of pay 1998–2012*, wage bargaining regime as of 2005



Source: AMECO, various national data-sources; EIRO, Eurofound own calculations
Note: * for some countries, shorter time series of collectively agreed pay are available; in such cases, the annual average is reported for a shorter period. In Romania and Hungary, no agreement or recommendations were made in certain years. These years have been taken into account with a value of zero increase. Ireland: the series ends in 2008, hence the collectively agreed pay reflects increases from 1998–2008 only.

A comparison of group medians within each wage bargaining regime shows that actual pay outcomes, on average, during 1998–2012 were lowest in systems with a high or medium degree of coordination (see Table 3).

However, countries with low levels of bargaining coordination – be it at sectoral or company level – had higher increases of actual pay on average. It should however be noted that in all regimes (except perhaps for the case of highly coordinated sector-level bargaining) the range of outcomes is rather broad. In the 'median' of those countries that have automatic indexation mechanisms (Belgium, Cyprus, Luxembourg and Malta), average annual compensation per employee increased by 3.6%.

Findings differ slightly in the case of collectively agreed pay (see Table 4), with the sector level (high and medium-coordinated countries) displaying the lowest outcomes; somewhat higher outcomes were observed in countries with low levels of coordination as well as in the highly centralised countries. Note however that, as compared with outcomes of actual compensation, the range of group medians is much narrower in the case of collectively agreed pay. In addition, they do not refer to the full set of countries, but only to those for which data are available.

In real terms, increases in collectively agreed pay were lowest in the country group with sector-level and highly coordinated bargaining (the median stood at 0.5%), while they were highest in countries with intermediate-level bargaining and a low degree of coordination (in which the median stood at 1.9%). Figure 8 in Annex 2 depicts these data for the individual countries expressed as index values.

Table 3: Median increases of nominal actual compensation per employee by wage bargaining regime and subperiods

	1998–2012		1999–2003	2004–2008	2009–2012
Wage bargaining regime as of…	2005	'Dominant'	1999	2005	2012
Centralised, highly coordinated	3.1	3.1	6.5	3.9	2.6
Intermediate level, highly coordinated	3.1	3.2	3.8	3.2	2.3
Intermediate level, medium level of coordination	-	2.8	4.1	-	1.7
Intermediate level, low level of coordination	3.6	3.6	5.3	3.5	2.4
Decentralised, low level of coordination	5.5	5.5	6.5	6.1	2.4
Indexation mechanisms present	3.6	3.6	4.2	2.9	2.2

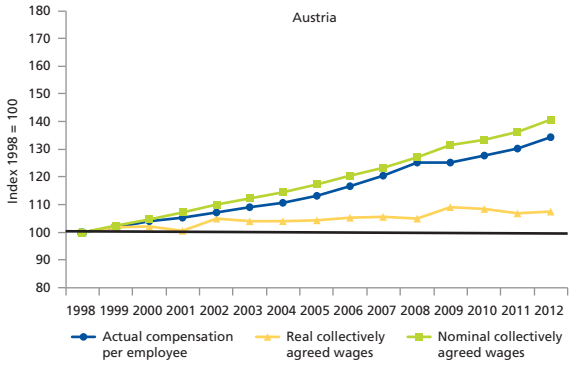
Note: The 'dominant' wage bargaining regime has been defined as the one most often observed during the period of observation.
Source: AMECO, Eurofound (own calculations).

Table 4: Median increases of nominal collectively agreed pay by wage bargaining regime and subperiods

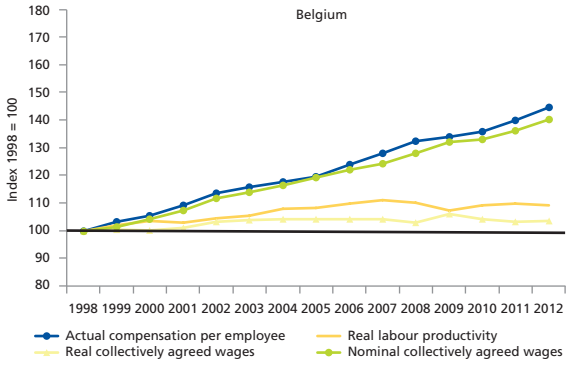
	1998–2012		1999–2003	2004–2008	2009–2012
Wage bargaining regime as of…	2005	'Dominant'	1999	2005	2012
Centralised, highly coordinated	2.9	2.9	3.8	3.2	2.0
Intermediate level, highly coordinated	2.3	2.4	2.4	2.5	2.1
Intermediate level, medium coordinated	-	2.5	3.5	-	1.8
Intermediate level, low level of coordination	3.7	3.6	4.4	3.7	2.9
Decentralised, low level of coordination	2.8	2.8	3.4	3.1	1.5

Note: The 'dominant' wage bargaining regime has been defined as the one most often observed during the period of observation.
Source: various national sources, Eurofound (own calculations).

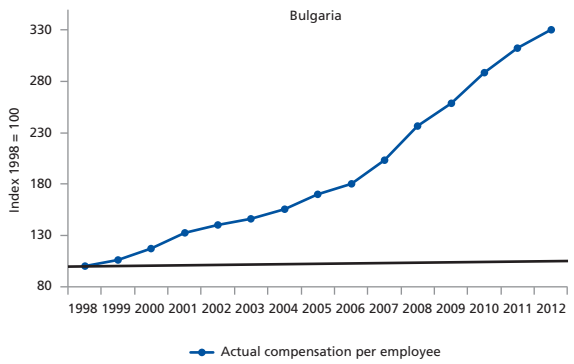
Figure 8: Pay developments from 1998–2012, EU28 and Norway



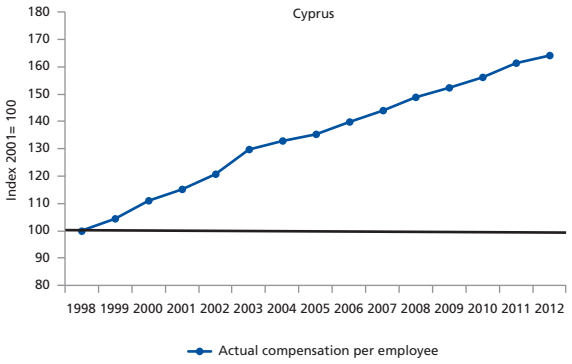
Source: Statistik Austria, Tariflohnindex, AMECO



Source: FOD WASO, Index of Collectively Agreed Wages, AMECO



Source: AMECO



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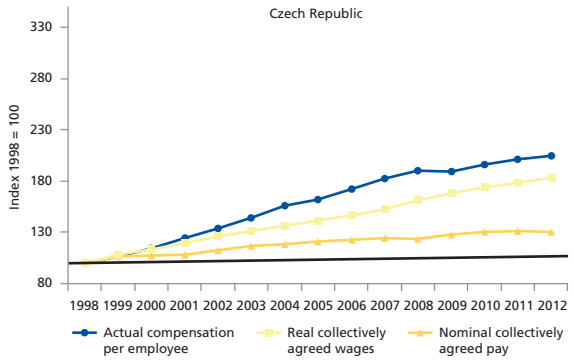
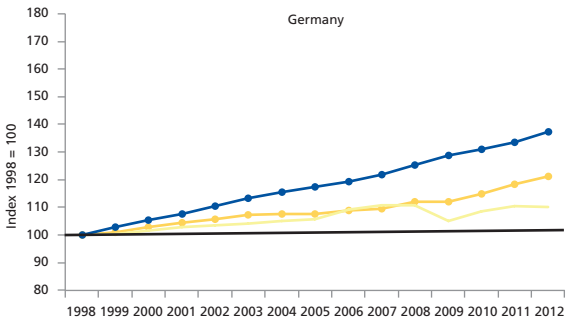
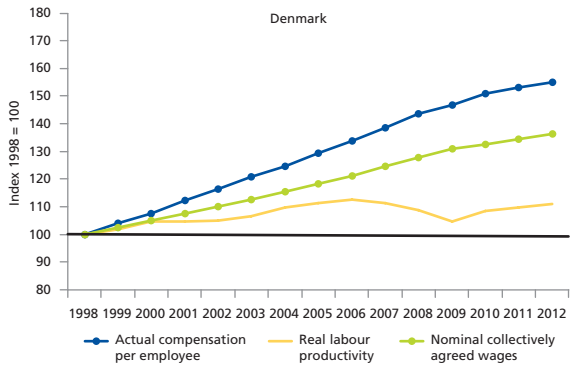


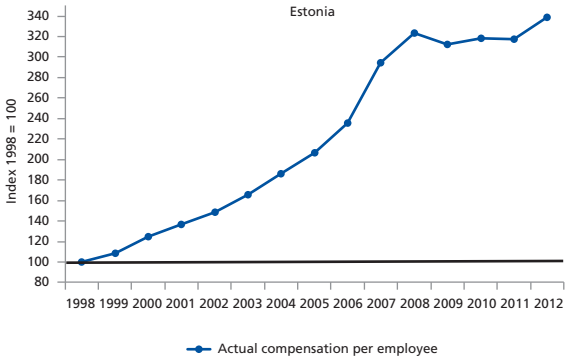
Source: Trexima, ISPP, AMECO



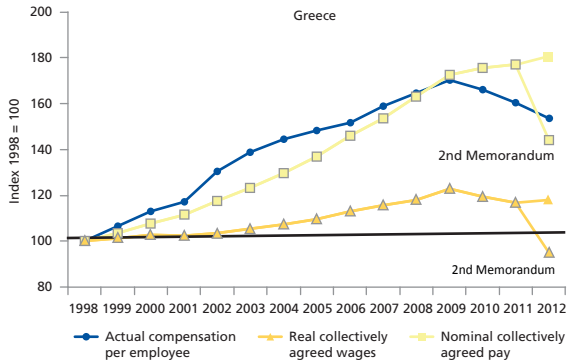
Source: WSI in the Hans Boeckler Stiftung, WSI-Tarifarchiv, AMECO



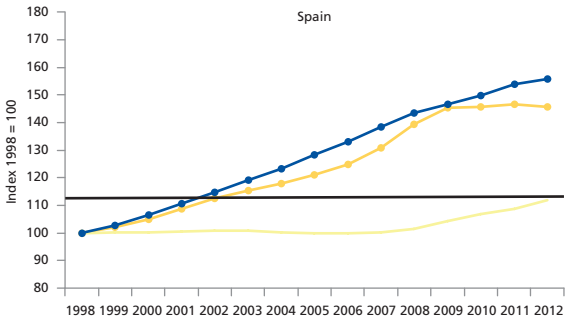
Source: The Industry Agreement, AMECO



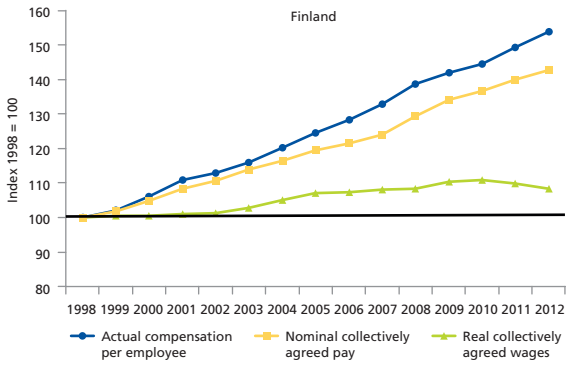
Source: Ministry of Employment and Social Security, Estadística de Convenios Colectivos de Trabajo, ECC, AMECO



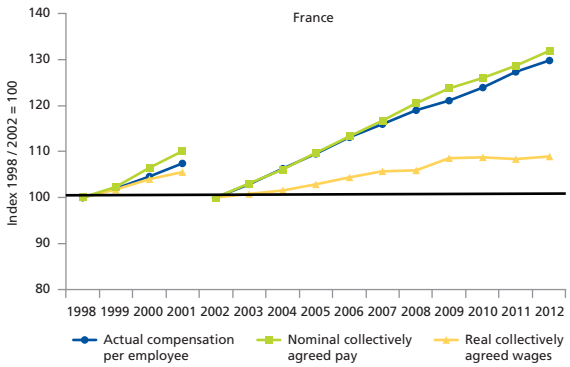
Source: AMECO



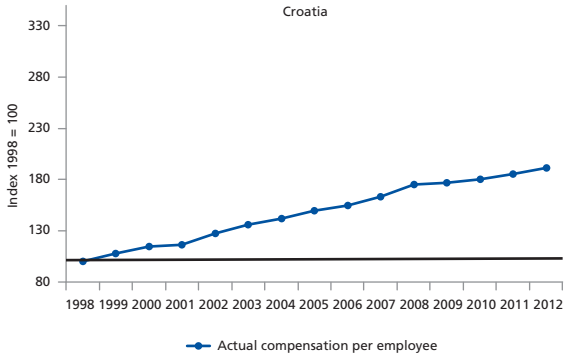
Source: Statistics Finland, Index of Negotiated Wages and Salaries, AMECO



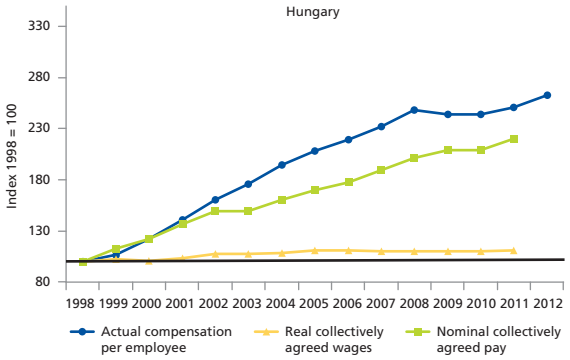
Source: Ministry of Employment's Office for Research and Statistics Collective Bargaining Reports (La négociation collective), AMECO. Note: break in series due to missing data.



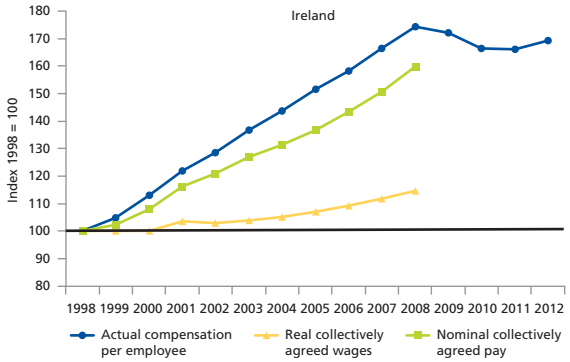
Source: EGSSE and Second Memorandum, AMECO



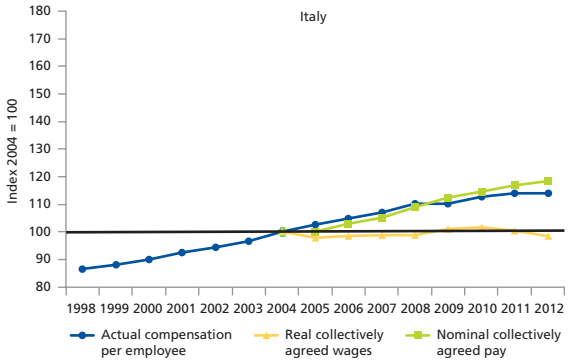
Source: OÉT wage bargaining-recommendation; or government recommendation, AMECO



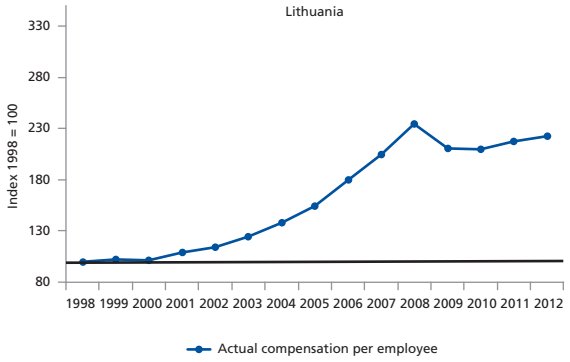
Source: AMECO



Source: National Social Partnership Agreements, AMECO



Source: ISTAT, Retribuzioni contrattuali per contratto – dati mensili e annuali (hourly rates), AMECO



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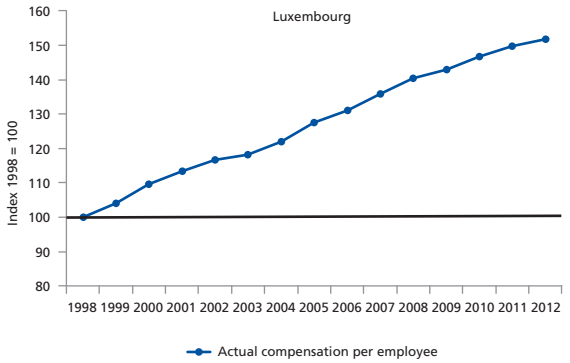
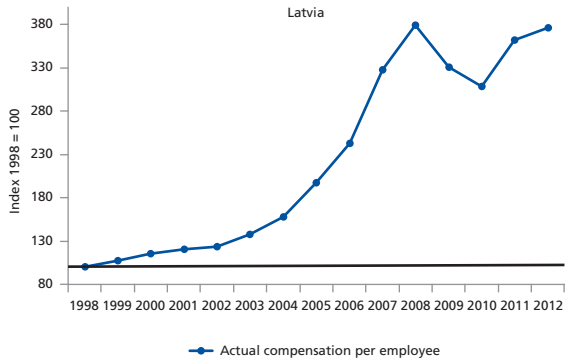


Source: AMECO



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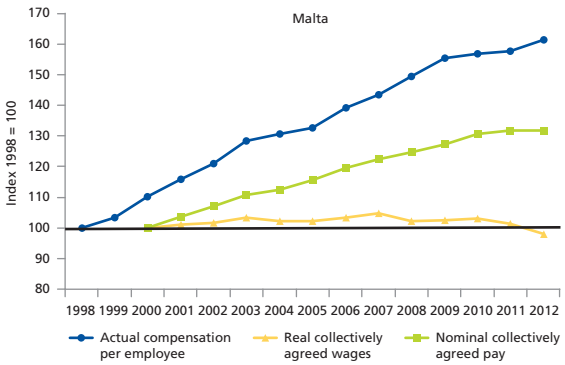
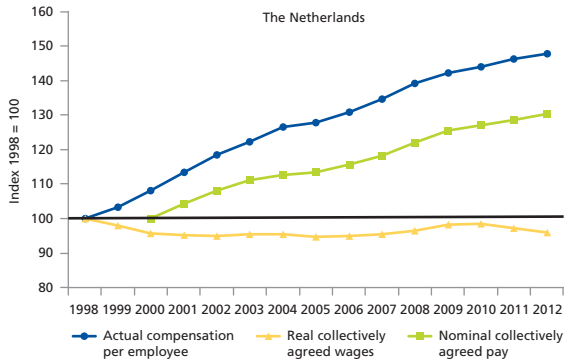
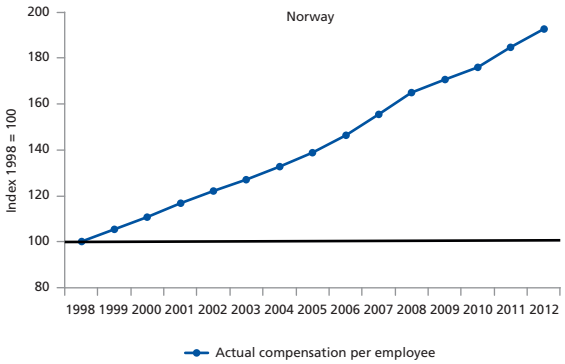


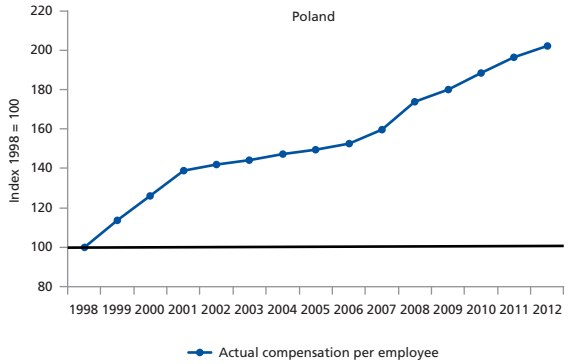
Source: Ministry of Social Affairs and Employment, Jaarrapportage CAO afspraken, AMECO



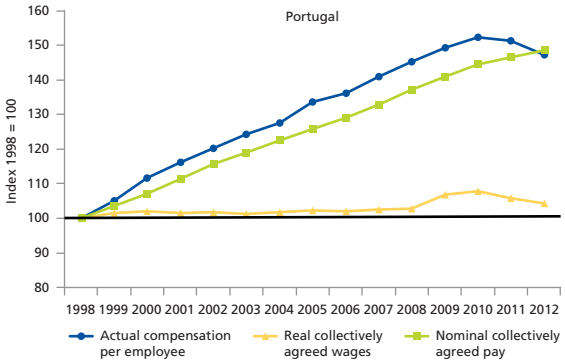
Source: Economic Policy Department, Ministry of Finance Economic Survey (blue-collar workers only), AMECO



Source: Ministry of Labour VMPI database, AMECO



Source: AMECO



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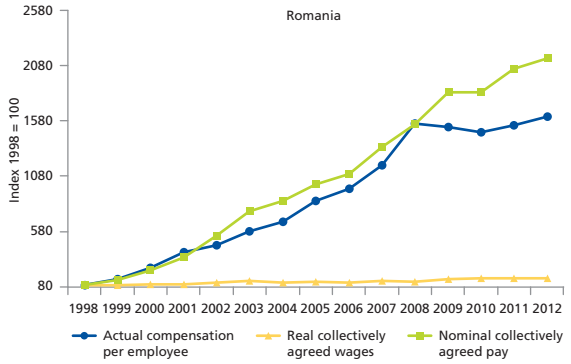
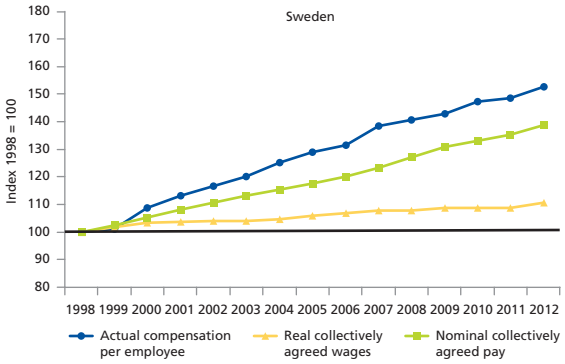
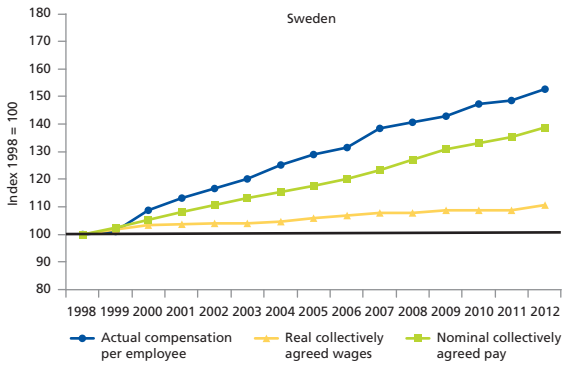


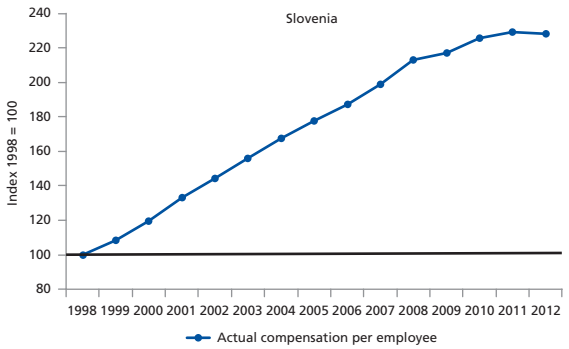
Source: Unique collective agreements at national level (1999–2007); Tripartite Agreement(2008–2009); Government decision (2011–2013), AMECO



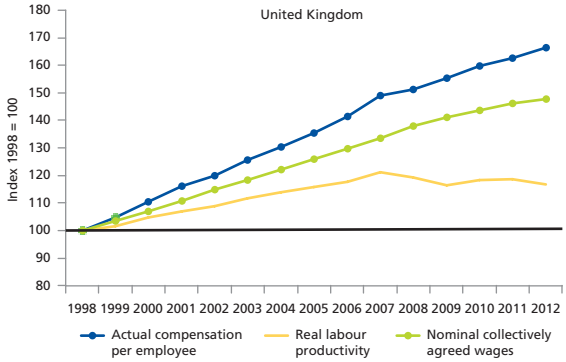
Source: Medlingsinstitutet, MI; National Mediation Office Avtalsdatabasen (the Agreement Database), AMECO



Source: AMECO



Source: Trexima, s.r.o Bratislava www.trexima.sk and the Ministry of Labour, Social Affairs and Family (MPSVR SR), Information System on Working Conditions (ISPP), AMECO



Source: Labour Research Department (LRD), Payline database, AMECO

Collectively agreed pay and actual wage developments: Wage drift

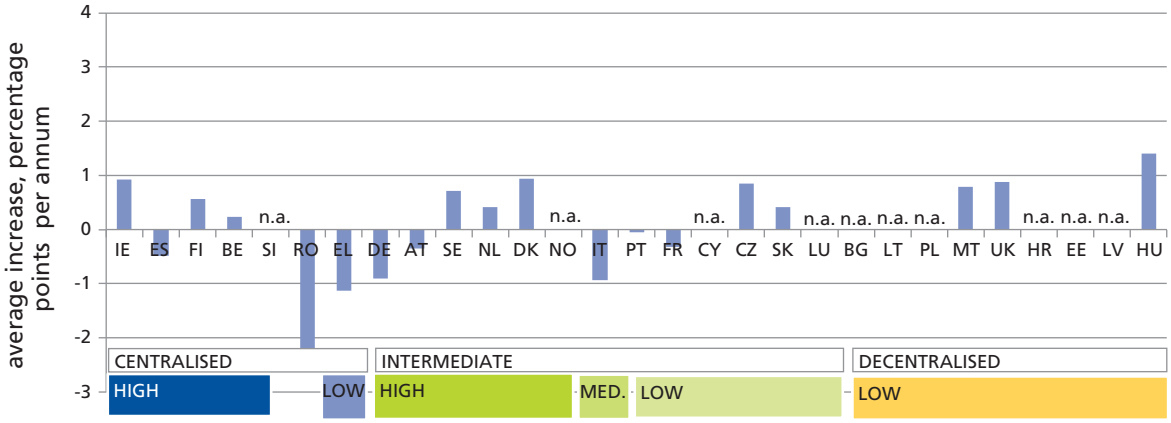
The difference between actual wage developments and collectively agreed pay is referred to in the literature as 'wage drift'.

As mentioned above, there are a number of reasons why collectively agreed pay developments might differ from actual wage developments.

- 'Collectively agreed pay' most likely refers to basic wages only, while actual wage bills include overtime payments, bonuses, stock options or other forms of variable pay.
- Firms might be willing to pay more than what has been collectively agreed, in order to encourage workers' commitment or discourage shirking. Economists call such payment 'efficiency wages'.
- In countries where collective bargaining coverage is not high, this may be due to the non-covered sector paying different market wages than the covered sector.
- Wage drift can be influenced by derogation mechanisms.

In this report, wage drift is defined as the difference between increases in actual compensation per employee and increases in collectively agreed pay, expressed in percentage points. Figure 9 shows this gap, summed and expressed in percentage points per annum. A negative wage drift means that collectively agreed pay rose more strongly than actual compensation, while a positive wage drift means that actual compensation rose more than collectively agreed pay. In general, wage drift is likely to be greater in times of boom and less in times of crisis. In this sense, wage drift is also sensitive to the choice of base year or, more generally, the period covered.

Figure 9: Gap between actual compensation and collectively agreed pay (wage drift), average 1999–2012



Sources: AMECO, various national sources, Eurofound own calculation

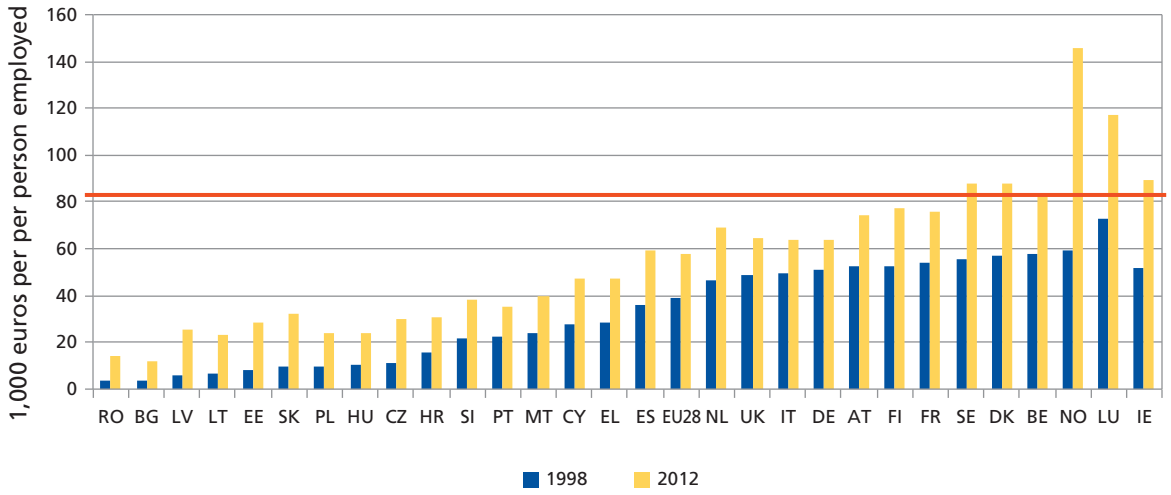
Wage drift – on average – was negative in Germany, Greece, Italy, Spain and Romania over the observed period; it was close to zero in Austria, France and Portugal and positive in the remaining countries with available data. Again, the wage-bargaining context does not add much to the explanation of such differences: positive and negative wage drift of different sizes can be found in each of the regimes, with the exception of decentralised regimes, where only positive wage drift was recorded. However, it is in this regime that the biggest gaps in data exist.

There is a further point worth drawing out from Figure 8. In those countries that received recommendations to reform their wage-bargaining mechanisms and in which there was a change in the level of wage bargaining and/or degree of coordination (Greece, Ireland, Italy, Romania and Slovenia), together with countries that were recommended to make reforms (Belgium, Portugal and Spain) in 2009–2010, there was a turning point in which the index of actual compensation fell under the collectively agreed wages index, and the gap between the two started to widen, implying that actual compensation grew more slowly than the collectively agreed amount.

6 Pay developments and labour productivity

As with the level of wages, labour productivity also converged across countries over the period of observation.[17] In 2012, labour productivity (GDP per person employed) ranged from around 12,000 euros per person employed in Bulgaria to 145,000 euros per person employed in Norway (or around 117,000 euros in Luxembourg within the EU). Such differences in labour productivity are heavily influenced by the type of technology applied in the respective countries – such as what kind of capital is used and how intensively this is being used to generate output.

Figure 10: Level of labour productivity, 1998 and 2012, EU28 and Norway (thousands of euro per person employed)



Note: Red line marks the EU28 average.
Source: AMECO, national accounts

Two indicators have been widely used when it comes to the link of pay developments with developments in labour productivity. The first is nominal unit labour costs, which are also part of the Macroeconomic Imbalance Procedure scoreboard, with a threshold being defined as a compounded increase of nominal unit labour costs by 9% over three years for euro zone members and by 12% increase for non-euro zone members. Nominal unit labour costs refer to the relationship between compensation per employee and real labour productivity (in terms of people employed). In this sense, they indicate how much a 'unit of labour' costs in relation to the output it generates. As they are affected by both productivity and price developments, they are used as an indicator for international (cost) competitiveness.

The second indicator is the real unit labour cost. Real unit labour costs are measured in terms of nominal actual compensation per employee in relation to nominal labour productivity (in terms of people employed). Real unit labour costs can be expressed in terms of the deflated nominal unit labour costs and they are equivalent to the wage share (the share of wages in the total GDP of an economy).

[17] The coefficient of variation fell from 0.64 in 1998 to 0.57 in 2012, which means that Member States now cluster more closely around the 'average' labour productivity than before.

From a political perspective – and put rather simplistically – the focus on nominal unit labour costs is stronger on the employer's side, the production-oriented side of the coin;[18] in contrast, trade unions are more inclined to look at the development of real unit labour costs, the distribution side of the coin. Moreover, trade unions have also asked that the relationship between developments in real wages and developments in real labour productivity be looked at (which is equivalent to looking at real unit labour costs).[19]

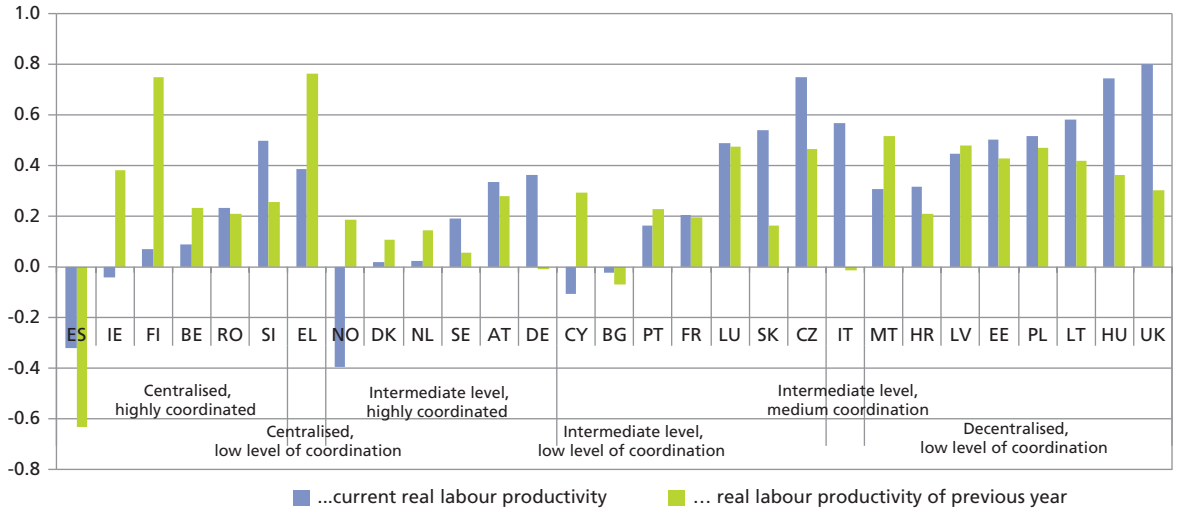
Before turning to these figures, it might be useful, though, to have a quick look at simple correlations of pay and current productivity and productivity increases of the previous year, as they yield insights on top of the information that unit labour costs give. Such correlations show to what extent the two respective time series (increases in nominal pay and increases in real productivity) have moved together. The closer the correlation coefficient is to 1, the more closely the patterns of change of the two series resemble each other. Note, however, that this only refers to the direction of the increases, not the levels. Figure 11 shows the results in relation to actual compensation, Figure 12 the results in relation to collectively agreed pay; a number of points emerge from the two figures.

- Overall, the correlation of increases of actual compensation with labour productivity is higher than the correlation of collectively agreed pay with labour productivity. This is intuitive, as in many countries not all employees are covered by collective wage agreements and the scope of collective wage agreements mainly refers to basic wages only; in contrast, actual compensation is broader in terms of its scope and encompasses more of the components of pay, which are actually also part of the output measure used for deriving labour productivity.
- Correlation of actual compensation with real labour productivity is higher in countries with more decentralised bargaining systems (Figure 11).
- In many countries with non-decentralised bargaining systems, there is a negative correlation of collectively agreed pay with real labour productivity, which underlines the earlier observed 'counter-cyclical' behaviour of collectively agreed pay (Figure 12). Nevertheless, in some of these countries (Finland, Greece and Ireland), actual pay increases did correlate to a greater extent with labour productivity over the previous year. This signals some kind of 'lag' in the determination of pay and the fact that, in many countries, actors in collective bargaining can look only at past or forecast data of labour productivity.

[18] See also the discussions outlined in Chapter 1: 'Policy background'.

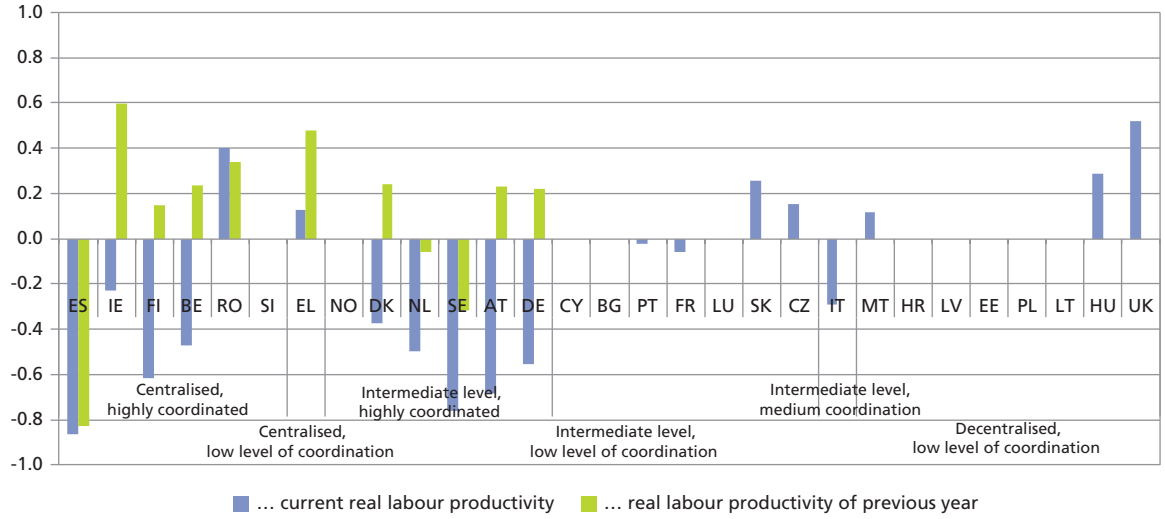
[19] One can also interpret the indicator of real unit labour costs as comparing real labour productivity with real wages (the deflator would cancel out in this case).

Figure 11: Correlation of increases of actual compensation with current real labour productivity and real labour productivity of previous year



Source: AMECO, Eurofound own calculations

Figure 12: Correlation of increases of collectively agreed pay with current real labour productivity and real labour productivity of previous year



Source: AMECO, various national sources, Eurofound own calculations

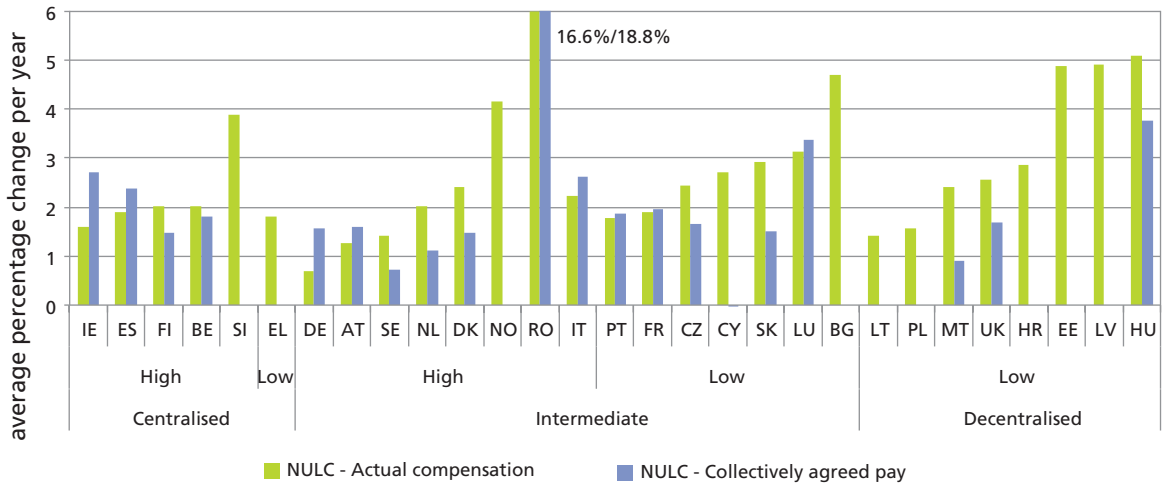
It cannot be concluded from this, at this stage, that more decentralised countries fare better in linking pay to productivity. While these correlations refer to the direction of the increase, they do not take into account the level of these increases. A further look at unit labour costs will add to the picture.

Nominal unit labour costs – wage-related competitiveness

Entire period of observation

Nominal unit labour costs have increased in every Member State. The median increase in this period stood at 2.4%. Countries with the highest annual recorded increases were Romania (16.5%), and Hungary, Latvia and Bulgaria (around 5% in each case). Countries with the lowest annual increases were Germany (0.7%), and Austria, Sweden, Lithuania and Ireland (around 1.5%).

Figure 13: Average annual increase of nominal unit labour costs 1998–2012



Source: AMECO, Eurofound own calculations
Note: For some countries shorter time series of collectively agreed pay are available; in such cases, the annual average is reported for a shorter period. In Romania and Hungary, no agreement or recommendations were made in certain years. These years have been taken into account with a value for the increase of zero. In Ireland, the series ends in 2008: hence, the collectively agreed pay reflects increases from 1998 to 2008 only.

These increases were not evenly spread across the whole period but were higher between 1999 and 2003 (median: 2.7%) and lowest during 2008 and 2012 (median: 1.7%). In fact, while the only countries with a decrease in nominal unit labour costs during 2004 and 2008 were Germany (-0.4% per annum) and Lithuania during 1999–2003 (-1.6%), some other countries did experience a fall in their nominal unit labour costs from 2008 onwards. These were mainly the countries hit hardest by the crisis: Latvia (-3.7%), Ireland (-3.2%), Lithuania (-1.9%), Spain (-1.4%), Greece (-0.7%), Portugal (-0.6%) and Estonia (-0.1%). Countries with higher increases of nominal unit labour costs during the crisis and onwards were Bulgaria (+5.3%), Luxembourg (3.8%), Norway (3.7%) and Finland (3.0%). The related figures are summarised in Table 9 in Annex 2.

Figure 13, above, displays the countries grouped by their wage-bargaining regimes (as of 2005). The light green bars show that there is no clear link between the wage-bargaining regime and the outcome in terms of growth of nominal unit labour costs. Every regime is associated with a range of outcomes. The 'median' outcomes of these systems show that systems with a higher level of coordination did have a lower growth rate of nominal unit labour costs than systems with low-level coordination over the full period observed. However, these findings do not hold for the various subperiods.

In countries where wage indexation mechanisms are present, nominal unit labour costs over the full period of observation increased at 2.5% per year. The increase in these countries was less in the boom

(with the median standing at 1.8% p.a. during 2004 and 2008), but was among the highest (similar to countries with centralised and highly coordinated bargaining) during the crisis (2009–2012).

Table 5: Development of nominal unit labour costs – Median annual average increase by bargaining regime (%)

	1998–2003	2004–2008	2009–2012	1998–2012
Wage bargaining regime as of…	**1999**	**2005**	**2012**	**2005**
Centralised, highly coordinated	2.7	3.0	2.5	2.0
Intermediate level, highly coordinated	2.4	1.5	2.1	2.0
Intermediate level, medium level of coordination	3.3	n.a.	1.7	n.a.
Intermediate level, low level of coordination	2.6	2.0	2.0	2.7
Decentralised, low level of coordination	2.6	3.5	0.6	2.7
Indexation mechanisms present	2.8	1.8	2.5	2.5

Source: AMECO, Eurofound own calculations
Note: The composition of the bargaining regimes varies over the years.

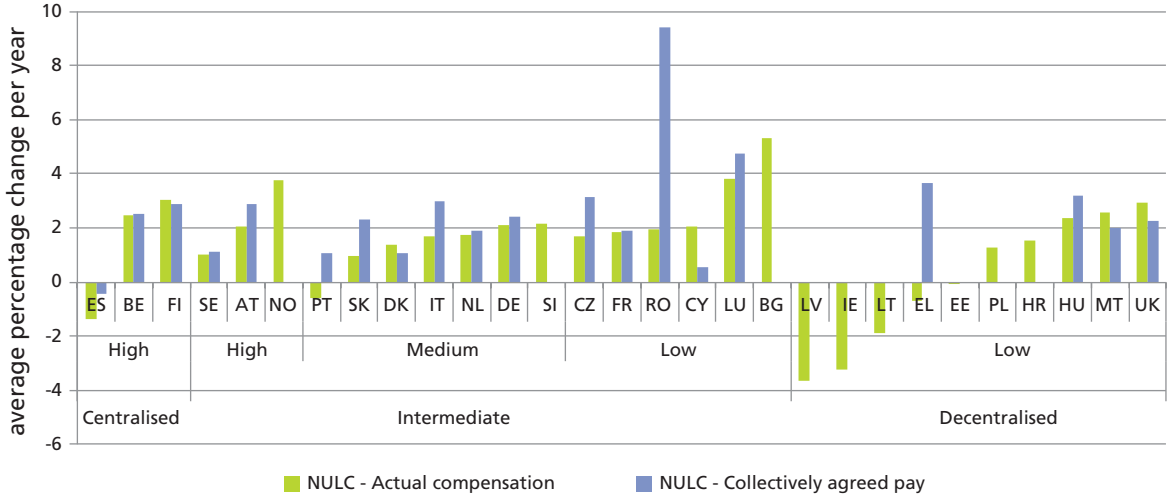
The dark green bars in Figure 13 show the outcome of a 'hypothetical' calculation of nominal unit labour costs, based on collectively agreed pay instead of actual compensation. They indicate the hypothetical amount of average per annum increase in nominal unit labour costs, if all employees in the respective economy had been covered by an embracing collective agreement and if all parts of their wages as well as other parts of their compensation had increased by the same amount as that indicated as 'average collectively agreed pay' for the total economy (see Figure 7 for the respective countries). If this had been the case, overall growth of nominal unit labour costs between 1998 and 2012 would have been substantially lower in Sweden, the Netherlands, Denmark, the Czech Republic, Slovakia, Malta, the UK and Hungary. Nominal unit labour costs would have been broadly the same in Finland, Belgium, Portugal and France. And they would have been higher in Spain, Germany, Greece, Austria and Romania. In Ireland, nominal unit labour costs in terms of collectively agreed pay would have grown by 2.7% on average over 1998–2008; in fact, in the same period, actual nominal unit labour costs grew by 2.5%.

The period of crisis and beyond

Figure 14 displays the average annual increase in nominal unit labour costs, for 2009–2012, with countries being sorted by their wage bargaining regime as of 2012. The picture suggests that, within some countries with decentralised bargaining systems, nominal unit labour costs decreased (and even faster than in countries with different systems). Does this mean that decentralised systems can react more quickly to pressures on wages related to the crisis? Possibly. The fact that bargaining coverage is low, and collectively agreed pay sometimes responds less sensitively to, and lags behind, economic changes, could be an explanation for this. On the other hand, this picture shouldn't be interpreted without considering the following factors:

- the degree to which the respective countries were hit by the crisis;
- the extent to which this could have been caused by earlier wage-related factors (for example, the large increase in actual compensation in Latvia and Estonia);
- the extent to which other (non wage-related) factors related to competitiveness affected the economy and put pressure on wages.

Figure 14: Average annual increase of nominal unit labour costs 2009–2012, wage bargaining regime as of 2012



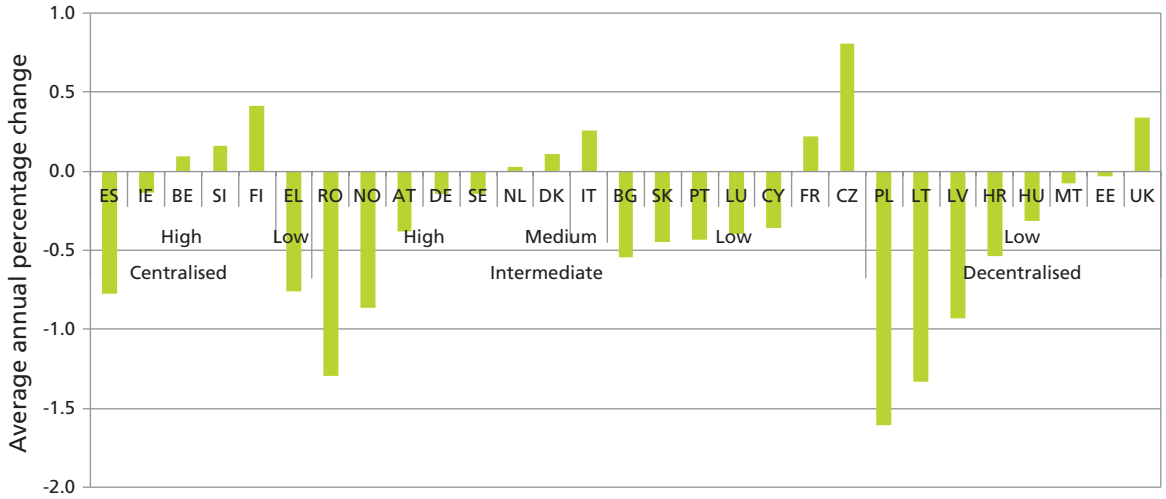
Source: AMECO, Eurofound own calculations

The dark green bars, again, refer to the hypothetical situation in which the 'average' collectively agreed pay would have applied to all employees within an economy and would have embraced all components of pay. In this period, only Denmark, Malta and the UK would have seen a lower increase in their nominal unit labour costs, had the collectively agreed pay been the general increase. For Belgium, Finland, Sweden, Denmark, the Netherlands, Germany, and France the situation would have been broadly the same. For Spain, Portugal, Slovakia, Italy, the Czech Republic, Romania and Greece, nominal unit labour cost growth would have been higher.

Real unit labour costs – the distributional side

The major trend as regards real unit labour costs between 1998 and 2012 was one of decline. In the median country – Hungary – the real unit labour costs decreased by -0.3% per annum. The highest growth of real unit labour costs was observed in the Czech Republic (+0.8%), followed by Finland, the United Kingdom, Italy, France, Denmark and Belgium (all between 0.1 and 0.4% per year). The largest decreases were recorded in Poland (-1.6%), Lithuania, Romania, Latvia, Norway, Greece and Spain. Again, there is no obvious link with different wage bargaining regimes over the full period: both decline and growth in real unit labour costs was observed in all types of bargaining regimes.

Figure 15: Average annual change of real unit labour costs 1998–2012, wage bargaining regime as of 2005



Source: AMECO, Eurofound own calculations

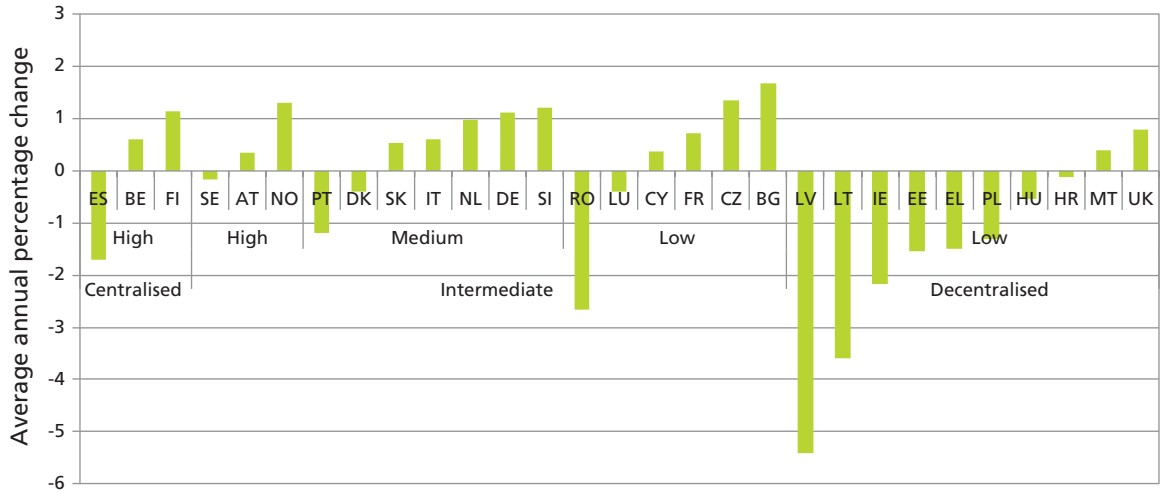
The general trend of a declining wage share (decreasing real unit labour costs) was reversed during the period dominated by the crisis (2009–2012) (see Table 10 in Annex 2). During that period, real unit labour costs in the median country – Austria – rose by 0.3% per annum. This – according to the European Commission – is a cyclical pattern: during an economic downturn (with a decline in output and employment), nominal compensation per employee is less responsive, hence a (temporary) halt of the overall trend could be observed. The overall pattern, however, is attributed to structural factors (such as the increase in capital intensity, technological change, and globalisation).

Figure 16 shows the development of real unit labour costs for this subperiod and in relation to the wage bargaining regime prevailing in 2012. Here, for the first time, the connection becomes a little clearer. In the majority of countries with decentralised bargaining systems, real unit labour costs did still decline during the crisis; in contrast, in the majority of countries with other systems, real unit labour costs increased. It is also worth noting here that the average annual changes in this period were much higher in both directions.

A possible interpretation for this is the 'stabilising' influence of collectively agreed pay, notably in those countries where collective bargaining coverage is higher. On the other hand, this is also a question of the degree to which countries affected by the crisis (such as Spain, Portugal and Romania, all with rather high levels of bargaining coverage before the crisis) have reacted to changing circumstances.[20]

[20] In Spain, social partners at central level came to a tripartite agreement on wage moderation. This was accompanied by a decline in collective bargaining coverage and/or an increase in derogation from wage agreements. In Romania, the government suspended the multiannual tripartite wage agreement. Portugal saw a dramatic fall in collective bargaining coverage due to many collective wage agreements not being renewed.

Figure 16: Average annual change of real unit labour costs 2009–2012, wage bargaining regime as of 2012



Source: AMECO, Eurofound own calculations

Wage bargaining regimes and pay–productivity links

Is there any relationship between the type of wage bargaining regime in place and the linkage of pay (be it actual or collectively agreed pay increases) with labour productivity?

Figure 17 gives an overview of the outcomes derived in the previous section as regards unit labour costs in terms of actual compensation and collectively agreed pay with the grouping of countries in relation to the wage bargaining regime. Rather than focusing on wage drift (the difference in outcomes between collectively agreed pay and actual compensation), it aims to summarise the relationship across countries and gauge to what extent country developments have deviated from the development of the median country.

On the horizontal line, nominal unit labour costs in terms of collectively agreed pay are depicted; this indicates (between 1999 and 2012) how much collectively agreed pay increases deviated from labour productivity. On the vertical line, nominal unit labour costs are depicted, indicating to what extent actual compensation deviated from labour productivity. This is an equivalent depiction of the data presented above in Figure 13, with the exception of those countries for which no data on collectively agreed pay are available.

The most obvious message from this graph is that there seems to be no straightforward link between wage-bargaining regimes and the relationship of pay to productivity: different regimes can produce similar outcomes and similar regimes can result in different outcomes.

The only exception to this could be the fact that all countries with sector-level and highly coordinated bargaining systems can be found in the quadrant with the lowest increase in nominal unit labour costs, in terms of both measures for pay.

It is worth noting as well that most of the countries in which there was a change in the wage-bargaining mechanism and that received recommendations for reforms in those same mechanisms are almost all to be found in the same quadrant: Greece, Ireland, Spain, Italy, Portugal and Belgium. They had

comparatively high increases of collectively agreed pay in relation to other countries, whereas they had lower-than-medium increases in terms of actual compensation.

From the recent recommendations on linking pay and productivity, it could be inferred that policymakers suggest that decentralised systems fare better in coupling wages with productivity. In countries with decentralised systems, company bargaining is the predominant level; hence, this group of countries has the biggest data gaps in relation to collectively agreed pay. Averages of collectively agreed pay increases can be reported only for the UK and Malta, plus a series of pay recommendations for Hungary. None of the figures here supports such a hypothesis for decentralised systems, because countries with a relatively decentralised system and a low degree of coordination do not systematically have their wage developments linked with productivity developments. While there are some examples of such countries (notably the UK and Malta for both collectively agreed pay and actual wages) or Lithuania and Poland (for actual compensation), there is an equal number of counter examples: Bulgaria, Croatia, Estonia, Latvia and Slovenia (for actual compensation).

Figure 17: Plot of nominal unit labour costs in terms of collectively agreed pay and actual pay increases from labour productivity, by wage bargaining regime 2005

Source: National databases on collectively agreed pay, AMECO, ICTWSS, EIRO, author's own calculations

Box 4: Beyond wage-related competitiveness

The sole focus on wages and labour productivity and hence the interpretation that (nominal) unit labour costs are the only determinant of competitiveness is a rather simplistic view. Collignon (2013a) and Collignon and Esposito (2013) have criticised this and present an alternative indicator of competitiveness, which also takes capital productivity (or capital efficiency) into account. One of their points of criticism is that the currently used indicator on unit labour costs looks only at changes over time within a country, while a reference to levels (which takes into account the actual situation in comparison with other countries at a respective starting point) is missing. Their second point of criticism is that the sole focus on wages and labour productivity neglects changes in capital productivity (or capital efficiency) and profit margins. They propose an alternative indicator of competitiveness, which is based on the return on capital. See the section 'Collignon and Esposito's (2013) index of competitiveness' for a more formal description of the index.

The return on capital goes up, if the profit margin increases (hence unit labour costs decrease) or if capital efficiency (and capital productivity) increase.

In efficient markets, the return on capital should be the same in all regions in equilibrium. Taking the euro zone as a field of observation, this would imply that, in a given Member State, the return on capital should be the same as the average return on capital in the euro zone.

This means that, in equilibrium, relative wage shares must equal relative differences in capital efficiency. The index the authors propose is defined as a country's actual unit labour costs in relation to the equilibrium unit labour costs. Its competitiveness index (CCI) is then a function of average capital efficiency (ACE), prices and unit labour costs.

$$CCI_A = \frac{NULC_A}{\frac{ACE_{EZ}}{ACE_A}\frac{P_A}{P_{EZ}}NULC_{EZ} - \left(\frac{ACE_{EZ}}{ACE_A} - 1\right)P_A}$$

The index thus shows to what extent a country's unit labour costs are over, or under, valued in relation to the euro zone. An increasing index means a deterioration of competitiveness, while a decrease means an improvement in a country's competitiveness in relation to the euro zone.

Calculating this index from the 1990s until present, the authors show that:

…northern member states are generally undervalued. In Finland this undervaluation goes back to the crisis years in the early 1990s, in the Netherlands it started around the time of monetary union in 1999, and in Germany it occurred with the Schröder labour market reforms. France has moved from undervaluation to overvaluation, Italy has persistently lost competitive advantages over the last two decades, but having started from a much undervalued position it is now close to equilibrium. In the crisis countries, Spain has become more and more overvalued during its property boom; Portugal and Ireland have also lost competitiveness, but they are still undervalued.

Cyprus has oscillated in a range below equilibrium. Most surprising, Greece has reduced its overvaluation disadvantage before the crisis, but had not yet reached equilibrium. Despite a draconian austerity regime, the country has experienced a slight deterioration in competitiveness since the crisis erupted.

(Collignon and Esposito, 2013)

Sector-related collectively agreed pay

Data on collectively agreed pay in relation to sectors are even more heterogeneous and patchier than data for the total economy. Data have been drawn from two different sources. Where available, sectoral breakdowns were used from data collected in databases of collective agreements. In the majority of countries, however, data stem from the biggest sector-related collective agreements and have been compiled by the EIRO national correspondents in a consistent way in the course of the project. The collected data series are available on a designated web-portal by Eurofound, featuring quantitative and qualitative info around collective pay bargaining, available at www.eurofound.europa.eu/eiro/cwb/, and sources are listed in detail at www.eurofound.europa.eu/docs/eiro/wages/collectivesources.pdf.

Most agreements are overlapping, sectionally overlapping or cover just parts of the NACE code below. In this sense, their comparability across countries is limited. Within countries and over time, however, they provide a consistent mapping of outcomes of collective agreements.

Table 6: Sectoral demarcation in this study

Sector	Core NACE
Metal sector	24, 25
Chemical sector	20
Retail	47
Banking	64
Civil service	84
Local government	84 (same activities as in 84, but depending on the level, which is not specified in the NACE code).

The sectoral series are displayed in Annex 2, in Tables 11 to 16. As many countries could provide data only for a selected number of years, annual averages are not reported here.

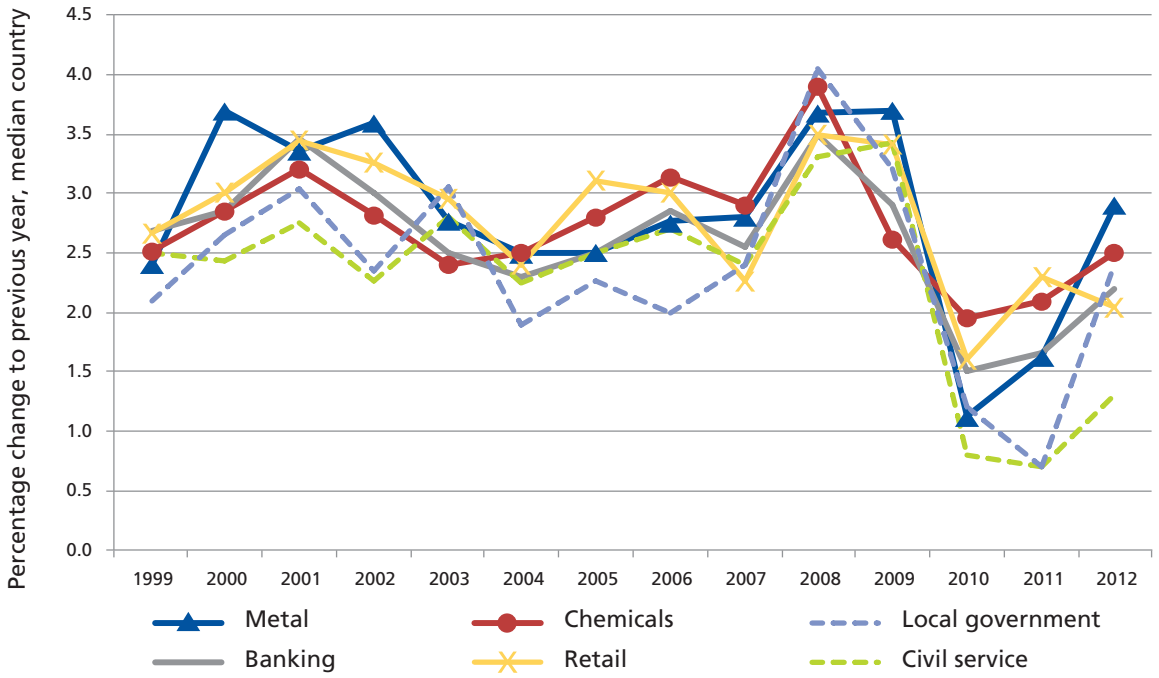
Following all these words of caution, Figure 18 shows the development of the annual median nominal increase percentage increase from 1999–2012 and Figure 19 presents the same data in an index format, with 1998 equalling 100.

Collectively agreed pay increases across all sectors ranged between 2% and 3.5% per year until 2007, peaked at around 3.5% to 4% in 2008 and went down to a range of between 0.7% and 2% until 2010, to pick up slightly afterwards. Increases over the years were highest in the chemical, metal, and retail sectors and lowest in the civil service and local governments.

Disparities between sectors increased, particularly between the public sectors (civil service and local governments) and the remaining sectors which were mapped. This development started slowly between

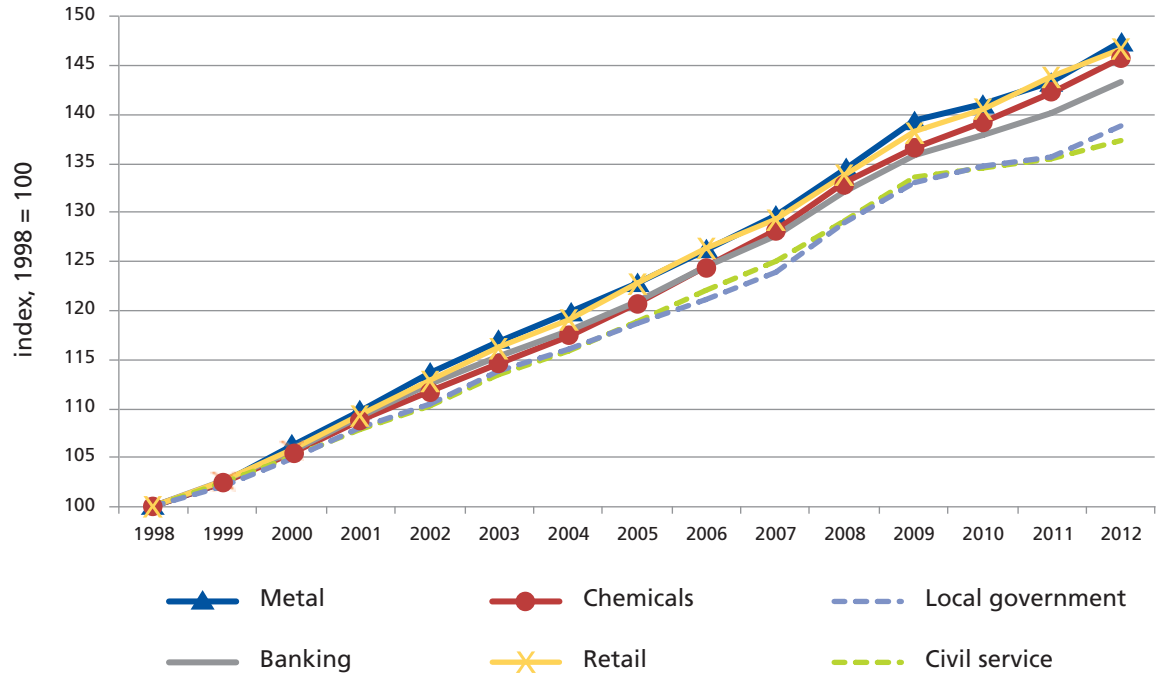
1998 and 2005, gained momentum up to 2009 and speeded up in the years following the crisis where, in many countries across Europe, pay was frozen or only moderately increased in the public sector.

Figure 18: Change of nominal collectively agreed pay by sector 1999–2012, median



Source: Median of countries for which data are available. See Table 11 to Table 16 in Annex 2.

Figure 19: Development of nominal collectively agreed pay by sector 1998–2012, median



Source: Median of countries for which data are available. See Table 11 to Table 16 in Annex 2.

7 Summary and conclusions

Policy background

Despite the fact that, according to the European treaties, pay is a subject outside the European institutions' remit, wage setting has been addressed by the Commission, the Council and even the European Central Bank for at least two decades, in the form of statements or recommendations about wages and wage-related policy. Recently, this has become common in many policy instruments and forums – namely through the Commission's recommendations resulting from the European semester and the 2013 attempt to establish a tripartite dialogue on wage developments.

Constraints placed on non-monetary policies by the EMU institutional framework soon became evident: calls were made for enhanced macroeconomic policy coordination and fiscal and wage policies. The argument was that existing constraints could be smoothed out through the coordination of available policy instruments, which, in the right mix, would be conductive to higher growth and employment levels. Attempts to coordinate monetary, fiscal and wage policies at a single point in time might be risky and, in the end, could destroy the balanced institutional framework in the EMU with its sound and clear assignment of objectives to individual policymakers (Issing, 2002).

However, more recent moves towards what some analysts call 'the new system of European economic governance' seem to 'mark a paradigm shift in the EU's approach to collective bargaining from the acceptance of free collective bargaining to direct political intervention into national bargaining outcomes and procedures' (Schulten and Muller, 2013).

Finally, it is also important to underline how the social partners have been voicing their concern about the interference by the European institutions in a topic at the heart of collective bargaining. The call for respect of the social partners' autonomy in collective bargaining, particularly in terms of wages, has perhaps been the most fundamental message to emerge from the period studied here.

Empirical findings

This report has sought to contribute to the policy debate around wages by adding the dimension of collectively agreed pay to the picture of differences in wage bargaining regimes.

Overall, it is important to stress that many findings are contingent on the period that is looked at, since they change over the business cycle. It is important therefore to look back at a longer series of data over the medium and short term. Here, one can distinguish between the times of 'boom' and 'crisis or post-crisis' within the full period of observation (clearly, these were not the same in the different Member States).

One, time-sensitive, finding in this sense is the observed 'countercyclical' aspect of collectively agreed pay. Collectively agreed pay – to a greater extent than actual compensation – seems to act as a kind of 'insurance' for employees in times of crisis. It doesn't follow entirely the 'ups and downs' of fluctuations in output. Together with the fact that, in many systems, pay increases lag behind productivity developments, it is advisable to look at medium and long-term developments instead of focusing on short-term outcomes. Systems with more decentralised bargaining structures and less bargaining coverage seem to have less of this insurance function for employees, leading to a higher exposure of employees in terms of wages (and jobs) at risk.

Collectively agreed pay is only one part of actual compensation and of total labour costs. Labour-cost-related competitiveness can hence be only partly determined by developments in collectively agreed pay. Depending on the 'wage drift' between actual compensation and collectively

agreed pay, nominal unit labour costs in some countries were made stronger by collectively agreed pay than in other countries. The findings of this research show that, in the majority of countries with available data, nominal unit labour costs would have been lower or equal to the actual nominal unit labour costs, had all employees been covered by a (notional) central collective agreement and had all components of their compensation been raised by the collectively agreed rate.

In line with many other studies, no clear link was found between bargaining systems and pay on one hand, and productivity on the other, in the medium term. Different regimes can produce similar outcomes, and similar regimes can produce different outcomes in term of linking pay to productivity (in terms of nominal unit labour costs).

Because of the descriptive nature of this work, however, no empirically sound conclusions can be reached as to whether certain wage bargaining regimes fare better in linking pay with productivity, as this research could not control for any other potential influences. However, these preliminary and descriptive findings suggest that more coordinated bargaining regimes (with sectoral bargaining being predominant) had the closest link between pay and productivity over the medium term (1999–2012) and hence the smallest loss of wage-related competitiveness.

As nominal unit labour costs are part of the Commission's Macroeconomic Imbalance Procedure's scoreboard, the competitiveness-related aspect of wage developments currently seems to feature more prominently on the (European) political agenda. However, trade unions have repeatedly stressed that real wage developments (as compared with nominal ones) should proceed in line with real labour productivity. Hence, workers should be compensated, taking inflation into account, so that the wage share remains stable. Unions have also asked that real unit labour costs be considered. A constant wage share would support domestic demand, contribute to price stability and avoid deflation.

This part of the report also looked at this distributional aspect of wages, in terms of real unit labour costs or the wage share within the economy. The overall trend was that of a declining wage share in most Member States (except in the Czech Republic, Finland and the United Kingdom, where the wage share is growing). A return towards an increase was observed in 14 Member States during and after the crisis, whereas real unit labour costs (wage share, in other words) started or continued to fall in 12 Member States. This is because wages generally do not fluctuate to the same extent as output over the business cycle. While the most commonly observed decline of the wage share was equally spread across all types of bargaining regimes, the cyclical return to growth mostly took place in non-decentralised regimes. However, this cannot be entirely separated from the fact that the countries that were most affected by the crisis (and hence experienced the deepest wage cuts) did not see such a change in trend.

In light of the discussion regarding the two central indicators (nominal and real unit labour costs), it is also important to note some shortcomings. The current interpretation of both looks only at their change over a certain period, while their initial levels and their respective starting points in relation to other countries are essentially disregarded.

In relation to the sectoral level, this part of the report has shown that disparities in terms of collectively agreed pay have increased over time between sectors – in particular, between the public sector (local governments and civil service) and the remaining sectors considered here.

This report is only a modest beginning; more research is needed along these lines. Eurofound intends to advance it by using a multivariate modelling framework (using panel-data observations) to see

whether the observed links (or lack thereof) between wage-bargaining regimes and pay outcomes persist, once other factors are taken into account and controlled for. Such macrodata-based research should also look into the determinants of wage drift, and to what extent this could be driven by different wage-setting regimes.

A further step would be to study micro-level data, which allow more detailed insights into developments at company and sector level. An obvious dataset (because it is harmonised), is the European Structure of Earnings Survey, which includes information on collective agreements at company level. This dataset could be extended with information on sector-level and national-level bargaining so that, within a multi-level modelling approach, more detailed insight into the impact of wage bargaining on pay outcomes could be achieved.

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Annex 1: Methodological notes

Datasources on collectively agreed pay

Eurofound national correspondents were asked to report data on collectively agreed pay, stemming from datasources that gather collective agreements (at various levels) and enable the reporting of 'averages' of collectively agreed pay for the whole economy and/or for selected sectors. This is the case in a number of countries – see Table 7.

Where such 'average' figures are not available, the national correspondents were asked to report on outcomes of national agreements or wide-ranging cross-sectoral agreements that affect major parts of the economy, pace-setting agreements or pay recommendations.

Table 7: Datasources used for the generation of series of collectively agreed pay, total economy

Country	Institution	Source
AT	Statistik Austria	Tariflohnindex TLI
BE	Federal Administration of Employment, Work and Social Dialogue (FOD WASO)	Index of the conventionally agreed wages
CZ	Trexima	Informační systém o pracovních podmínkách (Working Conditions Information System, ISPP),
CY	Cyprus Labour Institute (INEK)	Information provided from the two union confederations PEO and SEK
DE	Institute for Economic and Social Research (WSI) within the Hans Böckler Foundation (Hans Böckler Stiftung)	The Collective Agreement Archive (Tarifarchiv)
ES	Ministry of Labour	Labour Statistics Bulletin
FI	Statistics Finland	Index of the negotiated wages and salaries
FR	Ministry of Employment's Office for Research and Statistics (Direction de l'animation de la recherche, des études et des statistiques du ministère de l'Emploi, DARES.	Annual Collective Bargaining reports (La négociation collective)
IT	Italian Statistical office, Istat	(a) Istat 'Contratti collettivi e retribuzioni contrattuali', 26 January 2012; (b) Istat 'Contratti collettivi e retribuzioni contrattuali' 21 December 2012
MT	Department of Industrial and Employment Relations (DIER)	Economic Survey
NL	Inspection of the Ministry of Social affairs and Employment, which includes the former Labour Inspectorate	I-SWZ
PT	Ministry of Economy and Employment	Variação média ponderada intertabelas (Average weighted variation between wage tables)
SE	National Mediation Office (Medlingsinstitutet)	Avtalsdatabasen (The Agreement Database)
SK	MPSVR SR and Trexima Ltd.	The annual sample survey Informačný systém o pracovných podmienkach (ISPP)
UK	Labour Research Department (LRD), a private, trade union-linked, subscription-based service (on the basis of the database)	Payline database

Collignon and Esposito's (2013) index of competitiveness

$$Return\ on\ capital = \frac{Profits}{Gross\ domestic\ product} * \frac{Gross\ domestic\ product}{Value\ of\ capital\ stock}$$

This is equivalent to:

$$Return\ on\ capital = Profit\ margin * average\ capital\ efficiency$$

or alternatively:

$$Return\ on\ capital = (1 - wage\ share) * average\ capital\ efficiency$$

(Whereby average capital efficiency equals capital productivity if the price of the capital good evolves at the same rate as the GDP deflator.)

Expressed in terms of unit labour costs, this would be equivalent to:

$$Return\ on\ capital = (1 - real\ unit\ labour\ costs) * average\ capital\ efficiency$$

Or:

$$Return\ on\ capital = (1 - \frac{nominal\ unit\ labour\ costs}{GDP\ deflator}) * average\ capital\ efficiency$$

The return on capital goes up, if either the profit margin increases (hence unit labour costs decrease) or if capital efficiency (and capital productivity) increase.

In efficient markets, the return on capital should be the same in all regions in equilibrium. Taking the euro zone as the field of observation, this would imply that in a given Member State, the return on capital should be the same as the average return on capital in the euro zone. This is the case when

$$\left(1 - \frac{NULC_A}{P_A}\right) average\ capital\ efficiency_A = \left(1 - \frac{NULC_{EZ}}{P_{EZ}}\right) average\ capital\ efficiency_{EZ}$$

Whereby NULC = nominal unit labour costs, P is the GDP deflator, the subscript 'A' refers to a particular Member State and EZ is the average of the euro zone.

This means that, in equilibrium, relative wage shares must equal relative differences in capital efficiency. The index the authors propose is defined as a the country's actual unit labour costs relatively to the equilibrium unit labour costs. The countries' competitiveness index is then a function of average capital efficiency (ACE), prices and unit labour costs.

$$CCI_A = \frac{NULC_A}{\frac{ACE_{EZ}}{ACE_A}\frac{P_A}{P_{EZ}} NULC_{EZ} - \left(\frac{ACE_{EZ}}{ACE_A} - 1\right) P_A}$$

Annex 2: Tables and figures

Data for the total economy

Table 8: Annual average growth rates of actual compensation per employee in different subperiods (%)

	1998–2003	2004–2008	2009–2012	1998–2012
AT	1.7	2.8	2.3	2.1
BE	3.0	2.8	2.6	2.7
BG	7.9	10.1	8.4	8.9
CY	5.3	2.8	2.5	3.6
CZ	7.6	5.7	2.7	5.3
DE	1.4	0.8	2.6	1.4
DK	3.8	3.5	1.8	3.2
EE	10.7	14.2	2.7	9.1
EL	6.8	3.5	-3.4	3.1
ES	2.9	3.9	0.1	2.7
FI	3.0	3.6	2.7	3.1
FR	2.7	3.0	2.4	2.6
HR	6.4	5.1	2.7	4.7
HU	12.0	7.1	2.4	7.1
IE	6.5	5.0	-0.6	3.8
IT	2.2	2.7	1.1	2.0
LT	4.5	13.4	1.9	5.9
LU	3.4	3.5	2.0	3.0
LV	6.6	22.5	4.3	9.9
MT	5.1	3.1	1.3	3.5
NL	4.1	2.6	1.3	2.8
NO	4.9	5.4	4.2	4.8
PL	7.6	3.8	4.0	5.2
PT	4.5	3.2	-0.5	2.8
RO	42.6	21.6	1.9	22.0
SE	3.8	3.2	2.2	3.1
SI	9.3	6.5	1.7	6.1
SK	8.4	8.2	2.7	6.6
UK	4.7	3.8	2.3	3.7
Median increase	**4.9**	**3.8**	**2.3**	**3.6**

Source: AMECO, Eurofound own calculations

Table 9: Annual average growth rates of collectively agreed pay per employee in different subperiods (%)

	1999–2003	2004–2008	2009–2012	1998–2012	Comments
AT	2.4	2.5	2.3	2.5	
BE	2.7	2.4	2.0	2.5	
BG	n.a.	n.a.	n.a.	n.a.	
CY	n.a.	n.a.	n.a.	n.a.	
CZ	5.6	4.2	2.9	4.4	
DE	2.5	2.0	2.2	2.3	
DK	2.4	2.6	1.4	2.2	
EE	n.a.	n.a.	n.a.	n.a.	
EL	4.3	5.7	1.6	4.3	
ES	3.5	3.8	2.0	3.2	
FI	2.6	2.6	2.1	2.6	
FR	3.2	3.2	2.2	2.8	1998-2001: first subperiod; full period: 2002–2008 (no data for 2002).
HR	n.a.	n.a.	n.a.	n.a.	
HU	8.3	6.2	No recommendations given in 2010 and 2012	6.2	Years where no recommendation was given in the subperiod 2009–2012 were considered with a value of 0 for the full period.
IE	4.9	4.7	No central agreement; no information on decentralised bargaining available	1.8 (1999–2008) n.a.	
IT	n.a.	2.9	1.8	2.5	2005–2008 in subperiod 2
LT	n.a.	n.a.	n.a.	n.a.	
LV	n.a.	n.a.	n.a.	n.a.	
MT	3.4	2.4	1.1	2.3	2000–2003 in subperiod 1
NL		3.6	1.3	2.2	2000–2003 in subperiod 1
NO	n.a.	n.a.	n.a.	n.a.	
PL	n.a.	n.a.	n.a.	n.a.	
PT	3.5	2.9	1.8	2.9	
RO	50.4	15.2	5.3	24.5	Years without recommendation have been considered with a value of zero
SE	2.5	2.4	2.0	2.4	
SI	n.a.	n.a.	n.a.	n.a.	
SK	n.a.	6.3	3.6	5.3	2003–2012
UK	3.4	3.1	1.5	2.8	

Source: National statistics on collectively agreed pay, time series of central agreements – all country specific. See Annex 1 for further details.

Table 10: Annual average growth rates of nominal unit labour costs in different subperiods (%)

	1998–2003	2004–2008	2009–2012	1998–2012
AT	0.4	1.5	2.1	1.3
BE	1.9	1.8	2.5	2.0
BG	2.5	6.4	5.3	4.7
CY	4.1	1.5	2.0	2.7
CZ	3.8	1.7	1.7	2.5
DE	0.6	-0.4	2.1	0.7
DK	2.5	3.1	1.4	2.4
EE	3.9	10.0	-0.1	4.9
EL	3.3	2.4	-0.7	1.8
ES	2.8	3.7	-1.4	1.9
FI	1.3	1.9	3.0	2.0
FR	2.0	1.9	1.8	1.9
HR	3.7	3.1	1.5	2.9
HU	8.5	3.9	2.4	5.1
IE	2.7	4.5	-3.2	1.6
IT	2.4	2.5	1.7	2.2
LT	-1.6	7.3	-1.9	1.4
LU	2.6	3.1	3.8	3.1
LV	0.6	17.1	-3.7	4.9
MT	2.9	1.7	2.6	2.4
NL	3.3	1.0	1.7	2.0
NO	3.1	5.6	3.7	4.2
PL	1.9	1.4	1.3	1.6
PT	3.5	2.0	-0.6	1.8
RO	33.2	13.3	1.9	16.5
SE	1.9	1.2	1.0	1.4
SI	6.2	3.0	2.2	3.9
SK	4.8	2.6	1.0	2.9
UK	2.3	2.5	2.9	2.5
Median increase	**2.7**	**2.5**	**1.7**	**2.4**

Source: AMECO, Eurofound own calculations

Table 11: Annual average growth rates of real unit labour costs in different subperiods (%)

	1998–2003	2004–2008	2009–2012	1998–2012
AT	-0.5	-0.8	0.3	-0.4
BE	0.2	-0.4	0.6	0.1
BG	-2.1	-0.7	1.7	-0.5
CY	0.9	-2.2	0.4	-0.4
CZ	1.4	-0.2	1.3	0.8
DE	0.0	-1.3	1.1	-0.1
DK	0.3	0.3	-0.4	0.1
EE	-1.3	2.5	-1.6	0.0
EL	-0.1	-0.8	-1.5	-0.8
ES	-0.9	0.2	-1.7	-0.8
FI	-0.1	0.4	1.1	0.4
FR	0.3	-0.3	0.7	0.2
HR	-0.4	-1.0	-0.1	-0.5
HU	0.0	-0.5	-0.5	-0.3
IE	-1.9	3.4	-2.2	-0.1
IT	-0.1	0.3	0.6	0.3
LT	-1.3	0.5	-3.6	-1.3
LU	-0.4	-0.4	-0.4	-0.4
LV	-2.3	4.3	-5.4	-0.9
MT	0.0	-0.5	0.4	-0.1
NL	0.0	-0.7	1.0	0.0
NO	-1.7	-1.8	1.3	-0.9
PL	-1.8	-1.6	-1.3	-1.6
PT	0.2	-0.4	-1.2	-0.4
RO	-1.4	0.0	-2.7	-1.3
SE	0.3	-0.6	-0.2	-0.1
SI	-0.4	-0.1	1.2	0.2
SK	-1.3	-0.4	0.5	-0.4
UK	0.5	-0.2	0.8	0.3
Median increase	**-0.1**	**-0.4**	**0.3**	**-0.3**

Source: AMECO, Eurofound own calculations

Data in relation to the sectors

Table 12: Collectively agreed pay in metal sector, change in relation to previous year (%)

ID		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
5	AT	2.4	3.7	3.7	2.2	2.1	2.1	2.5	3.1	2.6	3.6	3.9	1.5	2.5	5.3
14	BE	0.7	2.5	1.7	3.5	1.2	2.4	1.8	2.1	1.9	2.0	3.9	0.9	1.4	3.7
15	BE	0.0	5.0	1.5	4.9	2.0	3.4	1.5	2.3	1.7	2.3	5.0	0.9	1.4	3.0
20	BE	0.9	2.5	1.9	4.3	1.5	2.2	2.4	2.4	2.0	2.1	4.1	0.8	1.5	3.6
21	BE	1.7	4.0	2.4	5.2	2.8	2.6	2.7	2.9	2.3	1.7	5.0	0.9	1.4	3.0
25	CY				3.1	3.1	2.0	2.0	2.0	2.4	2.4	2.4	0.0	1.1	0.0
31	CZ	7.9	5.1	5.3	5.2	4.1	3.8	3.9	4.0	4.2	5.8	4.0	2.8	2.9	2.8
43	DK	2.5	2.4	2.4	2.4	2.3	2.5	2.5	2.5	2.8	2.5	2.4	1.2	1.7	1.3
56	FI	1.9	3.1	2.7	2.2	2.6	2.2	2.3	2.5	1.9	4.4	4.1	0.5	1.0	2.5
63	FR	0.0	3.7	3.4	0.0	7.2	0.0	0.0	0.0	0.0	22.4	2.1	0.0	3.4	3.4
37	DE	4.1	2.5	1.7	3.6	2.4	2.3	1.9	2.6	3.8	2.7	3.6	0.7	1.6	3.3
69	EL	2.5	4.2	3.3	5.4	3.9	6.5	6.5	6.0	5.8	6.5	1.8	1.8	0.0	0.0
79	IT								3.7	2.5	3.7	3.2	2.9	2.4	2.3
92	MT			3.7	4.1	4.6	2.5	5.1	5.2	4.0	1.6	1.7	2.5	0.5	
87	NL			3.9	3.3	2.7	1.8	1.0	1.3	1.0	4.2	3.8	1.0	1.4	2.2
102	PT	3.9	7.1	6.0	8.6	3.9	3.1	4.7	7.5	3.9	3.6	3.3	4.0	3.6	1.9
107	RO			26.7	31.6	28.0	25.0	20.0	12.5	11.1	15.0	10.1	0.0	11.8	0.0
122	SK						7.0	7.0	5.8	6.5	7.1	5.0	3.5	3.7	3.6
115	SI								2.1	2.8	5.1	6.6	5.0	2.9	
50	ES	3.4	3.9	3.8	3.9	3.8	3.6	4.1	3.9	3.9	3.9	2.1	2.2	3.2	1.5
111	SE	1.5	2.4	2.6	2.4	2.2	1.9	2.0	2.2	2.8	2.8	2.7	1.1	1.5	3.4
129	UK	3.7	3.5	3.5	3.2	3.5	3.0	3.5	3.0	4.0	4.0	3.0	1.8	4.8	4.0

Source: Various national sources, see www.eurofound.europa.eu/docs/eiro/wages/collectivesources.pdf. More detailed metadata are available at http://www.eurofound.europa.eu/eiro/cwb/

Table 13: Collectively agreed pay in chemical sector, change in relation to previous year (%)

ID		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
6	AT	2.3	1.9	2.9	1.3	2.3	2.2	3.1	2.8	2.9	3.9	2.6	1.2	3.2	4.5
12	BE	0.2	3.9	2.5	4.0	0.5	2.7	2.2	2.3	3.2	5.5	1.6	0.7	3.2	2.0
13	BE	2.0	3.7	4.0	3.9	2.0	1.1	2.7	3.3	2.0	5.3	2.0	0.9	4.0	2.3
18	BE	2.8	1.2	6.1	2.9	1.2	2.9	2.8	3.2	3.6	4.3	2.6	0.6	2.2	3.5
19	BE	3.6	0.9	6.4	2.8	2.0	2.4	2.5	3.8	2.6	5.7	2.0	1.8	4.0	4.8
26	CY					2.5	3.0	3.0	3.0	3.0	3.0	2.9	1.0	1.0	
32	CZ	7.1	4.7	5.5		3.6	3.6	4.6	4.5	5.0	6.0		3.1	2.9	2.7
44	DK	2.5	2.4	2.4	2.4	2.3	2.5	2.5	2.5	2.8	2.5	2.4	1.2	1.7	1.3
57	FI	1.7	3.8	3.1	2.3	2.6	2.1	2.1	2.4	1.8	3.4	3.8	2.9	0.5	2.5
64	FR	0.9	0.4	1.0	1.0	1.0	1.0	1.0	4.2	1.9	2.3	1.5	0.5	2.1	1.7
39	DE	2.6	2.3	2.1	3.6	2.7	2.5	1.6	3.4	2.2	3.6	2.8	2.2	2.0	2.9
70	EL	5.5	5.0	3.1	5.8	4.5	5.9	6.5	6.0	6.0	5.5	6.7	6.1	1.6	1.6
80	IT								2.6	3.9	3.4	3.0	2.6	2.8	2.6
93	MT			5.2	2.8	4.6	2.5	2.5	3.1	2.0	2.5	1.9	2.8	0.5	
89	NL		4.5	5.1	2.6	1.3	1.8	2.8	1.8	1.8	4.4	1.1	1.4	1.7	1.7
105	RO			30.8	29.8	16.9	13.0	9.5	9.5	6.3	7.3	4.4	6.0	5.9	2.8
123	SK						6.0	5.0	4.7	5.2	4.2	4.1	2.9	2.4	2.3
116	SI									2.5	3.9	3.5		1.8	1.8
51	ES	2.5	2.8	3.9	4.9	3.5	3.7	4.0	3.2	4.8	2.6	2.1	2.1	1.7	0.7
112	SE	1.5	2.4	2.6	2.4	2.2	1.9	2.0	2.2	2.8	2.8	2.7	1.1	1.5	3.4
130	UK	3.3	3.0	3.2	2.2	3.0	3.0	3.3	3.0	3.0	3.6	1.3	2.7	3.5	3.0

Source: Various national sources, see www.eurofound.europa.eu/docs/eiro/wages/collectivesources.pdf. More detailed metadata are available at http://www.eurofound.europa.eu/eiro/cwb/

Table 14: Collectively agreed pay in the banking sector, change in relation to previous year (%)

ID		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
8	AT	2.2	1.4	2.9	2.6	1.9	2.0	2.3	3.0	2.6	3.3	3.5	0.7	1.9	3.1
17	BE	1.2	2.9	2.5	3.6	1.9	1.6	1.7	2.2	1.9	3.3	3.2	-0.1	2.5	3.2
23	BE	1.0	1.6	2.6	3.0	1.5	1.5	1.8	2.0	2.0	2.6	3.4	-0.2	2.5	3.4
27	CY		2.0	2.0	2.0	0.6	0.7	0.7	2.0	2.0	2.0	0.0	0.0		0.0
34	CZ								4.3					2.5	2.3
46	DK	2.9	2.8	3.3	3.3	2.9	2.9	2.9	2.9	2.9	4.0	4.0	3.7	1.1	1.0
59	FI	1.6	2.9	3.7	2.1	2.8	2.3	2.5	2.0	3.5	3.4	3.6	1.5		
66	FR				3.0		1.7	2.0	2.0	2.5				7.6	
38	DE	2.9	1.9	3.6	2.0	2.5	2.7	1.9	2.3	1.8	1.8	2.1	1.4	0.2	2.5
72	EL	3.4	6.8	6.0	4.2	3.8	6.0	5.9	5.6	5.6	8.0	2.5	0.0	0.0	0.0
82	IT								2.6	0.2	5.4	2.0	2.6	1.1	0.8
94	MT			4.7	1.4	2.2	1.2	11.5	3.0	1.3	1.6	1.8	1.9	0.4	
88	NL			6.5	3.8	2.5	1.7	0.8	3.3	1.8	3.6	2.8	0.9	1.0	1.1
103	PT	3.2	3.2	3.9	3.1	2.5	2.6	4.9	2.6	5.5	3.7	3.1	2.0	1.4	0.1
125	SK						6.0	4.0	3.7	4.2	3.6	3.5	2.8	2.9	2.6
118	SI										6.7	1.2		16.1	2.2
53	ES	2.7	3.1	2.5	3.2	2.7	2.9	3.7	3.0	3.8	2.6	2.0	3.0	0.1	0.0
132	UK						2.8	3.3	3.3	3.5	3.9	3.0	2.0	5.0	2.5

Source: Various national sources, see www.eurofound.europa.eu/docs/eiro/wages/collectivesources.pdf. More detailed metadata are available at http://www.eurofound.europa.eu/eiro/cwb/

Table 15: Collectively agreed pay in the retail sector, change in relation to previous year (%)

ID		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
7	AT	2.2	1.8	3.0	1.8	2.1	1.9	2.0	2.7	2.4	3.1	3.7	1.5	2.3	3.6
16	BE	1.9	1.5	3.3	3.6	2.4	2.3	1.9	3.3	1.7	4.2	3.4	0.1	3.2	2.9
22	BE	2.6	1.7	3.1	3.6	3.5	2.3	3.3	2.6	1.9	2.7	4.7	-0.3	2.5	3.4
33	CZ	6.3	5.0		6.0	3.1			3.7						2.1
45	DK	2.5	2.5	2.5	2.4	2.0	2.1	2.3	2.4	3.2	2.3	2.3	1.0	1.7	
58	FI	2.0	2.6	3.7	2.3	2.9	2.4	2.6	1.7	1.8	4.9	3.4	1.7	2.0	
65	FR				2.0	0.0	0.0	8.7	1.2	0.0	12.2	3.6	0.0	3.8	0.0
42	DE	3.3	3.0	2.8	2.6	2.1	1.8	0.9	1.0	1.3	1.2	1.2	2.4	1.9	2.7
71	EL	3.7	4.4	8.0	5.0		6.6	6.0	6.0	5.7	7.0	7.0	0.0	0.0	0.0
81	IT								1.6	2.3	2.1	3.9	3.2	2.0	1.7
95	MT			4.4	3.0	5.6	2.6	3.1	3.7	1.7	3.1	1.8	2.5	0.6	
90	NL			4.3	3.5	2.7	1.6	0.4	1.2	1.9	2.8	2.5	1.1	1.0	1.5
101	PT		4.1	4.5	4.4	3.4	4.6	0.0	3.6	4.9	5.7	3.4	3.2	3.7	1.0
106	RO					48.6	12.0	18.0	9.1	22.2	20.6	16.7	0.0	10.8	4.2
124	SK						5.0	6.0	4.9	5.6	5.8	6.1	4.0	4.1	3.6
117	SI									2.1	9.8	1.6		5.9	
52	ES	2.7	3.9	3.5	3.8	3.4	3.5	3.8	3.6	4.0	3.5	2.1	1.9	2.7	1.2
131	UK	2.7	3.0	3.0	2.7	3.0	3.1	3.1	3.0	3.0	3.2	2.5	2.3	2.3	2.0

Source: Various national sources, see www.eurofound.europa.eu/docs/eiro/wages/collectivesources.pdf. More detailed metadata are available at http://www.eurofound.europa.eu/eiro/cwb/

Table 16: Collectively agreed pay in the civil service sector, change in relation to previous year (%)

ID		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
4	AT	2.6	1.6	2.3	1.1	2.5	2.3	2.2	2.7	2.4	2.7	3.5	1.1	1.1	2.8
9	AT	2.5	1.5	2.3	0.8	2.1	1.9	2.3	2.7	2.4	2.7	3.6	0.9	0.9	2.6
28	CY					2.8	0.0	0.0	2.0	1.0	1.5	2.0	0.0	0.0	0.0
35	CZ	11.1	6.9	14.6	9.8	8.5	7.2	5.5	5.1	4.9	4.1	4.5	4.2		
48	DK	3.1	3.0	3.5	4.8	3.1	2.2	2.3	1.5	1.9	3.3	2.5	2.4	1.5	1.7
60	FI	1.9	2.8	3.2	2.2	2.9	2.4	2.5	1.6	1.8	4.5	4.0	2.7	1.3	2.0
67	FR	1.3	0.5	1.2	1.3	0.0	0.5	1.8	0.5	0.8	0.8	0.8	0.5	0.0	0.0
40	DE	3.2	1.9	1.8	2.0	3.1	1.8	0.9	0.4	0.7	4.4	3.9	0.8	1.9	2.2
73	EL	2.1	2.0	5.5	5.8	5.8	6.3	3.0	3.0	3.5	4.5	0.0	0.0	0.0	0.0
77	IE	2.5	5.5	7.5	4.0	0.0	7.0	4.0	3.0	2.0	5.0	3.5	2.5	0.0	0.0
83	IT								5.5	1.1	5.2	3.3	0.7	0.2	0.0
108	RO	28.3	68.8	89.3	26.9	47.8	12.0	10.7	6.5	18.2	30.8	17.6	0.0	11.7	4.5
126	SK						7.0	4.0	6.4	6.5	4.4	5.5	1.7	3.4	2.8
119	SI						1.9		1.3	5.5	1.2		0.8	0.6	
54	ES	2.0	2.4	2.1	2.3	2.3	2.2	3.7	2.7	2.4	2.4	3.0	0.7	0.4	0.2
113	SE	2.5	2.5	1.9	2.0	1.6	1.5	1.6	1.6	1.7	1.7	1.6	2.7	1.2	1.3
133	UK						2.8	3.0	3.0	3.0	2.5	1.3	0.0	0.0	0.0

Source: Various national sources, see www.eurofound.europa.eu/docs/eiro/wages/coll ectivesources.pdf. More detailed metadata are available at http://www.eurofound.europa.eu/eiro/cwb/

Table 17: Collectively agreed pay in the local government sector, change in relation to previous year (%)

ID		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
10	AT	1.5			0.8	2.0	1.9	2.3		2.4	3.3	3.6	0.9	0.9	2.6
29	CY				2.8	2.8	0.0	0.0		0.0	2.1	1.5	0.0	0.0	0.0
47	DK	1.4	1.8	3.0	2.2	3.7	2.3	2.2	1.9	1.5	5.7	0.8	1.5	0.0	2.7
61	FI	1.8	2.8	3.4	2.5	3.1	2.3	2.5	1.9	2.4	4.4	3.2	3.0	3.0	3.4
41	DE	3.2	1.9	1.8	2.0	3.1	1.8	0.9	0.4	0.4	4.7	3.8	0.4	1.6	2.4
74	EL	2.1	2.5	2.5			4.0	3.0		3.5	4.5	0.0	0.0	0.0	0.0
84	IT								3.4	2.4	3.6	3.3	2.6	0.2	0.0
91	NL			4.3	3.9	3.0	0.4	0.4	3.3	2.8	3.7	2.1	2.0	0.0	1.0
109	RO	28.3	68.8	89.3	26.9	47.8	12.0	10.7	6.5	18.2	30.8	17.6	0.0	11.7	4.5
127	SK						7.0	4.0	6.4	6.5	4.4	5.5	1.7	3.4	2.8
120	SI						1.9		1.3	5.5	1.2		0.8	0.6	
114	SE	2.7	3.3	2.5	1.9	1.6	1.6	1.8	2.0	1.8	3.1	3.0	2.1	1.2	1.4

Source: Various national sources, see www.eurofound.europa.eu/docs/eiro/wages/collectivesources.pdf. More detailed metadata are available at http://www.eurofound.europa.eu/eiro/cwb/

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Part 2: Minimum wage policies and levels in Europe: an accounting exercise

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Introduction

Minimum wages exist in practice in all EU Member States, even if, as discussed in this report, they are set up in very different ways. Minimum wages can be considered a cornerstone of the European Social Model. However, the ongoing process of European integration has so far had very little involvement with wages, which are explicitly excluded from the competences of European institutions under the existing treaties – unlike other areas of work and employment, such as working time or health and safety.

On top of the diversity in the models of minimum wage setting across countries, there is also a significant variation in their levels. What may be the most adequate level to ensure equitable wages without negatively affecting employment levels is a topic on which there is considerable debate both at the national and European level, with thresholds such as 60% of the median or 50% of the average wage mentioned, among others. In this debate, the possibility of moving towards a certain threshold or introducing some form of coordination has also been mentioned by some European academics and policymakers.

Progressing towards a goal of adequate minimum wage levels can be achieved in many different ways in Europe: it can be done through purely national-level governmental decision-making, through national-level collective agreements or even through some form of European coordination. This report will discuss the different systems and levels of minimum wages in Europe at present, carrying out an accounting exercise through a hypothetical scenario of a minimum wage set at 60% of the median national wage (with some alternative scenarios as well for comparison) in order to benchmark and evaluate minimum wage levels and systems in Europe, and to discuss the possibilities and difficulties of coordination in this matter. Although the option of some form of European coordination of minimum wages in Europe is very unlikely in the short term (as will be discussed in this report, many key European and national actors are opposed to such an option), using it as a basis for a hypothetical scenario can shed some light on this debate.

This part of the report is organised in two sections. The first, consisting of Chapters 1 to 3, discusses minimum wage policy from a theoretical and policy perspective. It reviews the social sciences literature on the effects of minimum wages and presents a broad picture of the different minimum wage systems existing in Europe and the possibilities and potential difficulties for their coordination. The institutional difficulties that would face such a coordination are discussed. In sum, this first section will try to provide a balanced summary of the theoretical and policy arguments around the debate.

The second section, Chapters 4 to 7, will aim to complement these arguments with some facts by carrying out a simple accounting exercise to evaluate how many workers, and what types, would be most affected by a hypothetical minimum wage policy using a baseline scenario of a single national wage floor of 60% of the median national wages; this exercise will draw from the two most recent EU-wide data sources on wages and income.

Since the 19th century, trade unions have tried to introduce (and raise) wage floors for their constituencies, but wide-coverage minimum wages only became established in the second half of the 20th century. Where unions were strong, minimum wages were often established through collective bargaining, were usually sector-specific and sometimes non-binding (that is, affecting only union members, if nevertheless the vast majority of employees). Where unions were less strong, governments established statutory minimum wages or extended by law collectively agreed wage

floors, in most cases with a single national threshold and no exclusions. These varying origins are the source of the differing existing systems of minimum wage setting in Europe shown in Table 1.[21]

Table 1: Different systems of minimum wage setting in Europe

	Statutory regulation	Collective agreements
Single national minimum wage	Western countries: France, Luxembourg, Netherlands, Ireland, UK Southern countries: Malta, Spain, Portugal Eastern countries: Croatia, Czech Republic, Hungary, Latvia, Lithuania, Romania, Slovenia	Bipartite agreements: Belgium, Estonia, Greece Tripartite agreements: Bulgaria, Poland, Slovakia
Sectoral and/ or occupational minimum wages	Cyprus	Nordic countries: Denmark, Finland, Sweden Continental countries: Austria, Germany, Italy

Source: Schulten, 2012

Today, the majority of EU Member States have national statutory minimum wages, as can be seen in Table 1. The predominance of this system was reinforced by EU enlargement to the east, because most of the countries of central and eastern Europe had adopted statutory minimum wages in the 1990s. But even in the countries that were Member States before 2004, recent developments have reinforced the predominance of the statutory model. Most importantly, these include the adoption of national statutory minimum wages in the UK and Ireland at the turn of the century, and the possible (now planned) introduction of a national statutory minimum wage in Germany in the near future (Eurofound, 2013). So, although the diversity in the mechanisms and structure of minimum wages across Europe is still important, such diversity has been considerably reduced in recent years, and it is likely to be even further reduced in the future.

[21] For obvious reasons, the historical origins of the minimum wage systems in eastern European countries do not entirely fit this narrative. But although they were established much later and in very different circumstances, the fact that they all opted for the statutory system is surely related to the weakness of their industrial relations systems.

1 Literature on the effect of minimum wages

Minimum wage policy is a highly controversial subject in the specialised literature, which often contains surprisingly contradictory theoretical and empirical arguments. This first section of Part Two of the report will offer a brief overview of the main arguments about the potential effects of minimum wages on employment, poverty and inequality, competitiveness and other social and economic issues.

Employment effects

In the standard neoclassic model, which is taught in most introductory economics textbooks, the minimum wage is either irrelevant or produces unemployment. In the context of a competitive labour market, a minimum wage set below the equilibrium level (the one that results from the free interaction of suppliers and buyers of labour) would simply be irrelevant. But a minimum wage set above the equilibrium level would necessarily lead to unemployment, since it would make some low-paid (normally low-skilled and/or young) workers too costly for employers to hire at a profit, while simultaneously increasing the number of people willing to work because of the attractiveness of higher salaries. Therefore, from this perspective the minimum wage policy tends to actually damage those that it intends to help.

According to the Keynesian approach, on the other hand, higher minimum wages do not necessarily increase unemployment at the macroeconomic level, but they will affect relative prices of the affected industries, altering the structure of demand and supply with unpredictable effects on overall employment. But since workers receiving minimum wages have a higher propensity to consume, it is often argued from this perspective that minimum wage rises may actually lift aggregate demand and output, and hence employment (Herr and Kazandziska, 2011).

Standard economic theory predicts that a minimum wage may also increase employment under certain scenarios. For instance, in the case of a monopsony, where a single buyer of labour exists, a binding minimum wage (that is, one which is set above the monopsonic equilibrium level) can increase the number of people employed by a company.[22] Moreover, even if we assume that a minimum wage has a potentially negative impact on the employment of the least productive workers, a binding minimum wage could give such workers an incentive to improve their skills level in order to raise their productivity and remain employed (Cahuc and Michel, 1996). Under efficiency wage models, the productivity of labour depends on the wage paid, so that employees will be more productive when earning higher wages because of their greater commitment; this may encourage employers to maintain or expand their labour force (Georgiadis, 2012).

So, overall, the impact of minimum wages on employment is disputed in economic theory. While the simple neoclassical model assumes a negative impact, the effect only holds in a purely competitive model, which is hardly ever found in reality. In non-competitive labour markets, this effect is unclear even from a neoclassical perspective; in Keynesian approaches, the impact of minimum wages on employment depends on their impact on demand and price structures, this again being highly uncertain. In other words, theory alone cannot resolve this issue, which makes it necessary to turn to empirical analysis.

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[22] In monopsony, a company is not a price-taker: it can reduce wages by employing fewer workers. This means that both employment and wages will be lower than in the conditions of a competitive market. In this context, a skilfully set minimum wage can increase employment (and efficiency) by imposing a (higher) wage level – closer to the one that would obtain in competitive conditions. For a discussion, see Manning, 1995.

At an empirical level, the employment effect of minimum wages is one of the most researched topics in labour economics, but again the results are inconclusive. The consensus among mainstream economists until the early 1980s was that minimum wages had a negative impact on employment, especially for low-skilled and younger workers, as summarised by the statement of Brown et al (1982) that 'a 10% increase in the minimum wage reduces teenage employment by 1 to 3%'.[23] However, these results were challenged in the early 1990s by a new wave of studies on minimum wages.

Using both natural experiments (Card and Krueger, 1994; 2000) and other robust empirical approaches (Allegretto et al, 2011), these more recent studies found much smaller negative employment effects of minimum wages, even for teenagers, and often not statistically significant. Despite the higher levels of minimum wages in Europe, different empirical studies (Dolado et al, 1996; Vaughan-Whitehead, 2010) also failed to identify significant disemployment effects. As summarised by Martin and Immervoll (2007), 'the evidence shows that an appropriately set minimum wage need not have large negative effects on job prospects, especially if wage floors are properly differentiated (e.g. lower rates for young workers) and non-wage labour costs are kept in check.'

Some researchers have pointed out that this apparent contradiction between standard economic theory and empirical results can be explained by the existence of adjustment channels to maintain profitability when minimum wages are established or increased without it being necessary to lay off workers. Such adjustment channels would include: cost reductions resulting from lower labour turnover; efficiency improvements by the organisation or by more motivated staff; reductions in wages of higher earners ('wage compression'); small price increases; a reduction in working hours; and cuts in training or other fringe benefits (Schmitt, 2013).

Inequality and poverty

In general, minimum wages are not explicitly aimed at reducing wage inequality and poverty, but at establishing a minimum rate under which any employment relationship is considered to be unacceptable (in other words, the establishment of morally based labour standards). However, minimum wages are obviously related to both wage inequality and poverty. Indeed, minimum wages compress the wage distribution by raising the lowest wages and therefore reduce inequality, provided the increase in the minimum wage is not matched by a similar increase in other wages. To the extent that such an increase would affect some workers under the poverty line, it would also reduce poverty. But, as was the case for employment, the scale and importance of the effects are largely an empirical issue, which depends on the number of workers affected by the increase and the household distribution of income.

It is a well-established fact that wage inequality has increased considerably over the last few decades across most advanced market economies, but most of that increase has taken place at the upper tail of the distribution[24] (Atkinson et al, 2011; see also Gordon and Dew-Becker, 2008). The earnings of the highest paid (the upper 10%, 1% or even 0.1%) have increased much faster than those of everyone else and this on its own explains most of the increase in inequality. Since minimum wages have an

[23] Brown et al (1982) also concluded that for young adults (aged 20–24 years) the impact is negative, but smaller than for teenagers; for adults, the impact is uncertain, both according to theory and empirical research.

[24] This increase in wage inequality is the main driver behind a more general increase in income inequality. 'This rise of top income shares is due not to the revival of top capital incomes, but rather to the very large increases in top wages (especially top executive compensation). As a consequence, top executives (the "working rich") replaced top capital owners (the "rentiers") at the top of the income hierarchy during the twentieth century' (Piketty and Saez, 2006).

effect only on the lower tail of the distribution of wages (they obviously have no impact on very high wage levels), this suggests that they can have only a relatively low impact on overall inequality.

That said, most existing research on this issue does show that minimum wages (and their evolution) play an important role in explaining the patterns of wage inequality in the lower tail of the distribution – not only directly by raising the lowest wages, but also indirectly through spillover effects (Teulings, 2003; Autor et al, 2010). Of course, the impact of a rise in the minimum wage on the wage distribution will be larger in those cases where there are many workers currently paid at minimum wage levels.[25]

On the other hand, some argue that the effect of minimum wages on poverty reduction is not so clear-cut because most minimum wage earners are not found in poor households – for instance they are more likely to be teenagers in middle-class households – and therefore minimum wage rises would have a limited impact on poverty at a household level (Brown, 1999). To the extent that one of the main causes of poverty in Europe is being out of employment (one would not expect minimum wages to raise the living standards of households in which nobody works), welfare systems would be better tools than minimum wages to fight poverty. For instance, according to Maître et al (2012), most low-paid employees in Europe live in households with more than one wage earner and are not affected by relative household poverty. The literature indicates that household composition and the number of wage earners, rather than the level of minimum wages, are the key factors behind household poverty levels (Marx et al, 2012).

Competitiveness and other economic effects

In the current economic situation, European policy places a strong focus on the relationship between national wage developments and international competitiveness, as underpinned by the recent Euro Plus Pact.[26] Fostering competitiveness is one of the four objectives of the Pact, and it places a strong emphasis on the idea that wages should evolve in line with productivity to keep unit labour costs stable. If unit labour costs – equivalent to the ratio between labour costs per hour and labour productivity (output per hour) – increase significantly, competitiveness may be damaged.[27] It could be argued that if a country decides to increase its minimum wage without any corresponding increase in productivity, the costs faced by national companies will increase and they will become less competitive than competitors from other countries. This effect will be larger in labour- intensive industries, where labour costs represent a higher proportion of the total costs faced by firms.

There are a number of potential objections to the previous argument. First, increases in minimum wages tend to foster increases in productivity (Rizov and Croucher, 2011; McLaughlin, 2007), so that the final result in terms of unit labour costs and therefore competitiveness may even be positive. After all, it is empirically the case that the most competitive European economies tend to have higher,

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[25] If minimum wages are set at a relatively high level and there are no spillover effects, there can be some unintended social consequences. A large spike in the bottom of the wage distribution can create excessively compressed wage structures for some low-paid jobs, practically eliminating wage increases during the career of the worker, for instance (Gautié, 2010). Such an effect largely depends on the strength of collective bargaining in each country and even sector (Grimshaw et al, 2013).

[26] The Euro Plus Pact was agreed by the euro zone Heads of State or government and joined by Bulgaria, Denmark, Latvia, Lithuania, Poland and Romania; see European Commission (2011).

[27] More concretely, the Euro Plus Pact states: 'To assess whether wages are evolving in line with productivity, unit labour costs (ULC) will be monitored over a period of time, by comparing with developments in other Euro area countries and in the main comparable trading partners. For each country, ULCs will be assessed for the economy as a whole and for each major sector (manufacturing; services; as well as tradable and non-tradable sectors). Large and sustained increases may lead to the erosion of competitiveness, especially if combined with a widening current account deficit and declining market shares for exports.'

rather than lower, minimum wage levels (for instance, the Nordic countries). Secondly, low-paid employees are not typically concentrated in trade-intensive industries such as manufacturing, but in non-trade sectors such as services – especially personal services (Dolado et al, 1996). This means that an increase in minimum wages will have a limited impact on internationally competitive industries, since moderate wages are rarely the key factor behind international competitiveness, at least in Europe.[28] Furthermore, competitiveness is influenced both by price factors (wages and productivity, which together explain unit labour costs, and also exchange rates and inflation) and non-price factors (such as product quality and design, marketing and consumer after-sales service). Wages, or even unit labour costs, are just one element among many, and many researchers have warned against taking unit labour costs as a comprehensive measure of competitiveness (Ark et al, 2005).

Minimum wages may also have an effect on inflation, since companies employing minimum wage workers may adjust their prices upwards following a minimum wage rise. The effect would not be across the board, but would be concentrated on those industries that employ minimum-wage workers, and hence would alter the price structure in ways that are difficult to predict. And – indirectly – it may have a cascade effect on other industries, even in those not directly employing low-paid workers, since the input of certain industries is the output of others. To what extent this would be a problem is open to interpretation and depends also on the general economic conditions: some have argued that in the context of a crisis such as the current one, minimum wages could be used as a tool to prevent deflation (Herr and Kazandziska, 2011).

As already mentioned, some argue that minimum wages foster productivity and efficiency (Kaufman, 2009). They can increase the incentive to work and the motivation of employees and also reduce staff turnover (Card, 1995). On the other hand, by acting as a 'beneficial constraint' for employers, they make it difficult to choose a low-cost competitive strategy, fostering instead efficiency and innovation (Brosnan and Wilkinson, 1988; Kleinknecht, 1998). Although the link has been difficult to establish empirically, some recent studies in the UK have been able to identify it, especially in large firms (Rizov and Croucher, 2011; Riley and Bondibene, 2013).

The literature mentions other economic effects of a minimum wage increase. One is demand stimulation: even if an increase of minimum wage is just a redistribution of income from profits to wages, it could increase aggregate demand and output because low-wage earners have a higher propensity to consume (see Herr and Kazandziska, 2011; Stockhammer, 2011). Another is reduced welfare spending: since the increase in the minimum wage raises the income of the lowest paid, it reduces the need for redistributive and welfare programmes for those groups; some argue that this amounts to ensuring that employers pay the full social costs of low-paid employment, rather than subsidising low-paid jobs as do other forms of redistribution (see Freeman, 1996; Kaufman, 2009).

The interaction between minimum wages and industrial relations

Of course, minimum wages do not exist in a vacuum. They interact with other wage-setting institutions, most importantly with collective bargaining, in ways that crucially determine their final impact on employment, inequality, and all the other aspects discussed so far (Grimshaw et al, 2013; Lee, 2012). Some of the literature, particularly in the economic mainstream, often disregards such interaction, though modern institutionalist and heterodox approaches do bring this aspect to the fore (see the contributions to Grimshaw (ed.) 2013; also to Vaughan-Whitehead, 2010). It is particularly

[28] A counter-argument would be that a wage increase in the non-traded sector may exert pressure on wages in the traded sectors. Spillover effects in the context of industrial relations systems are discussed later in the second section of this report.

important to take this issue into account when evaluating the possibility of coordinating minimum wage policy across Europe, because the wide differences in industrial relations systems may lead to very different outcomes for the same minimum wage policy. [29]

Although minimum wages have a direct effect only on those workers whose wages fall below the specified threshold, they often have an indirect effect on wages above the threshold; this effect can extend to a sizeable part of the lower half of the earnings distribution (Freeman, 1996). These 'ripple' or 'spill-over' effects exist because the minimum wage level is often used as a reference in individual or collective wage negotiations at the bottom of the wage distribution, with workers often aiming at maintaining their relative distance from the threshold. Sometimes, these ripple effects can have a bigger impact on the wage distribution at the bottom than the minimum wage increase on its own. The relative strength of collective bargaining in the different countries is one of the main determinants of the existence and scale of these ripple effects (Grimshaw et al, 2013): where collective bargaining is very weak, it may not be able to capitalise on a minimum wage increase to facilitate a more-or-less general increase of wages in the low-paid sector. Where this is the case, an increase in the minimum wage would simply compress wage distribution at the bottom, potentially leading to some undesirable results such as excessively flat earnings trajectories in the low-paid sectors (generating a 'low-wage trap'; see Gautié, 2010). Where collective bargaining is stronger, an increase in the minimum wage level can lead to a more-or-less generalised expansion of wages in the low-paid sectors, multiplying its effects in terms of pay equity.

But this interaction is made even more complicated by the fact that minimum wages can also have an effect on the strength and structure of the collective bargaining system. Some researchers have argued that high statutory minimum wages can have a 'crowding out' effect on collective bargaining in the low-pay sector (Aghion et al, 2008), by reducing both the need and the incentive to engage in collective bargaining for setting wages (which may apply both to workers and employers). To the extent that this argument is based on the empirical correlation between statutory minimum wages and the strength of collective bargaining, it may inadvertently reverse causation. As already said, statutory minimum wages have often been introduced as a substitute for ineffective collective bargaining, and hence the observed correlation may be explained in exactly the opposite way (weak collective bargaining leads to statutory minimum wages, and not the other way round). Still, some empirical evidence does suggest (though not prove) the possibility of 'crowding out' effects, and the reluctance of unions to support statutory minimum wages in some European countries is partly based on their own perception of this possibility (Eldring and Alsos, 2012).

[29] In fact, as already mentioned, in countries without a strong industrial relations tradition, in which unions were not strong enough to establish a functioning collective bargaining structure, statutory minimum wages were introduced to ensure an adequate minimum standard. In countries with strong industrial relations and efficient bargaining structures, wage floors were established directly by collective agreement, without need of government intervention. In other words, statutory minimum wages can be understood as a substitute for effective collective bargaining.

2 Minimum wage policies in Europe and the debate around their coordination

In principle, the EU has no competences with respect to wage levels or wage-formation mechanisms. Article 153 of the Lisbon Treaty, which deals with EU attributions for work and employment (including the areas of working conditions, health and safety, social security and employment protection), finishes with a sentence (point 5), which succinctly says 'the provisions of this article shall not apply to pay'. According to this, the level of minimum wages and mechanisms for establishing them are a matter for the Member States.

That does not mean that the issue of minimum wages has never concerned European bodies. For instance, the European Parliament has repeatedly expressed concern about low pay and minimum wage levels across Europe. The Council of Europe has even explicitly asked Member States to ensure that minimum wage levels reach at least a certain percentage of the average or median national wages (normally 50% or 60%).[30] But the European Commission has not attempted to transform such concerns into some form of soft or hard regulation because of the explicit exclusion of wages from EU competences in the treaties.

However, the current economic crisis has changed the situation. Under the assumption that the crisis in the periphery was largely a problem of competitiveness that could only be resolved through wage reductions (internal devaluations) and structural reforms, and with European support for strained public finances acting as a disciplinary device, European institutions (most importantly, the Commission and the Central Bank) have increasingly intervened in wage developments and wage-formation mechanisms. Countries receiving EU bailouts have had to sign memoranda that often included reductions in minimum wage levels, public pay levels and decentralising reforms of the collective bargaining systems (Busch et al, 2013). Furthermore, such interventions have been reinforced by recent intergovernmental pacts (Six Pack, Euro Plus Pact), which – aside from committing countries to strict financial rules in the short and long term – explicitly include a compromise with austere wage developments and wage decentralisation.

So, even though the treaties still exclude wages from EU competences, the crisis has made wages (both their development and the mechanisms of their formation) one of the central targets of EU policymaking. This is surely one of the reasons why the debate on establishing more explicit mechanisms of wage policy coordination, in particular minimum wage levels, is currently re-emerging in European policy and academic circles.[31, 32] In this section, the debate is briefly reviewed. First, its history is revisited. Then, it considers the different modes of coordination that have been discussed.

A brief history of the debate

In the early stages of the European project, the main concern was the establishment of a common market, and employment and social issues remained squarely at the national level. But, from the 1960s to the 1990s, the competences of EU institutions in social and employment issues expanded considerably, and there were even some attempts at wage coordination, including minimum wages. The 1961 European Social Charter of the Council of Europe established the right of workers to a fair remuneration for a decent standard of living, and the Council's European Committee of Social Rights put forward some definitions of what decent wages could be in the 1970s (68% of the national

[30] The Council of Europe is an international organisation comprising 47 European countries; it is not an EU body.

[31] Luxembourg premier Jean-Claude Juncker, while leading the euro zone's finance ministers, said in January 2013 that he considered it 'indispensable to agree on a European legal minimum wage' (Bloomberg, 2013). László Andor, EU Commissioner for employment, social affairs and inclusion, also suggested the introduction of minimum wages across Europe (Euractiv, 2012).

[32] The origins of this debate can be traced back to Schulten et al, 2005. More recent contributions include Schulten 2012 and Eldring and Alsos 2012.

average gross wage) and 1990s (60% of the national average net wage).[33] Following the adoption of the Charter of Fundamental Social Rights for Workers in 1989, which included the right to an 'equitable wage', the European Commission and Parliament made some proposals that can be seen as early attempts to coordinate national minimum wages at the European level (Eldring and Alsos, 2012). In 1993, the European Commission asked Member States to 'take appropriate measures to ensure that the right to an equitable wage is protected' (Opinion on an Equitable Wage, 19OJC 248, 11 September 1993), while a report from the European Parliament encouraged them 'to establish a minimum wage which amounts to a certain proportion of the national average wage' (Schulten, 2008). But because of resistance from several Member States, the idea was more or less abandoned by the second half of the 1990s, which explains the explicit exclusion of wages from EU competences in the treaties of Maastricht, Amsterdam and Lisbon, or the lack of any mention of wages in the EU Charter of Fundamental Rights.

The debate on minimum-wage coordination resurfaced around the second half of the first decade of the new millennium, first related to the EU enlargements and concerns about their impact on low wages and social dumping, and then (more strongly) in the context of the economic crisis and the already mentioned de facto increasing levels of wage coordination that were becoming more common. The EU-level debate partially echoed the national debates that were current in some countries, such as Germany (Box 2). In 2007, the European Parliament stated that 'the minimum wage is set very low or at below subsistence level' in many European countries (European Parliament, 2007) and in the following year called on the Council 'to agree an EU target for minimum wages... to provide for remuneration of at least 60 percent of the relevant... average wage' (European Parliament, 2008), later asking the European Commission to study the impact that the introduction of a minimum income at the EU level would have in each country.[34] As previously mentioned, the Commission has also recently expressed interest in this matter.[35]

However, many key European actors are opposed to the idea of coordination of minimum wage policy, which makes such coordination highly unlikely in the short run. Nordic Member States, and – more generally – countries where minimum wages are set up by collective bargaining rather than statutory regulation, have traditionally opposed the idea, believing that it may undermine the existing national wage-setting mechanisms. Germany used to belong to this category, but a more-or-less general dissatisfaction with the results of the current minimum wage-setting mechanisms has led to a shift towards the statutory model, which will probably happen soon (Eurofound, 2013). European social partners have also sometimes opposed the idea of an EU minimum wage policy, defending the need to respect national specificities in wage-setting mechanisms as well as national and social partner sovereignty. Nonetheless, after stressing that negotiations between social partners at the relevant level are the best tool to secure good wages and working conditions, the ETUC calls for a substantial increase in the statutory minimum wage in those countries where trade unions consider this necessary. The ETUC stipulates that 'in any event, all wage floors should respect Council of Europe standards on fair wages' (ETUC, 2012). European employers have argued that minimum wages should remain a responsibility of Member States according to the subsidiarity principle (Business Europe, 2012).

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[33] The change from a gross to a net definition of decent wages was much criticised for bringing the complex issues of tax and benefit systems into the picture, and for placing the responsibility for adequate wage levels on the state instead of employers (Lorcher, 2006; Murray, 2004).

[34] 'The Commission should study the impact which a legislative proposal it might submit concerning the introduction of an adequate minimum income at European level would have in each Member State; suggests, in particular, that any such study should examine the difference between the adequate minimum income and the minimum wage in the Member State concerned' (European Parliament, 2010).

[35] See for instance European Commission (2012). See also footnote 27.

What type of coordination?

If Member States wanted to coordinate their minimum wage policies or levels across Europe, there would be different ways to do so; these can be discussed along three axes:

- the mode of regulation (hard law as opposed to soft law in EU terminology);
- the extent of coordination (levels versus systems);
- the definition of target levels (a proportion of median or average wages, gross domestic product (GDP) per capita, or others).

Mode of regulation

Several of the proponents of the idea of an EU minimum wage policy (for instance, Schulten, 2008) have argued that the coordination could be carried out using the mechanisms of 'soft law' that have been applied in recent years to the coordination of employment and social policies in Europe (called the Open Method of Coordination – OMC – in EU terminology). The OMC consists of a commitment to broadly defined European objectives by Member States, which must then develop nationally specific action plans. Progress towards the objectives is periodically reviewed through commonly agreed indicators, and a common discussion of results aims to spread best practice and common learning and improving.[36]

Considering the important existing differences in national minimum wage systems, it has been argued that the OMC provides 'a very practicable way to introduce a European minimum wage policy' (Schulten, 2008, p. 431). Some have argued, though, that the OMC has delivered few results in terms of actual policy coordination and harmonisation (its explicit goals), since the lack of any type of enforcement mechanism renders it ineffective in practice (for a review, see Borrás and Radaelli, 2010). A 'hard' form of regulation, such as a directive, would surely be more effective but, since pay is currently explicitly excluded from the treaties, this method could only be used if the treaties were amended; this would involve a considerably greater degree of harmonisation and might be opposed by many countries and EU actors, as mentioned in the previous section.[37]

Extent of coordination

Most proposals for an EU minimum wage policy refer to a common target level (for instance, a proportion of average wages), without mentioning the institutional mechanisms that should bring about minimum pay levels in each country. Some of the proposals explicitly argue that the system for setting out the minimum level should be decided by each country according to its own institutional and industrial relations traditions. What this would imply is that countries in which minimum wages are set up by collective agreement could maintain such a system, only adopting the compromise to ensure that it is at least as high as the common target.

Although that would make the policy much more feasible on the face of it, given the existing diversity, there would be some problems. A minimum wage system established solely by collective agreements (such as the one in Sweden or Denmark) leaves some workers uncovered. If the common target level is defined as a minimum for all workers, it may require the extension of collective agreements or

[36] For more details, see http://europa.eu/legislation_summaries/glossary/open_method_coordination_en.htm.

[37] Since the treaties exclude wages so explicitly from the remit of EU institutions, it is not clear whether they would allow for even the type of soft coordination associated with the OMC. Probably, other options for voluntary and 'soft' coordination would have to be explored, such as autonomous agreements concluded by the EU social partners (www.eurofound.europa.eu/areas/industrialrelations/dictionary/definitions/autonomousagreement.htm).

the establishment of some kind of second-level statutory floor. In both cases, this would imply an important change in existing industrial relations practices, with a higher degree of state intervention.

Taking this a step further, the EU coordination could aim at harmonising not only levels, but also systems, requiring that below the collectively agreed minimum wages (that are generally higher), there would be a statutory minimum threshold corresponding to the EU target. If this was the case, the impact of coordination would differ considerably across Europe. In those countries that currently have statutory minimum wages, only the level would change, not the system; in those countries where they are collectively agreed, the system itself would have to change and the institutional impact would be more significant. This is discussed in more detail in the following section. It is important to note that, even in the latter case, the statutory minimum wage would not need to replace the collectively bargained level, but could supplement it by setting an absolute minimum covering the whole workforce; nothing would prevent social partners agreeing higher basic pay for specific sectors.

Definition of target levels

A final important aspect in which current proposals differ is in how the target levels should be defined. The most frequently mentioned target is a proportion of median or average wages, normally 50% or 60%. For instance, the European Parliament has mentioned a level of 60% of the median. Other proposals anchor the target to GDP per worker rather than to wages (for instance, the proposal by Rasmussen and Delors, 2006).

The choice of the target level is obviously not trivial, since it has important distributional implications and implies different interpretations of what would be a fair distribution of income. For instance, anchoring the minimum level to the median wage (the wage that occupies the middle position of the wage distribution in each country) makes it insensitive to developments at the very high end of the wage distribution, which is precisely where most recent changes in wage inequality have taken place. Recent increases in inequality are mostly due to a disproportional increase of wages at the top end of the distribution. In other words, using the median as reference could mean that even with a massive growth in overall income, if all such growth is located in the upper tail of the distribution, the minimum wage level would not change. Using the average rather than the median as the anchor would solve this problem, ensuring that the minimum wage level would be sensitive to changes in the upper tail. In general, when using the average as reference, the target levels proposed tend to be lower since the average is usually significantly higher than the median wage.

Using GDP per capita or per worker, on the other hand, has the advantage of linking the minimum wage to the evolution of overall productivity in the country, irrespective of whether such evolution is reflected in the structure of wages. GDP per worker is a more adequate measure of productivity in this respect, but in the context of a crisis and rising unemployment, it could lead to increases in minimum wage levels that are difficult to defend. Of course, a final option would be to have no target level at all, but just some type of EU-level council (similar to the UK Low Pay Commission) that would adjust the target on a yearly basis, depending on its own evaluation of the economic and social situation.

Box 1: Arguments for and against a coordinated EU minimum wage policy

With respect to the arguments in favour and against establishing a common EU minimum wage threshold, these can be differentiated at three levels:

- those associated with an increase in minimum wage levels; these mostly concern those countries that already have statutory minimum wage systems (in nearly all of which the level is currently below the hypothetical scenario of 60% of the median);
- those associated with the introduction of a statutory wage floor or something similar; these mostly concern those countries that currently establish their minimum wages through collective bargaining;
- those associated with the coordination of minimum wage policy; these concern the EU as a whole.

For more details, see Chapters 1 and 2 of this second part of the report. Table 2 outlines the main arguments at each of those three levels.

Table 2: Arguments for and against a coordinated EU minimum wage policy

Related to:	Arguments in favour	Arguments against
1. Increasing MW levels (countries with statutory MW systems)	Increases the standard of living of the lowest wage earners. (1)	Generates disemployment effects, especially among the youngest and least skilled workers. (7)
	Reduces wage inequality (overall and linked to disadvantaged groups, such as women or migrants). (2)	Hampers the competitiveness of firms in the low-paid sectors. (8)
	Increases motivation of low-paid workers and incentive to innovate in low-skilled sectors. (3)	Can generate low-wage traps, excessively flat earnings trajectories for low-skilled workers. (9)
	Boosts overall demand, since low earners have a higher propensity to consume. (4)	
	Serves as an anchor against deflation in times of crisis. (5)	
	Reduces poverty and state expenditure. (6)	
2. Introducing a statutory wage floor (countries without statutory MW systems) (10)	Expands coverage of the minimum wage provisions, making it comprehensive.	Undermines existing collective bargaining systems.
	Reduces social exclusion and labour segmentation.	May have a knock-down effect on low wages (by deincentivising wage bargaining).
		Crowding out effect on collective bargaining.
3. Coordinating MW policy at the EU level (11)	Multiplies the demand boost by making it simultaneous across the EU.	Requirement to change existing treaties, political difficulties.
	Minimises the negative effects on competitiveness (simultaneous increase in main trade partners) and employment (demand boost).	Undermining of industrial relations tradition of some countries.
	Limits some problems of market integration, such as social dumping and race to the bottom.	Unpredictable institutional interactions in different countries.
	Important step in European integration, embodiment of the European Social Model.	Difficulty of adapting a single policy to national needs and specificities.

Notes: (1) Freeman, 1996; (2) Card, 1995, Teulings, 2003; (3) Kaufmann, 2009; (4) Herr and Kazandziska, 2011; (5) Herr and Kazandziska, 2011; (6) Freeman, 1996, Kaufman, 2009; (7) Brown et al, 1982; (8) Abbot, 2012; (9) Gautié 2010; (10) policy debate, see Dostal, 2012 for Germany, Eldring and Alsos, 2012 for a Nordic perspective; (11) see Schulten, 2008 and 2012 for an academic perspective and the second section of this Part for the policy debate.

3 Varieties of minimum wage systems and difficulties of coordination

The main difficulty for any kind of coordination of minimum wages in the European Union is the wide diversity across countries in the existing systems. As already mentioned, the main divide in this respect is between countries where minimum wages are set by government regulation (the statutory model) and countries where minimum wages are set by collective bargaining. But even within each of those two sets of countries there are further elements of differentiation that could be a complicating factor in any attempted policy coordination. The following points summarise these elements of differentiation and how they may make EU coordination difficult, broadly classifying countries along each axis.

Degree of social partner involvement

Although in nearly all cases there is some degree of social partner involvement (the only possible exception is Hungary; see Schulten, 2012: p. 90), it varies considerably between countries. Of course, the highest level of involvement is in those countries where minimum wages are set by collective bargaining, with no (or very little) government intervention. This is the case in the Nordic countries, Austria, Germany and Italy. In some of these countries, there is some marginal intervention by the government, either to extend the coverage of collective agreements in some cases (Finland and Germany) or to establish some kind of statutory legal minimum in particular cases (Austria and Italy).

A second level of involvement is in those countries where there are national minimum wages but they are set by national-level collective agreements, either bipartite (Belgium, Estonia and Greece) or tripartite (Bulgaria, Poland and Slovakia). This category is really a hybrid. As in the statutory model, there is a single minimum wage level and the intervention of the government is crucial for transforming what has been agreed into binding regulation (and often, the government can have the final word if the social partners cannot reach an agreement). As in the collectively bargained model, it is the agreement of social partners that determines the threshold.

In all other Member States, minimum wages are set directly by the government, although in most cases social partners are consulted. Often, they are formally part of some type of advisory body that recommends adjustments to the minimum wage on a regular basis, such as the well-known UK Low Pay Commission.

The coordination of a minimum wage policy would be easier in the third group of countries (the statutory model), because the complexity of the system and the number of actors involved is smaller and would only require a commitment by governments to move gradually towards an EU-agreed framework. In the second group (the nationally agreed model), the degree of institutional disruption would be higher, since moving towards a common EU threshold would diminish the role of social partners in the setting of minimum wages. The highest degree of institutional disruption and difficulties would be in the first model, because it would either involve a shift towards a kind of second-level statutory model (which would underlie the collectively agreed system) or it would require a commitment to the EU target from all the partners involved, at all levels.

Universal versus segmented wage floors

Although in most cases this second differentiation is linked to the previous one, it is conceptually distinct. Where minimum wages are collectively agreed, they tend to be sector- or even company-specific; in constrast, most of the countries with statutory minimum wage systems tend to have a single universal

wage floor.[38] There may, however, be some exceptions or sub-minima. Cyprus is something of a hybrid case, since it has an occupation-specific statutory minimum wage underlying the collectively agreed levels (Eurofound, 2011). As far as the authors know, none of the proposals of EU minimum wage coordination mentions the possibility of differentiating by sector or occupation, and therefore it can be assumed that it would be a universal threshold within each country. Therefore, this is a second axis of institutional difficulty for countries where minimum wages are set by collective agreement; they would have to move from sector-specific thresholds to a single universal wage floor. For countries with a statutory system, this would not be a problem.

Scope

Even in countries with statutory national minimum wages, there are often provisions allowing sub-minima for specific groups, or even exclusions. But, again, the most important difference in the scope of minimum wages is associated with the divide between the statutory and collectively agreed models. In the purely collectively agreed model, only workers covered by collective agreements are affected by the minimum wages. Although most of these countries have very high levels of collective bargaining coverage (above 80%), in some cases (such as Germany) the coverage is much lower (around 60%), which leaves many workers unprotected. Some of the countries with the collectively agreed model solve this problem, at least partially, by different means – such as extending the collective agreement if half of an industry is covered (in Finland) or making it obligatory to be a member of an employer organisation (in Austria). In the statutory system, on the other hand, the coverage tends to be comprehensive but often allows sub-minima for specific categories – typically young workers (in all countries except Portugal and Spain) and/or apprentices. There are other types of differentiation in particular cases, such as for disability in France or Portugal, for unskilled workers in Luxembourg or for managers and unmarried workers in Greece (Eldring and Alsos, 2012).

Assuming that EU policy would require a universal wage floor, perhaps with a subminimum for young workers (as already exists in most countries), the biggest changes would again take place in those countries where minimum wages are set by collective agreement, because it would mean a significant expansion of coverage. For countries with the statutory system, some national specificities might have to be eliminated, but it would probably not have a very large impact.

Enforcement

Obviously, if there are wide differences in the degree of enforcement of minimum wage provisions, the institutional difficulties of EU-wide coordination would increase considerably. Although some relatively well-known aspects of the various labour markets, such as differences in the size of the informal sector or the existence of bogus self-employment, do point to differences in enforcement across Europe, there is no reliable source of comparable data, so it is difficult to evaluate in this context. Drawing on Eurofound's network of correspondents, some exploratory information on this issue has been compiled.

The enforcement of minimum wage levels is a legal requirement which obviously depends on the judiciary system (once an employee reports a violation of employment regulation) and on the monitoring capacity of each country, typically through labour inspections. Data on non-compliance is also rare at the national level and has been publicly documented only in some countries: in Ireland (based on 1,169 inspections in 2011, more than 100 cases of pay breaches were found); in the UK

[38] In some countries, there is also some regional differentiation (for instance, in Bulgaria and Finland).

(around 1% of the labour force was estimated to be earning wages below the national minimum wage in 2010, according to data from the Office for National Statistics); in Poland (3% of employers under inspection paid wages below the minimum wage in 2003); and in the Netherlands (only 0.3% of the employees earned less than the legal minimum wage they were entitled to according to a study in 2006).

Several factors influence the potential number of people paid less than legal requirements. In countries where many employees are paid at around minimum wage levels, the probability of finding underpaid workers may be higher. For instance, in Spain fewer than 1% of employees were paid minimum wages between 2004 and 2009, which may suggest that few are paid below minimum wage levels. Another potential factor is the size of the black economy, where the minimum wage is less likely to be observed. Several countries report cases where employment relationships take place between parties not bound by employment contracts, such as Romania and Bulgaria, where the proportion of employees without a labour contract was estimated at 3% in 2012 (down from 6% in 2003). Illegal employment practices are typically concentrated in certain sectors, such as construction, catering, retail or repair (as reported in the Czech Republic, or in France where cases have been reported in large retail companies). Moreover, a particularly vulnerable group may be migrant workers, typically in the construction sector (as reported in the Netherlands, Finland and Belgium). A further area of concern in some countries (Hungary and Lithuania) is part-time working, since employees may be in fact working longer hours than those stated in their contracts.[39]

Of course, current minimum wage levels and their distance from the hypothetical common target are a very important axis of divergence across Europe that would also have a very significant impact on the difficulty of establishing a coordinated EU policy. This will be discussed in the next chapter.

So the institutional difficulty, or potential institutional impact of EU minimum wage coordination, can be summarised by dividing the countries into three categories.

High degree of institutional impact or difficulty: Austria, Denmark, Finland, Germany, Italy and Sweden are the countries with collectively agreed minimum wages, and there are superimposed difficulties across most of the axes previously mentioned. The policy under discussion could involve a disruption of national industrial relations traditions or require a high degree of coordination from all economic actors; it would probably eliminate existing sectoral and company differentials with respect to minimum wage levels; and it would require expanding the coverage to make it universal.

Intermediate degree of institutional impact or difficulty: Belgium, Bulgaria, Cyprus, Estonia, Greece, Poland and Slovakia – most of these countries have also collectively agreed minimum wages, although at the national level and with universal coverage, and therefore occupy an intermediate position with respect to the rest of Europe. Cyprus is a particular case, with an underlying occupation-specific statutory minimum wage for some cases and collectively agreed minimum wages.

Low degree of institutional impact or difficulty: Czech Republic, France, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Romania, Slovenia, Spain and the UK. In these countries, minimum wages are set by government regulation and have more or less universal coverage: therefore the EU coordination would be considerably simpler, although not, of course, trivial.

[39] A final point to note with respect to enforcement is that it can be itself affected by the system and scope of the minimum wage regulation: a single universal wage floor facilitates enforcement. For instance, in the German case, it has been argued that the existence of very different levels across sectors and firms complicates enforcement significantly (Bosch and Weiskopf, 2011).

A final point to be made is that this differentiation of countries according to the institutional difficulty of establishing a coordinated EU minimum wage policy would also be relevant if such policy were to be implemented by 'soft law'. This would require less institutional change in countries with collectively agreed minimum wages, since the existing diversity of systems could be kept almost totally intact and each country could move towards a commonly agreed target through its own means. However, it would certainly be easier to achieve in countries with a statutory system where it would just be a matter for the government to adapt the necessary regulation. In countries with collectively agreed minimum wages, it would require a commitment from many different actors and a considerable degree of coordination at the country level itself.

Box 2: The debate on the minimum wage in Germany

Since the mid-1990s, the low-paid sector seems to have grown significantly in Germany, comprising more than 20% of the employed population according to recent estimates (Kalina and Weinkopf, 2010). This is linked to the development of minimum wage systems after reunification, with rapidly declining coverage rates and weaker collective bargaining structures (Bosch and Weinkopf, 2011).

Against this background, in 2005 the 'grand coalition' (the Christian Democratic Union, the Christian Social Union of Bavaria and the Social Democratic Party) created two procedures by which industry-specific (binding) minimum wages could be created. However, little progress has been made, especially in industries without collective bargaining or with low coverage. As a consequence, different minimum wages coexist – with large segments of the workforce not covered by any minimum rate. In 2010, coverage of employees by industry-wide collective wage agreements was 56% in western Germany and 37% in eastern Germany (IAB, 2011). Since company-level agreements covered a small proportion of employees (7% in the West and 13% in the East), 37% of employees in the west and 51% in the east are not covered by a collective agreement. This explains why the debate over the establishment of a statutory minimum wage has gained momentum in Germany in recent years.

As this report is being finalised, the coalition government in Germany has agreed on the establishment of a statutory minimum wage of €8.50 per hour, a level which is close to the 60% of the median discussed in the next chapter of this report.

4 Methodology

The key objective of this second part of the report is to quantify the number of workers who are currently below a threshold established by a hypothetical EU minimum wage policy (HMW, considered fixed at 60% of the median wage in each Member State) and to identify the types of companies, jobs and individuals that would be most affected. To do this, the exercise uses the two main existing EU-wide surveys on income and wages, the 2010 European Survey on Income and Living Conditions (EU-SILC) and the 2010 European Earnings Structure Survey. The main methodological decisions made in order to carry out this analysis, and the limitations imposed by the data, will be documented in this chapter.

Some definitions

Normally, the threshold established by minimum wages refers to gross earnings before taxes or other statutory deductions, including the base salary and premiums and bonuses, except where they refer to non-standard work hours or overtime, and excluding payments in kind (OECD, 2003). The threshold is normally defined as an hourly rate, or monthly earnings adjusted for hours worked, so that equivalents for different working hours can be computed.

These are the attributes that should characterise the target measure of wages by which the hypothetical EU threshold shall be defined. But, of course, the analysis will be constrained by the characteristics of the data available, and the actual measures of wages used will not be identical to this definition. In the following pages, details of any departure from the definition are provided with their potential implications.

The key element of all the analysis in this paper is the identification of the wage level that corresponds to 60% of the median in each country, and of the workers that fall below the threshold. Here this report simply uses the most commonly used threshold in the literature, which roughly corresponds also with the OECD's definition of low-paid workers, those whose income is two-thirds of the median (this is one of the most commonly used definitions). So, it can be said that establishing such a threshold would mean the statutory elimination of low-paid work in Europe, at least according to a common definition.

The use of the median rather than the mean is normally justified by the excessive sensitivity of the latter to outliers in the distribution of income. Even a relatively few very high individual earnings can skew the mean upwards, resulting therefore in a very high threshold. In fact, when a minimum wage threshold is proposed with reference to the mean, it tends to be lower than when it is proposed with reference to the median (50% or 55% rather than 60%).[40]

However, this report will follow the most frequent approximation based on the median, both for reasons of simplicity and for its superior statistical robustness. There is always less precision in the measurement of high wages in surveys so it is better to use an approach that is less affected by them.

The European Survey on Income and Living Conditions

The EU-SILC is a cross-sectional, longitudinal database on income, poverty, social exclusion and living conditions in the EU, coordinated by Eurostat, with data drawn from different sources at the

[40] Another important problem with using the mean as reference is that it would in itself change the establishment of such minimum wage, leading to a spiral of ever-increasing wages for purely mathematical reasons. The median is not mathematically increased by increasing the wage floor, although it may in practice go up (also as a result of spillover effects).

national level. It is representative of all private households and their current members residing in the territory of the countries at the time of data collection.

It is a very rich source in terms of the information it contains; it has a reasonably large sample and has the advantage of incorporating both a longitudinal perspective and a household perspective, on top of the more usual individual cross-sectional perspective.

The main problem with this source – for the purposes of this report – is that it is not really aimed at measuring wages as such, but rather income from employment at the individual and household level. Therefore, a measure of wages that matches completely the definition given above cannot be constructed from the EU-SILC, which can offer only an approximation (and requires making some non-trivial assumptions).

The variable on labour income in the EU-SILC refers to overall income from work in the previous calendar year, measured in gross terms (some countries, but not all, also provide net data). Since the latest available cross-sectional wave from 2010 is used, the income variable actually refers to 2009. This variable poses the following problems for the purposes of this report.

It does not necessarily refer to a job in particular: The variable it measures is any labour-related income, so, in fact, it can come from more than one job if the respondent had more than one job in the previous year, either successively (if she changed jobs) or simultaneously (if she had multiple jobs during the same period). The proportion of employees with more than one job in the countries included in the EU-SILC in 2010 was 4.73% (ranging from nearly 9% in Poland to less than 2% in Bulgaria). The proportion of employees who changed jobs in the year used as the reference for the income variables is 8% (ranging from 14% in the UK to 2% in Romania). So although this problem is not enormous, it can have significant implications for the results and therefore has to be taken into account. The *current* job does not necessarily equate to the job or jobs to which the variable on labour income refers. As mentioned before, around 8% of employees changed jobs in the previous year: hence, all of them are potentially affected by such a discrepancy.

A significant proportion of responses is imputed for a variety of reasons: Sometimes it is necessary to impute responses – that is, to assign certain responses where none were provided, based on the characteristics of the respondent. In some cases, this may be related to non-response; in others, to the fact that the information is collected on a different basis; and it may be that procedures differ depending on the country. Although there is a variable that flags imputed values, it is not consistently coded, so it is very difficult to evaluate the implications of this problem (Brandolini et al, 2010). Nevertheless, this is a problem which is not specific to this analysis but which applies to anyone using EU-SILC data.

To transform the EU-SILC variable of labour income into a variable fit for the purposes of this report, the following formula (based on Brandolini et al, 2010) is applied:

$$\text{Monthly ft eq. gross wage} = \frac{\text{annual cash gross earnings}}{\text{months in ft jobs} \; + \; (\text{months in pt jobs} * [\text{pt/ft ratio}])}$$

That is, the main variable will be monthly full-time equivalent gross wage, which equals the EU-SILC variable of annual cash gross earnings (in the previous year) divided by the number of months in full-time jobs of the respondent over the same year, plus the number of months in part-time jobs

multiplied by a country-sex specific ratio of median hours of work in part-time jobs to median hours of work in full-time jobs.[41]

To adjust for the potential bias introduced by workers that hold more than one job, a further adjustment to the previous figure is made by multiplying it by a ratio of the hours worked in the first job to the total hours of work (in all jobs). This involves the assumption that the person had the same work arrangements over the previous 12 months as she has now, which is not necessarily true but is reasonable (and unavoidable unless the problem of multiple job holders is ignored). No further adjustments are made to deal with the problem of workers who changed jobs over the reference period, because it is simply impossible to know how much of last year's labour earnings can be attributed to each job. How many months they worked is known, so the months in unemployment or inactivity can be excluded from the denominator, but not how many of the months correspond to each job done in the course of the year. What this means is that for anyone who changed jobs in the previous year (around 8% of the total sample), the base variable collects the average wage for all jobs over the previous 12 months; this is a good approximation, to the extent that those who changed jobs maintained a similar wage level.[42]

The European Structure of Earnings Survey

The European Union Structure of Earnings Survey (SES) has been conducted every four years since 2002. It collects representative and harmonised data on wages in enterprises with more than 10 employees in all sectors except agriculture, fishing, public administration, education, health and community and social services. The inclusion of small enterprises and the above-mentioned sectors is optional for the participating countries; in fact, many of them opted for this type of comprehensive coverage in the last edition of the survey (2010), which is the one used here. Although the actual method for collecting the information can differ considerably across countries (between specific surveys and administrative registers), in all cases it is collected at the company level and is based on payroll data (rather than on workers´ responses). The sample is representative of both enterprises and workers in the covered sectors and company sizes.

The SES has many obvious advantages over the EU-SILC for the purposes of this report, but it has some significant problems too, which is why it will be used mostly as a secondary source to complete the picture. Its main advantage is that it is a survey explicitly aimed at measuring wages with a high degree of detail, whereas the EU-SILC measures labour income and only does that secondarily. What this means is that the target variable can be constructed in a much more direct and precise way, with very little need for resorting to bold assumptions. The problem of multiple and changed jobs does not apply either, because the data refer to jobs rather than workers: even if someone had more than one job, the information would be correctly gathered for each of them. The sample is also considerably bigger in most countries, and the degree of imputation is in principle much smaller (although the documentation of the data does not say much about this explicitly).

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[41] This necessary adjustment for part-time work can produce some minor bias in countries where the hours of part-time work are highly spread (such as the UK), but it is highly unlikely to change the overall picture.

[42] Using the longitudinal module of the EU-SILC, the authors could check directly how reasonable was this assumption, by comparing the wage in the previous and current year for those that had changed and had not changed jobs. The average wage increase of those who had changed was only marginally above that of those who had not changed (an increase of 5.1% as against 5%). Furthermore, 55% of those who had changed did so within the same 2-digit occupation (in which case the increase in pay was even smaller); only for the remaining 45% (who had changed job and occupation) was the increase in pay relatively significant (6.3% as against 5%). Overall, not adjusting for those who had changed jobs is likely to lead to an inconsequential upwards bias, at most.

But, on the other hand, the SES presents the significant problem of providing only a limited coverage of EU workers – the target population. The authors could only get access to SES data for 19 countries of the EU. The eight unavailable countries of the EU27 were Austria, Belgium, Bulgaria, Denmark, Germany, Greece, Malta and the UK. Furthermore, for some countries the SES does not include small enterprises or many important sectors of the economy. The exclusion of small enterprises is especially problematic, affecting seven of the 19 countries, because it is known that low-paid workers are overrepresented in such companies.

The measure of wages that will serve as the basis for analysis is in this case very precise and corresponds more or less exactly to the target variable defined previously, according to the following formula:

$$\text{Hourly wage} = \frac{\text{monthly wage} + \text{monthly eq annual bonus-overtime pay-shiftwork pay}}{\text{monthly working hours-overtime hours}}$$

All variables except the monthly equivalent annual bonus refer to October 2010 for most countries adjusted for cases of partial unpaid absence. The monthly equivalent annual bonus is calculated as the total annual bonus received in 2010, divided by the number of months worked in 2010.[43]

Although the measurement of wages in SES is much better, the impact of excluding significant segments of the economy is very important. On the one hand, it affects the calculation of the median hourly wage that serves for the definition of the threshold to the extent that if, for instance, the proportion of low-paid workers is larger in small firms, excluding them will tend to increase the median and consequently the threshold. On the other hand, if there are more low-paid workers in small enterprises, excluding the latter would reduce the proportion of people falling below the threshold directly. Therefore, both effects may cancel out to some extent. In practice, as we will see later, excluding small companies tends to reduce the proportion of workers falling below the 60% of the median threshold in most countries.

[43] Since SES data allow the calculation of hourly wages with precision, there is no need to adjust for part-time work.

5 Benchmarking existing minimum wage systems

How much change from existing minimum wage levels?

Any coordination of minimum wages in the EU would not start from scratch, but from the existing systems and levels of minimum wages in each Member State. It is very important, therefore, to start by contextualising the hypothetical common EU minimum wage with the existing arrangements in each Member State.

Tables 3 and 4 present the basic data that will be discussed in this section. The first column of both tables shows the existing levels of minimum wage (for 2009 and 2010, the base years for the two sources that will be used). In the case of countries with statutory minimum wages, this information was obtained from Eurostat and has a simple and direct interpretation: these are the actual levels, in euro, below which no employment relationship is permitted – although there may be exceptions. In countries with collectively agreed minimum wages, the figures shown in the tables are just an approximation, which will be used for comparative purposes, drawing on an estimation by Kampelmann, Garnero and Rycx (2013).

In strict terms, there is no such thing as a national monthly minimum wage in those countries but rather, different minimum wage levels in different sectors and/or occupations that do not necessarily apply to the full working population. In the majority of literature on this issue, the effective levels of minimum wages in those countries are thus simply unknown, even if they do exist. In a recent paper, Kampelmann, Garnero and Rycx gather data from sectoral agreed minimum wages for those countries, and estimate an average effective minimum wage level for the workers covered by collective bargaining.[44,45] Even if such information has to be handled with care for the reasons mentioned, it is extremely useful for comparative purposes and will allow the report to provide a full picture in the simple accounting exercise. If the values of such countries are compared with the median wages shown in the second column of both tables, it can be seen that in most cases they are higher than in countries with statutory systems (even if they do not apply to the entire labour force).[46]

[44] The authors are very grateful to Kampelmann, Garnero and Rycx for having kindly provided their estimations for this report.

[45] An alternative would have been to use the lowest sector-level minimum in these countries. The sector-level average tends to overstate its value relative to universal systems, whereas the lowest minimum tends to understate it. The authors prefer to stick to the average, the measure preferred by Kampelmann Garnero and Rycx (2013).

[46] According to Kampelmann Garnero and Rycx (2013), the coverage of collective bargaining in those countries is: 76% in Austria, 56% in Germany, 52% in Denmark, 79% in Finland and 82% in Italy. They provide no estimate for Sweden.

Table 3: Basic figures for minimum wages in 2009, EU-SILC

	(1) Monthly statutory minimum wages or average collectively agreed minimum wages, 2009 (€)	(2) Median monthly wage, 2009 EU-SILC (€)	(3) Hypothetical minimum wage threshold (60% median) (€)	(4) Proportion of workers below the HMW (%)	(5) Proportion of workers below monthly statutory minimum wages or average collectively agreed minimum wages, 2009 (%)	(6) Relative difference between existing minimum wage and HMW [(3-1)/1] (%)
AT	1,388.3	2,414.0	1,448.4	14.6	7.3	4.3
BE	1,387.5	2,771.2	1,662.7	9.6	3.0	19.8
BG	122.7	281.2	168.7	12.2	1.0	37.5
CY	822.1	1,587.8	952.7	15.7	6.3	15.9
CZ	297.7	746.5	447.9	10.9	0.4	50.5
DE	1,379.1	2,500.0	1,500.0	24.5	16.7	8.8
DK	2,341.0	3,741.7	2,245.0	10.0	6.6	-4.1
EE	278.0	632.3	379.4	18.9	0.9	36.5
ES	728.0	1,625.9	975.6	13.0	2.7	34.0
FI	1,584.3	2,665.4	1,599.3	6.8	1.7	0.9
FR	1,321.0	2,036.7	1,222.0	12.0	8.1	-7.5
EL	817.8	1,515.5	909.3	11.4	3.2	11.2
HU	268.1	458.0	274.8	12.1	2.1	2.5
IE	1,461.9	2,858.4	1,715.1	19.7	6.8	17.3
IT	1,788.0	1,951.8	1,171.1	13.8	18.9	-34.5
LT	231.7	441.8	265.1	24.2	9.6	14.4
LU	1641.7	3678.4	2207.0	23.5%	3.2%	34.4%
LV	254.1	543.6	326.1	22.0%	3.6%	28.3%
MT	634.9	1315.7	789.4	12.7%	2.3%	24.3%
NL	1381.2	3198.9	1919.4	13.5%	2.8%	39.0%
PL	307.2	537.8	322.7	16.4%	4.8%	5.0%
PT	525.0	912.3	547.4	7.8%	1.9%	4.3%
RO	149.2	272.5	163.5	10.4%	1.1%	9.6%
SI	589.2	1302.1	781.2	13.2%	2.2%	32.6%
SK	295.5	600.0	360.0	8.4%	1.0%	21.8%
UK	995.3	2098.3	1259.0	18.9%	5.7%	26.5%

Source: Source for (1): GKR estimate for countries with non-statutory minimum wage (AT, CY, DE, DK, FI, IT), Eurostat for the rest. DE figure is for 2007, adjusted for inflation; CY figure is an average for 2008–2009. All other figures from EU-SILC 2010, cross-sectional.

Table 4: Basic figures for minimum wages in 2010, SES

	(1) Monthly statutory minimum wages or average collectively agreed minimum wages, 2010 (€)	(2) Median monthly wage 2010, EU-SES (€)	(3) Hypothetical minimum wage threshold (60% median) (€)	(4) Proportion of workers below the HMW (%)	(5) Relative difference between existing minimum wage and HMW [(3-1)/1] (%)
CY	822.1	1,774.9	1,064.9	16.7	29.5
CZ	302.2	860.5	516.3	12.6	70.8
EE	278.0	734.7	440.8	18.4	58.6
ES	738.9	1,869.7	1,121.8	9.0	51.8
FI	1,584.3	2,848.2	1,708.9	3.1	7.9
FR	1,343.8	2,520.0	1,512.0	3.4	12.5
HU	271.8	624.7	374.8	14.5	37.9
IE	1,461.9	3,120.0	1,872.0	15.7	28.1
IT	1,788.0	2,262.9	1,357.7	7.0	-24.1
LT	231.7	468.0	280.8	21.4	21.2
LU	1,682.8	3,282.9	1,969.8	9.4	17.1
LV	253.8	511.8	307.1	20.8	21.0
NL	1,407.6	2,921.3	1,752.8	13.7	24.5
PL	320.9	758.3	455.0	17.8	41.8
PT	554.2	1,029.5	617.7	7.6	11.5
RO	141.6	358.6	215.1	20.8	51.9
SI	597.4	1,446.2	867.7	9.1	45.2
SK	307.7	705.5	423.3	13.2	37.6

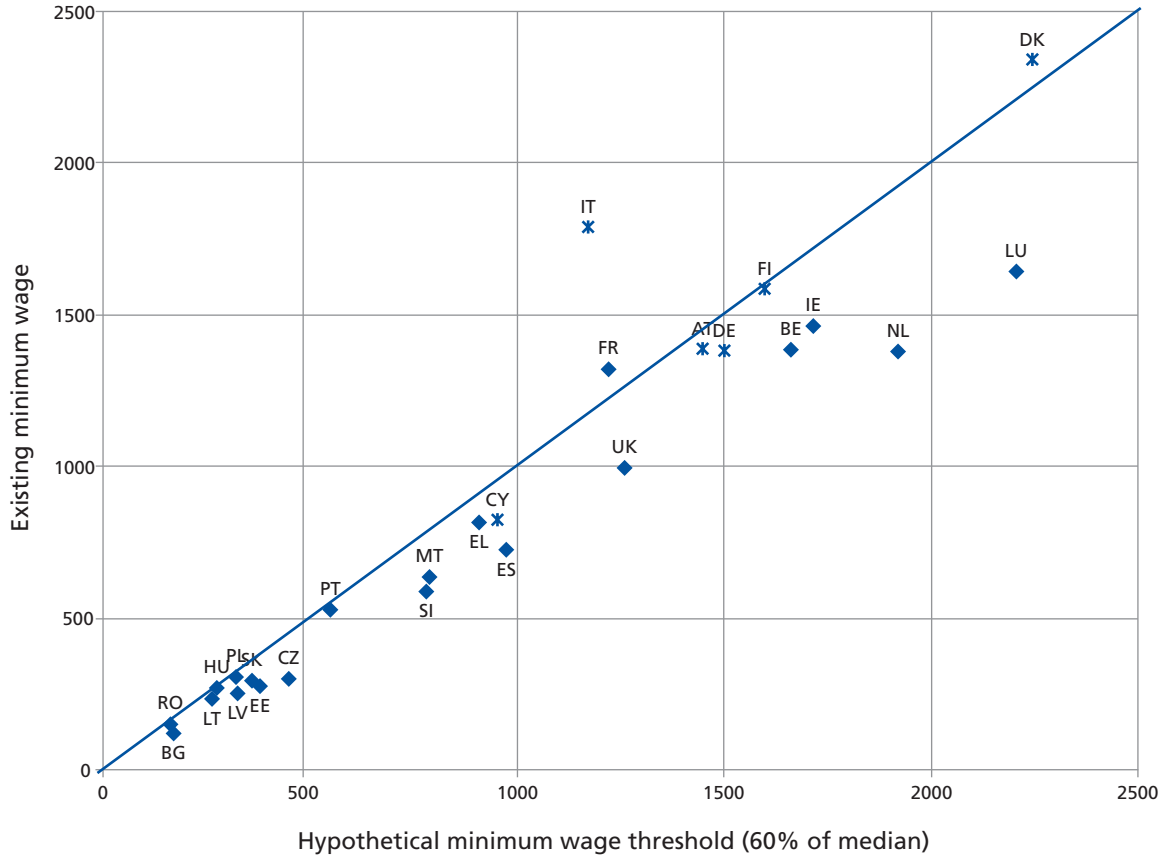
Source: For (1): GKR estimate for countries with non-statutory minimum wage (CY, FI, IT), unadjusted 2009 values, Eurostat for the rest (2010). CY figure is an average 2008–2009. All other figures from SES 2010.

The third column of both tables shows the value that would have corresponded in 2009 and 2010 to the HMW threshold of 60% of the median. Comparing this value with the one in the first column gives an idea of how much impact this coordination would have in practice. Figure 1 shows the comparison graphically, with the hypothetical level in the horizontal axis and the existing level in the vertical axis, and a diagonal line where both values are the same. The distance from this diagonal line reflects the amount of change that would be required by a hypothetical coordination of minimum wages, and the position with respect to the diagonal whether the change would be positive or negative.

To remind the reader of the difference between the countries with and without statutory minimum wages at present, the latter are indicated with a different marker (a star). These figures clearly show that the introduction of a common target of 60% of the median would entail an increase in the existing levels for many European countries, quite significant in a few cases (such as the Netherlands, Luxembourg, Spain, the UK and Ireland, and most eastern European Member States). There are some exceptions, though: the clearest one is Italy, where the average collectively agreed minimum wage level estimated by Kampelmann Garnero and Rycx (2013) is so high that a common EU threshold of 60% of the median would be considerably smaller. It must be remembered that this minimum wage is just an average and that it does not cover the whole Italian labour force, which means that the coordination of minimum wage policy would also lead to a significant increase in the lowest wages in Italy, as will be seen later. The other two countries that are above the diagonal (France and Denmark) are so close that it can only be said that the establishment of a common EU threshold of 60% of the

median would have very little or no impact on levels in those countries, as would also be the case in other countries such as Finland, Austria, Germany – where, again, the main impact would be in terms of coverage – and in Portugal, Hungary, Poland, Romania and Greece.

Figure 1: Existing statutory or average collectively agreed minimum wage compared with hypothetical minimum wage, 2009



Source: EU-SILC, 2009

The key variable throughout this report will be the proportion of workers below the hypothetical common EU minimum wage level in various countries, sectors, and so on. A preliminary approximation to this variable is shown in the fourth column of Tables 2 and 3. It can be easily seen that in nearly all countries there would be a significant proportion of workers below the threshold, and their wages would therefore increase if the HMW were implemented.

According to the EU-SILC, in most countries the proportion of workers below the threshold is between 10% and 15%, with several countries around or above 20% (the Baltic states, the UK, Ireland, and Germany). These figures will be discussed in detail in the next section. For the moment, putting them in the context of the proportion of workers below existing minimum wage levels illustrates the point made before about the difference between countries with and without statutory minimum wages. Column (5) of Table 3 (only available for EU-SILC data) shows the proportion of workers below

existing minimum wage levels in 2009 using the threshold of 75% of the value shown in Column (1), following Kampelmann et al (2013).[47]

As we can see, in nearly all countries, the proportion of workers who are below the existing minimum wage level is less than 5%, which suggests both a high level of compliance and that minimum wages are so low that they have very little effective impact. As for those countries where more than 5% of workers are below the existing minimum wages, most have non-statutory or non-national minimum wages (Austria, Cyprus, Denmark, Germany and Italy), which means that the issue at stake is not compliance but coverage, and the existence of specific minimum wages that may be significantly below the overall national average. Only in France, Ireland, Lithuania and the UK is there both a statutory national minimum wage and a significantly high proportion of workers below the threshold, which may result from non-compliance or the existence of sub-minima for specific groups (such as younger workers) or, perhaps, some of the measurement problems mentioned earlier.

How many workers would be affected?

The most obvious indicator of the scale of the impact of a hypothetical common wage floor is the percentage of workers below the threshold. The lack of a dataset measuring wages for the full labour force in the different countries forces this analysis to compare the results using two different datasets (EU-SILC and SES), which complicates the picture but allows a more correct evaluation of the potential impact of a hypothetical minimum wage coordination. Figure 2 shows the proportion of workers below 60% of the median wage in each country according to the two sources, including different specifications of the SES. This complicated figure will be discussed in some detail to be able to later provide a simple but faithful classification of countries.

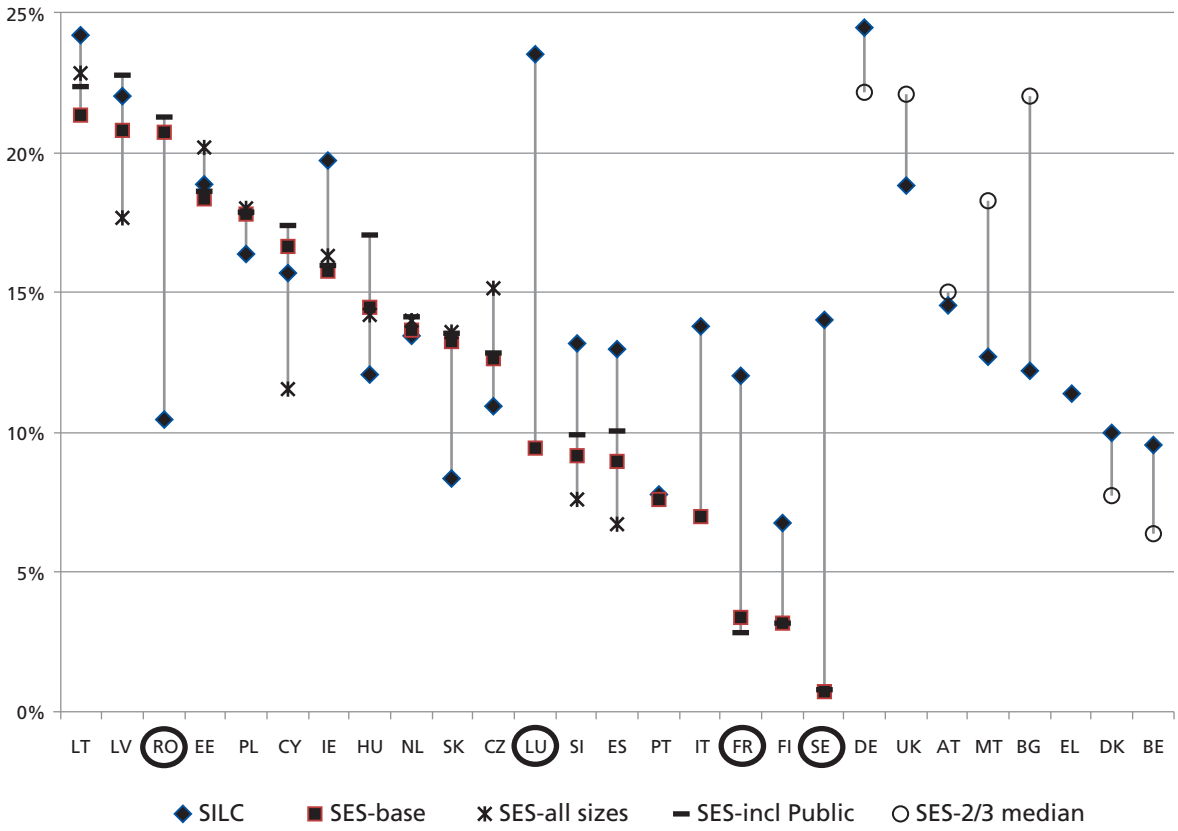
As mentioned earlier, the source that provides a better measure of wages and a larger sample size is the SES. The problem with this source is that it does not cover the whole economy, most importantly leaving out small firms and public administration; moreover, the authors could not get access to data for all countries. In Figure 2, the countries have been sorted according to the base figure of the SES, excluding establishments with fewer than 10 employees and in the public administration sector; these are identified by a black square marker. Those countries for which the authors did not have SES data are shown separately at the right-hand side of the chart, sorted by the proportion of workers below the HMW threshold, according to EU-SILC.

The EU-SILC figure is indicated by a diamond in the chart. The next two markers correspond to different specifications of the SES dataset, which are available only in some countries but are informative. The star shows the proportion of workers below the HMW threshold, according to the SES, for establishments of all sizes (for the countries that provide the data). The line marker shows the proportion of HMW workers according to SES – including in public administration (again, where such data is available). Finally, the circle symbol is used only for those countries for which the authors did not have access to SES data, but for which Eurostat itself has published a figure that is similar

[47] The existence of a statutory minimum wage tends to create a spike in the distribution of wages around the minimum wage level, to the extent that at least some of the jobs that would otherwise have lower pay tend to accumulate at the minimum level. Since the measurement of wages in surveys is not totally precise, using the exact value of the minimum wage as the threshold for identifying who earns less than that is likely to misclassify a large number of workers who are precisely around the threshold. For that reason, it makes sense to specify a slightly lower figure, as done by Kampelmann et al (2013). They specify a figure of 75% of the official value. This is safely below the spike and therefore minimises the number of wrong identifications. The same logic does not apply to the hypothetical minimum wage level of 60% of the median, because such value has no applicability nowadays and therefore there is no spike around it. Of course, there will be some misidentified cases, but they are likely to even out because they will be both above and below the threshold. In the next section some graphic evidence of this spike and its relationship with existing minimum wage levels will be discussed.

to that of the authors: the percentage of workers below two-thirds of the median in each country for establishments with more than 10 employees, excluding public administration. (These data are included so as to also be able to evaluate roughly the consistency between the two sources for those countries.)

Figure 2: Proportion of workers below the HMW threshold – different sources and specifications



In general terms, the consistency between the different specifications of the SES data is higher than the consistency between the SES and EU-SILC. What this suggests is that the differences between both sources are not so much the result of their differences in coverage (EU-SILC covering the whole economy and SES generally not) but the result of differences in the measurement and specification of wages. That said, the inconsistency between SES and EU-SILC in the country comparison seems to be concentrated in a few countries, which are highlighted in the figure by a circle around the country label. In the majority of countries, the inconsistency is much smaller and seems reasonably within the boundaries of what would be expected according to the different specification of variables. This will be useful for the classification of countries in terms of the scale of the impact of the HMW, because in most cases the use of one or other source would not make much difference.

In a few countries, nevertheless, the inconsistency is quite considerable, so it justifies a more detailed discussion.

Romania

The proportion of workers below the HMW threshold is significantly lower in the EU-SILC than in the SES, being only around one-half of the proportion recorded in the SES. The SES does not cover small establishments in this country, but EU-SILC does, so it is possible to check whether the exclusion of small firms may bias the SES results. Romania is one of the countries where (according to EU-SILC) low pay is *less* concentrated in small firms: 24% of low-paid jobs are in small firms, compared to 15% of the rest of jobs (in most other countries, the difference is larger). The difference in the median wage of small establishments and the rest is not very big either. So the problem is probably not that the SES results are biased by the exclusion of small firms, but the different specification of the variable of wages, which is not very good in the SILC data. Although the authors do not have SES data for Bulgaria, it seems that this country would have a similar problem.

Luxembourg

Here the inconsistency goes the other way. According to the EU-SILC, the proportion of low-paid workers is nearly two-and-a-half times that recorded by the SES. Contrary to Romania, in Luxembourg there seems to be quite a strong bias in the extent of low pay in small and large establishments. Nearly 40% of workers in small establishments in Luxembourg are low paid according to the EU-SILC, compared to less than 20% in other establishments. The median wage is also much smaller (being one-third less in the SES). So in this case, the SES result may be biased downwards by its exclusion of small establishments, even if the SILC estimate may seem excessively high.

France and Italy

In a similar way to Luxembourg, the extent of low pay is significantly greater in small establishments in these countries, so the inconsistency between the two sources may point to SES data giving an excessively low estimate. The bias in the actual median values is, however, less important.

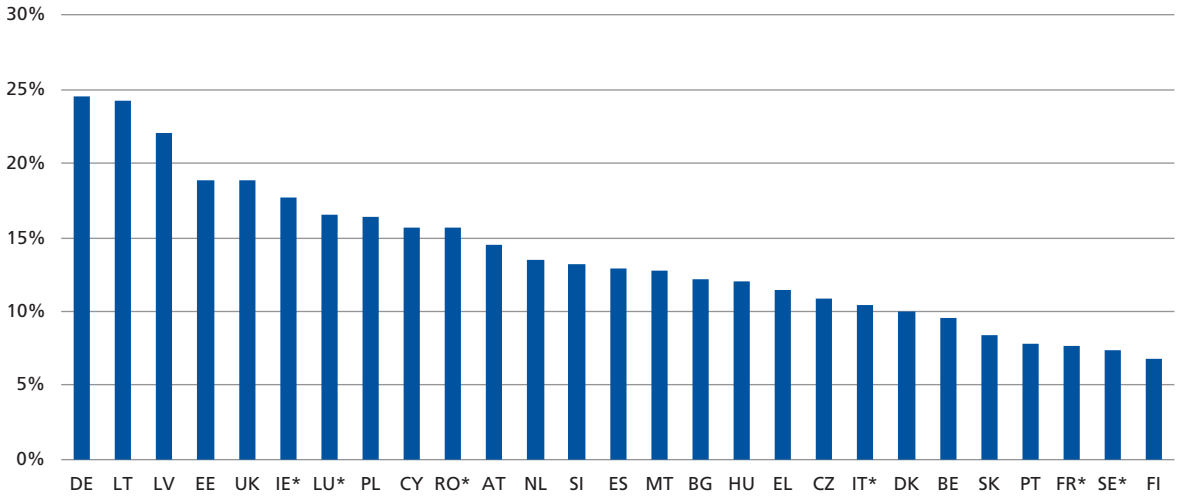
Sweden

The SES figure is extremely low in Sweden, almost negligible (less than 1%), whereas the EU-SILC figure would put the country around the middle of the chart. In this case, both SES and EU-SILC seem to provide biased results, in opposite directions. In the case of EU-SILC, the Swedish data do not collect gross earnings as in most countries, but net and subsequently imputed earnings. The imputation process seems to have generated an implausibly high proportion of low-paid workers.[48].

The SES base estimation also seems problematic – in this case, because the figures for working hours seem implausibly low for many low-paid workers. The base wage measure is calculated as an hourly rate, and therefore would tend to inflate the estimation if hours are too low. The problem can be seen by comparing the base SES estimation (the black square marker) with the SES estimation based on annual wages, which is normalised in terms of full-time equivalents rather than working hours. These two magnitudes are very similar in most cases, because normalising by hours or full-time equivalents does not make a big difference except in the case of Sweden, where one produces less than 1% of low-paid workers and the other more than 5%.

[48] SILC provides extremely limited documentation of these issues. According to the SILC dataset, all the results for Sweden were only collected net, which would mean that the variable of gross labour earnings that we are using here has been imputed: but in fact, the associated imputation factor has a value of 0 for Sweden, which would mean that there was no imputation at all. Does it mean that the Swedish figures for labour earnings in SILC are only provided net? We could find no mention of this in the SILC quality report or anywhere else. France is the only other country with a similar problem in SILC, although the bias seems not so large in that case.

Figure 3: Proportion of workers below the hypothetical HMW threshold, final assessment



*Source: 2010 EU-SILC, except * (average between EU-SILC 2010 and SES 2010 figures, because of inconsistency between the two sources).*

Taking into account these problems, Figure 3 provides a final assessment of the share of workers below the threshold of 60% of median national wages, which shall serve later for classifying countries. The source for the numbers behind this figure is EU-SILC for most countries, with the exception of the already-discussed problematic countries, for which we use the average between the EU-SILC and the baseline SES result.

Box 3: An alternative threshold based on 50% of average wages in each country

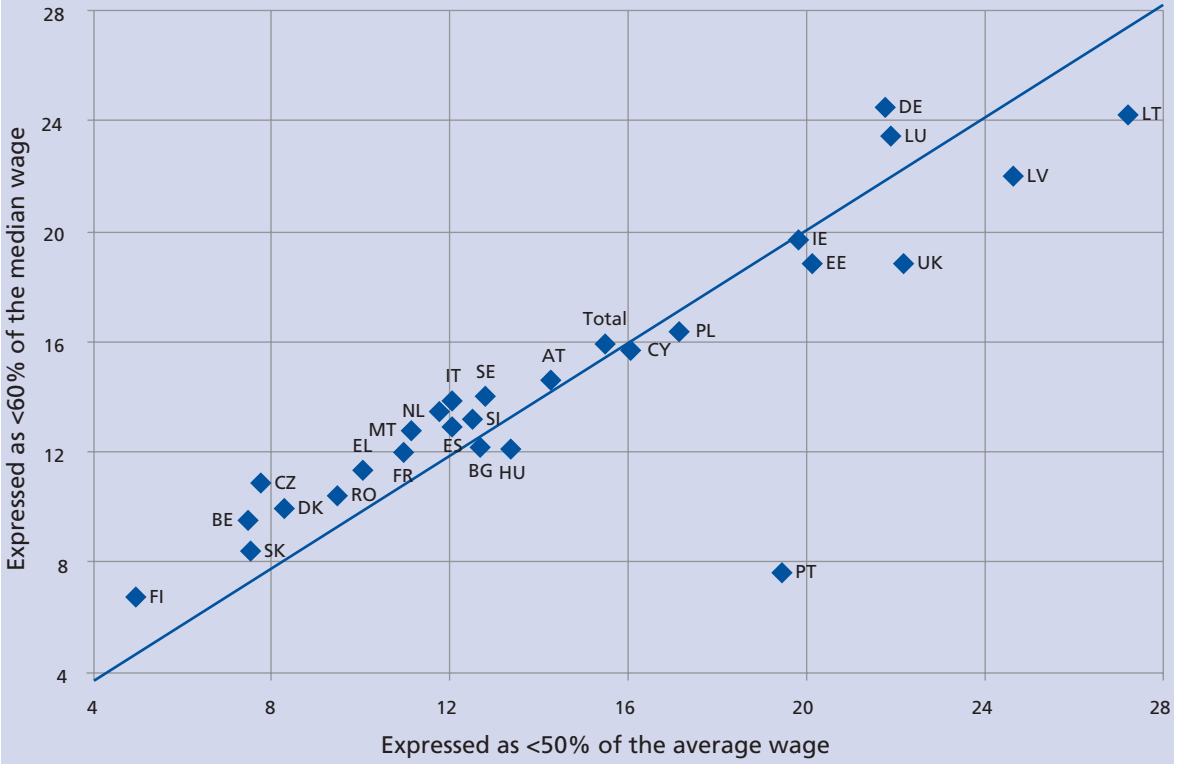
As mentioned earlier, using the median or the average as reference for the HMW threshold can lead to important differences. The median is insensitive to the extent of inequality in the upper tail of the distribution (and also in the bottom tail, since the median simply refers to the wage that occupies the exact middle of the distribution, separating the 50% of the workforce earning more from the 50% earning less), while the average is very sensitive to it. Since wages tend to have a very skewed distribution, with many workers earning relatively low wages and a few earning very high ones, the average is higher than the median wage in all EU27 countries according to EU-SILC, ranging from around 25% higher or more (Portugal, Lithuania, Latvia, UK, Estonia) to less than 10% higher (Germany and Denmark).

Since countries are characterised by different wage distributions, they can be ranked differently depending on what measure is used. Using as the reference for the HMW threshold the average rather than the mean, therefore, can lead to some differences in the impact across different countries.

To test this, the basic measure has been recalculated using 50% of the average rather than 60% of the median in line with some of the proposals that have been put forward, as discussed earlier in this report. Figure 4 shows the proportion of the workforce that would be affected in each of the EU27 countries according to the two different methods

of calculating the HMW threshold. In most countries, the difference is very small, but there are a few where it is quite significant: the most extreme case is Portugal, where the proportion of workers below 50% of the average is more than twice the proportion of workers below 60% of the median. The proportion of workers below the average-based threshold is also significantly higher in the UK, Latvia and Lithuania. These are countries characterised by a high degree of wage inequality and therefore by an average much larger than the median.

Figure 4: Proportion of employees under the average-based HMW threshold (EU-SILC)



Box 4: A sector-specific minimum wage threshold

The baseline scenario for this accounting exercise assumes a single wage floor for each country, relative to the median for the whole economy. Alternatively, the threshold could be referenced to the median wage in each sector. Although the authors are not aware of such a proposal in the debate, this alternative could in principle have some advantages.

The effect on the wage distribution could be more similar to that of the collectively agreed system (which is sector-specific as well), and it could pose fewer problems for competitiveness and profitability, theoretically being more in line with sector wage differentials and therefore with productivity. The following chart shows the share of workers affected by a national minimum wage (set at 60% of the median wage in each country, the baseline scenario in this report) and by a sector-specific minimum wage (set at 60% of the median wage in each sector and country). As can be seen, the difference in the overall share of workers affected would be very marginal.

All the analysis in this box is based on SES data. EU-SILC does not have the required level of detail in the sector classification. For the sector-specific minimum wage threshold, the report has used seven broad sectors of the economy: construction; low-technology industries (LTI); high-technology industries (HTI); less knowledge-intensive services (LKIS); knowledge-intensive services (KIS); education; and health. Public administration is not included in SES.

Figure 5: National and sector-specific minimum wage, proportion of workers affected, 2010, SES

Even though the number of workers affected would be very similar in both systems, the distributional implications are strikingly different, as can be seen in Table 5, which compares the proportion of workers affected in each sector and country in the two systems. This effect was to be expected, but perhaps not to such an extent. In all countries, the proportion

of workers affected in the low-paid sectors would be drastically reduced, whereas that of workers affected in the high-paying sectors would increase very significantly.

For instance, if the lowest-paid sector in Europe is looked at, less knowledge-intensive (private) services, it can be seen that the proportion of workers affected would go down from 13.4% to 6.7% on average (from 13% to 3.5% in Spain, from 28% to 9.9% in Ireland, and from 25% to 13.5% in the Netherlands). Conversely, in the highest-paid sector (knowledge intensive private services) the proportion of workers affected would rise from 8% to 17.7% on average (from 6.7% to 19.3% in Spain, from 5.3% to 15.7% in Italy, and from 3.9% to 27.3% in Portugal).

While a national minimum wage significantly reduces wage inequalities across sectors (by raising the wages of the low-paid sectors in particular), a sector-specific minimum wage can in fact accentuate them. The strongest effect would not be on the lowest-paid workers in the economy, but on the lowest-paid workers in the highest-paid sectors – who may not be so poorly paid in general terms. To the extent that wage inequalities are linked to sector differentials, it could end up increasing overall inequality. Such a minimum wage scheme may be more consistent with productivity levels, but it seems difficult to justify in terms of its implications for equity.

Table 5: National versus sector-specific minimum wage, proportion of workers affected, 2010, SES (%)

		Construction	LTI	HTI	LKIS	KIS	Education	Health
CY	National	5.4	26.09	10.93	26.83	5.98	1.69	11.82
	Sector-specific	13.59	15.86	8.21	6.45	20.83	17.66	13.5
CZ	National	8.28	12.09	6.65	18.71	14.72	4.82	8.43
	Sector-specific	8.77	8.46	7.48	14	23.29	11.8	7.5
EE	National	12.67	15.99	10.85	24.12	11.81	20.35	20.15
	Sector-specific	17.52	13.39	12.41	13.6	19.96	22.66	16.83
ES	National	2.26	5.6	1.22	13.17	6.73	5.41	8.89
	Sector-specific	1.71	6.71	8.06	3.5	19.28	20.5	15.11
FI	National	0.68	0.64	0.32	5.39	1.37	2.05	2.9
	Sector-specific	1.9	1.54	3.61	1.51	6.45	6.68	1.34
FR	National	7.77	2.44	2.12	2.93	1.71	0.13	5.72
	Sector-specific	6.84	2.7	7.94	1.78	12.09	4.32	4.14
HU	National	22.36	18.34	10.15	18.36	10.19	3.13	8.78
	Sector-specific	8.45	10.42	11.79	9.34	24.95	14.42	3.68
IE	National	19.95	14.45	8.65	28.26	9.38	4.51	9.99
	Sector-specific	16.02	11.53	13.34	9.94	16.6	22.85	11.84
IT	National	7.68	7.46	3.35	11.13	5.25	0.58	5.31
	Sector-specific	7.34	4.55	4.09	4.35	15.7	21.19	10.26
LT	National	25.37	21.43	6.97	26.3	13.1	24.46	12.63
	Sector-specific	23.43	20.62	15.48	0	22.34	34.25	15.25
LU	National	6.03	5.22	10.19	20.92	3.86	0.55	8.67
	Sector-specific	1.38	6.16	0.83	1.23	17.71	26.32	17.6
LV	National	27.28	26.66	9.64	23.95	12.67	18.59	13.87
	Sector-specific	17.95	14.45	16.62	18.08	27.17	20.07	9.79
NL	National	4.96	8.15	3.61	25	14.72	2.7	6.17
	Sector-specific	6.64	7.17	7.16	13.5	17.53	7.57	7.69
PL	National	26.14	22.02	8.67	23.58	18.44	5.29	7.68
	Sector-specific	21.15	15.06	9.98	14.62	25.18	29.81	6.89

PT	National	5.83	12.57	2.3	8.62	3.91	0.78	6.49
	Sector-specific	0.59	0.03	6.63	1.06	27.29	24.62	6.31
RO	National	26.73	22.71	3.58	27.02	21.82	12.82	14.95
	Sector-specific	19.27	15.2	9.59	19.6	32.29	20.1	13.22
SE	National	3.1	2.79	0.82	7.39	6.31	5.3	5.14
	Sector-specific	4.87	3.54	2.27	6.06	11.09	3.65	3.26
SI	National	15.69	10.3	4.78	9.68	5.97	1.36	6.63
	Sector-specific	3.18	2.69	2.87	2.58	17.81	21.7	9.43
SK	National	13.56	11.86	9.73	16.89	14.07	8.66	10.18
	Sector-specific	13.34	11.85	9.07	8.58	21.76	15.32	8.99
Total	National	10.59	11.21	4.18	13.42	8.12	4.31	6.81
	Sector-specific	8.7	7.89	7.23	6.67	17.67	17.15	7.46

The distribution of wages below the threshold

So far, this report has focused on the most simple and obvious measure of the potential quantitative impact of the establishment of a common HMW threshold of 60% of the median: the percentage of workers below the threshold. Although such an approach is useful, it has the problem of not taking into account the *intensity* of the effect on each individual case. Not all workers below the threshold earn the same wage. The distance between the current wage and the hypothetical minimum wage can vary considerably, altering the actual impact for different workers.

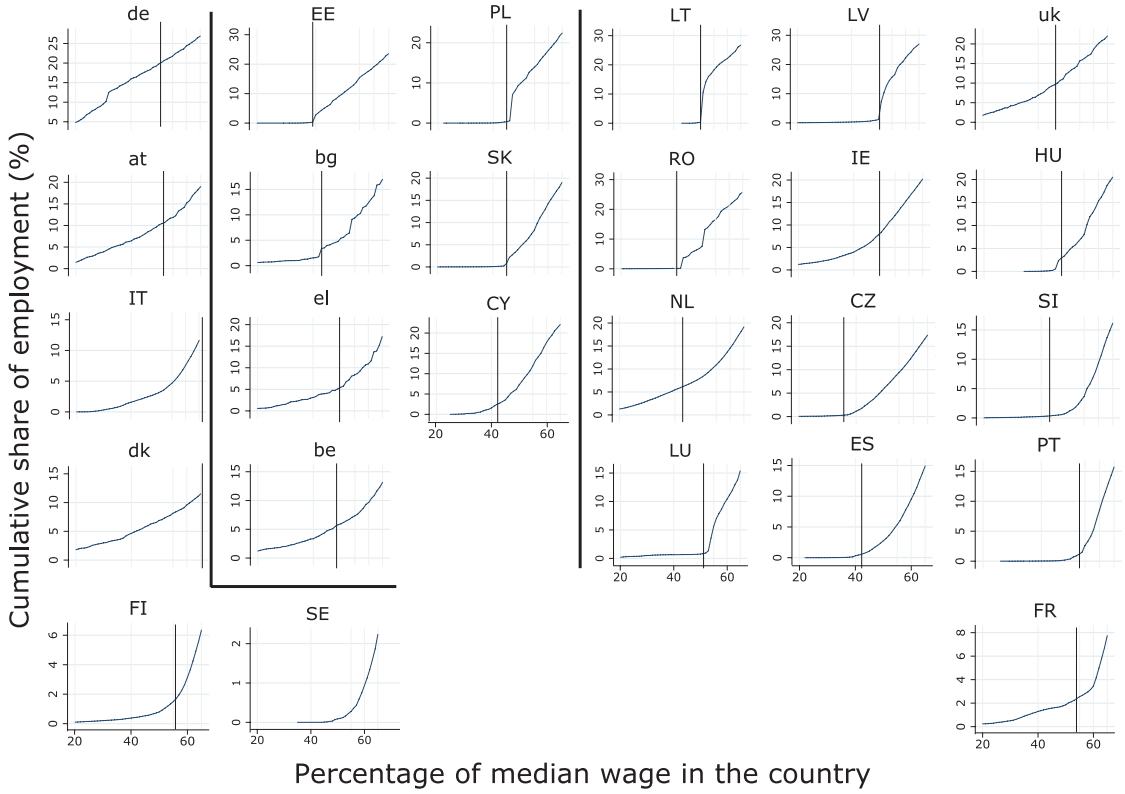
Figure 6 illustrates this point. It shows the cumulative distribution of relative wages below the median in each country. The horizontal axis shows the wage expressed as a percentage of each country's median, and the vertical axis the cumulative share of employment associated with each wage level. For facilitating the interpretation of the country charts, a series of grey vertical lines has been drawn at the levels of 40%, 55%, 60% (the threshold that being studied in this paper) and 65% of the national median. A black vertical line has also been included at the level of the existing minimum wage (actual or estimated by Kampelmann, Garnero and Rycx, 2013). So for instance, in Germany, the average collectively agreed minimum wage currently stands at around 55% of the median and more than 20% of workers have current wages below that level; below 40% of the median, there are around 15% of workers, and below 60% of the median (the HMW level), nearly 25% of workers. The countries have been arranged in the chart according to the three main categories of minimum wage systems already identified. The countries at the left-hand side of the chart are those with collectively agreed and sector-specific minimum wages; those in the middle (separated by lines) have collectively agreed but national minimum wages; and those at the right (the majority) have statutory national minimum wages. The area behind each curve in Figure 6 is proportional to the impact of establishing a common statutory minimum wage threshold of 60% of the median in each country. Not only do we see how many workers are below the threshold (where the next-to-last vertical grey line crosses the curve), but also by how much wages would actually increase. The more to the left the curve is located, the larger would be the increase in pay; the higher, the more workers would be affected.

This figure also shows how the different minimum wage setting mechanisms produce different distributions of wages below the median. The countries with national statutory minimum wages tend to have a bumpier distribution of wages below the median, with few workers below the minimum wage threshold and an abrupt increase after it. Countries with collectively agreed sector-specific minimum wages, on the other hand, show a much smoother and continuous distribution of wages below the median, and the estimated average agreed minimum wage is not associated with any discontinuity in the cumulative distribution of wages.

According to the authors' analysis, there are exceptions to this general pattern in both groups of countries: Finland and Sweden show a relatively abrupt distribution of wages, with the curve turning upwards at around 50% and 55% of the median, respectively. In the case of Finland, this coincides with the effective average agreed minimum wage estimated by Kampelmann, Garnero and Rycx (2013). On the other hand, Belgium, Greece, Ireland and the UK show a rather continuous distribution in which the minimum wage line does not seem associated with any bump in the cumulative distribution, with workers more or less equally distributed below and above the line (quite similar, in fact, to the countries without statutory minimum wages). To some extent, this may be the result of data problems, since for three of those four countries (the exception being Ireland) the authors only have data from EU-SILC, which has some problems in measuring wages. In fact, the countries for which they have SES data tend to show more clearly the effect of existing minimum wages than do the countries for which only EU-SILC data is available. It may also be a result of the existence of sub-minima and exceptions not taken into account for computing these charts.

The most important point, though, is that in some countries the area behind the curve is relatively small even if the share of workers below the minimum wage line is relatively large. This is the case for Latvia, Lithuania, Luxembourg, Spain and Slovenia and may be an effect of existing minimum wages (in Lithuania, Latvia and Luxembourg, there is nobody below the existing minimum wage line and this reduces considerably the area behind the curve) or other factors (in Slovenia and Spain, the existing minimum wage is considerably below the turning point of the curve). The area behind the curve is larger in Germany, Estonia, the UK and Ireland, Cyprus, Austria and Romania.

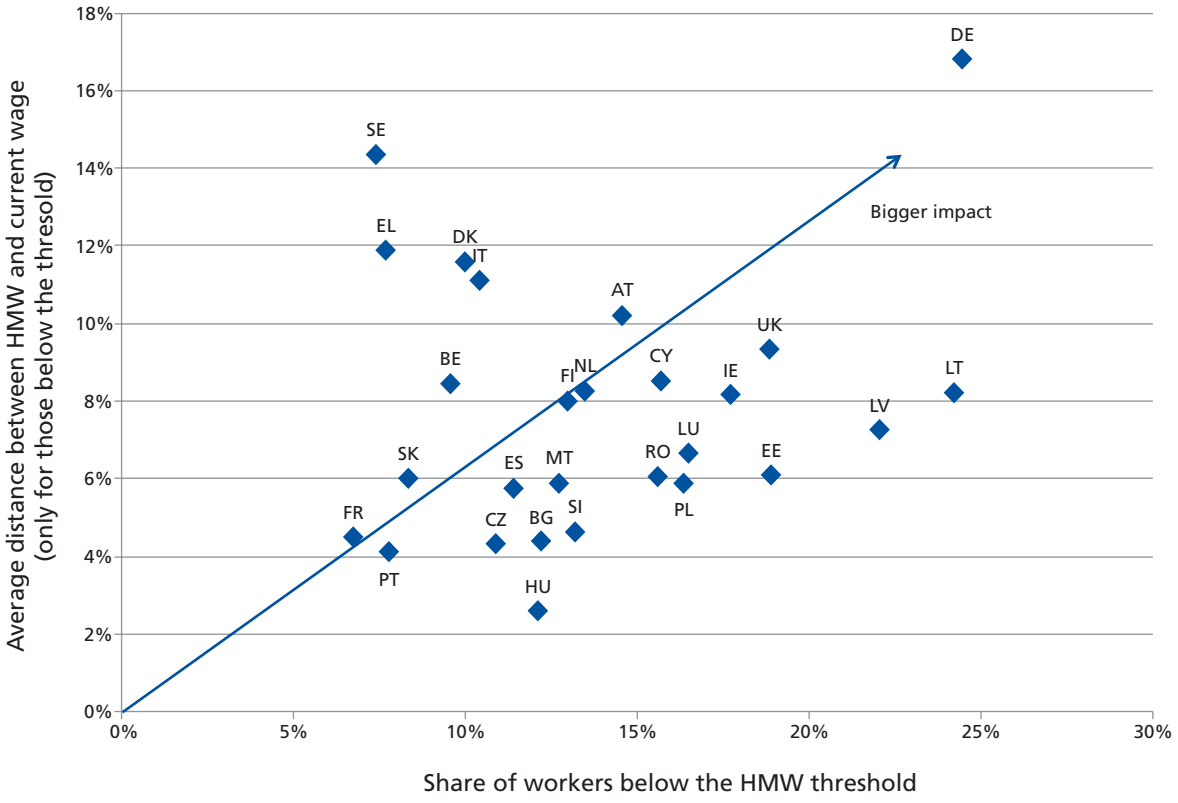
Figure 6: Cumulative distribution of wages below the HMW threshold



Notes: SES indicated in capital letters, SILC in lower case; * indicates estimated agreed average minimum wage from GKR

An alternative index of the potential impact of establishing a minimum wage threshold of 60% of the median with a similar approximation to the one underlying Figure 6 can now be calculated. For each individual worker below the threshold, the relative distance between the wage that corresponds to 60% of the median and the current wage can be calculated. Figure 7 plots the median of the new indicator (distance of current wage to the HMW) in each country (along the vertical axis), together with the previously used indicator of the proportion of workers below the hypothetical HMW (along the horizontal axis). The distance to the origin in the figure is proportional to the impact that the establishment of a common EU threshold of 60% of the median would have. As might be expected, the biggest impact is in Germany, which really stands out from the rest of Europe in terms of the distribution of earnings below the median. Other countries where the impact would be high as a result of this new measure are the UK, Austria, Cyprus, Netherlands, Ireland, the Baltic states, Romania, Poland, and Denmark.

Figure 7: Workers affected by a HMW and median distance between existing wage and the HMW threshold (EU-SILC)



Final remarks

As has been repeatedly said in this report, the EU currently has no competences with respect to pay systems or levels, and many significant actors both at the EU and national levels are opposed to giving the EU any powers in this respect. Therefore, at least in the short run, it is very unlikely that there would be any form of coordination of minimum wage policies in the EU. Still, some recent EU policy discussions have touched upon this issue, so it seemed useful to discuss that possibility by conducting an accounting exercise to examine how many and which workers would

fall below a common threshold set at 60% of median wages. Such an exercise is also useful as a way of benchmarking minimum wage systems and levels, since it establishes a common metric for the comparison. After having discussed in detail such a scenario in the previous pages, it is now possible to make an overall assessment of the quantitative impact that a hypothetical coordination of minimum wages around 60% of each national median would have, adding also the assessment of the institutional impact that was discussed at the end of the previous section. Such a summary is provided in Table 6.

Table 6: Potential impact of HMW threshold, by country, EU27

		Institutional impact:			
		High	Medium	Low	
Quantitative impact	High	DE	EE, PL, CY	LT, LV, RO, UK, IE	*More than 15% of workers below the HMW threshold*
	Medium	AT, IT, DK	BG, EL	HU, NL, CZ, LU, SI, ES, MT	*Between 10 and 15% of workers below the threshold*
	Low	FI, SE	BE, SK	PT, FR	*Less than 10% of workers below the threshold*
		Collectively agreed sectoral and occupational MW	*Collectively agreed national minimum wages*	*Statutory national minimum wages*	

According to the scenario evaluated in this report, it is in Germany that the impact would be greatest, and hence where it would be most difficult to establish such a system. The proportion of workers currently below 60% of the median is one of the highest in Europe, according to the EU-SILC (SES data for Germany could not be accessed, but the data published by Eurostat show that the country also has one of the highest proportions of low-wage earners). Moreover, minimum wages in Germany are currently collectively agreed and sector-specific, so moving into some form of statutory national system would involve a large-scale institutional transformation. As this report is being finalised, the German coalition government has agreed on the gradual establishment of a statutory minimum wage of €8.50 per hour, a level very close to the scenario discussed in this report, and which therefore would change completely the position of Germany in Table 6 and therefore the overall institutional and quantitative assessment made in the table.

The other countries with collectively agreed sector-specific minimum wages are all in the same column as Germany, but the quantitative incidence of a threshold at 60% of the median would be considerably smaller because of the lower incidence of low pay. This is particularly the case in the Nordic countries, where the proportion of workers below 60% of the median is well below the EU average, even though they lack a statutory national threshold. This is one of the reasons why, in practice, Nordic countries are likely to be the most resistant to the introduction of a common EU threshold. In contrast to Germany, where the sector-specific bargaining model has not prevented the expansion of a large low-paid segment, this system seems to be producing good economic and social outcomes in the Nordic countries, and is widely supported by social partners and governments.

In the second column are those countries where minimum wage levels are currently set by social partners at a national level. The establishment of a common threshold of 60% of the median would simply change the level, not the structure and coverage, of minimum wages. Still, it could imply a significant change in the type of involvement of social partners on the setting of the threshold, which involves at least a medium level of institutional impact. In Estonia, Poland and Cyprus, between 15% and 20% of workers would be affected by the change, which is quite significant. In

Bulgaria and Greece, there would be a medium level of quantitative impact. And in Belgium and Slovakia, it would be low, because of the limited current incidence of low pay.

Finally, the third column includes all countries where minimum wages are statutory and national, and therefore where the impact would be mostly felt on the level of the minimum wage. In Lithuania, Latvia, Romania, the UK and Ireland there is a significant proportion of the labour force under the hypothetical threshold, and therefore the quantitative impact would be largest. The impact would be slightly less but still notable in Hungary, the Netherlands, Czech Republic, Luxembourg, Slovenia, Spain and Malta. Both types of impact would be low in Portugal and France: these would be the countries where the establishment of a common EU threshold of 60% of the median would be easier, because the arrangement would change the current situation very little.

Two final comments pertain to Table 6. First, it is interesting to note that the institutional and quantitative impact seem to go in opposite directions: most of the countries where the quantitative impact would be high (where many workers would be affected) are in the column of low institutional impact, and vice versa. This is because (perhaps paradoxically) countries with statutory national minimum wages generally have a larger low-pay segment of employment and therefore would be more affected by a common higher threshold, whereas the opposite tends to be the case in countries with collectively agreed sectoral minimum wages. There are, of course, important exceptions to this. Germany has collectively agreed minimum wages and a very high share of low pay, whereas the opposite is true in France.

A second factor to note is that European regions are associated with specific positions in Table 6: in particular, Nordic countries are associated with the low quantitative impact and high institutional impact category. The UK, Ireland and the Baltic states have a high quantitative impact and a low institutional impact, and most other eastern European and southern Member States have medium quantitative and/or institutional impact. The only group of countries that has no clear position in Table 6 are the continental European countries, which are scattered throughout all categories (in particular, Germany and France are polar opposites).

Of course, this association was to be expected, since these European regions are associated with similar institutional structures, and such structures affect both the minimum wage systems and incidence of low pay. However, the association is important for the debate about the possibility of establishing a common minimum wage policy in Europe because it highlights the fact that it would imply some degree of institutional convergence closer to a particular socioeconomic model (the one on the low right quadrant of the table).

Types of workers most affected

6

So far the empirical analysis has focused on estimating the proportion of the working population that would be directly affected by a HMW set at 60% of the median in each Member State. The focus will shift now to describing the *composition* of the population, using a range of company, job-related and personal characteristics.

For reasons of simplicity, the results in this section will mostly come from the EU-SILC dataset, while SES data will be used as a complementary source only when relevant. Table 7 presents a broad description of the characteristics of the affected population based on EU-SILC data, while results using SES data are presented in the Annex.

For each variable, two types of measures are provided for the European aggregate:[49] the proportion of employees that falls below the HMW threshold of 60% of the median in each category; and the proportion that the category represents over the total working population under the HMW threshold in Europe.

For instance, the proportion of employees affected in the primary sector is among the highest (32.6%), since almost one out of three agricultural employees receives a salary that is below 60% of the median wage in their respective countries. Nevertheless, as a proportion of the total working population potentially affected by the HMW, the primary sector only represents around 3%, since this sector represents a small proportion of overall employment in Europe.

Most of this section will focus on the incidence of the HMW threshold of 60% of the median in different groups of the working population, but it is useful to look at the broad characteristics of the segment of affected employees, shown in rows (b) of Table 7 and briefly explained in Box 5.

Box 5: A profile of the European workforce potentially affected by the HMW

Most of the workers below the HMW threshold work in small companies (nearly 40% work in companies with 10 employees or fewer and 70% work in companies with fewer than 50 employees), mostly in personal service sectors (nearly 20% in retail, 13% in health, nearly 10% in other services and 8% in hotels and restaurants – horeca). Almost half work in service and elementary occupations, and although the incidence of part-time and temporary employment is higher for this group, most have permanent and full-time contracts (77% and 64% respectively). Nearly two-thirds of the population potentially affected by a HMW are women. And they are predominantly young: 56% are below 40 years of age, and 35% are below 29 years.

[49] EU-SILC data includes all EU27 countries and companies of all sizes. For the SES data presented in the Annex, one European aggregate is presented for the sample, including 19 countries for which no data on the smallest companies (those with less than 10 employees) are available and another one for the sample – including 12 countries for which data on all company sizes are available.

Table 7: Characteristics of the working population affected by the HMW (EU-SILC)

Company characteristics	Economic activity									
	Agriculture, forestry and fishing (NACE A)	Manufacturing; mining; electricity, gas and water supply (NACE B-E)	Construction (NACE F)	Retail trade; motor repairs (NACE G)	Transportation and storage (NACE H)	Accommodation and food service (NACE I)	Information and communication (NACE J)	Financial and insurance (NACE K)	Real estate; professional and administrative activities (NACE L–N)	Public administration. and defence (NACE O)
Incidence of low-pay (a)	32.6	11.8	13.9	22.0	10.5	33.0	9.0	6.0	19.7	7.3
Proportion over total low-pay (b)	3.3	15.2	6.1	18.0	3.6	7.6	1.7	1.5	9.7	4.4

	Economic activity (continued)			Company size		
	Education (NACE P)	Health and social work (NACE Q)	Arts, households, extra-territorial bodies (NACE R–U)	< 11	11– 49	>50
Incidence of low-pay (a)	12.1	18.8	33.5	26.5	16.0	10.2
Proportion over total low-pay (b)	6.6	12.9	9.5	38.5	31.4	30.1

Personal characteristics	Gender		Age					Education	
	Male	Female	14–29	30–39	40–49	50–59	60+	Lower	Higher
Incidence of low-pay	10.8	21.5	27.7	12.7	12.1	13.2	20.9	26.5	13.3
Proportion over total low-pay	35.9	64.1	34.5	21.3	21.8	17.4	5.0	31.4	68.6

Job characteristics	Occupation									
	Managers	Professionals	Technicians	Clerical	Service	Skilled	Craft	Plant	Elementary	Army
Incidence of low-pay	4.7	5.2	10.3	14.5	30.6	34.1	15.0	12.0	36.2	4.4
Proportion over total low-pay	1.8	4.8	12.1	12.1	26.7	2.4	11.4	6.5	22.0	0.2

	Type of contract		Type of employment	
	Permanent	Temporary	Full-time	Part-time
Incidence of low-pay	13.7	31.3	12.2	34.8
Proportion over total low-pay	76.9	23.1	64.0	36.0

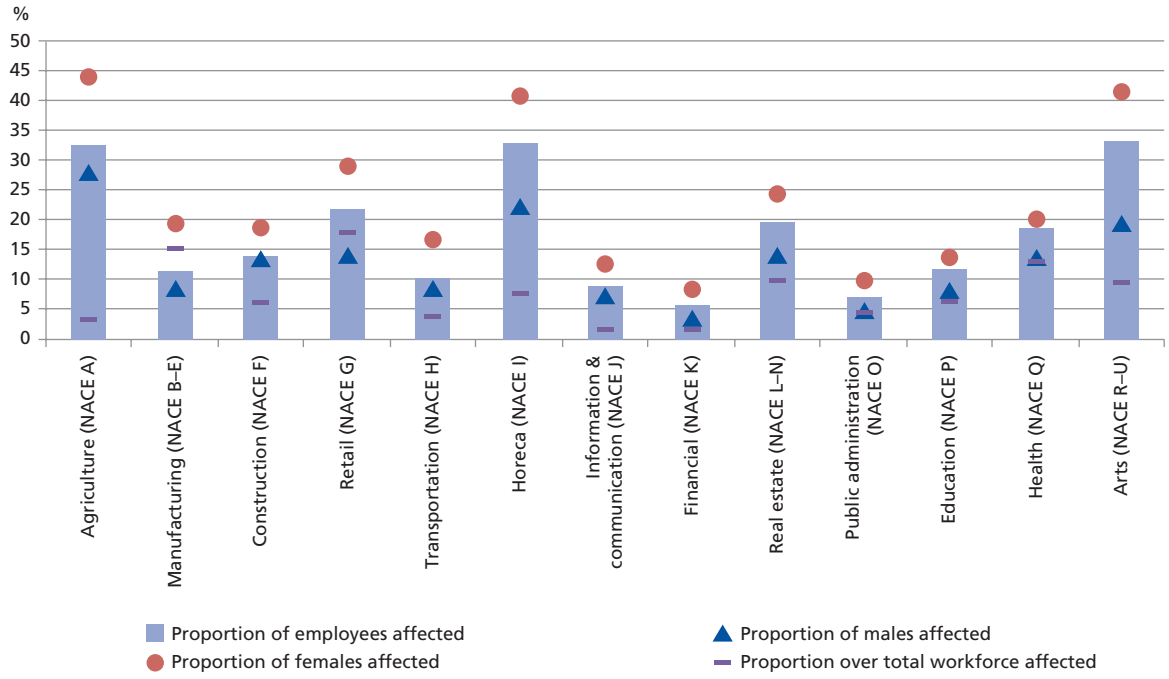
Note: (a) refers to the ratio between the number of low-paid employees (earning wages below 60% of the median wage in their country) and the total number of employees in a certain category.
(b) refers to the proportion represented by the low-paid employees in a certain category over the total number of low-paid employees in Europe.

Company-related variables

Economic activity

The sector dimension has a significant impact on the proportion of workers under the HMW threshold (see Figure 8). First, the HMW would affect around a third of all employees in the sectors of hotels and restaurants (horeca), agriculture, and arts and entertainment (NACE R–U). The proportion of employees affected in these three sectors is above the national average in all countries with some few exceptions (see Annex). In some cases, the proportion of employees potentially affected by the HMW would be close to or above 50% – in the horeca sector in Germany, Luxembourg, Ireland, Lithuania, Sweden and the UK; in the agricultural sector in Germany, Luxembourg and Greece; and in arts and entertainment in Cyprus. Nevertheless, due to the relatively small size of these sectors, the employees affected would represent less than 20% of the total number of employees affected by the HMW.

Figure 8: Employees affected by the HMW by sector (EU-SILC)



Secondly, employees in the retail, real estate activity and health sectors would come next since around 20% of them would be affected. While the proportion of employees affected in retail and real estate activities would be above national averages in most countries, the picture is more mixed for the health sector. Due to the large employment share of these sectors, around 40% of the employees whose wages would be affected by the HMW threshold would come from these three sectors – especially from the retail sector.

Third, in the remaining sectors the proportion of employees affected by the HMW would vary – the highest proportion being in the construction, education and manufacturing sectors, and the lowest in finance and public administration. Looking at countries, the proportion of employees affected in these sectors would be lower than the national average in most cases, with the exception of the construction sector, where the proportion of employees affected would be higher than the average in many countries, such as Luxembourg, Denmark or Italy.

Finally, a higher proportion of female than male employees would be affected, across all economic sectors. The largest gaps in the proportion of employees affected, considered in percentage points, occur in the arts and entertainment, horeca, retail and agriculture sectors. The proportion of women affected is double that of men in the financial, manufacturing, retail, arts and entertainment and public administration sectors.

The sectoral data in the SES is available at the two-digit level and therefore allows for the construction of an alternative sectoral typology, which is also informative. Less knowledge-intensive services (LKIS), low-technology industries (LTI) and construction have the highest proportions of employees potentially affected, with more than 10% in each.[50, 51] The LKIS sector really stands out: almost half of the employees whose wages would be increased by an HMW come from this sector. The proportion of employees affected in the LKIS sector is above the national average in all European countries except France and Sweden, two countries characterised by relatively high minimum wage levels (see Annex).[52]

Company size

The proportion of employees potentially affected by the HMW would be much higher among small companies. Figure 9 shows that this is the case for all countries. A blue line has been drawn along the diagonal: the closer to this diagonal, the less difference there is between the proportion of employees affected in small and large firms. As can immediately be seen, all countries sit well above the diagonal line, since the proportion of affected employees is considerably higher among those employees working in smaller firms.[53]

For the EU27 aggregate, the proportion of employees affected in companies with more than 50 employees would be around 10%, a proportion that jumps to 25% for the smallest companies with 10 employees or fewer. The difference in the proportions of employees affected by firm size would be especially significant in countries such as Cyprus, Ireland, Finland, France or Greece. Conversely, the gap (measured as the ratio of the respective proportion of employees affected) is smallest in countries such as Sweden, Estonia or Romania.

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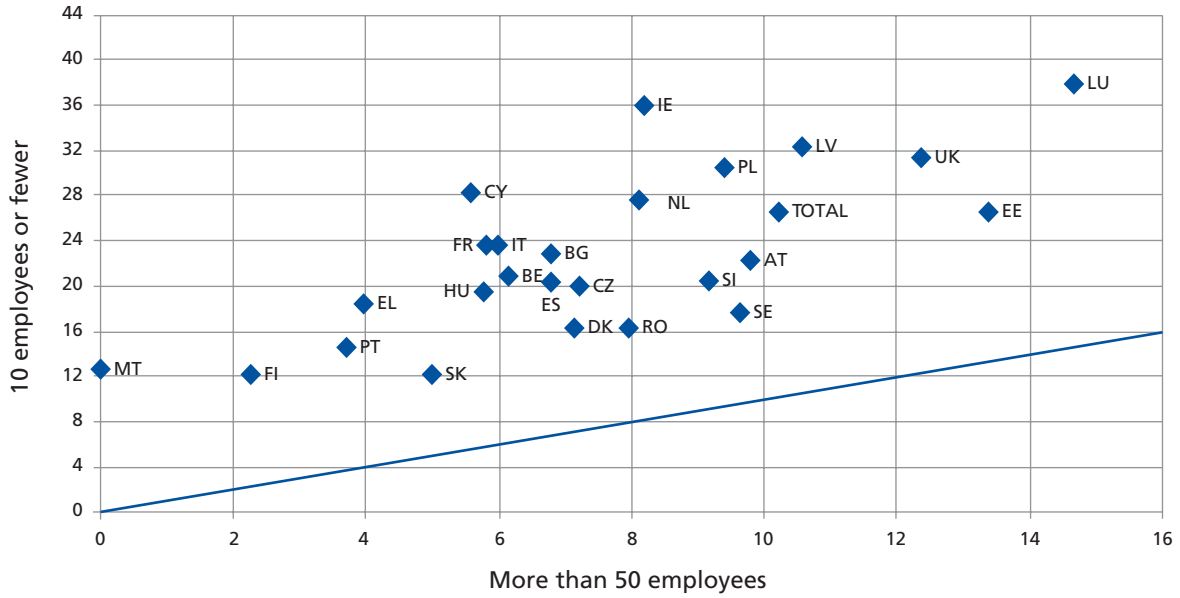
[50] LKIS include retail, hotels, restaurants and catering, land transport, public administration, recycling and private households. For more details, see Felix, 2006.

[51] The distinction between high and low technology industry is based on the intensity of research and development in the sector (ratio of R&D expenditure to value added) and the technology embodied in the purchases of intermediate and capital goods. For more details, see Hatzichronoglou, 1997.

[52] The proportion of employees affected in the education, health or construction sectors reported in the SES is lower than when using EU-SILC, since the former does not include small companies. In the case of the primary sector, the striking difference between both sources is mainly due to the fact that the primary sector in the SES only comprises mining and quarrying, characterised by higher levels of pay than agriculture.

[53] Distinguishing by gender, the ratio in the proportion of employees affected between women and men would remain more or less constant across all firm sizes, with a higher proportion of women being affected in all cases.

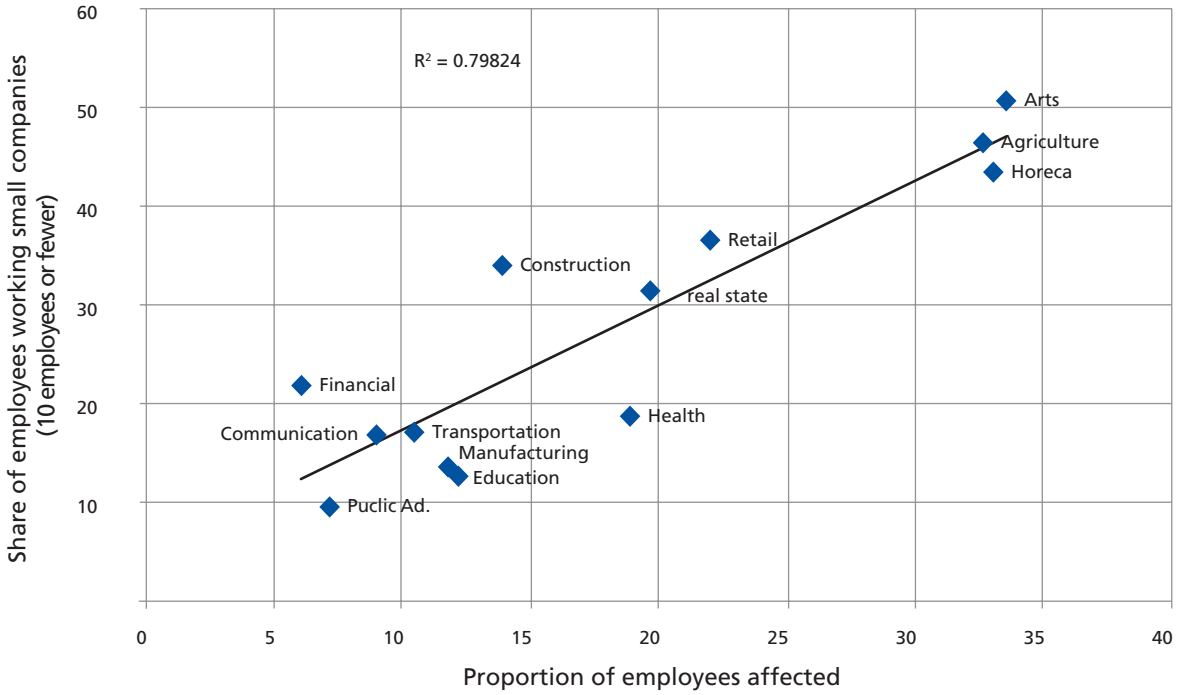
Figure 9: Proportion of employees affected by the HMW, by company size, % (EU-SILC)



Crossing company size and sector, it can be seen that the higher proportion of employees affected in small firms is the case in all economic sectors. In fact, the relationship between the size of the company and the proportion of workers below the threshold of 60% of the median wage is so strong that it is likely to partly explain the previously shown sectoral differences: it is in those sectors where more employees work in smaller companies (arts and entertainment, agriculture and horeca) that the effect of the HMW would be greater, and vice versa (see Figure 10).[54]

[54] This significant correlation between the proportion of affected employees and the proportion represented by the smaller companies in each sector also exists in most Member States. The correlation is around 0.5–0.7 depending on the country, and only for some (Bulgaria, Denmark, Estonia, Hungary, Lithuania, Slovakia and the UK) is it around 0.3.

Figure 10: Proportion of employees affected by the HMW and working in small companies, by sector, % (EU-SILC)



Collective bargaining

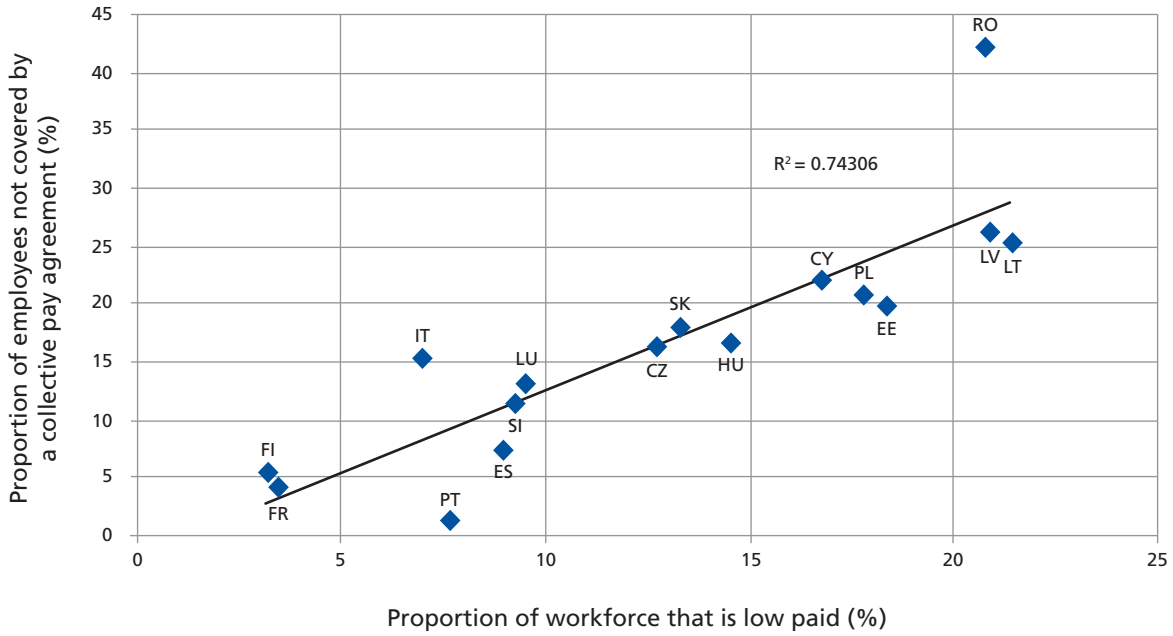
The high relevance of firm size for explaining the proportion of employees affected is further confirmed by looking at SES data.[55] Additionally, the SES data makes it possible to evaluate the impact of collective bargaining. As shown by Figure 11, at the aggregate (country) level the proportion of workers potentially affected by the HMW is smaller in countries where a larger proportion of the workforce is covered by collective pay agreements, and vice versa. The same relationship can also be observed at the company level, since companies not covered by collective pay agreements would be much more affected by the HMW.[56]

As was seen in the literature review, minimum wage policy can often be understood as a functional equivalent for collective bargaining for companies and sectors with limited coverage: indeed, the HMW being evaluated here would affect these types of companies more.

[55] As already explained, the authors have worked with two different SES samples, one covering companies with 10 or more employees for a wide sub-set of countries (19 in total) and one that also includes the smallest companies (but only for 12 countries). In both cases, the relationship between firm size and the effect of the HMW is very strong (see Annex).

[56] Collective bargaining coverage is positively correlated with the size of companies. The proportion of employees not covered by collective pay agreements (at any level) is: 22% in companies with 10–49 employees; 19% in companies with 50–249 employees; 14% in companies with 250–499 employees; 11.5% in companies with 500–999 employees; and only 7.3% in companies with more than 1,000 employees.

Figure 11: Collective pay agreement coverage and incidence of low pay, by country (SES)



Note: Sweden, the Netherlands and Ireland have been excluded due to problems in the coding of the variable on collective pay agreement coverage in the SES.

Therefore, company size, sector and collective bargaining coverage are three interrelated factors that have a consistent and combined impact on the share of workers below the HMW threshold. Generally, the sectors with smaller companies and lower collective agreement coverage are the ones where the impact of the HMW would be greatest.[57]

Job-related characteristics

Occupation

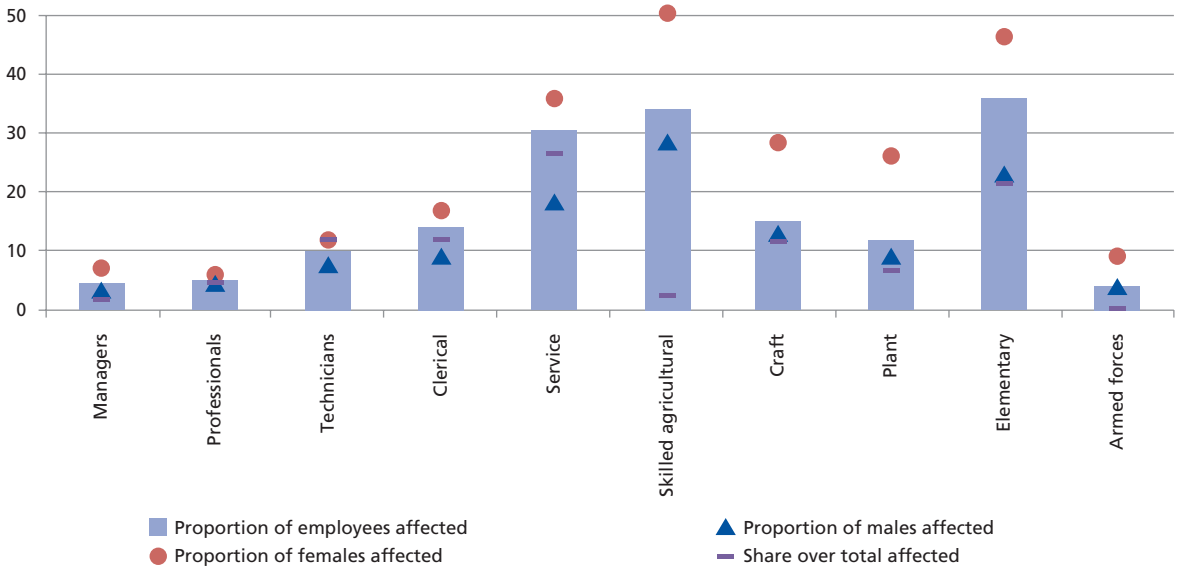
As expected, employees in lower-skilled occupations would be most impacted by the HMW. As can be seen in Figure 12, the proportion of employees affected would be largest in elementary, skilled agricultural, forestry and fishery and service and sales occupations, while the more skilled occupations would be much less affected than the average. Taken together, almost half the employees affected in Europe would be service and sales workers or those in elementary occupations.[58]

[57] With the data being used (cross-sectional EU-wide datasets) it is not possible to adequately disentangle the individual impact of each of these factors, in order to establish which one is most important. At most, what can be said is that they seem to have a combined and consistent impact. Later in this part of the report this issue will be examined within a multivariate statistical model, where each factor is controlled by the others (as a *ceteris paribus* table): this will permit the evaluation of which correlations seem most important; even then, however, the cross-sectional nature of the analysis means that causal primacy cannot be established, but only (controlled) statistical correlation.

[58] According to SES data, it is also clear that relatively more employees in lower-skilled occupations would see their wages increase as a consequence of a HMW (see Annex). Those in elementary occupations, as well as skilled agricultural, forestry and fishery workers, service and sales workers would be those relatively more affected, which is consistent with the results presented here.

In terms of gender, a higher proportion of women would be affected across all occupation categories, but the greatest difference (in percentage points) arises in the lower-skilled occupations: elementary occupations, skilled agricultural workers, service and sales occupations and plant and machine operators.

Figure 12: Employees affected by the HMW, by occupation, % (EU-SILC)



Part-time employment

More than a third of all part-time employees would be affected by the HMW – almost three times the proportion of full-time employees that would be affected in Europe (see Figure 13). The gap (measured as a ratio) between the proportion of affected part-time and full-time employees would be largest in Belgium, France, Greece and Portugal. On the other hand, it would be narrower in Luxembourg and Sweden, according to EU-SILC data (see Annex). When looking at part-time employment, it is necessary to differentiate between men and women, since the latter are generally much more likely to fall into this category, but this will be done when dealing with the distribution by gender.

Figure 13: Proportion of employees affected by the HMW, by type of employment (EU-SILC)

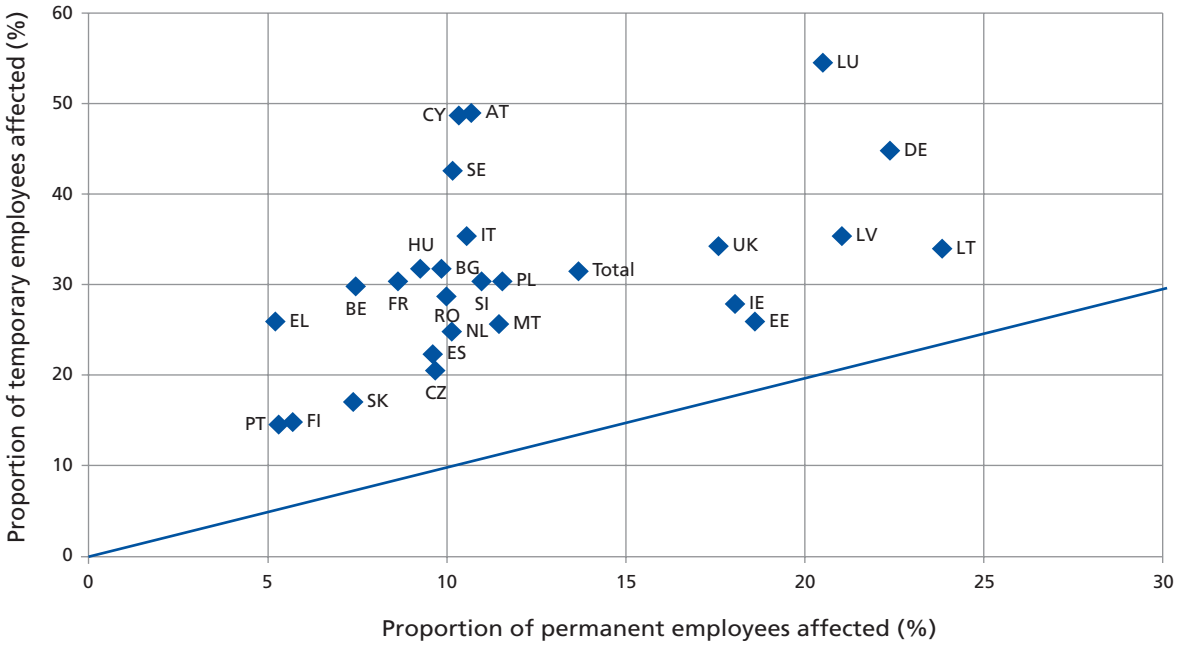
It is important to remember that part-time employment represents less than 20% of total employment in Europe and it is far less prevalent in many countries. So, in most countries part-time workers would represent only a minority of the workers affected by the HMW. Only in countries with a significant proportion of part-time employment (mostly the Netherlands, Belgium, Ireland and the UK), would more than half of employees affected in the whole country be part-time workers.

Temporary employees

Temporary employees would also be much more affected than their permanent counterparts by the HMW: almost one in three temporary employees would be affected, compared with 13.6% of permanent employees in Europe. The differential impact by type of contract holds in all countries, as shown in Figure 14. The ratio of temporary to permanent employees affected would be especially large in Austria, Belgium, Cyprus, Greece and Sweden, and narrower in Estonia, Lithuania and Ireland.[59]

[59] For most countries, data from the SES reflects an even wider difference between the proportion of temporary and permanent employees affected by the HMW (measured as the ratio between the two) than the EU-SILC source. But the overall impact would be the same in both sources: around a third of the total workforce affected by the HMW would be on a temporary contract (see Annex).

Figure 14: Proportion of employees affected by the HMW, by type of contract (EU-SILC)

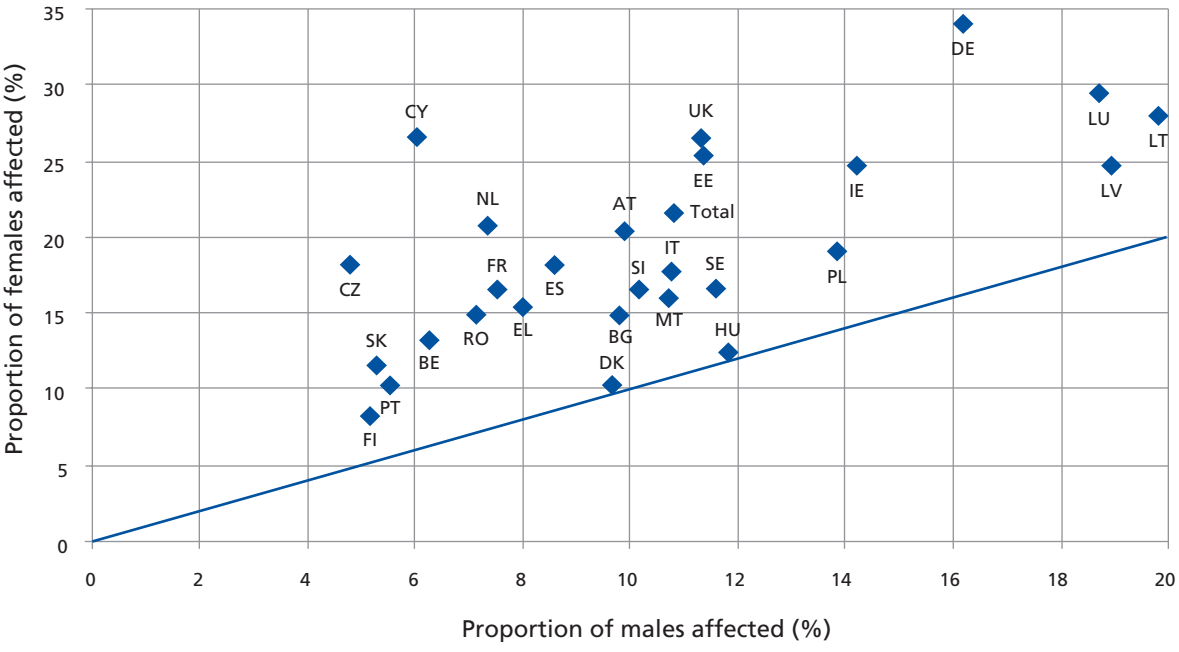


Personal characteristics

Gender

The HMW set at 60% of the national median would clearly have a stronger impact on female workers. In the EU27, the proportion of women below the threshold is double that of men. The wages of 21.5% of all female workers across the EU are currently below the HMW threshold, compared to less than 11% of that of male workers.

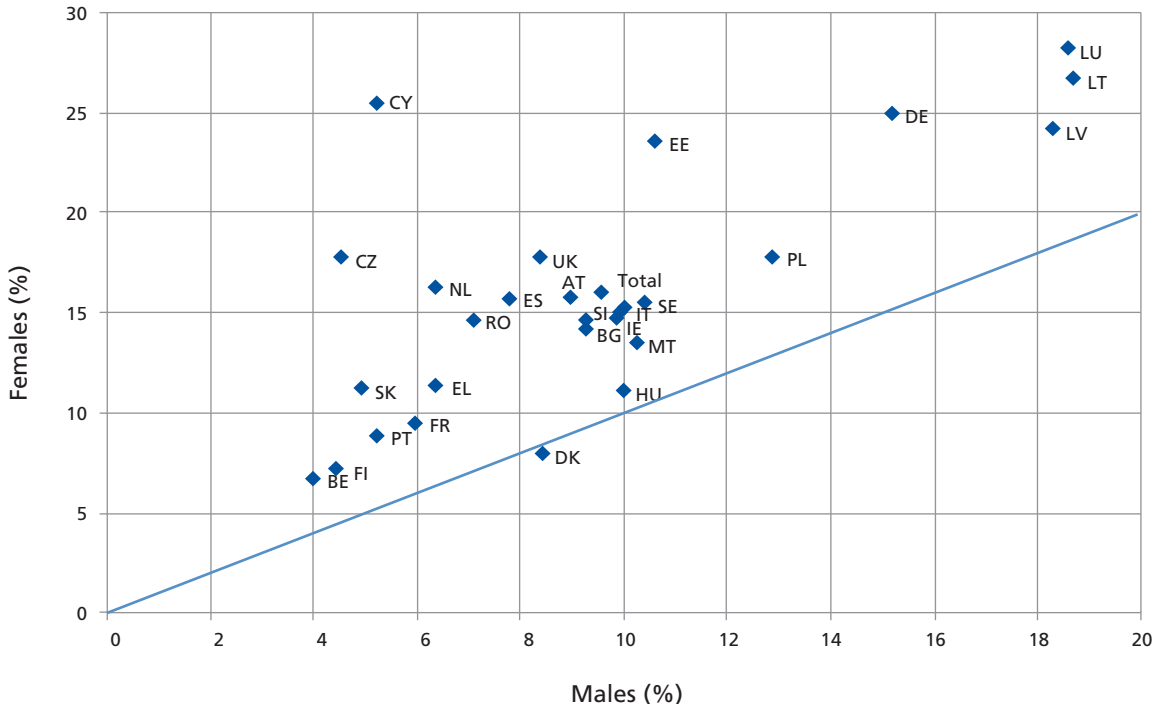
Figure 15: Proportion of employees affected by the HMW, by gender (EU-SILC)



This difference between women and men in the incidence of low-pay is present in all European countries, as indicated by the fact that they are all above the diagonal line depicted in Figure 15, where all countries would be if the HMW equally affected both genders. Nevertheless, important disparities exist across countries. The gap (measured as a ratio of the proportion of female workers affected to the proportion of male workers affected) is very large in countries such as Cyprus and the Czech Republic but is almost negligible in Denmark and Hungary. If the gap is measured as the difference in percentages between the proportion of affected women and men, the gap would be largest in Cyprus, Germany and the UK. There is no relationship between the magnitude of the gap and the proportion of female employment in the various countries.[60]

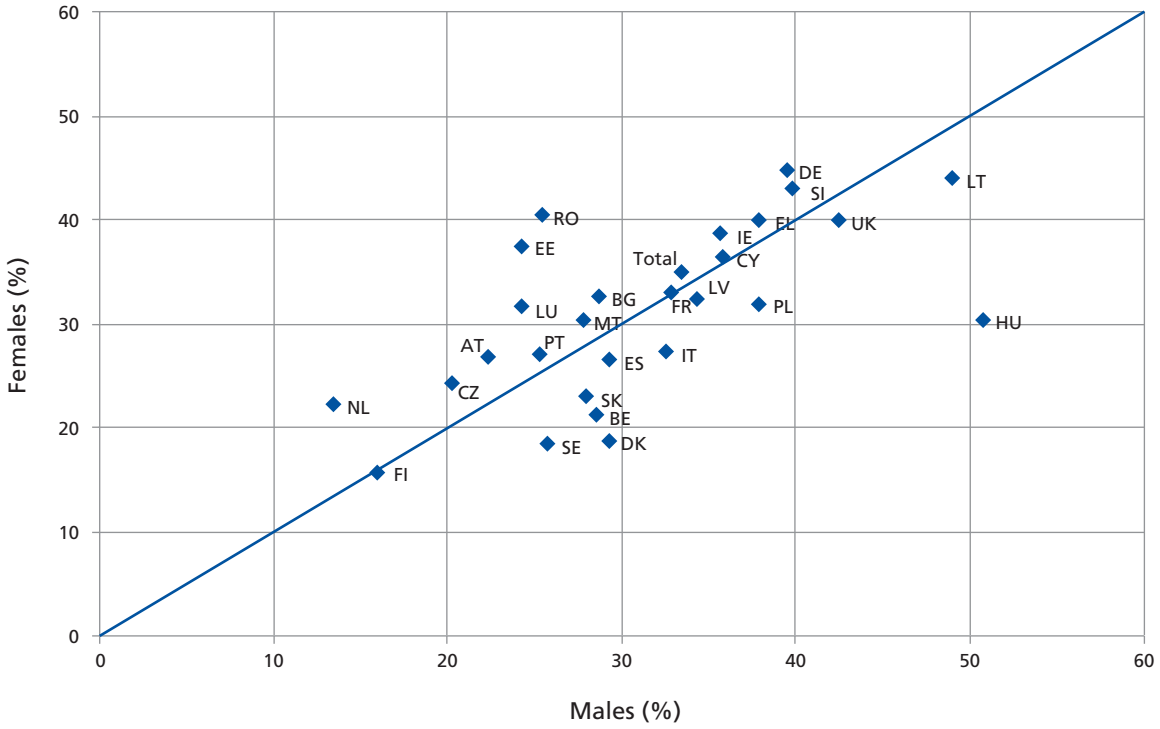
When trying to tentatively explain why women may earn lower wages, the greater incidence of part-time work among women appears to be a potential explanation. Figures 16 and 17 investigate this possibility; some interesting facts emerge. Both male and female part-time employees would be more affected by the HMW than their full-time counterparts. Nevertheless, the gap between men and women in the incidence of low pay exists only for full-time employees, since male and female employees working part-time would be similarly affected by the HMW. This is shown by the fact that the data points of most countries are relatively close to the diagonal in Figure 17 (representing part-time employment), whereas the proportion of full-time employees below the HMW threshold is much larger for women than for men (in all countries except Denmark, as shown in Figure 16).

Figure 16: Proportion of full-time employees affected by the HMW, by gender (EU-SILC)



[60] The SES data produces a considerably smaller gap by gender regarding the incidence of low pay, because of the sample limitations (it does not cover small companies and some sectors that have a different gender profile, such as public administration). For the EU27, the proportion of women affected would only be 3 percentage points greater than that of males according to the SES data (11.2% of women as compared to 8.15% of men). In some countries (Hungary and Latvia) the proportions would be essentially the same; in some the proportion for men would even be greater, as in France and Romania; for more, see the Annex. The EU-SILC provides a less biased picture of the distribution of pay by gender than the SES.

Figure 17: Proportion of part-time employees affected by the HMW, by gender (EU-SILC)



Figures 16 and 17 show that the higher proportion of female employees potentially affected by the HMW threshold (that is, having a low-paid job) may be partially explained by the fact that women are much more likely to work part time. But, importantly, there are other reasons, since having a full-time job reduces the likelihood of being below the HMW threshold much more for men than for women.

Level of education

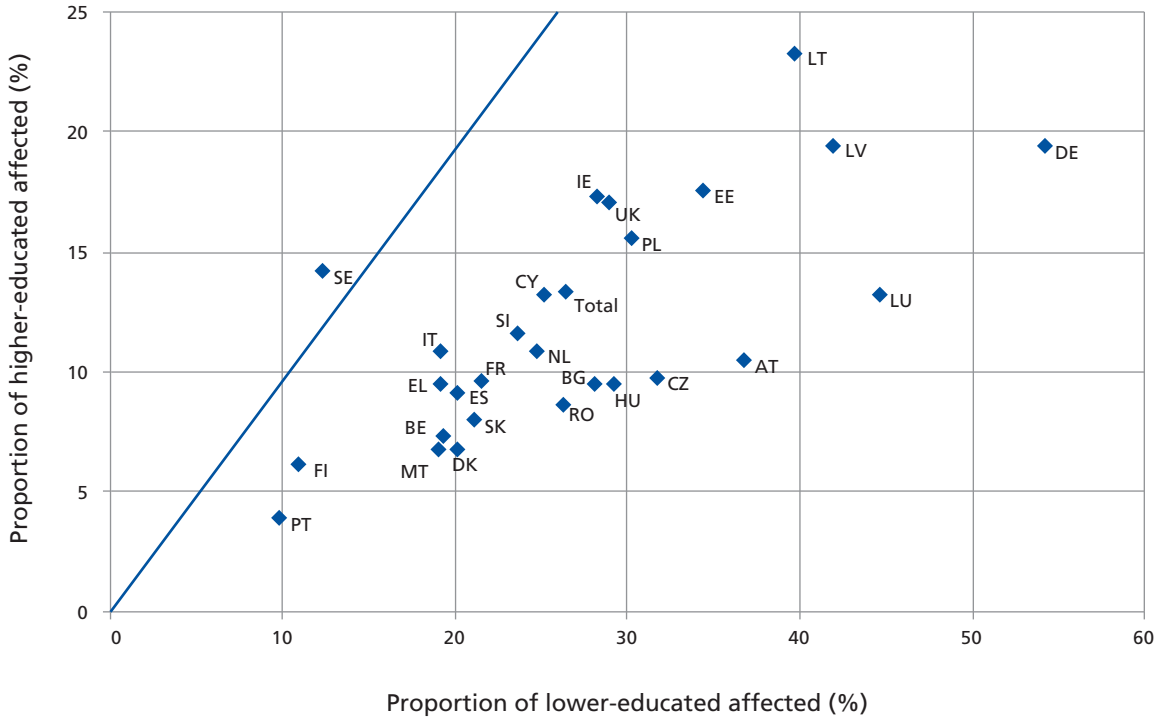
Less educated employees would be disproportionately affected by the HMW in nearly all countries. In the EU27, more than a quarter of all employees with a level of education no higher than lower secondary level are currently below the HMW threshold, compared to 13% of those with at least an upper secondary education.

In some countries, this difference in terms of education level is even higher. It is around three times higher in Austria, Cyprus, Germany, Denmark, Bulgaria, Hungary, Luxembourg and Romania. However, Sweden, which is characterised by high (collectively agreed) minimum wage levels, is the only country where this gap between employees of different educational levels does not exist, as Figure 18 demonstrates.

If educational levels and gender are crossed, the ratio between the proportion of women and men who would be affected by the HMW remains similar for all educational levels. Among less educated employees, 37% of women and 18% of men would be affected by the hypothetical threshold; among higher-educated employees, these proportions would be 18% and 9% respectively. This means that for both educational groups, the proportion of women affected would be about twice that of men.

Moreover, the proportion of female employment is almost 50% in the higher-educated population; in the less educated segment of the workforce, it is 43%. In other words, the gender gap in the incidence of low pay cannot be explained by differences in educational levels.

Figure 18: Proportion of employees affected by the HMW, by education level (EU-SILC)



Nevertheless, it is worth recalling that employees whose highest educational level is lower secondary represent less than a third of the total workforce falling below the hypothetical HMW threshold, since they represent less than 20% of the working population (according to EU-SILC data). But in those countries where less educated employees represent a proportion of employment, this group does represent most of the total affected segment. This is the case in the Mediterranean countries (Portugal, Malta, Spain and Italy) and in Luxembourg.

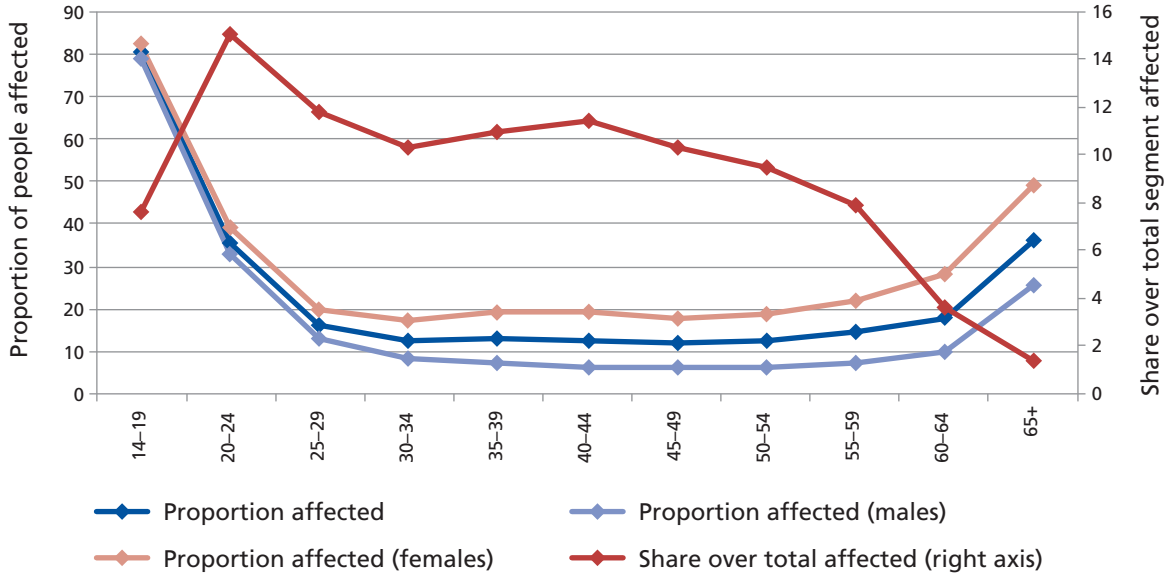
Age

As underlined in the literature review, most of the empirical studies on the employment effects of minimum wages have focused on teenagers, since this is the group generally considered to be most affected by minimum wages (see Chapter 1 of this part of the report). Figure 19 shows that the proportion of employees affected by the HMW would follow a U-shape in terms of age: there is a high starting point for younger workers; the line falls for older workers, then it starts rising again for those aged 50 and above. The differentials by age are indeed quite large: 80% of those in the teenage group (aged 14–19 years) would be affected, 35% of those in 20–24 years age group, and 16% of those in the 25–29 years age group. Then the proportion of employees affected in the next age categories would

remain at around 12%, before starting to pick up again in the 55–59 years age group. Moreover, the graph shows that the gender gap in the proportion of employees affected increases with age. [61]

Nevertheless, the relative significance of the youngest segments of the population (and older workers as well) in the low-pay sector varies markedly across Europe. The HMW would have a disproportionate impact on teenagers: 80% of them would be affected. However, teenagers represent a very small proportion of the European working population (less than 2%) and would therefore account for less than 8% of the total workforce affected by the HMW threshold. Conversely, young employees (aged 20–29 years) would be less affected by the HMW threshold; however, they represent almost 20% of European employment, and would thus account for more than 25% of the total workforce affected by the HMW. This overall picture changes to some extent when looking at individual country profiles, as analysed in Box 6.

Figure 19: Employees affected by the HMW, by age and gender (EU-SILC)

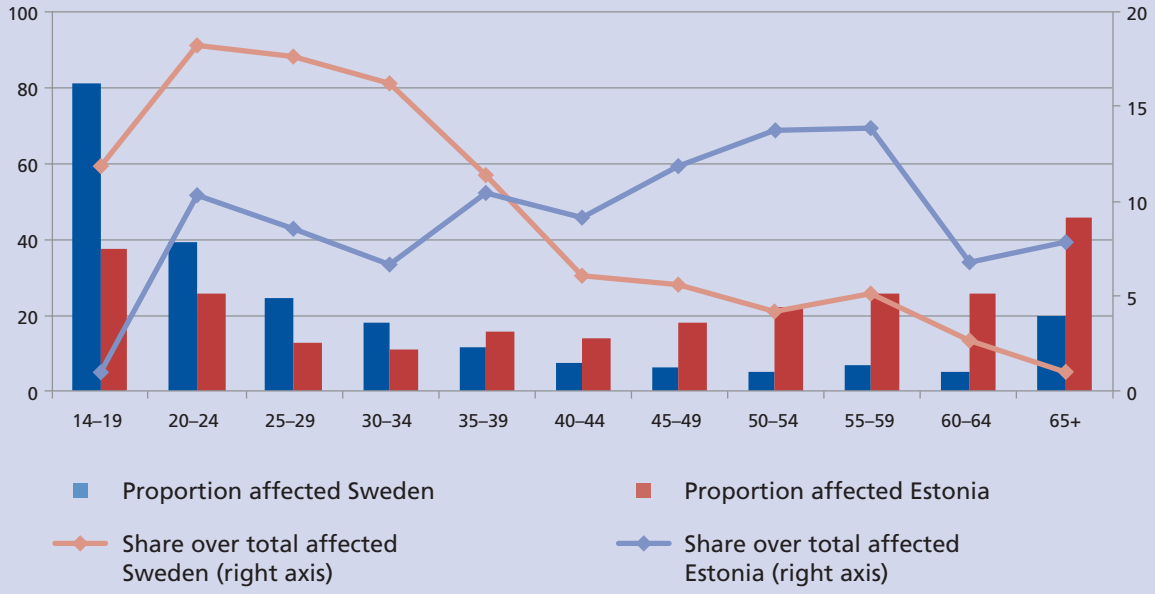


[61] Information using the SES data is presented in the Annex and is consistent with that presented here. The main difference for the EU27 aggregate is that the rise in the proportion of older employees affected only starts after the age of 65 years, while in EU-SILC it occurs from age 50.

Box 6: The divergent impact of the HMW threshold across age groups and selected countries

In countries such as Sweden, Austria or Malta, young employees (those aged 14–29 years) represent a much larger proportion of those below the HMW threshold – around half or more of the total. On the other hand, in many central and eastern European countries (Bulgaria, the Czech Republic, Estonia) and in the UK, employees above 50 years of age represent a substantial proportion of the affected population (around 30%). Figure 19 depicts the contrasting picture of Sweden and Estonia. In both cases, the incidence of low pay among the youngest groups is above the average: in Sweden, almost all of the impact would be felt by those aged under 35, whereas in Estonia those aged over 45 would be strongly affected as well.

Figure 20: Employees affected by the HMW, Sweden and Estonia, by age



A multivariate approach

Here, a statistical analysis based on multivariate regression models to determine which variables influence the likelihood of an employee being affected by the HMW threshold will be presented. The logistic regression model will differentiate between three broad types of variables as explanatory factors: socio-demographic variables (gender, age and educational level); company-related variables (a firm's size and economic sector); and job-related variables (type of employment, work experience, supervisory role in the company, type of contract and occupation).

While the previous discussion looked at the extent to which certain groups would be impacted by the HMW, the present approach will try to quantify the specific effect of each variable on the probabilities of an employee being affected by the HMW, keeping constant the effect of all other variables in the model.

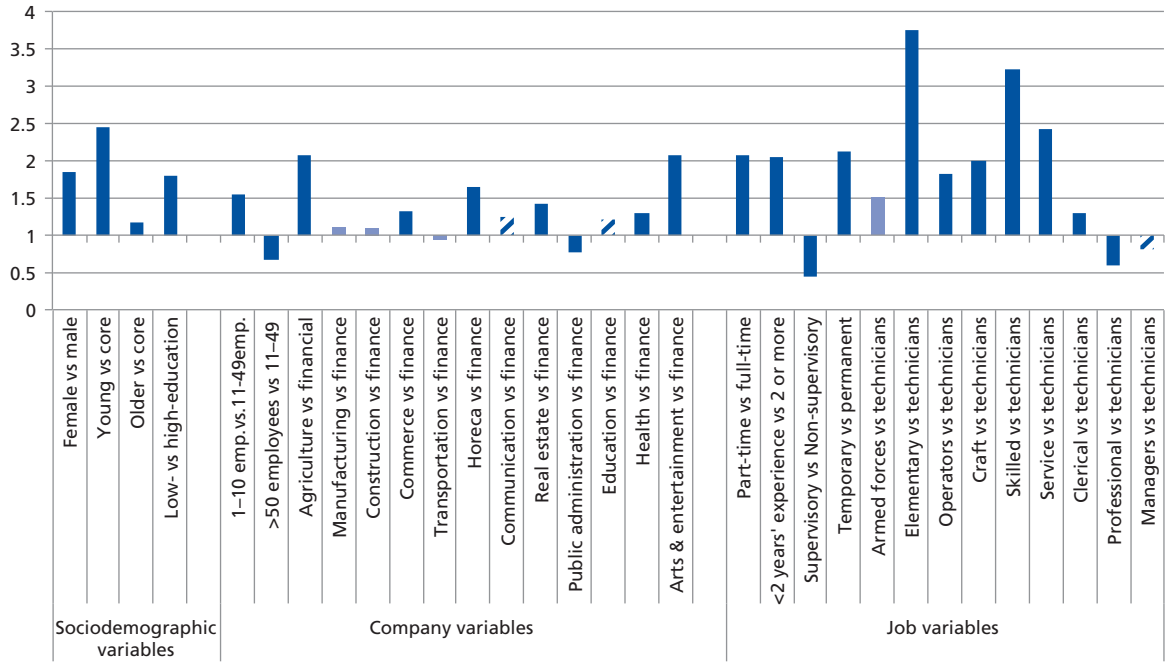
A table with the detailed estimation results is presented in the Annex. The dependent variable is binary, holding a value of 0 if the individual falls above the HMW threshold of 60% of the median, and 1 if they fall below the threshold. For evaluating the impact of the different independent variables on the likelihood of falling below the HMW threshold, successive logistic regression models following a nested structure have been run, in four steps: firstly, including only socio-demographic variables; secondly, adding company-related variables; thirdly, adding job-related variables; and finally, adding country dummies to control for national specificities and evaluate their impact.

The explanatory power of the successive models increases with each step, as measured by Nagelkerke´s Pseudo R2, which goes from .08 to .23. Although the pseudo R2 of the models are relatively low (suggesting that there may be explanatory variables omitted in the models, and/or that the data used is subject to a significant amount of statistical noise), most of the variables are statistically significant, which allows discussion – with some care – of the results of the models.

To simplify the presentation of the results, only the odds ratios of the logit estimation including all variables is presented in Figure 21. Each bar in the chart represents the change in the odds of being below the HMW threshold associated with each categorical comparison. For instance, the odds of being below the threshold is 1.8 times (or 80%) higher for female employees than for male employees. In other words, being a woman considerably increases the probability of being below the threshold. If the odds ratios are below 1, it means the odds would be lower: for instance, the odds of being below the threshold are 0.35 times (or 35%) lower for employees working in bigger companies than for employees working in medium-sized companies.

Regarding sociodemographic characteristics, female employees, those who are less educated and those who are younger have much higher odds of being affected by HMW, even if all other factors remain the same. In other words, even for the same type of employment status, occupation and sector, the odds of being below the HMW threshold are 1.8 times higher for women than men. The effect of age is particularly strong: the odds of being below the HMW threshold are 2.4 times higher for younger employees aged 15–29 years (and 1.12 higher for older employees over 55) than for the core of the workforce aged 30–54 years.

Figure 21: Odds ratios of the logit regressions (EU-SILC)



Note: Bars fully coloured in dark blue indicate variables that are significant at the 1% level; bars with white stripes indicate variables significant at the 5% level; grey bars indicate variables not significant at the 5% level. For variables with only two categories, the one not shown in the graph is the reference. For variables with more than two categories, the reference categories are: firms employing 11–49 employees (company size); financial sector (economic activity); and technicians and associated professionals (occupation).

If the results of the model are looked at by steps, the explanatory power of sociodemographic variables is reduced mainly when job-related variables are introduced.[62] This is especially the case for gender and level of education, since a significant part of the difference is associated with a different composition of those groups. For educational level, the association between occupational level and education is actually endogenous, since the skills level is explicitly taken into account for classifying occupations. For gender, when occupation and employment status are taken into account, the reduction in its impact is largely the result of the well-known phenomenon of occupational gender segregation (Grimshaw and Figuereido, 2012).

Overall, the impact of company-related variables seems to be smaller than that of sociodemographic variables, since the Nagelkerke´s Pseudo R2 of the model only increases marginally when the former are included (from 0.08 to 0.11), and the coefficients of company-related variables are in general closer to 1 when looking at the general model, including all variables.

Nevertheless, working in smaller companies remains an important factor, since the odds of employees in smaller companies being below the HMW threshold are 1.5 times higher than for employees working in medium-sized companies. When considering sectors, and as compared to financial workers (a sector characterised by a relatively low concentration of low pay), the odds of being below the HMW threshold would be highest for employees in the agriculture and arts and entertainment sectors (and, to a lesser extent, in the horeca, real estate activity, commerce, education, health and

[62] When company-related variables are introduced, the only sociodemographic variable that significantly loses explanatory power is education, which is related to the high concentration of less educated workers in certain economic sectors such as agriculture or horeca.

communication sectors). On the other hand, these odds would be lower only for employees working in public administration, while in the manufacturing, construction and transportation sectors the odds would not be significantly different than for financial employees.[63]

Lastly, job-related characteristics seem most relevant when seeking to characterise which type of employees would be affected by the HMW. The model's explanatory power increases significantly when these characteristics are introduced; many of them are associated with large odds ratios in the general model. Temporary and part-time employees, and those with little work experience, would be more likely to be affected, while employees with a supervisory role would be less likely. The occupation of the employee has a strong impact: compared with employees working as technicians, those in service and sales, skilled agricultural workers and, especially, those in elementary occupations would be much more likely to be affected by the HMW. Employees in the remaining occupations would also have higher odds of being affected than technicians – excluding professionals and managers, who would have lower odds.

Since the logistic regression models provide information on the effect of each variable while controlling for all the rest, the coefficients associated with each country also provide an interesting picture (included in the detailed results presented in the Annex). They indicate the odds of employees in the different countries being affected by the HMW, keeping constant the broad differences in social and economic structure (due to sectoral and occupational composition, age structure or incidence of part-time and temporary employment, among others). From this perspective, as compared with France (the country of reference), the countries where employees would have the highest odds of being under the HMW threshold would be Lithuania, Germany, Luxembourg, Estonia, Latvia, the UK and Romania (all with odds more than twice as high as employees in France). At the other extreme, employees in Portugal, Malta, Finland, Greece, Slovakia, Spain and Belgium would have lower odds of being affected by the HMW.

[63] When job-related variables are added, the explanatory power of the firm's size variable remains almost the same, while some sectoral variables experience a reduction in explanatory power. This indicates that, in some sectors, the incidence of low-pay is partially explained by factors such as occupational composition of the workforce or incidence of part-time and temporary employment.

Box 7: Determinants of being below the HMW threshold across different minimum wage-setting systems

In the first half of this part of the report, European countries were classified according to the minimum wage setting systems into two broad groups: countries with statutory national minimum wages and countries with collectively agreed sector-specific minimum wages. Since these systems produce rather different outcomes, it is useful to run the logistic regression separately within each of these country groups, to evaluate whether the determinants of being below the HMW threshold vary between them.

The results of the regressions run separately for these two groups of countries are shown in the Annex; some important divergences arise. Young employees and employees with work experience of a short duration (and, to a lesser extent, less educated employees) are much more likely to be under the HMW threshold in countries with collectively agreed sector-specific minimum wages. This seems to indicate that these segments of the workforce are more likely not to be covered by minimum wage protection in countries without statutory minimum wages. The sector variable loses much of its statistical significance for countries with statutory minimum wages, although it is very relevant for countries without them. In other words, sectoral differentials in the extent of low pay are more significant in countries with collectively agreed minimum wages than in countries with a statutory system.

Results are very similar when the regressions are run using SES data. Detailed estimation results are presented in the Annex. SES permits a more detailed breakdown by company size and the results clearly confirm that the odds of employees being affected increase when companies are smaller. The effect of sector becomes statistically insignificant when including the job-related variables. Instead of work experience, the SES includes the seniority of the employee in the company; the results show that employees working less than two years in the company are more likely to be affected by the HMW.

SES includes two interesting variables that are not available in EU-SILC. Employees working in companies covered by a collective pay agreement and companies controlled by the public sector are significantly less likely to be found among those potentially affected by the HMW. Within all the rest of variables, results are consistent between the SES and EU-SILC databases.

7 Potential impact on poverty and competitiveness

What impact would the HMW have on poverty?

As said in the first section of this report, the main justification for minimum wages is not the reduction of poverty, but the establishment of minimum labour standards below which no employment relationship is considered socially acceptable. But that said, there seems to be at least a potential link between minimum wages and poverty, at least in-work poverty, since an increase in the lower earnings threshold should have an impact on the distribution of earnings at the bottom, and hence benefit those with insufficient earnings to make ends meet. Would a coordination of minimum wage policy under the hypothetical parameters being evaluated in this report (in other words, a common threshold of 60% of median wages) have an impact on poverty in Europe?

To evaluate this issue, it is necessary to change slightly the focus that has been placed so far. All the analysis up to this point has focused on individual workers. However, the issue of poverty is linked not only to the individual distribution of earnings, but also to the household distribution of income. Moreover, it concerns both workers and the population in general. In this section, the analysis will first keep to an individual work-centred approach to evaluate to what extent the HMW policy may help the European working poor. Second, it will look at the household distribution of income and poverty for the whole population, and evaluate to what extent this may be affected by the hypothetical policy.

As a first approximation, Figure 22 shows the proportion of workers currently below the HMW threshold (60% of the median wage in each country) that is also below the poverty line at the household level: in other words, whether the workers who would in principle benefit from the HMW threshold live in poor households.[64] On the one hand, this chart clearly shows that most HMW workers do not live in relative poverty. On average, only one in five workers across the EU are below the poverty line and, consequently, 80% of the workers who would benefit from the HMW threshold are currently above the poverty line. As could be expected, this magnitude varies considerably across EU countries, from around 30% in Italy, Luxembourg and Bulgaria to less than 10% in Ireland. Everywhere, the vast majority of workers below the HMW threshold live in households above the poverty line.

On the other hand, if workers below and above the HMW threshold (also shown in Figure 22, with grey bars) are compared, it can immediately be seen that the incidence of poverty for workers below the HMW threshold is notably higher than for workers above the threshold. For the EU as a whole, fewer than 4% of workers above the HMW threshold live in relative poverty, compared with 20% of those below. In other words, the incidence of poverty multiplies by five times for workers below the threshold. A similar pattern can be seen in all EU countries, without exception. So although most of the workers below the HMW threshold do not live in poor households, there is a clear association between poverty and having a wage below the hypothetical threshold.

[64] The poverty line is here defined in relative terms, using the approach of the EU-SILC: a household in relative poverty (or at risk of poverty) is one whose equivalised disposable income is less than 60% of the equivalised disposable income of the median household. Equivalised disposable income is calculated as the total income of a household, after tax and other deductions, that is available for spending or saving, divided by the number of household members converted into equivalised adults; household members are equivalised or made equivalent by weighting each according to their age, using the so-called modified OECD equivalence scale (the first adult receives a value of 1, other adults 0.5 and children 0.3).

Figure 22: Workers in households below relative poverty line as proportion of workers above and below HMW threshold, EU27, EU-SILC (%)

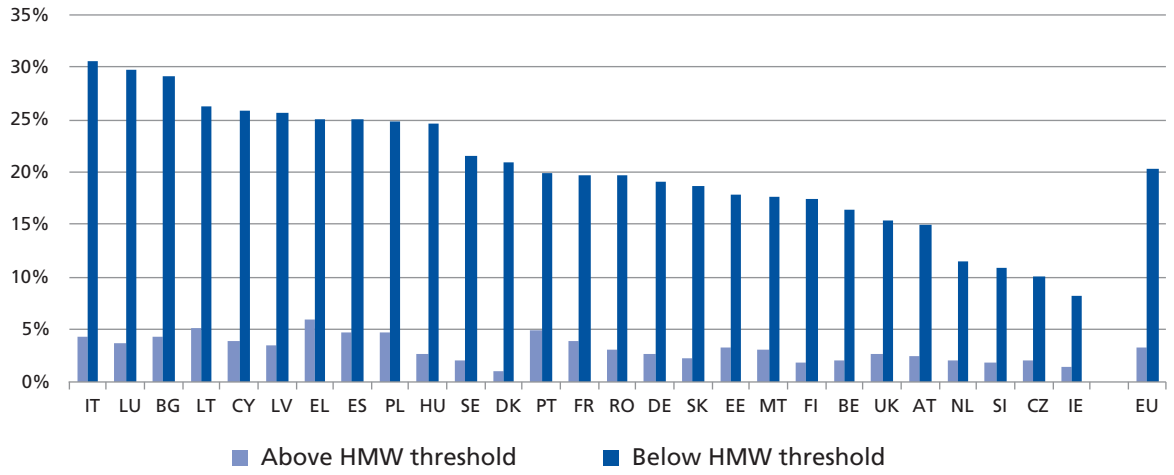
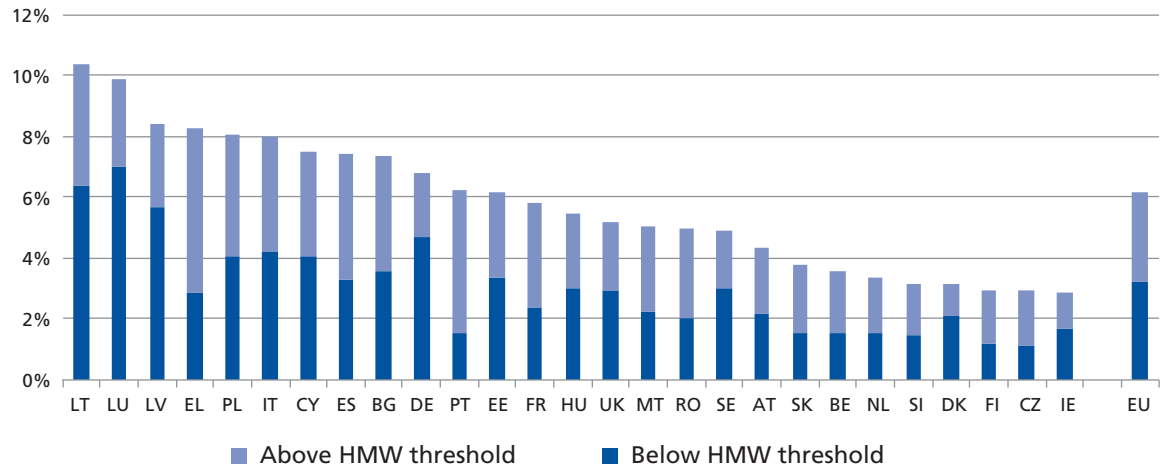


Figure 23: Workers in households below relative poverty line as proportion of all workers, and their share above and below the HMW threshold, EU-SILC (%)



The reason for such a pattern lies in the fact that within the EU, in-work poverty is a relatively limited phenomenon. Figure 23 shows the overall incidence of in-work poverty at the individual level: in other words, how many workers in each country live in relative poverty. On average, for the EU as a whole, the figure is barely 6%, according to the 2010 EU-SILC data being used; this ranges from around 10% in Lithuania and Luxembourg to less than 3% in Ireland, the Czech Republic and Finland. Figure 23 also shows the proportion of the working poor who are below the HMW threshold of 60% of the median national wage (the dark blue section of the bars). As can be seen, the proportion is a very sizeable one. For the EU as a whole, more than 50% of all working poor fall below the HMW threshold. At the country level, the percentage varies between 71% for Luxembourg and 25% in Portugal, but only in three countries is it below 40% (Portugal, Greece and the Czech Republic). If the establishment of a HMW of 60% of the median would raise the earnings of these people, it can be said that it would raise the earnings of a majority of the *working poor* in most countries.

But as said earlier, poverty is a phenomenon best studied from the perspective of households, rather than individual workers. Figure 24 shows the overall incidence of relative poverty in Europe at the household level according to the EU-SILC 2010 data used in this report. The percentage of households across Europe whose equivalised disposable income is below 60% of the median in each country is 17.5%, with the usual variation across countries (from 24% in Bulgaria to fewer than 10% in the Czech Republic). But the important point for the purposes of this report is that more than half of those households have no worker at all, as can be seen by the breakdown of the bars into grey segments (no worker in the household) and dark blue segments (at least one worker). Furthermore, the proportion of poor households with workers who are below the HMW threshold is even smaller, as can be seen by the small triangle.

Figure 24: Percentage of households under the poverty line, and proportions according to the employment status of their members, EU-SILC (%)

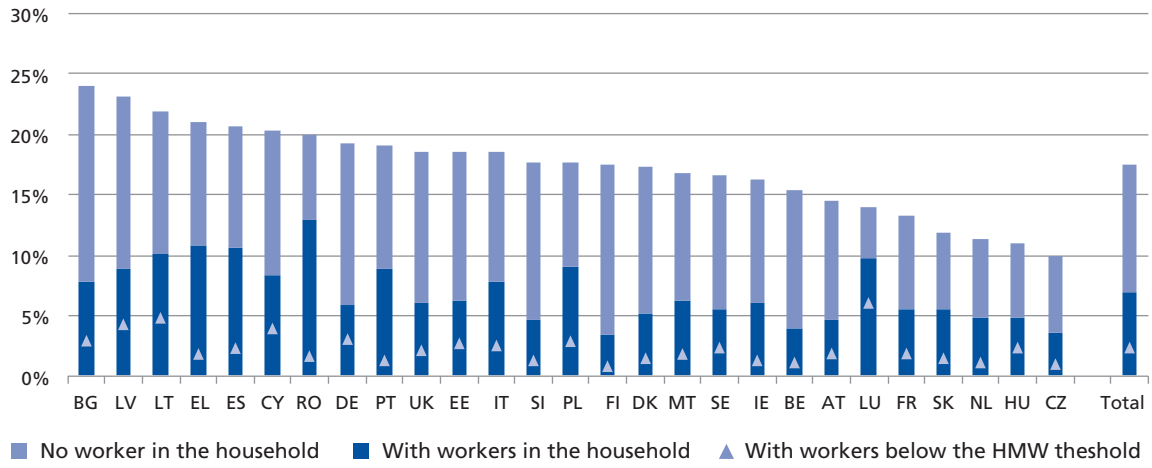
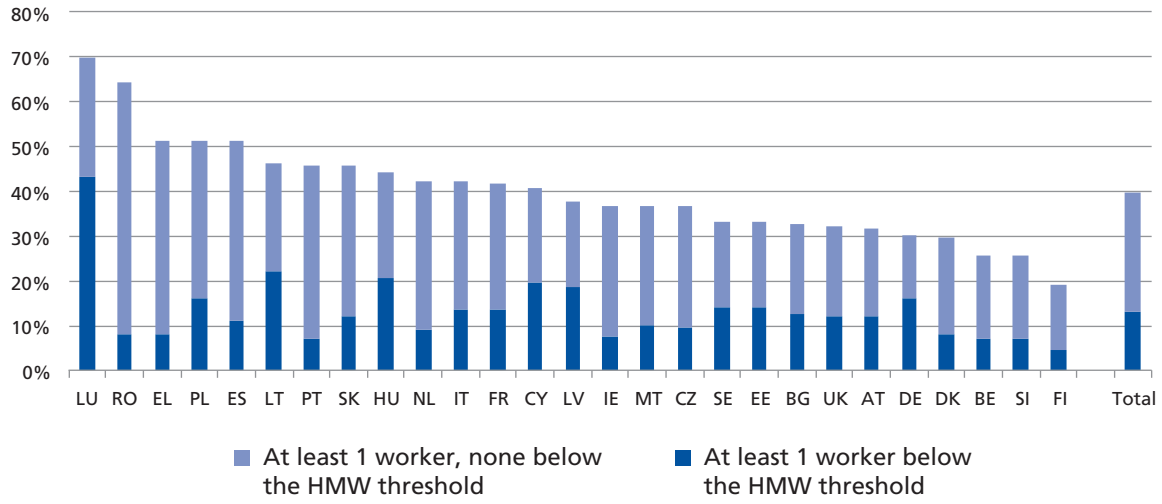


Figure 25 makes this point even more clearly by focusing on the proportion of poor households that have workers in them. As seen in Figure 25, the proportion is relatively low. For the EU as a whole, it is 39%, being only significantly above 50% in Luxembourg and Romania. So in Europe, relative poverty is mostly concentrated in non-working households – households with no wage earner. But if the percentage is further broken down into households with at least one worker below the HMW threshold, and households where all earners are above the threshold, it can be seen that most of them are in the latter category. In other words, when the households below the poverty line have workers in them, they are more likely to be above the HMW line (for the EU as a whole, the share of poor working households with no worker below the HMW line is 66%). This is because the household composition of both groups differs; workers below the household poverty line but above the individual HMW line tend to live in households that are larger and have fewer wage-earners.

Figure 25: Proportion of households in relative poverty, according to the employment status of household members, EU-SILC (%)



Finally, Figure 25 can also be used to evaluate the potential impact of the HMW on overall poverty from a household perspective. The dark blue segment of the bars shows the percentage of EU households in each country that have at least one worker below the HMW line, and therefore the share of poor households that could benefit from the discussed policy. For the EU as a whole, the percentage is 13%, and only in two countries (Luxembourg and Lithuania) is it above 20%. So it seems fair to say that the overall impact of such a policy on relative poverty at the household level would be limited (of course, not taking into account potential spillover or disemployment effects, which are unpredictable but which could completely change the picture). This is because household poverty in Europe is more related to not working at all than to having low wages; in addition, it is because even for poor working households, the composition of the household often has a larger impact than being (or not being) below the HMW threshold.

In conclusion, it can be said that although the HMW could have a positive impact on *individual-level in-work* poverty in Europe, the significance of the impact is diminished by the fact that in-work poverty is not a widespread phenomenon in Europe. Looking at poverty at the household level and expanding the focus to the general population, it could be seen that in fact, most poverty in Europe is related either to not working at all (most poor households having no wage-earner) or to the composition of the household rather than to the wage earned by its members. What this means is that the impact that the HMW would have on *household-level* relative poverty would be quite minor. Only 13% of poor households in Europe have one or more members currently earning below the HMW threshold, and could therefore potentially benefit from the policy.

What impact would the HMW have on trade and competitiveness?

An argument that is sometimes raised against minimum wage policy is that it can have a negative impact on international competitiveness and trade, because it involves an increase in unit labour costs (in other words, to the extent that the increase in pay is not compensated for by an increase in productivity of a similar magnitude). This is a very difficult issue to study empirically, because there is no data on international competitiveness and trade at the company level that could be used to evaluate the impact of the hypothesised change in the wage distribution.

What can be done, though, is a rough approximation by linking data from the SES 2010 with external data on international trade, by country and 2-digit NACE sectors. In other words, it is possible to see whether the sectors (within each country) that are more export-oriented have a larger or smaller proportion of workers below the HMW threshold, by way of a rough evaluation of the potential impact of this type of policy on trade.

Table 8: Share of employment by exports to value added and broad sectors, SES (%)

	Employment by share of exports in value added					Employment by sector
	Non-tradable	Less than 10%	10%–50%	50%–100%	More than 100%	
Primary	0.0	17.0	79.2	1.9	1.9	0.6
Construction	0.0	86.5	13.5	0.0	0.0	6.1
LTI	0.7	4.4	26.3	17.4	51.3	15.3
HTI	0.0	0.0	9.3	37.6	53.1	7.2
LKIS	60.5	33.1	5.0	1.0	0.4	31.5
KIS	16.8	43.6	24.9	3.4	11.3	16.4
Education	54.8	45.2	0.0	0.0	0.0	9.7
Health	100.0	0.0	0.0	0.0	0.0	13.5
Total	40.7	27.9	11.6	6.2	13.6	100.0

The external data on trade used here comes from the World Input–Output Database, and refer to the proportion of exports to total value added in each specific sector and country.[65, 66] Table 8 shows for – the EU as a whole – the distribution of employment according to the share of exports to value added, breaking it down by broad economic sectors.

As can be seen, two-thirds of employment is in sectors that are either non-tradable or where exports account for less than 10% of overall value added. These sectors are mostly in less knowledge-intensive services (LKIS), education and health. The next category, with a proportion of trade in value added of between 10% and 50%, accounts for 12% of employment – mostly in knowledge-intensive services (KIS) and low-technology industries (LTI). The two categories where exports account for a larger share of value added (more than 50%) account for roughly 20% of employment, and are mostly linked to high-technology industries (HTI) and LTI, and marginally to KIS.[67]

[65] The authors are very grateful to Robert Stehrer, from the Vienna Institute of International Economic Studies, for providing this data.

[66] To avoid being biased by short-term fluctuations, the average of the period 2000–2010 was used.

[67] The value of more than 100% occurs when a sector imports intermediate goods, adds some value to them, and exports them again. The value of those exports include the value of the intermediate goods, hence the seemingly strange result.

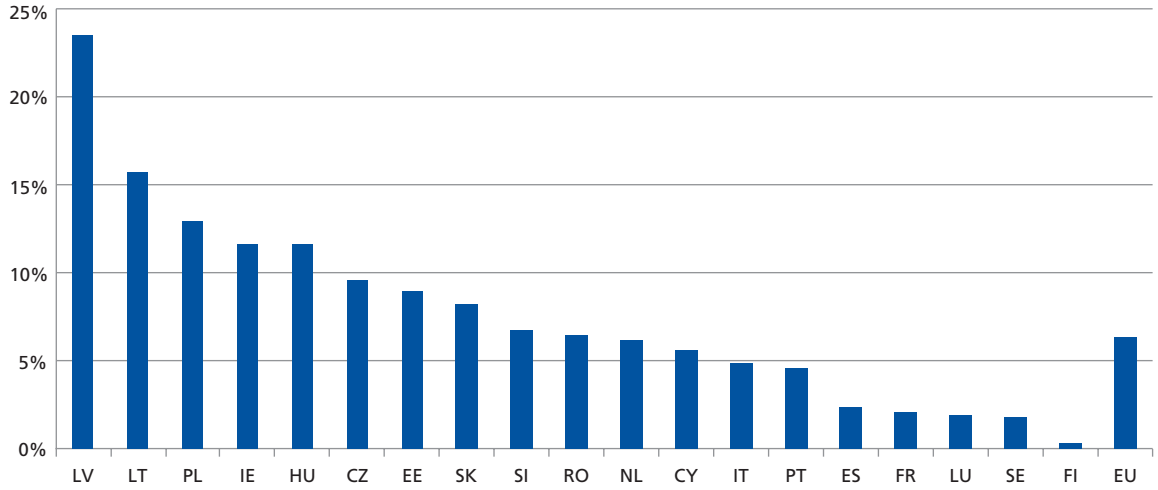
Table 9: Proportion of workers below the HMW threshold, by exports' share to value added and broad sectors, SES (%)

	Proportion of workers below the HMW threshold by share of exports in value added					
	Non-tradable	Less than 10%	10%–50%	50%–100%	More than 100%	
Primary	0.0	3.9	1.8	5.3	0.2	2.2
Construction	0.0	8.3	25.1	0.0	0.0	10.6
LTI	23.5	33.9	14.5	12.5	6.9	11.2
HTI	0.0	0.0	2.0	3.1	5.3	4.2
LKIS	14.6	12.0	9.3	9.7	5.6	13.4
KIS	6.6	13.0	3.9	2.2	2.5	8.1
Education	7.1	0.9	0.0	0.0	0.0	4.3
Health	6.8	0.0	0.0	0.0	0.0	6.8
Total	10.5	10.3	9.7	7.4	5.9	9.5

Table 9 shows the proportion of workers below the HMW threshold for the same categories of trade share in value added and broad sectors. There is a clear relationship between the export intensity of the sector and the proportion of such HMW workers. Overall, the impact of the policy would be twice as great in the non-traded as in the highly traded sectors; within each sector, the most traded sub-sectors have a consistently smaller proportion of workers below the HMW threshold. For instance, overall, 11% of workers in LTI are below the HMW threshold (which is slightly above the average), but the proportion is much larger in those subsectors with a lower trade intensity. The LTI subsectors where trade intensity in value added is below 50% (which account for roughly one third of all LTI employment) have on average 20% of employment below the HMW threshold. This compares with 13% for those LTI subsectors in which trade accounts for between 50% and 100% of value added and only 7% for the LTI subsectors in which exports are above 100% of value added. In the most export-oriented subsectors of HTI and KIS, by contrast, only between 2% and 5% of workers are below the HMW threshold.

Figure 26 shows the proportion of workers in the most export-oriented sectors (where trade accounts for more than 50% of value added) who would be affected by the HMW policy. As can be seen, only in Latvia would more than 20% of workers be affected. The equivalent figure is 15% in Lithuania, 13% in Poland, and 12% in Ireland and Hungary. In all other countries, fewer than one employee in 10 in these sectors would be affected (less than 1 in 20 in Italy, Portugal, Spain, France, Luxembourg, Sweden and Finland).

Figure 26: Proportion of workers below the HMW threshold in export-oriented sectors (%)



Note: Export-oriented sectors are here defined as those where the share of exports to value added is above 50%.

So with very few exceptions, it seems very unlikely that an HMW policy setting a threshold of 60% of the national median wage would have any impact of significance on exports and international competitiveness.

Of course, this is only a rough approximation and not based on a precise measure of trade intensity. Nor does it take into account, for instance, possible spillover effects or other indirect effects, which could change the picture significantly. Still, there are reasons to believe that the results presented in this short section may have even overestimated the potential impact of the HMW on exports and trade. The SES had to be used for this exercise because EU-SILC does not include the necessary detail in the sector variable. However, as has been repeatedly stated, SES has the significant limitation of not including companies with fewer than 10 employees, a bias that is particularly significant in this case because the vast majority of these companies are probably not export oriented and (as shown in previous sections) have a much larger proportion of workers below the HMW threshold.

Secondly, the fact that the HMW would involve a simultaneous increase in the minimum wage towards the threshold in most European countries could reduce significantly the potential impact on competitiveness at the country level, since most international trade of Member States is intra-EU trade. If the wage structure of the most important competitors increases similarly, their relative competitiveness would remain unchanged.

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Annex: SES and EU-SILC data

Table A1: Characteristics of working population affected by HMW threshold (SES, with 19 countries)

Company characteristics	Economic sector							
	Primary(a)	Construc-tion	LTI	HTI	LKIS	KIS	Education	Health
Proportion of employees affected (%) (b)	2.2	10.6	11.2	4.2	13.4	8.1	4.3	6.8
Share over affected workforce (%) (c)	0.1	6.8	18.0	3.1	44.2	13.7	4.4	9.7

	Company size (employees)					Collective bargaining coverage(d)	
	10–49	50–249	250–499	500–999	1000	No	Yes
Proportion of employees affected (%)	15.5	9.7	8.2	7.7	5.8	17.7	8.1
Share over affected workforce (%)	40.6	25.2	7.7	6.8	19.8	27.4	72.6

Personal characteristics	Sex		Age				
	Male	Female	14–29	30–39	40–49	50–59	60+
Proportion of employees affected (%)	8.1	11.1	19.1	8.1	7.3	7.0	7.9
Share over affected workforce (%)	45.2	54.8	35.3	23.8	21.4	16.1	3.5

	Education		
	Low	Medium	High
Proportion of employees affected (%)	14.5	10.6	2.3
Share over affected workforce (%)	35.2	59.3	5.5

Job characteristics	Occupation								
	Manag-ers	Profes-sionals	Techni-cians	Clerical	Service	Skilled	Craft	Plant	Elemen-tary
Proportion of employees affected (%)	1.8	1.8	3.1	6.2	17.3	20.9	12.6	9.7	25.1
Share over affected workforce (%)	1.1	3.4	5.1	8.4	28.2	0.7	15.9	10.3	26.9

	Type of contract		Type of employment	
	Permanent	Temporary	Full-time	Part-time
Proportion of employees affected (%)	7.7	22.1	8.5	14.6
Share over affected workforce (%)	68.0	32.0	73.2	26.8

Source: Structure of Earnings Survey (SES 2010); sample including 19 countries but excluding smaller companies with fewer than 10 employees.

a. Data for the primary sector exclude agriculture, typically characterised by relatively higher levels of low pay, and includes mining and quarrying (code B under NACE rev.2).

b. This refers to the ratio between the number of affected employees (earning wages below 60% of the median wage in their country) and the total number of employees in a certain category.

c. This refers to the proportion represented by the affected employees in a certain category over the total number of affected employees in Europe.

d. This indicates whether at least 51% of the employees of the local unit where the employee is working are covered by a collective pay agreement, regardless of the level at which it is negotiated. It is assumed that all companies in Sweden and Netherlands are covered by an agreement.

Table A2: Characteristics of working population affected by HMW threshold (SES, with 12 countries)

Company characteristics	Economic sector							
	Primary (a)	Construction	LTI	HTI	LKIS	KIS	Education	Health
Proportion of employees affected (b) (%)	1.7	11.0	12.8	5.5	18.0	11.2	5.6	6.1
Share over affected workforce (c) (%)	0.1	6.3	15.4	2.7	51.7	14.4	4.1	5.3

	Company size (employees)						Collective bargaining coverage(d)	
	< 10	10–49	50–249	250–499	500–999	> 1000	No	Yes
Proportion of employees affected (%)	20.8	16.9	10.5	8.1	8.1	7.0	18.4	9.8
Share over affected workforce (%)	26.6	30.7	19.0	5.4	5.0	13.2	44.9	55.1

Personal characteristics	Sex		Age				
	Male	Female	14–29	30–39	40–49	50–59	60+
Proportion of employees affected (%)	10.6	14.3	22.5	9.7	9.5	9.8	11.5
Share over affected workforce (%)	44.7	55.3	37.3	22.7	19.7	16.1	4.2

	Education		
	Low	Medium	High
Proportion of employees affected (%)	16.9	14.6	3.3
Share over affected workforce (%)	31.8	61.7	6.4

Job characteristics	Occupation									
	Armed	Managers	Professionals	Technicians	Clerical	Service	Skilled	Craft	Plant	Elementary
Proportion of employees affected (%)		5.1	2.4	4.8	9.3	22.9	22.9	12.8	12.1	26.8
Share over affected workforce (%)		2.4	3.6	5.7	8.0	33.2	0.8	13.6	9.4	23.2

	Type of contract		Type of employment	
	Permanent	temporary	Full-time	Part-time
Proportion of employees affected (%)	10.1	22.2	10.7	18.7
Share over affected workforce (%)	66.5	33.5	67.8	32.3

Source: Structure of Earnings Survey (SES 2010); sample including 12 countries with information on smaller companies of fewer than 10 employees.
a. Data for the primary sector exclude agriculture, typically characterised by relatively higher levels of low pay, and includes mining and quarrying (code B under NACE rev.2).
b. This refers to the ratio of the number of affected employees (earning wages below 60% of the median wage in their country) to the total number of employees in a certain category.
c. This refers to the share represented by the affected employees in a certain category over the total number of affected employees in Europe.
d. This indicates whether at least 51% of the employees of the local unit where the employee is working are covered by a collective pay agreement, regardless at the level at which it is negotiated. It is assumed all companies in Sweden and Netherlands are covered by an agreement.

Table A3: Proportion of employees affected by HMW threshold, by economic sector (EU-SILC) (%)

Country	Agriculture, forestry and fishing (NACE A)	Manufacturing; mining; electricity, gas and water supply (NACE B–E)	Construction (NACE F)	Retail trade; motor repairs (NACE G)	Transportation and storage (NACE H)	Accommodation and food service (NACE I)	Information and communication (NACE J)	Financial and insurance (NACE K)	Real estate; professional and administrative activities (NACE L-N)	Public administration and defence (NACE O)	Education (NACE P)	Health and social work (NACE Q)	Arts, households, extra-territorial bodies (NACE R-U)
AT	44.2	11.4	13.5	20.0	12.5	38.9	9.7	0.7	14.0	7.8	7.0	13.9	27.9
BE	16.2	5.5	8.5	14.5	4.6	29.6	4.2	3.0	9.4	6.5	9.0	12.5	21.9
BG	37.0	10.2	9.5	15.3	6.2	15.9	3.0	3.1	15.8	8.0	7.6	14.1	16.6
CY	16.7	14.7	5.6	20.2	9.2	14.8	5.5	5.0	11.6	4.3	11.4	6.8	72.1
CZ	12.9	10.8	5.2	21.7	3.3	21.0	4.0	3.8	8.7	5.4	12.2	9.7	17.1
DE	49.4	18.6	22.1	34.1	21.1	58.2	17.6	8.5	34.9	10.5	14.1	30.4	45.4
DK	17.2	7.2	18.4	17.6	4.9	38.3	5.4	1.6	10.2	6.0	5.5	5.3	21.2
EE	27.0	18.7	10.4	22.2	12.3	34.0	2.2	2.2	26.6	6.1	24.9	15.9	33.5
EL	48.4	7.2	15.6	11.2	2.4	22.3	8.9	3.7	27.0	5.0	8.1	7.4	27.7
ES	35.7	9.9	7.2	16.9	9.4	18.7	9.7	7.5	14.9	6.2	8.6	7.9	34.2
FI	17.2	2.1	7.4	10.4	3.5	17.6	3.8	0.3	10.0	3.6	5.6	5.5	8.3
FR	26.5	4.7	9.7	11.2	5.8	17.3	6.2	3.7	11.5	7.4	10.3	23.1	24.4
HU	24.8	10.8	19.8	13.2	6.8	25.7	4.0	4.5	12.7	14.5	4.1	7.0	13.6
IE	40.1	10.3	17.8	34.4	25.6	47.2	7.1	4.5	19.4	4.3	15.8	19.1	31.8
IT	44.3	9.3	19.4	15.0	6.7	32.6	8.1	4.0	19.9	4.7	6.9	9.4	37.6
LT	43.0	23.8	19.8	28.2	23.5	54.4	25.4	20.9	20.7	12.3	20.9	18.2	43.8
LU	59.8	11.8	33.9	43.8	14.6	65.5	12.8	1.6	33.1	6.5	7.0	25.8	33.0
LV	43.8	26.5	21.5	29.8	11.0	42.3	8.1	4.5	23.2	8.9	18.7	15.1	25.5
MT	10.1	11.2	18.3	17.2	9.8	24.0	4.2	4.9	15.4	3.6	7.9	8.5	27.7
NL	26.4	8.5	6.8	23.7	9.1	35.3	6.6	3.8	11.9	2.4	8.0	14.8	25.5
PL	28.9	14.4	17.3	25.3	9.0	37.0	9.4	7.7	24.7	7.3	7.9	12.9	33.7
PT	31.5	8.6	5.4	7.3	0.5	9.1	1.9	0.9	9.9	2.8	3.0	4.2	26.6
RO	18.5	10.8	7.2	13.9	4.3	20.1	1.2	0.0	12.1	8.2	7.2	10.8	27.5
SE	20.3	9.7	16.5	15.9	7.9	46.1	7.4	7.9	16.4	8.7	13.3	14.4	25.0
SI	14.5	11.9	17.5	14.1	10.1	25.0	7.1	5.0	16.0	4.7	8.5	9.8	19.2
SK	13.5	6.9	4.9	11.7	3.8	22.0	2.5	3.7	7.5	6.1	9.5	16.2	7.6
UK	31.9	9.7	14.8	30.6	13.0	51.9	5.3	7.0	15.9	5.1	22.2	19.8	33.4
EU27	32.6	11.8	13.9	22.0	10.5	33.0	9.0	6.0	19.7	7.3	12.1	18.8	33.5

Table A4: Proportion of employees affected by the HMW threshold by economic sector (SES, with 19 countries) (%)

Country	Primary	Construction	LTI	HTI	LKIS	KIS	Education	Health
CY	1.8	5.4	26.1	10.9	26.8	6.0	1.7	11.8
CZ	2.2	8.3	12.1	6.7	18.7	14.7	4.8	8.4
EE	3.4	12.7	16.0	10.8	24.1	11.8	20.3	20.2
ES	1.3	2.3	5.6	1.2	13.2	6.7	5.4	8.9
FI	0.2	0.7	0.6	0.3	5.4	1.4	2.0	2.9
FR	0.9	7.8	2.4	2.1	2.9	1.7	0.1	5.7
HU	18.2	22.4	18.3	10.1	18.4	10.2	3.1	8.8
IE	3.8	20.0	14.4	8.6	28.3	9.4	4.5	10.0
IT	2.0	7.7	7.5	3.4	11.1	5.2	0.6	5.3
LT	9.8	25.4	21.4	7.0	26.3	13.1	24.5	12.6
LU	3.4	6.0	5.2	10.2	20.9	3.9	0.5	8.7
LV	9.1	27.3	26.7	9.6	23.9	12.7	18.6	13.9
NL	0.0	5.0	8.2	3.6	25.0	14.7	2.7	6.2
PL	0.8	26.1	22.0	8.7	23.6	18.4	5.3	7.7
PT	4.4	5.8	12.6	2.3	8.6	3.9	0.8	6.5
RO	3.9	26.7	22.7	3.6	27.0	21.8	12.8	15.0
SE	0.4	3.1	2.8	0.8	7.4	6.3	5.3	5.1
SI	1.4	15.7	10.3	4.8	9.7	6.0	1.4	6.6
SK	3.1	13.6	11.9	9.7	16.9	14.1	8.7	10.2
EU	2.2	10.6	11.2	4.2	13.4	8.1	4.3	6.8

Note: Data for the primary sector exclude agriculture, typically characterised by relatively higher levels of low pay, and includes mining and quarrying (code B under NACE rev.2). The distinction between HTI and LTI is based on the intensity of research and development in the sector (ratio of R&D expenditure to value added) and the technology embodied in the purchases of intermediate and capital goods. LKIS include retail, hotels, restaurants and catering, land transport, public administration, recycling and private households. Other services such as financial intermediation, real state, water and air transport or posts and communication are included under KIS.

Figure A1: Employees affected by the HMW by sector (SES, with 19 countries)

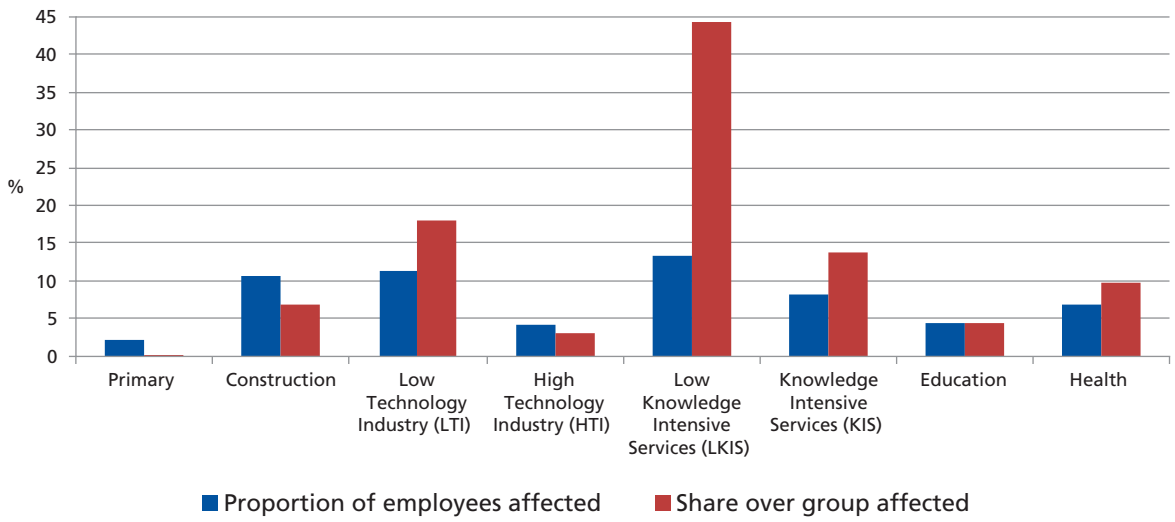

Table A5: Proportion of employees affected by the HMW threshold by company size (EU-SILC) (%)

Country	<11 employees	11–49 employees	>50 employees
AT	22.3	14.4	9.8
BE	20.8	10.5	6.1
BG	22.7	12.0	6.8
CY	28.4	9.3	5.6
CZ	19.9	10.8	7.2
DE	44.6	27.9	16.2
DK	16.4	9.4	7.2
EE	26.5	20.5	13.4
EL	18.5	9.1	3.9
ES	20.3	12.2	6.8
FI	12.1	5.1	2.3
FR	23.7	8.6	5.8
HU	19.6	12.6	5.8
IE	35.8	21.9	8.2
IT	23.6	11.2	5.9
LT	43.8	28.1	16.3
LU	38.0	26.9	14.7
LV	32.3	21.3	10.6
MT	12.7	-	-
NL	27.7	11.9	8.1
PL	30.6	18.6	9.4
PT	14.7	4.9	3.7
RO	16.3	10.4	8.0
SE	17.9	15.9	9.6
SI	20.5	12.6	9.2
SK	12.1	6.7	5.0
UK	31.3	22.1	12.4
EU27	26.5	16.0	10.2

Table A6: Proportion of employees affected by HMW threshold, by company size (SES, with 19 countries) (%)

Country	10–49 employees	50–249 employees	250–499 employees	500–999 employees	1,000 employees or more
CY	20.3	17.8	14.1	18.6	5.5
CZ	19.4	12.1	11.8	9.1	5.8
EE	23.6	15.8	12.4	15.5	17.1
ES	11.4	8.8	8.3	8.9	5.9
FI	3.8	2.5	2.4	2.3	2.4
FR	5.0	3.0	2.8	2.9	2.4
HU	23.3	12.5	11.4	10.9	6.6
IE	28.4	18.8	11.7	10.4	7.0
IT	10.4	5.3	8.0	7.0	4.6
LT	36.0	18.6	10.5	15.4	8.9

LU	11.1	8.7	11.8	12.5	6.1
LV	37.4	19.7	13.0	8.7	10.2
NL	18.9	12.6	10.1	10.2	13.6
PL	29.9	15.4	10.2	10.0	9.7
PT	11.0	5.5	4.1	5.9	5.6
RO	47.7	25.7	16.6	12.7	7.8
SE	7.3	5.7	4.8	4.3	4.4
SI	10.2	7.7	5.1	4.6	9.3
SK	17.5	11.8	12.9	12.7	9.3
EU	15.5	9.7	8.2	7.7	5.8

Table A7: Proportion of employees affected by HMW threshold, by company size (SES, with 12 countries) (%)

Country	1–9 employees	10–49 employees	50–249 employees	250–499 employees	500–999 employees	1,000 employees or more
CY	17.1	11.1	9.3	4.9	11.1	1.3
CZ	35.4	17.2	9.9	9.8	7.5	4.7
EE	41.4	20.8	13.4	9.1	12.4	13.1
ES	13.3	5.5	4.5	4.4	4.9	2.9
HU	14.1	12.7	7.9	7.4	6.9	4.4
IE	30.2	24.7	16.6	10.7	9.6	5.9
LT	45.3	31.9	15.3	8.0	11.5	5.9
LV	28.9	18.8	9.1	5.4	2.8	6.0
NL	25.8	17.1	11.1	8.8	8.7	12.0
PL	44.6	29.5	15.2	10.0	9.8	9.5
SI	13.6	7.0	5.3	2.8	2.8	5.4
SK	24.3	17.2	11.5	12.6	12.4	9.0
EU	20.8	16.9	10.5	8.1	8.1	7.0

Table A8: Proportion of employees affected by HMW threshold, by occupation (EU-SILC) (%)

Country	Managers	Profes-sionals	Techni-cians	Clerical	Service	Skilled	Craft	Plant	Elemen-tary	Armed forces
AT	1.5	6.5	9.4	13.1	27.8	27.4	14.2	10.0	23.7	12.0
BE	1.8	4.3	5.1	6.1	21.3	23.4	9.0	6.6	28.8	
BG	1.7	1.3	5.1	7.9	19.9	46.1	6.0	8.0	31.5	0.0
CY	2.2	2.5	5.2	14.4	19.9	3.4	8.7	12.3	48.0	0.0
CZ	0.7	2.3	3.8	7.7	27.4	19.5	9.7	9.9	37.9	0.0
DE	6.1	7.5	17.0	25.1	47.0	53.8	23.7	20.5	58.7	
DK	2.8	4.1	4.4	9.8	18.1	21.4	14.6	7.9	22.2	3.6
EE	6.3	6.9	12.0	17.4	34.6	41.3	14.2	18.7	56.0	12.2
EL	2.4	5.4	6.0	8.2	18.1	50.6	12.7	3.0	28.3	2.6
ES	4.8	3.1	9.3	8.3	20.4	21.0	9.9	8.7	32.2	6.0
FI	0.7	3.0	5.4	6.7	13.0	21.6	6.3	5.2	13.2	1.0
FR	2.6	6.1	5.7	8.7	23.3	29.6	8.5	9.2	31.4	3.5
HU	1.6	1.9	3.3	4.4	16.7	29.6	14.4	12.1	36.1	0.0
IE	7.1	5.2	5.7	15.0	42.5	46.7	19.1	24.5	27.4	0.0
IT	11.3	5.3	6.3	7.6	24.1	36.8	15.6	10.3	34.1	6.1

LT	6.4	12.1	20.6	23.7	41.3	42.3	28.6	24.9	44.5	0.0
LU	3.1	1.9	6.5	16.9	48.8	69.6	32.8	26.5	56.1	32.8
LV	8.7	6.1	10.3	18.4	34.4	60.5	28.2	18.7	47.4	7.8
MT	2.1	2.7	6.4	12.7	27.4	18.0	19.0	12.2	22.6	0.0
NL	3.9	3.8	10.5	15.4	35.8	22.1	9.7	9.3	40.0	12.1
PL	2.0	3.6	10.4	14.7	35.4	27.9	18.4	10.1	37.6	1.7
PT	2.7	1.2	4.4	3.1	8.2	36.3	7.5	6.5	17.8	0.8
SE	6.6	10.5	12.9	17.0	18.9	35.0	12.6	9.4	29.3	18.9
SI	6.6	5.8	7.6	9.3	18.9	15.8	13.0	13.1	26.3	4.7
SK	1.5	2.0	4.0	6.5	20.8	12.8	7.0	6.7	26.7	0.0
UK	5.5	5.1	10.9	20.8	40.5	18.3	11.1	15.9	33.5	
EU27	4.7	5.2	10.3	14.5	30.6	34.1	15.0	12.0	36.2	4.4

Table A9: Proportion of employees affected by HMW threshold, by occupation (SES, with 19 countries) (%)

Country	Managers	Professionals	Technicians	Clerical	Service	Skilled	Craft	Plant	Elementary
CY	0.0	1.2	3.4	8.2	36.9	14.3	5.1	20.3	38.0
EE	3.8	1.0	5.5	14.9	40.9	27.6	14.0	17.7	54.2
ES	0.2	1.6	2.9	8.7	17.2	7.8	3.9	6.9	19.6
FI	0.1	0.5	0.8	2.1	5.6	14.2	0.7	1.2	11.3
FR	0.2	1.8	1.1	2.8	3.8	12.9	5.5	2.5	10.3
HU	1.9	1.0	6.3	8.8	23.1	33.1	17.3	19.6	37.4
IE	6.9	3.3	8.2	13.5	29.9	19.7	15.6	21.3	33.3
IT	1.2	0.7	2.2	3.9	8.8	13.3	13.8	7.8	18.2
LT	7.0	6.5	15.7	17.2	41.0	34.9	27.6	16.4	57.4
LU	0.4	0.3	0.5	3.8	22.4	9.0	7.2	8.2	38.6
LV	12.5	4.9	12.4	14.2	33.3	35.6	25.2	24.3	41.4
NL	2.1	1.8	3.4	11.1	27.6	28.8	10.2	9.9	39.0
PL	4.0	2.4	8.3	12.1	41.1	46.3	24.4	18.1	38.1
PT	1.2	0.4	1.0	2.7	7.9	16.1	9.9	9.6	20.1
RO	3.2	2.8	8.8	11.9	47.4	45.2	18.7	16.7	51.4
SE	0.2	1.2	1.9	8.1	9.2	12.3	2.9	3.4	19.0
SI	0.4	0.3	1.6	2.7	13.6	12.8	9.9	10.1	25.2
SK	2.5	1.0	3.2	9.2	30.9	34.7	13.4	15.1	36.6
EU	1.8	1.8	3.1	6.2	17.3	20.9	12.6	9.7	25.1

Table A10: Proportion of employees affected by HMW threshold, by type of employment (EU-SILC) (%)

Country	Full-time	Part-time
AT	11.2	26.2
BE	5.0	22.7
BG	11.6	31.0
CY	14.5	36.3
CZ	10.5	23.3
DE	18.5	44.4

DK	8.2	21.1
EE	17.4	33.9
EL	8.5	39.3
ES	11.0	27.1
FI	5.8	15.9
FR	7.5	32.8
HU	10.5	38.8
IE	12.0	37.9
IT	12.0	28.3
LT	23.0	45.6
LU	21.7	31.0
LV	21.3	33.0
MT	11.4	29.9
NL	8.5	20.7
PL	15.2	33.9
PT	6.9	26.8
RO	10.4	35.2
SE	12.5	19.9
SI	11.7	41.9
SK	7.9	24.6
UK	12.1	40.5
EU27	12.2	34.8

Table A11: Proportion of employees affected by HMW threshold, by type of employment (SES, with 19 countries) (%)

Country	Full-time	Part-time
CY	15.3	42.5
CZ	11.6	24.0
EE	17.2	24.9
ES	6.5	17.5
FI	1.7	9.2
FR	3.3	2.5
HU	14.5	8.5
IE	12.4	30.7
IT	5.1	17.7
LT	19.0	34.7
LU	8.0	19.2
LV	16.9	33.1
NL	6.3	20.7
PL	16.9	21.6
PT	6.3	16.3
RO	20.0	39.7
SE	4.4	7.5
SI	7.8	17.4
SK	12.4	21.1
EU	8.5	14.6

Table A12: Proportion of employees affected by the HMW threshold by type of contract (EU-SILC)

Country	Permanent	Temporary
AT	10.7	48.9
BE	7.5	29.7
BG	9.9	31.7
CY	10.4	48.7
CZ	9.6	20.3
DE	22.3	44.8
DK	9.8	
EE	18.6	25.9
EL	5.2	25.8
ES	9.6	22.2
FI	5.7	14.7
FR	8.6	30.4
HU	9.2	31.7
IE	18.1	27.9
IT	10.6	35.3
LT	23.8	33.8
LU	20.5	54.5
LV	21.1	35.2
MT	11.5	25.7
NL	10.1	24.6
PL	11.5	30.2
PT	5.3	14.5
RO	10.0	28.8
SE	10.1	42.5
SI	11.0	30.2
SK	7.3	17.0
UK	17.6	34.3
EU-27	13.6	31.3

Table A13: Proportion of employees affected by the HMW threshold by type of contract (SES, with 19 countries)

Country	Permanent	Temporary
CY	16.5	13.5
CZ	10.0	21.5
EE	18.2	17.8
ES	7.0	14.3
FI	1.9	8.2
FR	1.6	18.9
HU	12.8	30.4
IE	14.7	21.7
IT	5.9	16.5
LT	21.3	25.8
LU	7.4	31.5

LV	20.6	26.4
NL	10.2	39.0
PL	11.1	31.8
PT	5.5	11.9
RO	20.5	26.0
SE		
SI	5.1	15.7
SK	11.4	21.3
EU	7.7	22.1

Table A14: Proportion of employees affected by HMW threshold, by gender (EU-SILC) (%)

Country	Male	Female
AT	9.9	20.4
BE	6.3	13.3
BG	9.8	14.9
CY	6.0	26.5
CZ	4.8	18.1
DE	16.2	33.8
DK	9.7	10.3
EE	11.3	25.3
EL	8.0	15.5
ES	8.6	18.2
FI	5.1	8.3
FR	7.5	16.6
HU	11.8	12.4
IE	14.2	24.8
IT	10.8	17.8
LT	19.8	27.8
LU	18.7	29.5
LV	18.9	24.8
MT	10.7	16.0
NL	7.4	20.6
PL	13.8	19.1
PT	5.5	10.3
RO	7.1	14.8
SE	11.6	16.5
SI	10.2	16.5
SK	5.3	11.6
UK	11.3	26.5
EU27	10.8	21.5

Table A15: Proportion of employees affected by HMW threshold, by gender (SES, with 19 countries) (%)

Country	Female	Male
CY	22.5	11.0
CZ	16.6	8.8
EE	23.2	11.6
ES	12.6	5.1
FI	3.5	1.6
FR	3.0	3.3
HU	14.1	13.7
IE	17.9	12.7
IT	8.2	5.8
LT	23.5	19.2
LU	15.4	6.6
LV	20.9	20.9
NL	15.0	12.5
PL	18.5	16.1
PT	9.9	4.2
RO	20.4	20.8
SE	6.7	3.7
SI	9.2	6.8
SK	15.7	10.5
EU	11.1	8.1

Table A16: Proportion of employees affected by HMW threshold, by educational level (EU-SILC) (%)

Country	Lower	Higher
AT	36.8	10.4
BE	19.3	7.2
BG	28.1	9.6
CY	25.1	13.2
CZ	31.7	9.7
DE	54.3	19.4
DK	20.1	6.7
EE	34.4	17.6
GR	19.2	9.6
ES	20.2	9.1
FI	10.9	6.1
FR	21.5	9.6
HU	29.3	9.5
IE	28.3	17.3
IT	19.1	10.9
LT	39.8	23.3
LU	44.6	13.2
LV	42.0	19.5

MT	19.0	6.8
NL	24.8	10.9
PL	30.2	15.5
PT	9.8	3.9
RO	26.3	8.7
SE	12.3	14.2
SI	23.6	11.6
SK	21.1	8.0
UK	29.0	17.1
EU27	26.5	13.3

Table A17: Proportion of employees affected by HMW threshold, by educational level (SES, with 19 countries) (%)

Country	Lower	Higher
CY	27.7	14.6
CZ	29.3	10.6
EE	35.1	16.9
ES	12.9	5.3
FI	5.5	2.3
FR	5.5	2.6
HU	29.4	11.2
IE	23.0	13.8
IT	11.5	3.8
LT	36.9	20.9
LU	25.1	4.6
LV	33.3	19.9
NL	29.6	7.8
PL	32.1	16.3
PT	11.0	2.2
RO	40.7	19.2
SE	7.1	5.0
SI	19.8	5.9
SK	36.0	11.2
EU	14.5	8.1

Table A18: Proportion of employees affected by HMW threshold, by age (EU-SILC) (%)

Country	14–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+
AT	79.4	21.0	12.8	8.7	11.1	9.7	9.7	11.9	8.7	2.1	25.2
BE	59.0	19.0	10.9	7.3	7.1	7.0	10.4	6.3	11.1	11.7	55.4
BG	28.9	16.5	11.3	11.3	10.8	9.6	10.1	13.1	11.7	20.9	35.8
CY	53.6	26.8	21.0	10.8	15.6	15.2	12.8	11.4	12.6	11.2	28.0
CZ	25.1	16.5	8.3	9.5	9.4	8.9	12.1	13.2	12.4	8.4	19.7
DE	98.0	64.3	22.5	19.5	19.6	16.4	16.3	17.0	22.7	22.7	57.2
DK	80.3	41.2	19.0	11.4	4.7	5.1	3.9	5.4	6.6	7.8	24.0
EE	37.2	25.6	12.5	10.9	15.7	14.1	18.0	21.9	25.6	25.7	45.8

EL	29.6	46.0	18.8	9.1	8.8	6.6	7.6	6.2	8.2	6.8	6.0
ES	39.4	28.2	18.5	10.8	11.9	11.1	9.7	9.1	11.2	15.2	33.6
FI	44.0	23.4	10.6	5.8	4.3	2.9	4.5	5.7	4.1	4.0	5.5
FR	62.9	26.1	11.6	8.1	8.8	10.3	9.4	11.4	11.1	18.8	18.1
HU	50.6	19.5	15.0	10.8	10.8	12.9	11.1	9.7	8.9	15.3	10.5
IE	57.7	44.1	17.6	19.8	13.7	13.4	13.9	13.6	12.8	26.6	53.4
IT	57.9	36.4	18.5	13.6	12.5	12.7	10.1	9.8	9.5	11.3	13.9
LT	52.9	36.2	27.6	27.2	25.0	20.5	19.9	22.6	20.7	14.9	34.2
LU	87.6	49.2	32.5	21.6	20.7	19.1	20.7	16.6	14.7	15.7	5.6
LV	44.9	29.9	20.8	22.9	20.2	22.2	23.2	20.2	20.8	11.4	23.0
MT	51.5	21.7	12.0	10.4	8.3	5.9	7.9	9.5	8.9	10.8	15.8
NL	93.3	38.0	14.5	8.4	12.7	11.3	11.7	10.7	11.4	13.2	0.0
PL	65.1	32.8	18.7	12.9	12.4	13.7	15.3	12.0	15.0	19.9	29.9
PT	32.4	15.2	7.0	5.5	5.5	10.1	4.7	8.1	8.7	9.7	14.5
RO	20.7	16.5	8.1	11.7	10.5	10.6	10.1	7.6	10.9	4.3	47.7
SE	81.2	38.9	24.6	18.0	11.5	7.1	6.4	5.1	6.7	4.9	19.6
SI	38.9	24.9	20.4	16.8	10.1	11.1	9.5	9.2	12.3	11.3	4.4
SK	41.1	13.2	5.6	7.6	7.6	8.9	7.5	8.9	9.0	8.3	21.1
UK	77.9	37.0	16.4	12.5	17.3	13.2	12.2	15.4	17.2	24.0	43.6
EU27	80.5	35.7	16.2	12.4	12.9	12.4	11.7	12.3	14.4	18.0	36.1

Table A19: Proportion of employees affected by HMW threshold, by age (SES, with 19 countries) (%)

Country	14–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+
CY	80.3	41.6	18.1	12.5	14.3	13.1	14.5	11.8	9.7	16.6	21.3
CZ	37.9	19.6	10.3	10.0	10.9	11.7	10.9	13.5	11.9	12.4	24.7
EE	41.7	20.5	10.2	11.1	13.8	15.2	17.2	21.0	23.6	27.2	36.7
ES	35.9	22.7	11.6	8.4	7.8	7.6	6.9	6.5	5.3	5.5	6.4
FI	33.9	10.7	3.2	2.0	1.8	1.5	1.5	1.6	1.8	1.7	3.2
FR	85.5	21.1	4.6	1.8	1.7	1.3	1.3	1.5	1.3	1.4	1.5
HU	39.2	25.5	15.2	14.4	14.0	13.9	12.4	12.4	11.6	11.1	10.1
IE	30.9	45.3	25.6	16.0	11.7	11.2	10.9	10.4	12.0	14.1	25.7
IT	35.6	19.8	11.5	7.5	6.5	5.9	5.2	4.8	4.4	6.3	6.9
LT	57.0	28.7	17.1	20.0	19.7	22.9	19.3	21.9	23.6	22.3	30.7
LU	76.8	28.0	11.7	8.5	6.8	7.0	6.6	5.9	5.7	10.4	17.0
LV	37.2	23.8	19.0	19.2	19.7	21.0	21.5	22.4	21.9	17.6	20.9
NL	89.4	42.9	10.0	4.1	3.9	4.3	4.4	3.6	3.6	4.8	24.0
PL	50.4	31.1	18.3	15.6	15.9	15.3	15.3	16.1	16.5	21.8	26.0
PT	26.8	15.3	7.2	4.9	6.0	7.0	6.1	6.1	5.2	6.0	10.8
RO	47.2	31.7	23.4	22.9	21.6	19.9	18.7	17.4	13.6	13.7	27.6
SE	49.2	22.6	8.3	5.0	3.2	2.3	1.8	1.7	1.4	1.5	1.8
SI	34.1	18.0	9.9	7.0	7.4	8.2	7.4	7.1	4.7	4.6	0.9
SK	31.9	19.7	12.2	11.4	12.2	13.0	12.9	13.1	12.5	12.3	20.1
EU	70.6	26.6	11.1	8.3	7.9	7.6	6.9	7.3	6.5	6.6	16.0

Table A20: Estimation results using EU-SILC for EU27

Variables	Odds ratios		Odds ratios		Odds ratios		Odds ratios	
Personal-related variables								
Sex (Ref: Male)								
Female	2.49	**	2.29	**	1.78	**	1.84	**
Age (Ref: above 30)								
Young (15–29)	2.92	**	2.73	**	2.44	**	2.44	**
Old (>55)	1.30	**	1.34	**	1.29	**	1.17	**
Education (Ref: medium or high education)								
Low-educated	2.58	**	2.20	**	1.44	**	1.79	**
Company-related variables								
Firm's size (Ref: 11–49 employees)								
10 or fewer employees			1.46	**	1.38	**	1.55	**
50 or more employees			0.67	**	0.77	**	0.67	**
Sector (Ref: Financial)								**
Agriculture			3.59	**	2.06	**	2.07	**
Manufacture			1.35	**	1.27	**	1.11	
Construction			1.45	**	1.25	**	1.09	
Commerce			1.90	**	1.53	**	1.33	**
Transportation			1.24	**	1.12		0.95	
Horeca			2.66	**	1.74	**	1.65	**
Communication			1.04		1.33	**	1.24	
Real estate			1.85	**	1.67	**	1.43	**
Public administration			0.80	**	0.81	**	0.78	**
Education			1.15	*	1.31	**	1.21	*
Health			1.71	**	1.41	**	1.29	**
Arts and entertainment			3.05	**	2.26	**	2.07	**
Job-related variables								
Type employment (Ref: full-time)								
Part-time					2.49	**	2.06	**
Work experience (Ref: 2 or more years)								
Up to 1 year					2.20	**	2.04	**
Supervisory responsibility (Ref: No).								
Supervisory responsibility					0.43	**	0.43	**
Type of contract (Ref: permanent)								
Temporary contract					1.72	**	2.11	**
Occupation (Ref: Technicians)								
Armed forces					0.92		1.51	
Elementary					3.02	**	3.74	**
Operators					1.50	**	1.81	**
Craft					1.79	**	1.99	**
Skilled					2.99	**	3.23	**
Service					2.10	**	2.42	**
Clerical					1.16	**	1.30	**
Professionals					0.52	**	0.59	**
Managers					0.82	*	0.81	*

Countries (Ref: France)								
Austria							1.40	**
Belgium							0.87	
Bulgaria							1.12	
Cyprus							1.25	**
Czech Republic							1.29	**
Germany							3.60	**
Denmark							1.18	*
Estonia							2.56	**
Spain							0.83	**
Finland							0.68	**
Greece							0.80	*
Hungary							1.15	*
Ireland							1.75	**
Italy							1.09	
Lithuania							4.43	**
Luxembourg							2.78	**
Latvia							2.57	**
Malta							0.63	**
Netherlands							1.58	**
Poland							1.64	**
Portugal							0.35	**
Romania							2.16	**
Sweden							1.68	**
Slovenia							1.79	**
Slovakia							0.80	**
UK							2.40	**
Constant	0.07	**	0.05	**	0.04	**	0.02	**
Pseudo R2	0.08		0.11		0.19		0.23	
Observations	180505		180505		180505		180505	

*Note: ** indicates coefficients statistically significant at the 1% level, while * indicates coefficients statistically significant at the 5% level.*

Table A21: Estimation results using EU-SILC for countries with collectively agreed sector-specific minimum wages: Finland, Austria, Germany, Sweden, Denmark and Italy

Variables	Odds ratios		Odds ratios		Odds ratios		Odds ratios	
Personal-related variables								
Sex (Ref: Male)								
Female	2.67	**	2.41	**	1.77	**	1.76	**
Age (Ref: above 30)								
young (15–29)	4.28	**	4.27	**	4.16	**	4.08	**
Old (>55)	1.17	*	1.27	**	1.27	**	1.15	*
Education (Ref: medium or high education)								
Low-educated	2.88	**	2.43	**	1.68	**	2.10	**

Company-related variables								
Firm's size (Ref: 11–49 employees)								
10 or less employees			1.35	**	1.31	**	1.57	**
50 or more employees			0.69		0.80		0.65	
Sector (Ref: Financial)								
Agriculture			6.28	**	2.81	**	2.72	**
Manufacture			1.87		1.64		1.25	
Construction			2.28	**	1.87	**	1.40	**
Commerce			2.86		2.24		1.61	
Transportation			2.19	**	1.81	**	1.32	*
Horeca			4.98	**	3.32	**	2.66	**
Communication			1.94	**	2.32	**	1.71	**
Real estate			3.17	**	2.64	**	1.92	**
Public administration			1.19		1.31	*	0.96	
Education			1.10		1.16		0.98	
Health			2.44	**	2.19	**	1.59	**
Arts and entertainment			5.19	**	3.68	**	2.80	**
Job-related variables								
Type employment (Ref: full-time)								
Part-time					2.53	**	2.03	**
Work experience (Ref: 2 or more years)								
Up to 1 year					5.42	**	4.81	**
Supervisory responsibility (Ref: No).								**
Supervisory responsibility					0.35	**	0.35	**
Type of contract (Ref: permanent)								
Temporary contract					2.04	**	2.24	**
Occupation (Ref: Technicians)								
Armed forces					1.25		2.82	*
Elementary					3.44	**	4.05	**
Operators					1.67	**	1.87	**
Craft					1.86	**	1.91	**
Skilled					4.10	**	3.80	**
Service					1.94	**	2.16	**
Clerical					1.27	**	1.33	**
Professionals					0.65	**	0.68	**
Managers					0.97		0.97	
Countries (Ref: Finland)								
Austria							1.84	**
Germany							5.21	**
Denmark							1.84	**
Italy							1.44	**
Sweden							2.64	**
Constant	0.08	**	0.04	**	0.03	**	0.01	**
Pseudo R2	0.12		0.16		0.24		0.27	
Observations	50463		50463		50463		50463	

*Note: "**" indicates coefficients statistically significant at the 1% level, while "*" indicates coefficients statistically significant at the 5% level.*

Table A22: Estimation results using EU-SILC for those countries with statutory national minimum wages

Variables	Odds ratios		Odds ratios		Odds ratios		Odds ratios	
Personal-related variables								
Sex (Ref: Male)								
Female	2.46	**	2.26	**	1.81	**	1.86	**
Age (Ref: above 30)								
Young (15–29)	2.34	**	2.12	**	1.71	**	1.71	**
Old (>55)	1.39	**	1.41	**	1.35	**	1.22	**
Education (Ref: medium or high education)								
Low-educated	2.26	**	1.91	**	1.14	**	1.37	**
Company-related variables								
Firm's size (Ref: 11–49 employees)								
10 or less employees			1.48	**	1.40	**	1.51	**
50 or more employees			0.62	**	0.69	**	0.65	**
Sector (Ref: Financial)								
Agriculture			2.90	**	1.80	**	1.69	**
Manufacture			1.08		1.02		0.97	
Construction			1.13		0.99		0.91	
Commerce			1.53	**	1.18	*	1.11	
Transportation			0.89		0.79	*	0.72	**
Horeca			2.00	**	1.20		1.21	
Communication			0.66	**	0.84		0.90	
Real state			1.27	**	1.15		1.09	
Public administration			0.65	**	0.61	**	0.64	**
Education			1.12		1.25	**	1.12	
Health			1.39	**	1.04		1.07	
Arts and entertainment			2.27	**	1.60	**	1.58	**
Job-related variables								
Type employment (Ref: full-time)								
Part-time					2.45	**	2.32	**
Work experience (Ref: 2 or more years)								
Up to 1 year					2.06	**	1.80	**
Supervisory responsibility (Ref: No).								
Supervisory responsibility					0.50	**	0.50	**
Type of contract (Ref: permanent)								
Temporary contract					1.74	**	2.10	**
Occupation (Ref: Technicians)								
Armed forces					1.00		1.31	
Elementary					3.29	**	3.72	**
Operators					1.58	**	1.83	**
Craft					1.67	**	1.92	**
Skilled					2.48	**	2.99	**
Service					2.40	**	2.57	**
Clerical					1.10		1.24	**
Professionals					0.44	**	0.51	**

Managers					0.76	*	0.70	**
Countries (Ref: France)								
Belgium							0.99	
Bulgaria							1.28	**
Cyprus							1.49	**
Czech Republic							1.41	
Estonia							2.81	**
Spain							1.01	
Greece							0.95	
Hungary							1.29	**
Ireland							1.92	**
Lithuania							4.80	**
Luxembourg							3.25	**
Latvia							2.86	**
Malta							0.87	
Netherlands							1.54	**
Poland							1.84	**
Romania							2.42	**
Slovenia							1.99	**
Slovakia							0.89	
UK							2.54	**
Constant	0.06	**	0.06	**	0.05	**	0.03	**
Pseudo R2	0.0586		0.0969		0.183		0.2015	
Observations	130042		130042		130042		130042	

*Note: ** indicates coefficients statistically significant at the 1% level, while * indicates coefficients statistically significant at the 5% level.*

Table A23: Estimation results using SES for the 19 European countries for which data are available

Variables	Odds ratios		Odds ratios		Odds ratios		Odds ratios	
Personal-related variables								
Sex (Ref: Male)								
Female	1.50	**	1.69	**	1.63	**	1.61	**
Age (Ref: above 30)								
Young (15–29)	3.03	**	2.72	**	1.96	**	1.94	**
Education (Ref: medium or high education)								
Low-educated	2.10	**	2.08	**	1.16	**	1.64	**
Company-related variables								
Firm's size (Ref: 11–49 employees)								
10–49 employees			1.44	**	1.52	**	1.73	**
250–499 employees			0.87	**	0.85	**	0.79	**
500–999 employees			0.85	**	0.83	**	0.79	**
1000 or more employees			0.72	**	0.70	**	0.75	**
Sector (Ref: Knowledge intensive services, KIS)								
Primary			0.40	**	0.28	**	0.20	**

Construction			1.15	*	0.72	**	0.64	**
Low technology industry (LTI)			1.25	**	0.90	*	0.75	**
High technology industry (HTI)			0.53	**	0.46	**	0.38	**
Low Knowledge intensive services (LKIS)			1.41	**	0.89	**	0.90	**
health			0.77	**	0.86	*	1.15	*
educsect			1.07		0.73	**	1.28	**
Ownership (ref: private)								
Public			0.49	**	0.62	**	0.36	**
Collective pay agreements (Ref: not covered)								
Covered			0.37	**	0.38	**	0.79	**
Job-related variables								
Type employment (Ref: full-time)								
Part-time					1.30	**	1.36	**
Seniority (Ref: 2 or more years)								
Up to one year					1.36	**	1.59	**
Supervisory responsibility (Ref: No).								
Supervisory responsibility					0.39	**	0.55	**
Type of contract (Ref: permanent)								
Temporary contract					2.08	**	2.13	**
Occupation (Ref: Technicians)								
Elementary					5.17	**	6.40	**
Operators					2.27	**	2.80	**
Craft					2.76	**	3.38	**
Service					3.19	**	3.92	**
Clerical					1.11	*	1.64	**
Professionals					0.37	**	0.43	**
Managers					0.49	**	0.55	**
Countries (Ref: France)								
Cyprus							1.00	
Czech Republic							0.13	
Estonia							1.50	**
Spain							0.36	**
Finland							0.18	**
Italy							0.41	**
Lithuania							2.26	**
Luxembourg							0.54	**
Latvia							1.87	**
Poland							1.38	**
Portugal							0.23	**
Romania							2.69	**
Sweden							0.42	**
Slovenia							0.52	**
Slovakia							1.02	
Pseudo R2	0.05	**	0.11	**	0.19	**	0.25	**
Observations	5775453		5775453		5775453		5775453	

*Note: ** indicates coefficients statistically significant at the 1% level, while * indicates coefficients statistically significant at the 5% level*

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The issue of wages has attracted particular attention at European level since the onset of the economic crisis. Changes in economic governance, notably within the European Semester, have prompted discussions on wage-setting mechanisms. While, overall, wage-bargaining regimes have remained relatively stable over time in many countries, the most substantial changes were seen in Member States facing more difficult economic circumstances. This report provides comparative time series on wage-bargaining outcomes across the EU Member States and Norway, discussing pay developments against the background of different wage-bargaining regimes and looks into the link between pay and productivity developments. It also investigates the different systems and levels of minimum wages in Europe at present, carrying out an accounting exercise through a hypothetical scenario of a minimum wage set at 60% of the median national wage (with some alternative scenarios as well for comparison) in order to benchmark and evaluate minimum wage levels and systems in Europe, and to discuss the possibilities and difficulties of coordination in this matter.

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